



IMPACT OF COVID-19 PANDEMIC ON CORPORATE STRATEGY: A CASE OF MANUFACTURING COMPANIES IN THE BULAWAYO METROPOLITAN PROVINCE IN ZIMBABWE

Thandoluhle Antonio Nkomo¹ and Dr Fainos Chinjova²

Graduate school of Business; National University of Science and Technology; P O Box AC 939; Ascot; Bulawayo; Zimbabwe

Article History

Received : 26 May 2022; Revised : 16 June 2022; Accepted : 20 June 2022; Published : 29 June 2022

Abstract: This study sought to determine the impact of COVID-19 pandemic on corporate strategies of manufacturing companies in Bulawayo Metropolitan Province. The study was motivated by the fact that while COVID-19 pandemic has forced manufacturing companies to rethink almost every aspect of their businesses, it has also validated the importance of corporate strategy. The study was guided by the Real Option Theory, which indicates that managers tends to defer investments when uncertainties arise. The interpretivism research philosophy guided this research because the aim was to establish the socially constructed nature of the reality of the impact of COVID-19 pandemic on the corporate strategies of manufacturing companies in Bulawayo. A qualitative research approach was used which enabled the researchers not to be restricted to specific research questions. The researchers opted for a case study research design where 5 manufacturing companies that constituted 5 cases in the study. This allowed the researchers to gain a sharpened understanding of the impact of COVID-19 pandemic on the corporate strategies of manufacturing companies in Bulawayo Metropolitan Province. A sample of 20 participants, comprising of 5 senior managers and 15 middle managers of manufacturing companies were used in the study. Data was generated through interviews with 5 senior managers and open-ended questionnaires with 15 middle managers of manufacturing companies. The key findings of the study were that COVID-19 pandemic affected the four pillars of corporate strategy of manufacturing companies in Bulawayo in a positive and negative way. The study recommended that manufacturing companies should be flexible in responding to market trends, collaborate with government, establishing a crisis plan and having a collaboration mechanism well in time before the crisis in order to reduce the negative effects of COVID-19 pandemic on their corporate strategies.

Keywords: Covid-19; Corporate Strategy

To cite this paper:

Thandoluhle Antonio Nkomo & Fainos Chinjova (2022). Impact of Covid-19 Pandemic on Corporate Strategy: A Case of Manufacturing Companies in the Bulawayo Metropolitan Province in Zimbabwe. *International Journal of Applied Business and Management Sciences*. 3(1), 103-119. [https://DOI: 10.47509/IJABMS.2022.v03i01.06](https://doi.org/10.47509/IJABMS.2022.v03i01.06)

1. INTRODUCTION

While COVID-19 pandemic has forced manufacturing companies to rethink almost every aspect of their business, it has also validated the importance of the strategy function. Even in pre-COVID-19 times, companies operated in an increasingly uncertain, complex, and dynamic environment. A company's ability to navigate these conditions was becoming a critical source of competitive advantage before the pandemic. Tasked with shaping the company's long-term corporate strategy and detecting market shifts, managers are already positioned to play a crucial role in unlocking value from these disruptive forces. This study seeks to examine the effect of COVID-19 on corporate strategy, in manufacturing companies in the Bulawayo Metropolitan Province.

2. BACK GROUND OF THE STUDY

In our rapidly evolving environment, corporate strategy functions need to focus on seeing around the corner of what comes next, positioning companies for sustained success, and driving growth in bold ways (Hagel, Jacobson, & Brown, 2020). The challenge will be how to do so effectively in a significantly different COVID-19 environment, which is widely referred as the "new normal." Strategic choices are more complex than ever before. To address uncertainty, companies need to take a holistic view of enterprise performance that balances a breadth of factors (for example, talent retention, employee safety, brand reputation, cost structure, and liquidity management) with short-, medium-, and long-term goals (Gulati, Nohria, & Wohlgezogen, 2010).

In the current business climate, perhaps more than ever, it is important for managers to help their organizations not only see around the corner, but also consider the long-term implications of their short-term strategic choices in order to ensure the viability of the business and enhance the long-term prospects of winning in the post COVID-19 crisis economy (Silva, Schoenwaelder, Nelson, & Markovich, 2020). The traditional strategic planning process does not match the dynamism of the current environment and likely needs to be reinvented. Strategic planning is too infrequent and takes too long to complete.

