UNIVERSITY OF CAPE TOWN

FACULTY OF ENGINEERING & THE BUILT ENVIROMENT

DEPARTMENT OF CONSTRUCTION ECONOMICS AND MANAGEMENT

MSC IN PROPERTY STUDIES

CON5010Z MINOR DISSERTATION

AN INVESTIGATION OF THE LINKAGE BETWEEN ECONOMIC CYCLES AND COMMERCIAL PROPERTY CYCLES, AND THEIR IMPACT ON THE INCOME APPROACH OF VALUATION: CASE OF WINDHOEK.

Submitted in partial fulfilment of the requirements for the Master of Science in Property Studies

Supervisor : Associate Professor Manya M. Mooya
Student Names: Else Katjihingua
Student Number: KTJELS001

Acknowledgements

I am overwhelmed with gratitude to everyone who helped me along the way.

First and foremost, I would like to express my gratitude to my supervisor, professor Manya. Mooya, who guided me on this journey. You have always been there for me and have never let me down. I have repeatedly missed agreed-upon deadlines and worked behind schedule due to work pressure, but you have never given up on me. It is a pleasure to work with you.

Second, my heartfelt thanks go to my lovely daughter Duniela Mulyokela. You have been with me since the beginning of this program. You have been my inspiration throughout the journey, and I'm grateful to have you in my life.

A special thanks goes to Innocent Karangwa from the UCT statistical consulting service for assisting me with the statistical tools needed to meet the statistical objectives of this study.

Last but not least, many thanks to my partner Duncan, who never stopped encouraging me to cross the finish line.

Plagiarism Declaration

I know the meaning of plagiarism and declare that all the work in the document, save for that which is properly acknowledged, is my own.

This thesis/dissertation has been submitted to the Turnitin module (or equivalent similarity and originality checking software) and I confirm that my supervisor has seen my report and any concerns revealed by such have been resolved with my supervisor.

Name: Else Katjihingua KTJELS001

Signature: Signed by candidate

Table of Content

List of Figures

Abbreviations

The following abbreviations have been used in this report

NBER	National Bureau of Economic Research
GDP	Gross Domestic Product
HP	Hodrick-Prescott filter
CF	Christiano-Fitzgerald filter
BB	Bry and Boschan
BK	Baxter-King filter
VARs	Vector Autoregressions
IPD	South African Annual Property index
USA	United States of America
UK	United Kingdom
RICS	Royal Institute of Charted Surveyors
NPVC	Namibian Property Valuers Council
DCF	Discounted Cashflow
REIT	Real Estate Investment Trusts
AD	Anno Domini

Abstract

Studies conducted in other countries shows that economic cycles and commercial property cycles exist, and that a relationship exit between the two cycles. Few research points to the cyclicality of both cycles to have an impact on property valuations. The aim of this study was therefore to establish whether the Namibian economy and the Windhoek commercial property market are cyclical, and if a relationship exist between the two. The study further aimed at establishing whether the cyclicality of both the economy and the commercial property market have an impact on the valuation of commercial properties in the Namibian context. The three research objectives allowed the research to identify the variables required to establish both economic and commercial property cycles, and the possible challenges faced by valuers using the income approach to value commercial properties during peaks and troughs of these cycles. The mixed-use approach was employed using a literature review to identify the variables required to establish both cycles followed by a secondary analysis. The research made use a questionnaire to gather data on challenges faced by valuers when valuing commercial properties during the different economic and commercial property markets environments. The research found that both economic and commercial property cycles do exist and that they are procyclical and countercyclical under certain variables. A countercyclical relationship exists between GDP and the commercial property vacancy rates. A countercyclical relationship exists between inflation and retail vacancy rates and office cap-rates. A procyclical relationship exist between interest rates and the retail vacancy rates and office cap-rates.

The results revealed that during or near a peak of both economic and commercial property cycles, data is easily available and accessible making it easier to value commercial properties using the income approach. However, data shows that during or near economic and commercial property cycle troughs, market data is rare and unreliable making it difficult to value commercial properties.

Chapter 1 Introduction to Research Project

1.1 Background

The world experienced severe economic fluctuations in the past, which left most countries' economies in distress, recalling for interest in the theory of economy cycles (Bormotov, 2009). The 1930 great depression was one such severe economic fluctuation that devasted the USA economy, resulting in the increase of unemployment rates by 25%, contraction of industrial production, prices and GDP by 37%, 30% and 33% respectively (Temin, 2016). In 2008 the world experienced another major fluctuation referred to as the "great recession" which left the world economy, financial markets and real estate markets crashed (Laposa & Mueller, 2017, Prabhakar Akhilesh & Prabhakar Akhilesh, 2016). In the USA, GDP declined by 2.6% between 2007 and 2009, and 8.8 million jobs were lost (Laposa & Mueller, 2017). This was said to be caused by financial markets failures and misleading property prices and stock markets (Bagliano & Morana, 2012, Laposa & Mueller, 2017).

