

## Working Capital Management and Systems Disruption during the COVID-19 Pandemic: Evidence from South Africa

By Miemie Struwig<sup>\*</sup> & Storm Watson<sup>±</sup>

*This study provides a critical analysis of working capital management (WCM) research in South Africa during the COVID-19 pandemic. The COVID-19 pandemic has disrupted every aspect of human life, from health to the economic system. Businesses need to respond swiftly to the extreme changes, and adopt a proactive approach to working capital, to ensure a greater chance of successfully overcoming the many challenges. This research uses five stages to investigate WCM research and critically analyses and proposes ways to deal with WCM during each stage. The first stage deals with the global recession of 2008 and thereafter. The second involves managing working capital during the pandemic; thirdly during extreme change; and fourthly post-pandemic. It concludes with managing working capital in the new economic order. Samples of research outputs for each stage were used for critical analysis through a systematic analysis process. The results show that research into WCM after the 2008 global recession mostly focused on how businesses could mitigate the impact of the crisis itself and buffer themselves against future crises. During pandemics, there are three key steps that should be considered by management teams who seek to stabilise their cash positions. When experiencing extreme changes, such as economic downturns and sudden demand or supply shocks, businesses need to cushion them. Post pandemic working capital research focus is on demand volatility and workforce safety. Finally, in a new economic order, digital transformation shifts as well as effective cash management necessary to alleviate volatile supply chains, are important. The global coronavirus pandemic has produced a humanitarian crisis unlike anything before, with sudden and dramatic disruptions across all industries and markets. This research produces some insight into how to manage the short-term finances of a business during these phases.*

**Keywords:** working capital management, systematic review, COVID-19 pandemic, extreme change, new economic order

### Introduction

The coronavirus disease of 2019 (COVID-19) pandemic has disrupted every aspect of human life, from health to the economic system. Businesses need to respond swiftly to the extreme changes and adopt a proactive approach to working capital to ensure a greater chance of successfully overcoming the many challenges. This study provides a critical analysis of working capital management (WCM)

---

<sup>\*</sup>Professor, Nelson Mandela University, South Africa.

<sup>±</sup>Junior Lecturer, Nelson Mandela University, South Africa.

research in South Africa during the COVID-19 pandemic. Efficient WCM involves planning and controlling current assets and current liabilities in a manner that eliminates the risk of inability to meet short-term obligations, whilst also avoiding excessive investment in assets at the same time.

On the economic front, COVID-19 has acted as an accelerant of major trends already in progress. Policymakers can only make assumptions about the different paths that the future could take, based on the economic theories at their disposal (Kapoor and Dasher 2020).

The global coronavirus pandemic has produced a humanitarian crisis unlike anything experienced before, with sudden and dramatic disruptions across all industries and markets. Businesses must respond moment-to-moment as they receive insights with each news cycle. They must also be prepared to act swiftly and aggressively to counter each disruption and protect their most valuable assets, whilst anticipating unpredictable future changes.

To ensure business continuity during the economic downturn, businesses are looking to optimise their cash management and working capital processes. The purpose of this article is thus to critically analyse WCM research to identify ways in which business can manage their working capital during the pandemic.

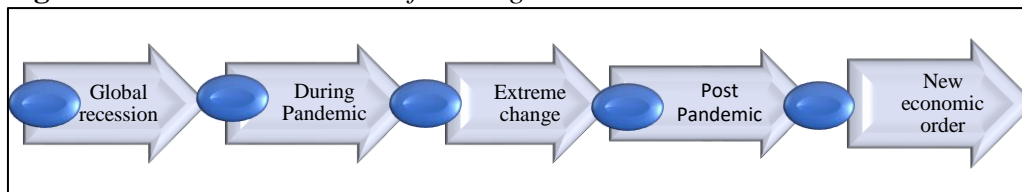
## Literature Overview

Management of working capital is important for the success of any business (Louw et al. 2019, p. 3, Kwenda and Holden 2014, p. 569). The adequacy of current assets, together with their efficient handling, influence the survival of the business and, as such, they are vital to the effective running of the business (Ismail 2017, p. 12, Kasozi 2017, p. 337).

Working capital deals with the short-term financing of the business; that is current assets and current liabilities. It is thus a measure of the liquidity of the business. The goal of effective WCM is to ensure that a business has adequate and ready access to funds necessary for day-to-day operating expenses, whilst also ensuring that assets are invested in the most productive way (Norton et al. 2011).