Although crises such as the COVID-19 pandemic pose many challenges, they also present substantial opportunities (Kounkel, Main, O'Brien, & Stephan, 2019). To continue functioning, many food and beverage companies embraced e-commerce as their main source of revenue and their pathway to suppliers. Fitness companies are offering free access to workouts to help users stay healthy and active. Perfume and alcohol companies are converting their

manufacturing facilities to make hand sanitizers. Manufacturing companies are focusing their production efforts on personal protective equipment (PPE) for health care workers. Pharmacies and health care companies are converting retail locations to COVID-19 test sites. Managers who translate these fundamental changes into overall strategy and strategic decision-making will create a competitive advantage for their companies in the face of talent, time, and resource constraints. This moment presents an inflection point for manufacturing companies to reconsider what is possible and inform their strategy and decision-making going forward (Marsh, 2020).

In the past years, Zimbabwean manufacturing companies have been underperforming due to poor strategic process. Most manufacturing companies in Zimbabwe are good at strategy planning but they fail to put the plan into reality and failed to survive in the first three months due to poor strategy implementation (Mhlanga, 2013). A number of manufacturing companies in Zimbabwe have failed to yield profits, increase market shares and increase sales volume due to poor vision and poor strategy implementation. In the face of COVID-19, several manufacturing companies have closed, downsized or lost market share in Zimbabwe. These manufacturing companies failed to have dynamic strategies that adhere to COVID-19 induced changes (Mhlanga, 2013).

The literature review suggests that research about the effect of COVID-19 has often focused on other countries rather than Zimbabwe. Considering the unique characteristics of the COVID-19 outbreak, its long period, pervasiveness, and cross-border impact, it is likely that there will be a wide range of crisis strategies.

3. STATEMENT OF THE PROBLEM

Despite efforts made by manufacturing companies in Zimbabwe on effective strategy implementation it seems not to be panacea on enhancing corporate performance in this COVID-19 era. Several manufacturing companies have closed, downsized or lost market share in Zimbabwe. These companies failed to have dynamic strategies that adhere to COVID-19 induced changes. However, a few manufacturing companies have thrived due to rethinking their corporate strategies. Considering the unique characteristics of the COVID-19 outbreak, its long period, pervasiveness, and cross-border impact, it is unclear how it affects corporate strategies of companies. Therefore, this study seeks to assess the impact of COVID-19 on corporate strategy of manufacturing companies in Bulawayo Metropolitan Province.

4. CONCEPTUAL FRAMEWORK

In the current study, the key concepts that guided this study are COVID -19 and corporate strategies. This study adopted the narrative and diagrammatical forms for explaining the key concepts:

4.1. COVID -19

According to the UNDP (2021), COVI -19 pandemic is the global health crisis which is viewed as the greatest challenge faced since World War II. Since its emergence in Asia in 2019, the virus has spread to every continent except Antarctica. Kuma, Malviya and Sharma (2020), define COVID -19 as a respiratory infection disease which include pneumonia, cold, sneezing and coughing. The current study view COVID-19 as the triangulation of the view of UNDP (2021) and the view of Kuma, *et al.* (2020). In this regard COVID -19 pandemic is viewed as the respiratory infection disease that has spread to every continent causing devastating negative effects to manufacturing sectors all over the World.

4.2. Corporate Strategy

According to Andrews (2020), a corporate strategy is a pattern of decisions in the company that determines and reveals its objectives, purposes, or goals to produce the principal policies and plans for achieving these goals. Garri (2013) view a corporate strategy as a strategy that encompasses a firm's corporate actions with the aim to achieve the company's objective while achieving a competitive advantage. The current study adopted Garri (2013)'s view of a corporate strategy.

4.3. The four pillars of corporate strategy

The four pillars of conceptual strategy are conceptually shown in Figure 1.1 below:

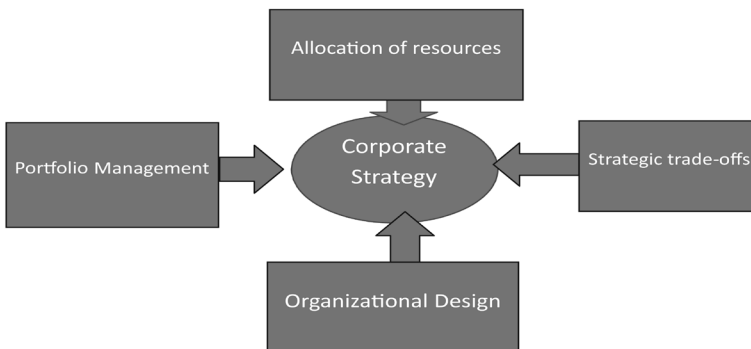


Figure 1.1: Conceptual Framework of Corporate Strategies of Manufacturing Companies

The conceptual framework in Figure 1.1 above illustrates that the corporate strategy for manufacturing companies has four pillars. These are allocation of resources, portfolio management, organizational design and strategic trade-offs.