The property market is linked to the economy through fundamentals (Reed & Wu, 2010). Property markets are a complicated system that results from the interaction of macro and micro economic influences (Hoskins, Higgins & Cardew, 2004, Vanichvatana, 2007). A common example of this fundamental link is that when business growth accelerates, households expand, unemployment falls, and demand for space increases, resulting in real estate market activity, and vice versa when business growth slows (Jadevicius & Huston, 2017). These constant changes in the real estate market are referred to as cyclical, implying property cycle (Grover & Grover, 2013). The fluctuation of the economy and property market has an impact on valuation cash flow variables, particularly at market troughs and peaks (Born & Pyhrr, 1994).
Real estate activities typically involve the payment of a price and a rental fee for the use of real estate space. Professional property valuers usually determine these key indicators. A market valuation of an income producing property, usually describes a set of current market conditions and economic trends expected to remain relatively stable into the future (Pyhrr et al., 1996). As a result, valuers fail to account for the effects of economic and market cycle variables, resulting in understatement and overstatement of values (Pyhrr et al., 1996). This stable perpetual growth assumption

in valuation variables could be one of the factors that contributed to the recent real estate bubble and financial market crises around the world (d'Amato, 2015). Therefore, economic cycles are not explicitly addressed by the valuation framework or models (Born & Pyhrr, 1994).

It is important to understand economic and property cycles and their impact on real estate valuation, that way we are able to anticipate crises and pitfalls that might occur in the future (Grinin, Tausch & Korotayev, 2016). Incorporating the two cycles in the valuation process will enable valuers to produce realistic and reliable present value estimates (Born & Pyhrr, 1994).

There exists many published journals, articles, and books on economic and property cycles in many countries, with a few incorporating property valuations. In Namibia non or few exist on these topics. Namibia is a country that lies in the western Africa continent covering 824,292 square kilometres of land administrate, with a population of 2,413 643 inhabitants (NSA, 2018). The country has been battling recession since 2016 with the inflation recorded below 6.5% and GPD growth below 1.1% from 2016 (World Bank, 2020 (NSA, 2019). In July 2020, the world bank announced Namibia to be an upper middle-income country but still facing challenges of prevalent poverty, inequality, and employment (World Bank, 2020).

Real estate market data is publicly non-existence except for the housing index published by First National Bank Namibia. In terms of the valuation profession, Namibia has a legal framework in the form of the Property Valuers Act of 2012, but the Act not enforced due to the inactive regulating body.

This paper focuses on cyclicality of the economy and the commercial property market, as well as the effects it has on the income approach of valuation.

1.2 Research Problem

Studies shows that the economy and the property market are cyclical. According to research conducted in Australia, Canada, USA, UK, South Africa and Malaysia, there is a link between the economy and the property market. However, little research is conducted on the effects of these cycles on property valuation. In Namibia, no formal research has is conducted to support the notion that the Namibian economy and

property market are indeed cyclical. In addition to this, there has been no studies that shows the impacts of these cycles on the valuation approaches. Therefore, the research problem is: Is there a link between the Namibian economic and commercial property cycle, and what impact do these cycles have on the application of the income approach of valuation?

1.3 Research Objectives

The following objectives are proposed to address the aforementioned research problem:

1. To investigate whether economic cycles exist in Namibia.
2. To investigate whether commercial property cycles exist in Windhoek, and whether they are linked to Namibian economic cycles.
3. To investigate whether valuers face challenges in valuing commercial properties using the income approach at peaks and troughs of both cycles.

1.4 Research Questions

From the research objectives, three questions are formulated to answer the research problem:

1. What are the economic variables required to establish economic cycles?
2. What are the commercial property variables required to establish a commercial property cycle, and are they linked to economic cycles?
3. What are the challenges faced by valuers when valuing commercial properties using the income approach at or near a peak and trough of both economic and commercial property cycle?

1.5 Research Method

The research questions will be addressed using both quantitative and qualitative data to achieve the research objectives. Chapter 3 provides a detailed methodology.

The study focuses on the general economy and the commercial property market for the first and second research questions. The literature is examined in order to identify

the variables used to represent the economy and the commercial property market. These research questions necessitate quantitative information. The review of secondary data is identified as the best method for gaining access to the data. The study accessed the Namibia Statistics Agent, Bank of Namibia, and World Bank websites to obtain the necessary economic data reports.

A specific REIT with a focus on Windhoek properties was identified, and its website is visited to obtain the required reports for the commercial property data. All information is saved in a Microsoft excel database.

The population identified for the second research question is Windhoek-based commercial property valuers. In the absence of a valuers list, the sample was identified using a purposive sampling and snowball strategy. The second question is qualitative and necessitates first-hand information. A structured questionnaire was identified as the best tool for gathering this information.

1.6 Significance of the Study

The goal of this research is to add to the body of knowledge about the existence of economic cycles, commercial property cycles, and their impact on valuation in the Namibian context. There have been no formal studies to demonstrate that the Namibian economy and commercial property market are cyclical, or whether a relationship exists between the two cycles. This is the purpose of this research. It investigates the effects of both cycles on property values at various stages. As a result, this research will serve as a foundation for other valuation academics to expand and investigate the relationships between the economy and the property market, as well as their impact on property valuation in Namibia.

1.7 Structure of the Research report

The report is divided in five chapters. A synopsis of each chapter is provided below. The first chapter introduces the study by providing context to the research proposal, followed by the research problem, objectives, and questions. A summary of the sampling and data collection methods is provided. Finally, the study's significance is discussed.

The second chapter examines literature and empirical research on economic cycles, property cycles, and property valuation. This chapter is divided into sections that provides a thorough understanding of all concepts, literature on variables used in identifying both economic and property cycles, and possible existing valuation challenges related to the income approach in different economic and property market environments.

The study's methodology is discussed in chapter 3. It explains the research approach and paradigm used to justify the research methods. The research methods, including nature of the data, sampling, and collection strategies is discussed in detail.

The fourth chapter presents the findings together with its analysis, from secondary data publications and the valuer's questionnaire.

Chapter five concludes the research with a discussion of the study's findings and limitations. Recommendations for further research is discussed.

Following, is a list of references used in this report, as well as all supporting appendices.