There are five phases that have influenced WCM during the past decade, as demonstrated in Figure 1, and these are discussed in the following paragraphs.

**Figure 1.** *The Various Phases Influencing WCM*



Source: Own compilation.

*Phase 1: The Global Recession*

The 2008 financial crisis was the worst economic disaster since the Great Depression of 1929 (Kosakowski 2017). The root cause of the financial crisis cannot be traced to one single event or reason. Rather, it resulted through a sequence of events, each with its own triggering mechanism that led to near collapse of the global banking system. The lack of efficient and effective WCM possibly played a role in nearly all of these events.

Van Wyk et al. (2015) found that the financial crisis of 2008 exposed critical failures in the analysis and understanding of the South African financial system. The crisis influenced global and local regulators and policymakers to focus on addressing the vulnerabilities in the financial system. Van Wyk et al. (2015) further found that the vulnerabilities stemmed from reliance on short-term wholesale funding, excessive leverage, liquidity traps, balance sheet mismatches, interconnectedness and opacity.

Madubeko (2010) argues that South Africa has been defined by many scholars as the economic powerhouse of Africa, leading the continent in terms of industrial output and mineral resource production. South Africa also boasts rich natural resources, well-developed commodities and a stock exchange that can compete with the best in the world (Madubeko 2010).

Akinsola (2016) identifies that the financial crisis affected the consumption and spending of consumers, which led to consumers being more dependent on loans and increasing debts. This led to an increase in non-performing loans, which are “loans that are a past debt that is unpaid in the present and unpaid for more than 90 days from date that debt or loan was incurred” (Akinsola 2016).

The critical failures exposed during the 2008 financial crisis caused a surge in research in the following years as scholars attempted to understand the financial system and to propose ideas on how to minimise the possibility of another financial crisis of this magnitude.

*Phase 2: During Pandemic*

Overall, the pandemic has caused a rethink of economic institutions and mankind’s approach towards the environment. Hence, it has also propelled a reimagination of the role of the market and the State. Society may come out of this catastrophe with some positive changes, but it may also set in motion some negative practices (Zimon and Tarighi 2021, p. 2). The task for nations would be to navigate these opportunities and challenges, and this may herald the beginning of a new economic order.

The COVID-19 pandemic has highlighted ineffective ways in which businesses manage working capital. As a result, there were calls for a greater emphasis on the management of WCM during extreme changes (such as during pandemics), and in the new economic order which the World is facing.

*Phase 3: Extreme Change*

Goldsworthy and McFarland (2018) explain that the phrase “extreme change” refers to not only a disruptive change, but also to any form of one or more large scale, complex, change efforts that test the ability of the business to respond. Krell (2020) equates extreme change to occurrences such as economic downturns and sudden demand or supply shocks. Managing extreme change entails more than simply surviving change. It entails developing the ability to adapt to change over time as well as learning how to deal with an uncertain future (Goldsworthy and McFarland 2018).

*Phase 4: Post Pandemic*

COVID-19 has a clear short-term impact. Almost every aspect of commerce has been impacted, from global supply chains to financial markets. Finance functions have had to rapidly evolve in order to keep up with the rate of change (Fenton 2020). However, thriving beyond the “now” necessitates accepting the rapid speed with which this need to transform must be met.

While the impact on one nation’s economy can have a resounding impact on other nations, the impact of the pandemic on each nation individually has had a manifold impact on the global economy at large. Therefore, no past financial crises can adequately guide and predict the post-pandemic economy (Kapoor and Dasher 2020). Nevertheless, financial crises in the past signalled a fundamental change in economic thinking. The post-World War 2 economic thinking was largely inspired by John Maynard Keynes’ general theory (Kwenda 2014). Post-pandemic economic thinking will need to undergo a similar fundamental change.

*Phase 5: New Economic Order*

The new economic order seeks the restructuring of the pattern of international trade and the flow of capital and technology, among others, so that their benefits could be more equitably distributed to the developing countries (Chukwu 2018).

The COVID-19 pandemic has highlighted errors in the manner in which businesses managed working capital and, as a result, there were calls for a greater emphasis to be placed on the management of working capital management during extreme changes, during pandemics and in the new economic order with which the globe is being faced.