5. RESEARCH QUESTIONS

This study was guided by the following research questions:

5.1. Main Research Question

To what extent are Covid-19 regulations affecting corporate strategy for manufacturing companies in Bulawayo Metropolitan Province?

5.2. Specific Research Questions

The study was guided by the following secondary objectives:

- To what extent are Covid-19 pandemic affecting allocation of resources in manufacturing sector in Bulawayo Metropolitan Province?
- To what extent are Covid-19 pandemic affecting organizational design of manufacturing companies in Bulawayo Metropolitan Province?
- To what extent are Covid-19 pandemic affecting portfolio management of manufacturing companies in Bulawayo Metropolitan Province?
- To what extent are Covid-19 pandemic affecting strategic trade-offs of manufacturing companies in Bulawayo Metropolitan Province?
- What solutions can be put in place to ensure that negative effects of Covid-19 pandemic on corporate strategy of manufacturing companies in Bulawayo are addressed?

6. DELIMITATIONS OF THE STUDY

This study focused primarily on the effect of COVID-19 on corporate strategy. The study focused on manufacturing companies that are operating in Bulawayo Metropolitan Province.

7. ASSUMPTIONS OF THE STUDY

This study was based on the assumption that manufacturing companies in Bulawayo Metropolitan Province implemented corporate strategies focusing on allocation of resources, organizational design, portfolio management and strategic trade-offs pillars.

8. THEORETICAL FRAMEWORK

This study was guided by the Real Option Theory:

According to the Real Options Theory, managers tend to defer investment when uncertainties rise, which may lead to miss profitable projects (Zeng *et al.* 2016). The real option theory indicates that for firms operating in an uncertain economic environment, the economic value of managerial flexibility to adjust actions is upon the arrival of new information. The real option theory is based on three parameters which are as follows:

8.1. Investment and Disinvestment

The parameter guides the manager on decision making. In this case, the decision to make are whether and when to invest or exit.

8.2. Organization and Governance

This parameter also helps a manager on decision making in an uncertain environment. In this case the decision to make are how should the firm organize or govern activities.

8.3. Investment Mode Choices and Performance Implications

This parameter guides the manager on allocation of resources in an uncertain environment. This indicates the performance implications to a company.

The relevancy of the Real Option Theory to the current study are that COVID-19 brings higher external risks, which lead managers to increase their cash holdings in case of emergencies. More cash retention takes up the investment funds and reduces enterprises' momentum of sustainable development. In the short term, based on Maslow's hierarchy of needs, Consumers' demand for health and safety is more urgent than that for social contact during the pandemic, resulting in a shrinking demand (Hagerty and Williams 2020). These factors lead to a decline in corporate revenue, and ultimately a decline in corporate performance. The manufacturing companies' productivity and revenue declined sharply due to the implementation of the quarantine measures.

9. LITERATURE GAP ANALYSIS

There are certain studies that have been done in other countries which focused on the symptoms of COVID -19 on human beings in Asian countries as well as on the history of corona virus (Kuma, Malviya, and Sharma, 2020; UNDP,

2021). These studies never focused on the impact of the COVID-19 regulations on corporate strategy for manufacturing companies. In Zimbabwe, there are no studies that have focused on the impact of COVID -19 regulations on corporate strategy. Hence, the current study is the first study to be done in Zimbabwe focusing on the manufacturing companies in Bulawayo Metropolitan Province.

10. RESEARCH METHODOLOGY

The major aim of the research methodology adopted in the current study was to provide the work plan of the research study to establish the impact of COVID-19 on corporate strategy of manufacturing companies in Bulawayo Metropolitan Province. Therefore, this section provides the research approach of this study and its justification.

10.1. Research Philosophy

This study was based on the interpretivism philosophy because the aim was to establish the socially constructed nature of reality of the impact of COVID-19 pandemic on corporate strategy of manufacturing companies. Hence, the emphasis was the relationship between the researcher and the manufacturing companies that were being studied (Welman, Kruger and Mitchell, 2005). In addition, the interpretivism philosophy enabled the researchers to have a holistic and well-rounded view of the impact of COVID -19 on the corporate strategy of manufacturing companies in Bulawayo Metropolitan Province (Nyaruwata, 2013).