Chapter 2: Literature Review

2.1 Introduction

The chapter reviews literature and empirical studies on the linkage between economic cycles and commercial property cycles, and their impact on property valuations. Information included in this chapter intends to develop fundamental theoretical guide in understanding the relevant concepts and ideas to the study. The first aim of this chapter is to identify variables required to establish economic cycles. Secondly, to identify variables required to establish commercial property cycles, and possible relationships between both cycles. Thirdly, it aims at investigating problems associated with valuing commercial properties during peaks and troughs of both economic and property cycles.

For effective organisation of the literature review on various aspects, the chapter is divided into seven sections, each of which deals with a specific subject. Section 2.1 provides an overview of the chapter. Section 2.2 investigates economy cycles by defining them, describing their characteristics, durations, causes and methods of measurements. Section 2.3 investigates property cycles in a manner similar to section 2.2. Section 2.4 examines the relationship between the economy and the property market. Section 2.5 presents empirical research on dating economic and property cycles and their relationship. Section 2.6 investigates the impact of economic and property cycle on property valuation. Section 2.7 examines the literature on challenges of valuing property at the peak and trough of both cycles. Section 2.8 concludes the chapter by summarising the major theories in the existing body of literature, identifying gaps in the existing literature, and identifying areas for future research .

2.2 Economic Cycles

2.2.1 Background

Severe economic fluctuations that impacted the entire world economy, such as the great depression and the great recession, recalled for an interest in economic cycles

theory (Bormotov, 2009). The 1929 great depression was an international catastrophe (Crafts & Fearon, 2010), of which Ferguson and Hall described as "a combination of economic ignorance, confusion, and incompetence of the government policies"(Garrison, 1999:596). The unpredictable economic fluctuations were so severe in the USA that industrial production declined by 37%, prices by 33%, real GNP by 30%, and unemployment rose by 25% (Temin, 2016:1). The great recession of 2007/2008 was yet another catastrophe that caused the global economy, financial markets and real estate markets to crash (Laposa & Mueller, 2017, Prabhakar Akhilesh & Prabhakar Akhilesh, 2016). It began in the USA as a result of financial markets failures and misleading real estate and stock market prices, but spill-over to other countries through the trade channel, and excess liquidity generation (Bagliano & Morana, 2012). These economic spill-overs are a result of globalisation (Devarajan & Kasekende, 2011, Osakwe, 2008). According to the World bank, GDP in the USA declined by 2.6% between 2007 and2009 (Laposa & Mueller, 2017), resulting in the loss of 8.8 million jobs (Laposa & Mueller, 2017). South Africa and Kenya experienced slashed and ceased capital flows by 2008 as a result of their funding relationships with Europe and USA, which were severely affected by the crises (Devarajan & Kasekende, 2011). Nigeria faced challenges obtaining trade credit lines in the United States and Europe (Devarajan & Kasekende, 2011).

It is important to understand and track the trends in economic fluctuations, so that we can anticipate future crises and pitfalls and their impact on different markets (Grinin, Tausch & Korotayev, 2016).

2.2.2 Economy Functionality

The economy is a "subject of evolutionary and revolutionary transformations" (Bormotov, 2009:2). Kondratiev, described the economy as "an irreversible and dynamic process, comparable to an organism with cyclical functions (blood circulation, nutrition) and irreversible processes" (Bormotov, 2009:21). The economy is made up of millions of different individuals, each with a unique role to play, and each part is interconnected with the others, and their operations contributes to the overall health of the body (Bormotov, 2009). Just like human function, the economy needs to work

in order to have food, production factors and rest to be productive, a break to re-allocate resources, accumulate sufficient capital and clean itself from dead cells and elements (Bormotov, 2009). When a human works too hard and too long over their capacity without resting they get sick, so does the economy (Bormotov, 2009).

2.2.3 Defining Economic Cycles

The idea that the economy behave cyclical under various variables was formulated by Burns and Mitchell in 1926 and 1946 (Bormotov, 2009). The term economic cycle refers to cyclical fluctuations in the economy, and was defined by Burns and Mitchel as "a type of fluctuation found in the aggregate economic activity of nations that organize their work mainly in business enterprises" (Bormotov, 2009:4). It is the change in economic activity in production of a country over a period of time (Bormotov, 2009, Škare & Stjepanović, 2016). Economic cycling occurs when the economy is re-constructing, re-allocating resources, capital rebuilding and cleaning itself (Bormotov, 2009). Economic cycles are profound characteristics of market-oriented economies (Dua & Banerji, 2012).

Economic cycles that are characterised by structural reconstruction, resources reallocation, infrastructure redevelopment and rebuilding due to technological revolutions breakthroughs are known as good cycles (Bormotov, 2009). Good cycles are unpreventable and unavoidable, and they typically drive the economy in a positive direction (Bormotov, 2009). Bad cycles are those that are characterised by insufficient institutional controls over the economy's speed (Bormotov, 2009). Bad cycles are, to some extent, preventable, theoretically avoidable, and policy-driven (Bormotov, 2009). The bad cycles could easily be compared to a person who spends their time drinking and gambling and is unable to work efficiently and effectively as a result of their bad decisions of harming their body and finances (Bormotov, 2009). Economic cycles do not have strict or regular patterns in fluctuations (Lucas Jr, 1977), neither are they limited to a specific sector; rather, they affect the whole economy (Bormotov, 2009).