These phases as shown in Figure 1 will be used to critically analyse WCM research in South Africa.

**Methodology**

The aim of the study was to identify pointers for current businesses to manage their working capital.

Critical analysis of business research investigated WCM during five phases, namely:

- Global recession and thereafter.
- During the pandemic.
- Extreme change.
- Post Pandemic.
- New Economic order.

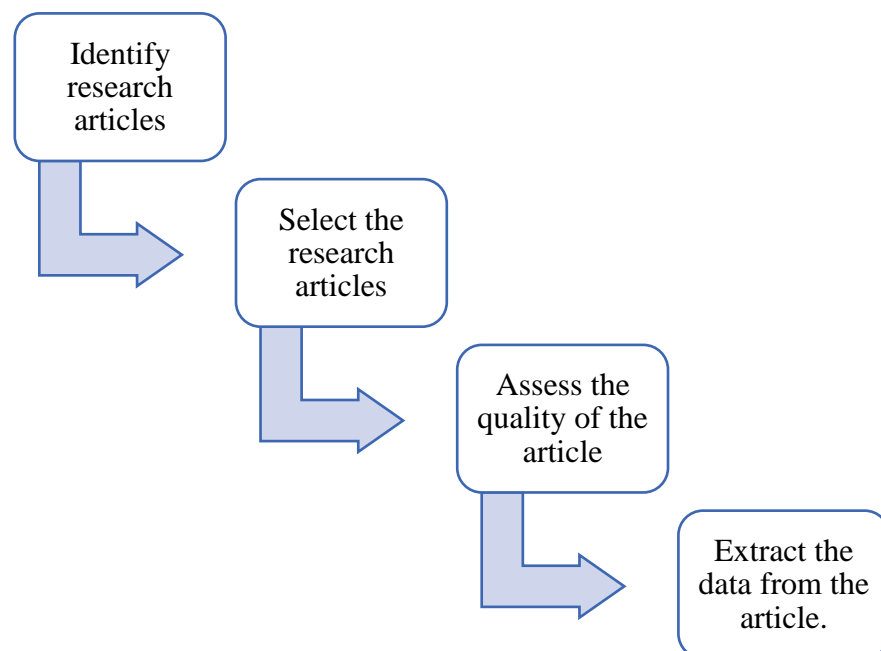
Business research articles during these five phases were critically analysed and reviewed. An inductive data analysis technique was used to show the purpose and main findings of during the different phases.

The following steps were followed in the research design.

- Identify research articles. Three online databases were searched to find relevant articles using specific search words and criteria.
- Selecting the research articles. From eighty articles extracted only fourteen were found to be useful to the study.
- Assessing the quality of the article. The quality of the studies was determined by analysing the abstracts and citations.
- Extracting the data from the article. Data relevant to the study was extracted in a structured and logical manner.

The steps outlined are illustrated in Figure 2.

**Figure 2.** *Steps in the Research Design*



Source: Authors' own compilation.

Fourteen research outputs were used in the review and were sorted according to one of the five phases identified in literature. These were then critically analysed to produce the results. Table 1 outlines the number of research outputs that were critically analysed for each of the phases.

**Table 1.** *The Number of Research Outputs that Were Critically Analysed in Each of the Phases*

Phase	Number of outputs critically analysed
Phase 1: Global recession	4
Phase 2: During Pandemic	3
Phase 3: Extreme change	3
Phase 4: Post Pandemic	2
Phase 5: New Economic order	2
<b>Total</b>	<b>14</b>

Source: From results of the survey.

## Results

### *Results of WCM During Global Recession and Thereafter*

Since the dawn of the 2008 global financial crisis and worldwide economic depression, research into WCM has increased substantially, involving involved debates between financial managers and academics in the field regarding the correct method of managing a business's working capital (Kayani et al. 2019, p. 353, Singh and Kumar 2013, p. 174).

In South Africa, financial managers have focused on reducing their investment in inventory and trade receivables to ensure that working capital levels reflected the new economic reality (Oseifuah 2018, p. 3). Various businesses such as Barloworld, New Clicks and AECI generated positive cash flows amounting to billions of Rands as a result of reducing their investment into working capital (Correia 2019, p. 11). During the economy recovery between 2010 and 2013, businesses increased their investment in working capital. However, between 2016 and 2018, as the South African economy experienced low economic growth and a difficult operating environment, businesses again put their focus on reducing investments in working capital in an attempt to curb the lower demand and generate positive cash flow (Correia 2019, p. 11).