10.2. Research approach

This study used a qualitative research approach to assess the impact of COVID -19 on corporate strategy of manufacturing companies in Bulawayo Metropolitan Province. According to Creswell (2014), a qualitative research is an inquiry process of understanding a social or human problem, based on building a complex, holistic picture formed with words, reporting detailed views of informants, and conducting the study in a natural setting. In the current study, a qualitative study was adopted because the purpose was to understand the impact of COVID - 19 on corporate strategy of manufacturing companies operating in Bulawayo from the participants' perspective. This understanding was acquired by analysing many contexts of the participants and by narrating participants' meanings for these situations and events. The meanings included beliefs, ideals, thoughts, and actions (Nyaruwata, 2013).

The main strengths of using the qualitative research design in this study was that researchers were not restricted to specific questions. The research framework and direction could quickly be revised as new information emerged (Nyaruwata, 2013). However, the main challenge was that data was collected from a few cases which implied that the findings cannot be generalized to the larger population.

10.3. Research Design

Therefore, the case study research design was considered the most appropriate approach to employ in this study because it provided a systematic way to collect data on multiple perspectives rooted in a specific context (Ritchie and Lewis, 2003). Yin (2003) defines a case study as an empirical inquiry that investigates a contemporary phenomenon within its real-life context. The main aim was to understand participants in a social context by interpreting their actions as a single group or community, hence the case.

The researchers opted for case study as an action plan because it allowed a lot of primary data to gathering using multiple techniques. Case study also allowed the researchers to generate a variety of participant perspectives over the phenomenon under study. With case study design, all collected evidences on the impact of COVID-19 on corporate strategy of manufacturing companies operating in Bulawayo Metropolitan Province were interpreted to arrive at the best possible responses to the research question(s). As a result, this design allowed the researchers to gain a sharpened understanding of the impact of COVID-19 pandemic on the corporate strategy of manufacturing companies in Bulawayo Metropolitan Province.

Case study research design is criticized for cumbersome data but themed data segmentation technique assisted the researchers by sorting and classifying generated data into themes to gain a sharpened understanding of the phenomenon under study and effective analysis. Another challenge that was experienced from this research method was that the sample used was small to generate information applicable to other manufacturing companies. However, the researchers used detailed data generating techniques such as triangulation and member checking to in-depth exploring a multiple bounded systems (cases) of manufacturing companies in Bulawayo Metropolitan Province overtime.

10.4. Population

Population is portrayed by Creswell (2007) as any group of individuals that have one or more characteristics in common that is of interest to the researcher.

According to Munzara (2013), population is the collection of all elements under the investigation. Thus, it is a restricted group of people in which the researcher is interested in gaining information and drawing conclusions. Struwig and Stead (2001) assert that a research population has certain characteristics that can be completely homogeneous (the same). In this study, the population was comprised of 15 manufacturing companies with about 150 participants.

Therefore, the approximate total target population of this study was 45 potential participants. The managers were used in this study because they were familiar with corporate strategy of the manufacturing companies that employed them. They were in a position to give the required information regarding the impact of COVID-19 regulations on corporate strategy of their companies. They were also suitable potential participants of this study because of being rich data source of information relevant for describing the impact of COVID-19 on corporate strategy of the company.

10.5. Sample

According to Creswell (2007), sample refers to a small group of population selected for survey and analysis. Thus, a sample is described as a small, selected group from the population chosen to fairly represent this section of the population. In this study the chosen sample was made up of five manufacturing companies in Bulawayo Metropolitan Province with 20 managers, both middle and top managers. These participants were a small group of knowledgeable and informative people from manufacturing companies in Bulawayo Metropolitan Province. The 20 participants were purposively selected through data saturation (Creswell, 2013). The sample chosen was made up of purposively selected participants who voluntarily responded to the open and closed-ended questionnaires and were willing to participate on interviews. The researchers used data saturation principle to obtain a sample from the managers of manufacturing companies (Creswell, 2007; Johnson and Christensen, 2014).

In this study, researchers focussed on detail and quality of an individual participant's opinion, feeling, experience and facts regarding the impact of COVID-19 regulations on the corporate strategy of the company (Creswell, 2014; Marshall and Rossman, 2011).