2.2.4 Economic Cycles Features

Changes in economic activities occur around periods of rapid growth or decline growth (Bormotov, 2009, Škare & Stjepanović, 2016). A cycle, according to Burns and Mitchell, is a period that consists of expansions, contractions, recessions and recovery phases (Bormotov, 2009). According to the National Bureau of Economic Research, a period in which economic activities has significantly declined for more than a few months is referred to a recession (Bormotov, 2009). This can be identified when a decline in some measure of aggregate economic activity causes other key measures of economic activity to decline (Dua & Banerji, 2012). For example, a decline in sales leading to a decline in production, which leads to decline in income and employment, subsequently leading back in a further fall in sales (Dua & Banerji, 2012). Dua & Banerji argues that, a decline in one aggregate economic activity measure alone, without cascading declines in other aggregate economic activity measures, does not establish a recession (Dua & Banerji, 2012).

The most popular rule of thumb for determining a recession has been a decline in two consecutive quarters of GDP, which Dua & Banerji (2012) argues to produce nonsensical set of business dates (Dua & Banerji, 2012). Prices and output typically drops significantly, and interest rates reach their peak during a recession phase (Bormotov, 2009).

The recovery phase begins when economic activities increases following a fall and stagnation in production (Grinin, Tausch & Korotayev, 2016).

The expansion phase begins when economic activities has significantly increase after a recession (Bormotov, 2009). During this phase, production and prices accelerate at a rapid pace, resulting in an economic boom (Bormotov, 2009, Grinin, Tausch & Korotayev, 2016). The period is also usually associated with low interest rates (Bormotov, 2009). According to Dua & Banerji (2012), a transient rise in GDP that does not result in a rise in employment, income and sales, does not qualify for the expansion phase but rather a “double dip recession” (Dua & Banerji, 2012).

The contraction or crises phase begins when economic activities growth starts to slow (Bormotov, 2009). Depending on the factors in the economy, any decline in economy activities will lead the cycle back into the recession phase, and the cycle begins again (Dua & Banerji, 2012).

Economic activities manifest themselves through real GDP, employment, real income, wholesale and retail sales, and industrial production (Bormotov, 2009). Semuel & Nurina (2014) also adds that a country's economic growth can be measured by calculating its GDP (Semuel & Nurina, 2014). GDP is a proxy of business cycle performance (DeLisle & Grissom, 2011). Within the economic cycle phases description above, interest rates are indicated to be an indicator of economic changes.

2.2.5 Types of Economic Cycles

In the 19th century, Clement Juglar identified the existence of an eight to eleven years long cycle, also referred to as medium cycles (Bormotov, 2009, Grinin, Tausch & Korotayev, 2016, Kwasnicki, 2008) or trade cycle (Kitchin, 1923). In the mid-20th century, business cycle theorist Joseph Schumpeter dubbed the medium cycle "the Juglar cycle" after Clement Juglar, arguing that it consists of expansion, crises, recession, and recovery phases (Bormotov, 2009, Grinin, Tausch & Korotayev, 2016). In 1825, the British economy experience a Juglar cycle which also affected other countries (Grinin, Tausch & Korotayev, 2016).

In the 20th century, Kitchin identified cycles with three to five years fluctuations (Bormotov, 2009, Kitchin, 1923), which are now known as Kitchin cycles (Bormotov, 2009). Between 1818 to 1825, the British economy experienced Kitchin cycle (Grinin, Tausch & Korotayev, 2016).

In the 1930, Simon Kuznets identified a fifteen to twenty five years cycle (Bormotov, 2009, Kwasnicki, 2008), also known as demographic or building cycle (Grinin, Tausch & Korotayev, 2016). He connected the cycles to demographic processes, specifically with fluctuations in construction intensity as a result from immigration inflow and outflows (Grinin, Tausch & Korotayev, 2016). These cycles can be linked with fluctuations in technology, long term investment in infrastructure and construction

(Grinin, Tausch & Korotayev, 2016). Kitchin describes the Kuznets cycle to be aggregates of two or three minor cycles (Grinin, Tausch & Korotayev, 2016).

In the 1920's Nikolai Kondratieff observed that historical data on economic indicators such as prices, interest rates, foreign trade, coal and pig iron production amongst others, in some of the major western economies at the time (England, France and the United States) showed cyclical patterns of slow increase followed by stages of decline (Grinin, Tausch & Korotayev, 2016). He discovered that the average period of these fluctuations was between forty and fifty years (Grinin, Tausch & Korotayev, 2016). During these oscillations, growth rates in economic indicators tend to increase during upswing and decline during a downswing (Grinin, Tausch & Korotayev, 2016). The first clear appearance of the Kondratieff wave was in the 1780s industrial revolution (Grinin, Tausch & Korotayev, 2016).

2.2.6 Causes of Economic Cycles

Economic cycles are driven by a complex of natural, economical, technological, financial and political factors (Bormotov, 2009). They are a result of the availability of natural non-renewable resources, knowledge, and renewable resources such as money supply, interest rates, government spending, taxes (Bormotov, 2009). Economic resources are limited, and over-driving or under-driving them causes unwanted economic fluctuations (Bormotov, 2009).

There are several schools of thought on key drivers of economic cycles (Bormotov, 2009, Škare & Stjepanović, 2016). According to the classical economic school of thought, government interference and market freedom limitation are key forces driving the economy (Bormotov, 2009). The Austrians school believes that monetary interventions are the primary cause (Bormotov, 2009). The Keynesian school emphasises low spending, whereas the New Keynesian school emphasises prices and wages as key drivers (Bormotov, 2009). The new classical school explains exogenous shocks as primary driver, whereas the Endogenous school focuses on technological breakthroughs (Bormotov, 2009). The real business cycle school contends that technological shocks causing random oscillations in productivity are critical (Dobos & Ábel, 2018). The random oscillations may include innovation, natural

disasters, whether, commodity price shocks, and other exogenous factors (Dobos & Ábel, 2018). Other explanations for economic cycles include the sun and moon phases, elections, biological cycles, wars, climate (Kwasnicki, 2008) (Bormotov, 2009). The different schools of thought arguments are tautological, whichever occurs first has an impact on the entire economic chain (Bormotov, 2009).