Louw et al. (2016, p. 546) found that the impact of WCM on financial performance, specifically related to profitability and liquidity, has been the subject of numerous studies. Louw et al. (2016, p. 546) noted that the increase in competition amongst businesses has caused extraordinary pressure on profit margins in a time when business failures tend to increase, and this has resulted in the need for a new perspective on WCM in businesses.

Research into WCM after the 2008 global recession mostly focused on how businesses could mitigate the impact of the crisis itself and buffer themselves against future crises. Some of the most noteworthy research outputs, and Van Wyk et al.'s (2015) findings are outlined in Table 2.

**Table 2.** *Research Conducted into WCM After the 2008 Global Recession*

<b>Author/s</b>	<b>Purpose</b>	<b>Findings</b>
Simon et al. (2017)	To evaluate investments in WCM during and after the financial crisis of 2007-2008 to examine the effect of financial crisis on WCM and the performance of firms in Nigeria.	Investment in WCM was significantly affected during the financial crisis, which consequently led to low performance.
Haron and Nomran (2016)	To evaluate the determinants of WCM before, during and after the global financial crisis of 2007-2008, using 57 Malaysian firms.	Profitability, debt, sales and firm size significantly affected WCM before and during the financial crisis of 2008.
Ramiah et al. (2014)	To document the measures taken by Australian corporate treasurers in the areas of cash, inventory, accounts receivable, accounts payable and risk management to survive the global financial crisis.	More than half of the participants in the survey altered their WCM practices during the crisis. Capital expenditure was curtailed, as they aimed at preserving their cash levels while reducing inventory levels. Credit worthiness of institutions became more important, and there was a general decline in credit availability. Australian working capital managers exhibited behavioural biases, particularly overconfidence.
Oseifuah (2018)	To analyse the effect of the 2008/2009 global financial crisis on the nexus in South Africa between WCM and its separate components (inventory conversion period (ICP), receivables conversion period (RCP) and payables deferral period (PDP) and profitability) of a sample of 75 non-financial firms listed on the JSE over the 10-year period (2003 to 2012).	A significant negative relationship existed between RCP and profitability during the financial crisis only. The relationships between profitability and cash conversion cycle, and profitability and ICP, were negative. The relationship between profitability and PDP was positive. However, none of these relationships were significant.

Source: Author's own compilation.

### *Results of WCM during a Pandemic*

According to the World Health Organisation (WHO 2020), a pandemic is defined as “an epidemic occurring worldwide, or over a very wide area, crossing international boundaries and usually affecting a large number of people.”

The COVID-19 pandemic is different to the pandemics of the past, due to the level of interconnectedness of the global economy. This pandemic has triggered unprecedented restrictions not only on the movement of people, but also on a

range of economic activities, even leading to declarations of national emergencies in most countries in Europe, North America and Africa (Chang et al. 2020). This pandemic is disrupting global supply chains and international trade. More than hundred countries have closed their international borders during the months of March to August 2020, which has caused the movement of people and tourism to come to a stop (Chang et al. 2020). Millions of people in these countries are facing job loss. To avoid a sharp slowdown in their economies, governments around the world are considering and implementing massive stimulus programs, which could potentially plunge the global economy into a deep recession (Wojcik and Ioannou 2020).

The negative consequences of prolonged economic restrictions in developed countries would also spread to developing countries across trade and investment networks. Consumer spending in the European Union and the United States is expected to fall sharply, reducing imports of consumer goods from developing countries. Furthermore, global manufacturing output could decrease as a result of extended disruptions to global supply chains (United Nations 2020).

Bruna and Depoix (2020) indicated that businesses needed to adopt a proactive approach to working capital to ensure a greater chance of successfully overcoming the many challenges. Bruna and Depoix (2020) further propose that businesses need to focus on their cash availability and, as such, create an accounts payable and accounts receivables checklist. These checklists indicate that businesses need to extend payment terms, eradicate early payments, and shut down unnecessary supply to obtain quick account payable cash release benefits. These checklists also indicate that it is imperative to intensify invoicing, cash collection, and dispute management to accelerate the cash inflow, while enhancing credit risk management activities to secure client payments due. All the actions in these checklists are designed to create awareness amongst the employee base about the importance of a secured and stable cash inflow.