10.6. Sampling Procedure

In this study, the research used purposive sampling method. The idea behind purposive sampling was to concentrate on people with particular characteristics

who were better to be able to assist with the relevant data for this research (Etikan, Musa and Alkassim, 2016). In this study, researchers drew the sample from the manufacturing companies operating in Bulawayo Metropolitan Province through purposive technique to maximise the depth of data that researchers elicited (Johnson and Chritensen, 2014). Purposive sampling method assisted the researchers to identify and select the information-rich cases for the most and proper utilization of the available resources (Zhi, 2014). This involved identification and selection of individuals that are proficient and well-informed with the phenomenon of interest. In addition to knowledge and experience, purposive sampling technique allowed researchers to identify the participants who were available and willing to participate, and the ability to communicate their experiences and give their opinions on the impact of COVID-19 regulations on corporate strategy of the companies that they managed, in an articulate, expressive, and reflective manner. The purposively selected participants were appropriate for researchers to gain insight about their perception of the impact of COVID-19 regulations on the corporate strategy of the company. Researchers purposefully selected the research participants who had an experience in the formulation and implementation of corporate strategies in the manufacturing sector.

One of the conditions for purposive sampling was that all the participants were to be active in the manufacturing sector and also experienced in the formulation and implementation of corporate strategies of manufacturing companies. However, purposive sampling can be hampered by attrition and can be time consuming when looking for rich sources of data (Oppong, 2013). To address this problem, the researchers used the manufacturing experts such as senior managers and middle managers of manufacturing companies to identify the rich sources of data for the sampling method to be less costly in terms of time consuming.

11. DATA ANALYSIS PROCEDURES

In the current study, the researchers adopted and made use of a thematic analysis approach developed by The University of Auckland (2014). Thematic analysis is a widely used qualitative data analysis method which focuses on identifying patterned meaning across a data set that provides an answer to the research question being addressed. Themed analysis allowed the researchers to read and re-read the data, until we became familiar with its contents. In this phase, the researchers generated codes that identified important features of the data which was relevant to answering the research questions. The phase involved

coding the entire data set, after that, collating all the codes and all relevant data extracts together for later stages of analysis. This data analysis technique allowed the researchers to check the participants' themes against the data set, to determine whether they provided a convincing opinion of the data, and addressed the research questions. The qualitative data generated was effectively analysed through transcription, segmenting and coding as recommended by Johnson and Christensen, 2014).

12. FINDINGS OF THE STUDY

The key findings of the study are presented according to the research objectives of the study. These are as follows:

12.1. Effect of COVID-19 pandemic on resource allocation by manufacturing companies in Bulawayo Metropolitan Province

The findings of the study were that manufacturing companies are shifting labour to different areas due COVID-19 pandemic in order to ensure that there is appropriate supply of labour in critical areas. Funds are also being allocated to other businesses that could generate income to enable them to survive the COVID-19 pandemic.

12.2. Effect of COVID-19 pandemic on organizational design of manufacturing companies in Bulawayo Metropolitan Province

The findings of the study are that the ability of managers to implement initiatives has been reduced due to the adoption of centralized decision making system. Manufacturing companies have adopted decision-making that is top-down to reduce exposure to risk by manufacturing companies. Reporting procedure has been re-designed by determining an appropriate delegation of authority.

12.3. Effect of COVID-19 pandemic on portfolio management of manufacturing companies in Bulawayo Metropolitan Province

The findings from the study are that manufacturing companies are diversifying into other products as a way of reducing exposure to risk. Manufacturing companies are taking advantage of opportunities that are arising in the market due to COVID-19 pandemic. However, the economic environment is causing these companies not to keep balanced portfolios of their investments.

12.4. Effect of COVID-19 pandemic on strategic trade-offs of manufacturing companies in Bulawayo Metropolitan Province

The findings from the study are with regard to this objective was that manufacturing companies in Bulawayo were producing homogeneous products as a way surviving the prevailing economic environment caused by COVID-19 pandemic. Manufacturing companies were doing mass production of products such as sanitizers as a way of complying with the Government of Zimbabwe's call to fight COVID-19 pandemic. Also, manufacturing companies have adopted a copycat strategy to survive the negative effects of COVID-19 pandemic. In terms of risk taking, manufacturing companies had resorted to go for higher risk as a way of realizing higher return.

12.5. Strategies that should be implemented to reduce the negative effects of COVID- 19 pandemic on corporate strategy of manufacturing companies in Bulawayo Metropolitan Province

The findings of the study were that manufacturing companies should be flexible in responding to the market trends in order to avoid suffering losses. Manufacturing companies should collaborate with the government on the programs that are implemented to contain the negative effects of COVID-19 pandemic as this opens up other opportunities available in the market. Manufacturing companies should have coordination mechanisms well in time before any disaster set-in. This includes establishing a crisis plan before the crisis happens.