2.2.7 Measuring Economic Cycles

The procedure for measuring economic/business cycle entails defining a cycle, criteria to differentiate between business cycles and other forms of fluctuations, procedures to detect the existence of a business cycle and methods to measure its feature (Škare & Stjepanović, 2016).

Defining and Detecting a Cycle

To identify a business cycle, one has to first locate the cyclical peaks and troughs in the available economic variable, then determine whether these fluctuations are common enough across all observed series (Škare & Stjepanović, 2016). The business cycle will be identified when changes in the economic activities are common enough (Škare & Stjepanović, 2016). The NBER identifies business cycles based on changes in aggregate level of production, referred to as classic business cycle (Škare & Stjepanović, 2016). The classic business cycle measures the economy's ups and downs using aggregate economic indicators (Dua & Banerji, 2012). It studies market activities levels rather than growth rates (Pholphirul & Rukumnuaykit, 2009). Growth cycles are alternative approach to identifying business cycle (Dua & Banerji, 2012, Škare & Stjepanović, 2016), and they are considered to be more relevant and appropriate (Dua & Banerji, 2012). The growth cycle measures the ups and downs of economic fluctuations by deviating the economy's actual growth rate from its long-run trend rate of growth (Dua & Banerji, 2012). It uses deviation of output from its long term trend, that is, the cyclical component, to identify periods of peak and troughs in the business cycle (Pandey, Patnaik & Shah, 2017). Growth cycles are less ideal for monitoring and forecasting of economic cycles in real time (Dua & Banerji, 2012), but they are useful in historic analysis (Dua & Banerji, 2012). Another approach is the growth rate cycle, which is the upswing and downswing in the growth rate of economic activity (Dua & Banerji, 2012).

To detect a cycle, one must first determine the trend of time series (Dua & Banerji, 2012) and then identify the cyclical component of a specific series (Škare & Stjepanović, 2016). There are several approaches to separating trends and cyclical components, including linear de-trending procedures, Hodrick-Prescott filter and spectral analysis (band-pass filter) (Škare & Stjepanović, 2016).

Locating the Turning Point

The next step in measuring a business cycle is locating the turning point (Škare & Stjepanović, 2016). To locate turning points in a series, it is important to define what they are and to provide a method for recognising them in a given data set (Harding & Pagan, 2008). Finding the peak, which is the local maxima in the time series, is one method of determining a turning point (Škare & Stjepanović, 2016). Another approach to identifying the turning point is to apply a model using the changes in the economic activity, which is then used for the location of the tipping point (Škare & Stjepanović, 2016).

Measuring Cycle Feature

The previous step of locating the turning point results in separating the time series into stages (Škare & Stjepanović, 2016). The next step in measuring business cycles is to measure the feature of the identified cycle (Škare & Stjepanović, 2016). Two important basic statistics related to phases is duration and amplitude (Škare & Stjepanović, 2016). The duration of the expansion phase is equal to the number of periods between the bottom and the top, and the contraction phase is equal to the number of periods between the top and the bottom (Škare & Stjepanović, 2016).The expansion phase usually starts from the base to the peak, while the contraction phase starts from the peak to the next base (Škare & Stjepanović, 2016). Amplitude is a measure that shows changes in the top or bottom (Škare & Stjepanović, 2016). In many cases, the amplitude of some variables such as the GDP is expressed as the percentage change between the bottom and top (Škare & Stjepanović, 2016).

Economic cycles have existed for a long time, and the major cycles have had a negative impact on the economies of countries. Economic cycles are both unavoidable and, preventable to an extent. The economy will always be cyclical as long as a

country produces goods and services. Every cycle has good and bad phases. The general economy is made up of many markets, and one would expect these markets to have highs and lows in terms of performance, resulting in major swings in the economy. The property market is part of the overall economy, and its behaviour in relation to the overall economy is an area of interest. It is critical to study the property market, because it appears to be one of the primary indirect contributors to major economy's fluctuations.

2.3 Property Cycles

2.3.1 Background

Many academics have associated changes in the economy to the real estate markets and concluded that a relationship exist between the two (Venclauskiene & Snieska, 2009). In the past, the real estate market has been blamed for some of the major global economic crises (Mooya, 2011), such as the great recession (Bagliano & Morana, 2012). It is necessary to define changes in the real estate markets and their impact on the economy in general or vice versa (Venclauskiene & Snieska, 2009).

2.3.2 Property Market Functionality

DiPasquale & Wheaton presented a four quadrant diagram model that explains the real estate market as two inter-related markets: real estate space and real estate assets markets (DiPasquale & Wheaton, 1992). . The real estate space market is made up of rental and r newly developed space markets, whereas the real estate assets market is made of up price and construction markets (DiPasquale & Wheaton, 1992).