PwC (2020) identified that, based on network experience in working with businesses, governments and regulators during other worldwide pandemics including Ebola, MERS, SARS and the bird flu, that there are three key steps that should be considered by management teams who seek to stabilise their cash position. These steps include:

- a) Rapidly understand the current financial situation: Depending on the severity of the situation, an assessment of available and trapped cash may need to be made in a matter of weeks or days as responding quickly is essential.
- b) Take action to protect the position: Once clarity on the cash position has been obtained, the directors and management teams should take immediate action to ensure they can (at a minimum) maintain this position, alongside identifying opportunities to access new money, if required.
- c) Manage internal and external stakeholders: Alongside steps 1 and 2, organisations will need to quickly understand who their key stakeholders are (internally and externally). Management of stakeholders can often be



challenging in a stressed scenario, particularly where interest is conflicting and there are significant demands for real-time information.

### *Results of WCM during Extreme Change*

Goldsworthy and McFarland (2018) explain that the phrase “extreme change” refers to not only to a disruptive change, but also to any form of large scale, complex, change effort (or a series of them) that challenge the ability of the business to respond. Managing extreme change means more than surviving change once. It means developing the ability to get better at change over time and learning how to get better at managing an uncertain future.

The rationale behind managing WCM during extreme change is to avoid potential financial difficulties. Poor WCM may lead to financial distress, which increases the risk of bankruptcy. When businesses are faced with extreme change, they may be in either inevitable distress or approaching bankruptcy. In this situation, WCM becomes of interest to banks and legal advisors (Ramiah et al. 2014). Banks tend to rely on working capital data to decide whether they can offer additional business loans, whereas legal advisors use it to determine whether a business is legally bankrupt. Working capital is a proportion of the shareholder’s funds and is a common way to free-up cash when needed (Smart and Megginson 2009, p. 652). Therefore, effectively managing working capital during extreme change is of critical importance (Brigham and Daves 2010, p. 719).

Krell (2020) highlighted a study of WCM best practises, which identified several improvements businesses can consider in order to cushion the impact of extreme change. These include:

- Aligning WCM processes with corporate strategy.
- Cultivating cross-functional engagement.
- Identifying relevant drivers, and related metrics, for WCM value and risk.
- Deploying supporting technology to increase efficiency and support process improvements.
- Continuously improving capability.

### *Results of WCM Post COVID-19*

Schwartzkopf (2020) finds that businesses, both during and post COVID-19, will have to respond to the impacts of the global pandemic in an impassive way to ensure that they can emerge from it. Bruna and Depoix (2020) identify that businesses and individuals are experiencing demand volatility, with a clear example being the overdemand for food and household products that is affecting everyone worldwide. Additionally, businesses are hampered by revenue reductions, such as those imposed by government guidelines on store closures that severely affect all sectors of the economy, and in particular the retail sector. Businesses are additionally being faced with necessary investments to ensure workforce safety, to include increased cleaning services, hard to source hand sanitiser and cleaning products, as well as major investment in communications

technology to support the millions of employees working from home (Schwartzkopf 2020).

### *Results of WCM in a New Economic Order*

Dorsman and Westerman (2019, p. 43) stated that working capital management is an “evergreen”. However, it is not always understood as being that important for businesses, since it is concerned with “just” short-term financing issues. Nevertheless, working capital programmes are next to long-term asset and financing programmes crucial to a business’s value creation. Other than the latter, their efficiency directly translates into business performance, especially in harsh economic times, such as those faced by many businesses during the financial crisis, pandemic and the new economic order (Zeidan and Shapir 2017).

The following are possible guidelines (adapted from PwC 2020) that businesses can follow to ensure that they succeed in the new economic order post COVID-19:

- Consider accelerating digital transformations as the shift to remote working reveals gaps in IT infrastructure, workforce planning and digital upskilling.
- Protect growth and profitability through actions such as scenario planning, more frequent financial modelling exercises to improve resiliency, and new models that incorporate economic impacts of past pandemics.
- Understand customers through longer-term considerations around shifts in core markets or business models as a result of the pandemic.
- Effectively manage cash taxes, obtain available refunds and consider local government and tax authority measures in response to COVID-19.
- Consider taking steps to stabilize supply chains when preparing for a volatile sales and profit mix in key markets.
- Assess the company resources to meet ongoing indirect and direct tax compliance requirements.
- Explore opportunities focused on becoming more flexible in responding to arising uncertainties.