13. RECOMMENDATIONS OF THE STUDY

In view of the findings, the researchers proffer the following recommendations:

13.1. Policy makers

- Create statutes that compels manufacturing companies to establish crisis plans before any crisis happens.
- Avail funding to subsidise manufacturing companies that collaborate with the government on programs that are implemented to contain the negative effects of COVID-19 pandemic.

13.2. Managers of manufacturing companies

- Ensure that companies are flexible in responding to market trends.

- Establish crisis plans well in advance.
- Create a coordination mechanism well in time before any disaster set in.
- Collaborate with government on the programs that are implemented to contain the negative effects of COVID-19 pandemic.

References

- Banerjee, A., & Chaudhury, C. (2010). Statistics without tears: Populations and samples,. *Ind Psychiatry J. 2010 Jan-Jun; 19(1): 60–65., India.*
- Biddix, J. (2019). *Research methods and applications for student's affairs.* Wiley.
- Chaffey, D. (2013). “Definitions of Emarketing vs Internet vs Digital marketing”. *Smart Insight.*
- Creswell, J., & Clark, P. (2011). *Designing and Conducting Mixed Methods Research.* Los Angeles : Sage Publications.
- Devault, G. (2018). *The Difference Between Primary and Secondary Research.* Dotdash publishing family.
- Gulati, R., Nohria, N., & Wohlgezogen, F. (2010). “Roaring Out of Recession,” . Harvard Business Review, March 2010.
- Hagel, J., Jacobson, S., & Brown, J. S. (2020). “New architectures of resilience,” . Deloitte Insights, June 2020.
- Kounkel, S., Main, A., O’Brien, D., & Stephan, A. R. (2019). “Purpose is everything: How brands that authentically lead with purpose are changing the nature of business today,” . Deloitte Insights, October 2019.
- Marsh, A. (2020). “BlackRock Joins Allianz, Invesco Saying ESG Outperformed,” . Bloomberg, May 2020.
- Morse, J. (2010). “Procedures and practice of mixed method design: maintaining control, rigor and complexity”. In *Sage Handbook of Mixed Methods in Social and Behavioural Research, Tashakkori, A. and Teddlie C (Eds), Sage. California, pp. 339- 352.*
- Saunders, A., Lewis, A., & Thornhill, A. (2009). *Business, Research Methods for Business.* s.l.:s.n.
- Silva, B., Schoenwaelder, T., Nelson, W., & Markovich, S. (2020). *2020 Chief Strategy Officer Survey .* Deloitte Insights, April 2020.
- Walliman, N. (2011). *Research Methods: The Basics.* Routledge: Taylor & Francis elibrary.
- Aikman, David, Philip Barrett, Sujit Kapadia, Mervyn King, James Proudman, Tim Taylor, Iain De Weymarn, Tony Yates. (2011). ‘Uncertainty in Macroeconomic Policy-Making: Art or Science?’ *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences* 369 (1956): 4798–4817.