Rent is a key component in the real estate rental market; it is the amount paid for the use of real estate space (Wyatt, 2013). The occupier, whether it is a firm or a household, drives demand for real estate space (DiPasquale & Wheaton, 1992). It is a function of demand and economic conditions, therefore depending on existing space and new real estate developments, rent is determined (DiPasquale & Wheaton, 1992). The rent determined in the rental market is key to price determination in the real estate price market (DiPasquale & Wheaton, 1992, Wyatt, 2013).Real estate Valuers use

these rentals to determine values of real estate assets, which are then used in price negotiations. Real estate values are determined by capitalising the rental value through a capitalisation rate in the real estate asset market (DiPasquale & Wheaton, 1992). Financial markets are also able to determine whether or not to lend money to investors based on the viability of these rentals. This is how these two markets are linked.

Again, price determined in the price market is central to activities in the construction real estate market (DiPasquale & Wheaton, 1992). When there is demand for space in the rental market and real estate assets prices are higher than the costs of replacing or reproducing them , developers are motivated to start construction activities (DiPasquale & Wheaton, 1992). The completion of real estate assets construction results in the real estate assets t stock adjustment as indicated in figure 2.1 below. Stock adjustment here refers to the introduction of new real estate developments, which causes changes in the number of available rental spaces (DiPasquale & Wheaton, 1992). The above is illustrated graphically below .

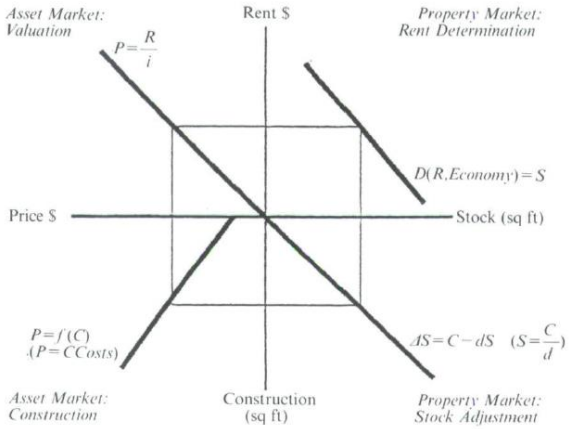

Figure 2.1 The Real Estate Market Four Quadrant

(DiPasquale & Wheaton, 1992:188).

Equilibrium in the real estate market is only reached when all four submarkets are in equilibrium concurrently (Wyatt, 2013). The property market is imperfect, equilibrium is typically impossible as markets are endlessly adjusting to new demand and supply (Wyatt, 2013).

2.3.3 Defining Property Cycles

The property market is characterised by fluctuating and cyclical behaviours of microeconomic (Akinsomi, Mkhabela & Taderera, 2018) and macroeconomic factors (Björklund, 1999). Property cycles are logical sequences of repeated fluctuations in property factors such as prices, vacancies, rentals, (Pholphirul & Rukumnuaykit, 2009) operating expenses, property values, construction activities (Hoyt, 1947). Similar to the principle of economic cycles, property cycles are associated with periods of flourish and distress (French, 2011). Their magnitudes and durations varies from sector to sector, city to city and even in different neighbourhoods in the same city (Hoyt, 1947). The study of property cycle has been in existence for a long time ranging from the contributions of Hoyt (1933) on Chicago real estate cycle, Cairncross (1934) on the Glasgow building industry, Wheaton (1987) on the cyclical behaviour of the USA national office market, Scott & Judge (2000) on the UK commercial property values cycles, Hui (2013) on Malaysian housing price cycle and a few others (Cairncross, 1934, Grover & Grover, 2013, Hui, 2013, Scott & Judge, 2000, Wheaton, 1987).

The timing of property cycles in investment analysis can produce better results in investment timing and risk aversion (Jadevicius & Huston, 2017). They can prepare developers to forecasts feasibilities correctly and assist in construction timing (Jadevicius & Huston, 2017). Banks and governments can incorporate these property dynamics and timing in policy drafting, assisting in reducing speculative excess funding and stimulate the market when it's about to dive in recession (Jadevicius & Huston, 2017). Property cycles also give an insight into domestic and foreign investors on market timing (Jadevicius & Huston, 2017).

2.3.4 Characteristics of Property Cycles

Similar to economic cycle characteristics, property cycles consist of recovery, expansion, contraction and recession phases (Mueller & Pevnev, 1997, Vanichvatana, 2007).

The recovery phase is described as the stage when the cycle is at the bottom but is moving in an upward swing; very little growth occurs during this period (Mueller & Pevnev, 1997). There is little demand growth at this stage, and existing oversupply is slowly absorbed, resulting gradually reduced vacancies (Mueller & Pevnev, 1997).

The decline in vacancies gradually gives landlords confidence to raise rents “typically below inflation levels” (Mueller & Pevnev, 1997, Vanichvatana, 2007).Ultimately, market supply and demand reach equilibrium causing the cycle to enter into an expansion phase (Mueller & Pevnev, 1997).

In the expansion phase, demand growth continues to increase but at a higher pace than the previous phase, subsequently allowing vacancies to decline further (Mueller & Pevnev, 1997). Vacancy rates drops below equilibrium level signalling increased space requirements (Mueller & Pevnev, 1997). Rents begin to rise rapidly “above inflation levels”, and new construction feasibilities are possible (Hoyt, 1947, Mueller & Pevnev, 1997). New and old developers gain confidence and begin speculative construction in anticipation of “cost feasibility” (Mueller & Pevnev, 1997, Vanichvatana, 2007). If construction continues and exceeds demand, the cycle is said to have entered its peak (Vanichvatana, 2007).