### **Discussion**

Considering the results of the critical analysis, if businesses would like to maximize working capital efficiency, they need to:

- Build a sense of cross-functional ownership by bringing teams together with a common objective and bring cash to the forefront of decision-making.
- Eliminate internal barriers of competing metrics that could be driving the wrong behaviours or taking focus away from cash.
- Get accurate information internally, and from suppliers and customers, as close to real-time as possible.

- Think about the financial health of the supply base and set the right payment terms for the right category of suppliers.
- Keep a tight hold on what payment term extensions the business is willing to negotiate. Be sure that finance can calculate the impact to avoid unfortunate surprises.
- During a time of incredible disruption, take the opportunity to reassess priorities.

### **Limitations and Future Research**

The search strategy for this study was limited to three databases and 14 academic outputs were used in the study. This search strategy limited the publications included in the dataset. However, these outputs provided valuable trends and directions. There is limited information on how business should protect their working capital during tough economic times. Future research on what financial managers can do to lessen the impact of change on business is needed. Research is also needed to assist in creating policy frameworks for the government on how they could support business to survive extreme changes whilst maintaining the integrity of the economy.

### **Conclusion**

Governments around the world are considering and rolling out large stimulus packages to avert the sharp downturn of their economies, which could potentially plunge the global economy into a deep recession. The adverse effects of prolonged restrictions on economic activities in developed countries are spilling over to developing countries via trade and investment channels.

The COVID-19 pandemic, and resulting economic crises, has left businesses grappling with the challenge of ensuring continuity while working remotely, accessing short-term liquidity, and supporting supply chains. In the absence of appropriate WCM practises, businesses often will fail. This statement implies that accurately managed WCM policies are essential for a business's survival. Therefore, as it is important to have a balance between profitability and liquidity, practitioners should scrutinise working capital if they want to avoid the likelihood of their businesses failing.

The COVID-19 pandemic, which reached its peak of the second wave in South Africa during this study, has highlighted aspects in the manner which businesses manage working capital. As a result, there have been calls for greater emphasis to be placed on the management of working capital during extreme changes, during pandemics and in the new economic order the World is facing.

## References

- Akinsola FA (2016) *Implication of financial crises, financial regulation and business cycle for bank lending in South Africa*. Doctoral Thesis. Stellenbosch, South Africa: Stellenbosch University.
- Brigham FE, Daves PR (2010) *Intermediate financial management*. 10th Edition. South Western: South-Western Western College.
- Bruna E, Depoix T (2020) *Working capital trends in Europe: during COVID-19 and beyond*. Retrieved from: <https://www.ufficiiconsulting.com/en-gb/resources/whitpapers/working-capital-trends-in-europe-during-covid-19-and-beyond/>. [Accessed June 2020]
- Chang C, McAleer M, Wong W-K (2020) Risk and financial management of COVID-19 in business, economics and finance. *Journal of Risk and Financial Management*, 13(5): 102–109.
- Chukwu OB (2018) Evaluation of the new international economic order: its possibilities and challenges. *Scholars International Journal of Law, Crime and Justice* 1(2): 39–45.
- Correia C (2019) *Financial management*. 9th Edition. Cape Town: Juta.
- Dorsman AB, Westerman W (2019) What drives working capital levels? *Hacettepe University Journal of Economics and Administrative Sciences* 37(1): 41–63.
- Fenton P (2020) Finance in a post-COVID world. Retrieved from: <https://home.kpmg/xx/en/home/insights/2020/08/finance-in-a-post-covid-world.html>. [Accessed September 2020]
- Goldsworthy S, McFarland W (2018) *Managing extreme change*. Retrieved from: <https://m360.sim.edu.sg/article/Pages/Managing-Extreme-Change.aspx/>. [Accessed June 2020]
- Haron R, Nomran NM (2016) Determinants of working capital management before, during, and after the global financial crisis of 2008: evidence from Malaysia. *The Journal of Developing Areas* 50(5): 461–468.
- Ismail R (2017) Working capital – An effective business management tool. *International Journal of Humanities and Social Science Invention* 6(3): 12–23.
- Kapoor A, Dasher R (2020) *View: future of global economic order*. Retrieved from: <https://economictimes.indiatimes.com/news/economy/policy/view-future-of-global-economic-order/articleshow/76130647.cms?from=mdr/>. [Accessed June 2020]
- Kasoz J (2017) The effect of working capital management on profitability: a case of listed manufacturing. *Investment Management and Financial Innovations* 14(2): 336–346.
- Kayani UM, De Silva T, Gan C (2019) A systematic literature review on working capital management: An identification of new avenues. *Qualitative Research in Financial Markets* 11(3): 352–366.
- Kosakowski P (2017) *Investopedia*. Retrieved from: <https://www.investopedia.com/articles/economics/09/subprime-market-2008.asp/>. [Accessed June 2020]
- Krell E (2020) *Boosting working capital management in a downturn*. Retrieved from: <https://www.treasuryandrisk.com/2020/03/31/boosting-working-capital-management-in-a-downturn/?slreturn=20201005141747/>. [Accessed June 2020]
- Kwenda F, Holden M (2014) Determinants of working capital investment in South Africa: evidence from selected JSE-listed firms. *Journal of Economics and Behavioral Studies* 6(7): 569–580.
- Louw E, Hall JH, Brümmer LM (2016) Working capital management of South African retail firms. *Journal of Economic and Financial Sciences* 9(2): 545–560.