- Alexakis, C., Balios, D., & Stavraki, S. (2007). *A Dynamic approach for the evaluation of portfolio performance under risk conditions*. Invest. Manag. Financ. Innov. 2007, 4, 16–24.
- Anderson, Roy M, Hans Heesterbeek, Don Klinkenberg, & T. Deirdre Hollingsworth. (2020). *How Will Country-Based Mitigation Measures Influence the Course of the COVID-19 Epidemic?* The Lancet 395 (10228): 931–934.
- Bartik, A. W., Cullen, Z. B., Glaeser, E. L., Luca, M., & Stanton, C. T. (2020). *What Jobs are Being Done at Home During the Covid-19 Crisis? Evidence from Firm-Level Surveys*. NBER Working Paper No. 27422. Cambridge, MA: National Bureau of Economic Research.
- Bosetti, Valentina, Elke Weber, Loic Berger, David V Budescu, Ning Liu, and Massimo Brasil, C.V.; Eggers, J.P. (2019). *Product and Innovation Portfolio Management*. In Oxford Research Encyclopedia of Business and Management; Oxford University Press: Oxford, UK, 2019.
- Borg, W. R., & Gall, M. D. (1996). *Educational Research: An Introduction*. New York: Longman.
- Cancryn, Adam. (2020). 'How Overly Optimistic Modeling Distorted Trump Team's Coronavirus Response'. Politico. 2020
- Chater, Nick. (2020). 'Facing up to the Uncertainties of COVID-19'. *Nature Human Behaviour* 4 (439).
- Chen, A. H. L., Cheng, K., & Lee, Z. H. (2011). The behavior of Taiwanese investors in asset allocation. *Asia-Pacific Journal of Business Administration*, 3(1), 62– 74.
- Creswell, J. W (2009). *Research Design: Qualitative, Quantitative and Mixed Methods*, (2nd Edition.). Thousand Oaks: Sage Publications.
- Creswell, J. W. (2007). *Research Design: Qualitative, Quantitative and mixed Methods Approaches*, (2nd Edition.). Thousand Oaks: Sage Publications.
- Creswell, J. W. (2009). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, (3rd Edition). Los Angeles: Sage Publications.
- Creswell, J. W. (2013). *Qualitative inquiry and research design: Choosing among five*. Sage Publications.
- Creswell, J.,W. (2007). *Research design. Qualitative and mixed methods approaches*. Sage Publications.
- Creswell, J., W. (2014). *Research design. qualitative and mixed methods approaches*. (4th Edition.). Sage Publications.
- Cipani, E. (2009). *Practical Research Methods for Educators*. New York: Springer Publishing Company.
- David, M., & Sutton, C. (2011). *Social Research: An Introduction*. London: SAGE Publications.

- Descombe, M. (2001). *The Good Research Guide for Small – Scale Social Projects*. Buckingham: Open University Press.
- Denzin, N. K., & Lincoln, Y. S. (2007). *Handbook of Qualitative Research*. Thousand Oaks: Sage Publications.
- Dill, K. (2020). 'When the CEO can't get on a plane, deputies step up'. Wall Street Journal, 8.
- Emanuel, Ezekiel J., Govind Persad, Ross Upshur, Beatriz Thome, Michael Parker, Aaron Glickman, Cathy Zhang, Connor Boyle, Maxwell Smith, & James P. Phillips. 2020. 'Fair Allocation of Scarce Medical Resources in the Time of Covid-19'. *New England Journal of Medicine* 382 (21): 2049–55.
- Emergencies: A WHO Guideline for Emergency Risk Communication (ERC) Policy and Practice'. World Health Organization.
- Etikan, I, Musa, S. A., & Alkassim, R. S. (2016). *Comparison of Convenience Sampling*. Sage Publications.
- Fiske, Susan T., & Cydney Dupree. (2014). 'Gaining Trust as Well as Respect in Flechas Chaparro, X.A.;
- Vasconcelos Gomes, L.A.D.(2019). *Tromboni de Souza Nascimento, P. The evolution of project portfolio selection methods. From incremental to radical innovation*. Rev. Gestão 2019, 26, 212–236.
- Guba, E.G. (1990). The Alternative Paradigm Dialog. In E.G. Guba (Ed.), *The Paradigm Dialog*. Newbury Park, CA: Sage Publications.
- Hansen, Lars Peter, & Massimo Marinacci. (2016). 'Ambiguity Aversion and Model.
- Jensen, M. E., & Meckling, W. H. (1995). 'Specific and general knowledge and organizational structure'. *Journal of Applied Corporate Finance*, 8, 4– 18.
- Johnson-Laird, Philip N. (2010). 'Mental Models and Human Reasoning'. *Proceedings of the National Academy of Sciences* 107 (43): 18243–18250
- Klingebiel, R.; Joseph, J. (2015)., *Entry timing and innovation strategy in feature phones*. *Strateg. Manag. J.* **2015**, 37, 1002–1020.
- Lizzerini, Marzia, & Giovanni Putoto. 2020. 'COVID-19 in Italy: Momentous Decisions and Many Uncertainties'. *The Lancet Global Health* 8 (5): E641–E642.
- Lee, K. F. (2020). 'Kai-Fu Lee on how Covid spurs China's great robotic leap forward'. *The Economist*, 25 June.
- Mason, J. (2010). *Real Life Methods: A Note of the National Centre Research Methods at the University of Manchester and Leeds*. Working Paper, Six Strategies of Mixing Methods and Linking Data in Social Science Research. Manchester: University of Manchester.