The peak phase begins after the demand/supply “inflection point”, however most market players do not recognize this peak because vacancy rates are below equilibrium and the market looks good (Hoyt, 1947, Mueller & Pevnev, 1997). Supply is growing faster than demand as developers are overbuilding, vacancy rates starts rising back to equilibrium (Mueller & Pevnev, 1997, Vanichvatana, 2007). Supply absorption begins to fall , and developers realises that the market has changed and that construction must be slowed (Mueller & Pevnev, 1997). Developers begin to incur losses, and the market enters a period of contraction (Vanichvatana, 2007). If new construction continues to raise above the equilibrium point, the market will move into recession (Mueller & Pevnev, 1997).

The recession phase begins when supply exceeds the equilibrium point and demand falls below zero (Mueller & Pevnev, 1997). Developers are stranded with un-finished constructions and vacant space (Grover & Grover, 2013). Mortgage loan repayment default begin to rise , eventually leading to foreclosures (Hoyt, 1947). Any increase in space demand will lead the cycle back into recovery, and the cycle will continue (Grover & Grover, 2013).

2.3.5 Types of Property Cycles

Property cycles are classified as short, major or long (Vanichvatana, 2007).
A cycle with a duration of two to three years is considered to be a short cycle (Vanichvatana, 2007). Short property cycles are mainly caused by changes in demand for housing and building (Vanichvatana, 2007).
Major cycles are cycles with a duration of nine to ten years (Vanichvatana, 2007). These cycles are mainly caused by supply, usually a lag in production (Vanichvatana, 2007). Property markets were discussed as inefficient, and that their slowness in recognising sales and market changes leads to delayed responses to economic cycle booms (Vanichvatana, 2007).
The long cycles are cycles with a duration of twenty to thirty years, mainly caused by urbanization (Vanichvatana, 2007). Population expands in a city or town due to space demand causes the property market to fluctuate eventually.

2.4 Linking the Economy to the Property Market

The property sector does not exist in isolation (Akinsomi, Mkhabela & Taderera, 2018); it is a result of a confluence of macroeconomic and microeconomic forces (Hoskins, Higgins & Cardew, 2004, Vanichvatana, 2007).
The economy is linked to the real estate market in a sense that when there are changes in the general economy, household and firms are effected (Reed & Wu, 2010).

Economy expansions means firms and businesses are growing, so does their production and the labour force required to produce these goods and services (Jadevicius & Huston, 2017). An increase in the labour force means more space is required and this is how demand for real estate space arises (Jadevicius & Huston, 2017).
Land is a limited resources and its scarcity results in increases of rentals and prices in the property market (Hoyt, 1947, Jadevicius & Huston, 2017, Reed & Wu, 2010). The need to create more space for the growing labour force results in demand for construction activities, which gives rise to demand for credit funding (Pholphirul & Rukumnuaykit, 2009).

A continuous demand for credit funding leads to high interest rates, which over time can have a negative impact on the purchasing power of consumers. Usually when this occurs, different monetary policies are implemented to adjust the costs of borrowing in attempt to combat inflation (Pholphirul & Rukumnuaykit, 2009). High interest rates decreases domestic spending, meaning people can no longer afford loans which forces the economy into a contraction phase (Jadevicius & Huston, 2017, Pholphirul & Rukumnuaykit, 2009). This credit crunch doesn't only affect domestic spending but also hit property companies, resulting into a further property slump (Pholphirul & Rukumnuaykit, 2009). The further reduced economic activities moves the economy into a recession, which also negatively affects demand for space resulting in falling rentals and property values subsequently a downturn in the property market (Pholphirul & Rukumnuaykit, 2009). On the other hand, fewer property investments might be a great cause of economic recession (Pholphirul & Rukumnuaykit, 2009).

Macroeconomic indicators that usually show these impacts on real estate markets are GDP, interest rate, unemployment, flow of money, foreign currency exchange rates, stock exchange index, national income and population, household debt, trade deficit, tax-GDP-ratio and house prices (Pugh & Dehesh, 2001, Vanichvatana, 2007, Wyatt, 2013). These impacts are usually through their effect on direct fundamentals as explained above (Björklund, 1999).

In terms of cycle characteristics, the property market is similar to the economy. Rent, price, construction, and new developments are the main components. These elements are important in terms of the economy. Rent, whether for residential or commercial use, is an economic activity that circulates in the other markets made up of the economy. The property market cannot be separated from the overall economy.

2.5 Empirical Studies

2.5.1 Dating Economic cycles

Pandey & others used the growth cycle approach to identify the Indian business cycle (Pandey, Patnaik & Shah, 2017). They used quarterly GPD as the aggregate economic indicator to identify the chronology of business cycles turning points

(Pandey, Patnaik & Shah, 2017). They applied a three-part step process to achieve their goal.

Firstly, they seasonally adjusted the GDP using a X-13-ARIMA-SEATs seasonal adjustment program (Pandey, Patnaik & Shah, 2017). Seasonal adjustment is a statistical method which aims at removing seasonal variations which usually arise because of the timing in a year (Giacalone, Mattera & Nissi, 2020). Secondly, they extracted the cyclical component by using Christiano-Fitzgerald filter to separate the trend and the cyclical component (Pandey, Patnaik & Shah, 2017). They considered the NBER definition of business cycle fluctuations to be eight to thirty months quarters (Pandey, Patnaik & Shah, 2017).
For robustness of results, they used Hamilton 2016 in addition to CF filter (Pandey, Patnaik & Shah, 2017). Thirdly, they used Bry and Boschan dating algorithm to identify dates in the cyclical component series (Pandey, Patnaik & Shah, 2017). BB dating algorithm are used to estimate the location of turning points of business cycles (Proietti, 2005). The algorithm functions on one time series that is free from seasonal variation is suitable for dating recessions and expansions in the classical approach (Proietti, 2005). They standardised the cyclical component by seasonally adjusting the aggregate indicator in step one and this is what was used as input series for the application of the dating algorithm by Bry and Boschan (1971) (Pandey, Patnaik & Shah, 2017). They also used Harding and Pagan (2002) to locate turning points for robustness of results (Pandey, Patnaik & Shah, 2017). They discovered nine quarters of recession (three episodes) and twelve quarters of expansions between 1999 to 2012 (Pandey, Patnaik & Shah, 2017).