- Louw E, Hall JH, Pradhan RP (2019) The relationship between working capital management and profitability: evidence from South African retail and construction firms. *Global Business Review* 1(1): 1–21.
- Madubeko V (2010) The global financial crisis and its impact on the South African economy. Master's Dissertation. Alice, South Africa: University of Fort Hare.
- Norton A, Parkinson KL, Drake PP (2011) Corporate finance and portfolio management. *CFA Program Curriculum* 4(157): 200–245.
- Oseifuah O (2018) Global financial crisis, working capital management and profitability of non-financial firms listed on the Johannesburg stock exchange, South Africa. *Academy of Entrepreneurship Journal* 24(3): 1–12.
- Pricewaterhouse Coopers – PwC (2020) The impact of trade-disrupting COVID-19 on South African business. Retrieved from: <https://www.pwc.co.za/en/publications/impact-of-trade-disrupting-covid-19-on-sa-business.html> [Accessed June 2020]
- Ramiah V, Zhao Y, Moosa I (2014) Working capital management during the global financial crisis: the Australian experience. *Qualitative Research in Financial Markets* 6(3): 332–351.
- Schwartzkopf J (2020) *COVID-19 and working capital: bringing working capital management together*. Retrieved from: <https://www.abladvisor.com/articles/18581/covid-19-and-working-capital-bringing-working-capital-management-together>. [Accessed May 2020]
- Simon S, Sawandi N, Abdul-Hamid MA (2017) The quadratic relationship between working capital management and firm performance: evidence from the Nigerian economy. *Journal of Business and Retail Management Research* 12(1): 94–108.
- Singh HP, Kumar S (2013) Working capital management: a literature review and research agenda. *Qualitative Research in Financial Markets* 6(2): 173–197.
- Smart SB, Megginson WL (2009) *Financial management*. 2nd Edition. South-Western: Cengage.
- United Nations (2020) *Coronavirus global health emergency*. Retrieved from: <https://www.un.org/en/coronavirus/>. [Accessed June 2020]
- Van Wyk C, Botha Z, Goodspeed I (2015) *Understanding South African financial markets*. 5th Edition. Pretoria: Van Schaik Publishers.
- Wojcik D, Ioannou S (2020) COVID-19 and finance: market developments so far and potential impacts on the financial sector and centres. *Tijdschrift voor Economische en Sociale Geografie* 111(3): 1–14.
- World Health Organization – WHO (2020) *COVID-19 strategy update*. Retrieved from: <https://www.who.int/docs/default-source/coronaviruse/covid-strategy-update-14april2020.pdf>. [Accessed March 2021]
- Zeidan R, Shapir O (2017) Cash conversion cycle and value-enhancing operations: theory and evidence for a free lunch. *Journal of Corporate Finance* 45(1): 201–219.
- Zimon G, Tarighi H (2021) Effects of the COVID-19 global crisis on the working capital management policy: evidence from Poland. *Journal of Risk and Financial Management* 14(169): 1–17.