- Manski, Charles F. (2019). 'Communicating Uncertainty in Policy Analysis'. *Proceedings of the National Academy of Sciences* 116 (16): 7634–7641.
- Mastrandrea, Michael D, Christopher B Field, Thomas F Stocker, Ottmar Edenhofer, Kristie L Ebi, David J Frame, & Hermann Held (2010). 'Guidance Note for Lead Authors of the IPCC Fifth. Assessment Report on Consistent Treatment of Uncertainties'.
- Marshall, C., & Rossman, G. B. (2011). *Designing qualitative research* (5th ed.). Thousand Oaks
- Mintzberg, H. (1979). *Structure in Fives. Upper Saddle River, NJ: Prentice-Hall.*
- Misspecification: An Economic Perspective'. *Statistical Science* 31: 511–515.
- National Academy of Sciences* 111 (Supplement 4): 13593–13597.
- Nyaruwata, L. T. (2013). *Quantitative, Qualitative and Mixed Approaches to Research in Preparing Your Dissertation at a Distance: A Research Guide.* Vancouver: Virtual University for Small States of the Commonwealth.
- Ohanian, L. (2010). 'The economic crisis from a neoclassical perspective'. *Journal of Economic Perspectives*, 24, 45– 66.
- Oppong, S. H. (2013). The problem of sampling in qualitative research. *Asian Journal of Management Sciences and Education*, 5(2), 1-9.
- Paulson, A.S., O'Connor, G.C., & Robeson, D. (2007)., *Evaluating radical innovation portfolios.* *Res. Technol. Manag.* **2007**, 50, 17–29.
- Pilot, J., & Hunger, T. (2013). *Nursing Research, Principles and Methods.* Philadelphia: Lippincott Publications.
- Rivers, Caitlin, Jean-Paul Chretien, Steven Riley, Julie A Pavlin, Alexandra Woodward, David Policymakers: Combine Insights from Psychology and Policy Studies'. *Palgrave.*
- Rubera, G., Chandrasekaran, D., & Ordanini, A. (2016). *Open innovation, product portfolio innovativeness and firm performance: The dual role of new product development capabilities.* *J. Acad. Mark. Sci.* **2016**, 44, 166–184.
- Rose, D., & Sullivan, O. (1993). *Introduction to Data Analysis for Social Scientists.* Buckingham: Open University Press.
- Rucker, Philip, Josh Dawsey, Yasmeen Abutaleb, Robert Costa, & Lena H. Sun. (2020). '34 Days of Pandemic: Inside Trump: Desperate Attempts to Reopen America.
- Spiegel halter, David, Mike Pearson, & Ian Short. (2011). 'Visualizing Uncertainty about the Future'. *Science* 333 (6048): 1393–1400.
- Saunders, M., Lewis, P. & Thornhill, A. (2015). *Understanding Research Philosophy and Approaches to Theory Development in Research Methods for Business Students,* (7th Ed.). Harlow: Pearson.

- Shumba, O. (2013). *Preparing your Dissertation at a Distance: A Research Guide*. Vancouver: Virtual University for Small States of the Commonwealth.
- Sun, Y.; Bao, Q.; Lu, Z. (2021): *Coronavirus (Covid-19) outbreak, investor sentiment, and medical portfolio: Evidence from China, Hong Kong, Korea, Japan, and U.S.* Pac. Basin Financial. J. **2021**, 65, 101463.
- Simandan, D. (2009). Industrialization, In R Kitchin & N Thrift, (Eds.). *International Encyclopedia of Human Geography*, Oxford: Elsevier, 5(4), 419 – 425.
- Tavoni. 2017. 'COP21 Climate Negotiators/'responses to Climate Model Forecasts'.
- Thompson, J. D. (1967). *Organizations in Action*. New Brunswick, NJ: Transaction Publishers.
- Verma, R., Verma, P. (2018). Behavioral biases and retirement assets allocation of corporate pension plans. *Review of Behavioral Finance*, 10(4), 353– 369.
- Yin, R. K. (2009). *Case Study Research: Design and Methods*, (3rd Edition.). Thousand Oaks: SAGE Publications.
- Watanabe, S. (2016). 'Technology shocks and the Great Depression'. *Journal of Economic History*, 76, 909– 33.
- Welman, C.; Kruger, F. & Mitchell, B. (2005). *Research Methodology*, (3rd Edition.). Cape Town: Oxford University Press Southern Africa.
- Yates, S. J. (2004). *Doing Social Science Research*. London: SAGE Publications.
- Zhang, D., Hu, M., & Ji, Q. (2020). Financial markets under the global pandemic of COVID-19. *Finance Research Letters*, 36, 101528.
- Zhi., H. L. (2014). *A Comparison of Convenience sampling and purposive sampling*. PubMed.