In an attempt to establish a reference business cycle chronology for Portugal, Rua used monthly and quarterly real GDP (Rua, 2017). For the quarterly real GDP he used the modified BB algorithm (BBQ) proposed by Harding Pagan (2002), similar to the original BB but altered to the quarterly frequency (Rua, 2017). Six recessionary periods were identified between 1977 and 2015.

For robustness of results a monthly coincident index is considered for the whole economy indicator that includes retail sales volume, new jobs openings, manufacturing production index, households assessment on their current financial situation, and

others (Rua, 2017). He used the monthly BB algorithm to determine the peak and troughs of the cycle (Rua, 2017). The monthly coincide index through the monthly BB algorithm recorded five recessionary. The difference in results was due to the verdict of the first quarter of 1980 to the fourth quarter to be a recession basing on a quarterly GDP and not based on the monthly coincident indicator (Rua, 2017). He also used a wide range of time series to date the business cycle by first obtaining individual turning points and then finding a common set of turning points. There were no statistical difference at a standard significant level (Rua, 2017).

2.5.2 Dating Property Cycles and Linking to Economic Cycles

In 2004, Hoskins & others compared leading macroeconomic variables and real estate returns between Australia, Canada, UK and the USA during 1985-1999 (Hoskins, Higgins & Cardew, 2004). They identified GDP, unemployment, and inflation as leading macroeconomic determinants affecting the four countries commercial property performance (Hoskins, Higgins & Cardew, 2004). They also used interest rates, exchange rates with the US dollar and stock market performance, all of which showed far less consistency with property returns and almost no significant relationship to property returns (Hoskins, Higgins & Cardew, 2004). They used property indexes for the four countries and analysed the data using correlation models to determine the relationship between the sets of property and economic data (Hoskins, Higgins & Cardew, 2004).

The data showed that the property returns of the four countries had a consistent pattern, indicating a degree of international consistency of the property markets (Hoskins, Higgins & Cardew, 2004).

According to the study, the relationship between economic indicators and property returns is generally taking longer to display a weaker relationship (Hoskins, Higgins & Cardew, 2004). Property returns in relation to GDP and unemployment have experienced lead times that have shifted from short-medium to medium-long term in Canada, Australia and USA (Hoskins, Higgins & Cardew, 2004). The UK lead times were more consistence and stable over the period under study (Hoskins, Higgins & Cardew, 2004). This could be explained by the fact that the UK property market is characterised by extensive planning controls and longer term leases, making it less

flexible and responsive to external influences than the property markets in the USA, Canada and Australia (Hoskins, Higgins & Cardew, 2004). The study demonstrates that explanatory powers differ across the global property markets (Hoskins, Higgins & Cardew, 2004).

In 2013, Hui conducted a study to examine the relationship between housing price cycles and aggregate business cycles in Malaysia from 1991 to 2006 (Hui, 2013). To empirically define the Malaysian housing price cycle, he used a band-pass filter to extract the cyclical component from a specific time series (Hui, 2013). To confirm that all filtered series were stationary, he used Phillips-Perron unit root tests (the results of which were not reported), which confirmed that the extracted cycle by the band-pass filter was indeed stationary (Hui, 2013). The HP filter and first-difference filters, according to the author, were inferior to the band-pass filter of Baxter and King (1999) and Christiano and Fitzgerald (2003).

To examine cyclical relationships between the real estate cycle and the economy cycle, he used pairwise cross-correlation analysis (Hui, 2013). The cyclical components of the time series extracted by the band-pass filters were subjected to cross-correlation analysis (Hui, 2013). To give a wealthier analysis, in addition to the cross-correlation analysis, the author codicil the analysis with Vector Autoregressions (VARs), Granger-causality (Hui, 2013). Where necessary, impulse response functions and variance decompositions were employed (Hui, 2013).

For the real sector variables, GDP, real gross investment, real private consumption were used, and for the financial sector, stock prices, broad money (M3), real interest rate, real exchange rate all extracted from various issues of a Malaysian bank monthly and quarterly statistical bulletins (Hui, 2013). House prices were used as the real estate market variable, , and they were derived from the only official government house price index at the time (Hui, 2013). All variables were measured in real terms, and those measured in nominal values were deflected with producer price index except for the real interest rate, which was seasonally adjusted using the US Census Bureau X-12 procedure (Hui, 2013).

The main findings were that the real estate and financial sectors were pro-cyclical in terms of housing prices (Hui, 2013). House prices were pro-cyclical in relation to GDP (Hui, 2013). However, the concurrent correlation of house prices with the exchange

rate was negative, indicating that the real exchange rate is counter-cyclical in relation to house prices (Hui, 2013). The real exchange rate and broad money are indicators that can be used to predict the house price quarters in advance (Hui, 2013).The Malaysian housing price cycle is highly synchronized with the Malaysian economy (Hui, 2013). Housing prices and real economy exhibited strong co-movement, as opposed to housing prices and the financial sector which displayed weaker co-movements (Hui, 2013). The BK, CF and Granger-causality filters reviled the Malaysian housing price cycle to influence cycles in the macroeconomy (Hui, 2013).

In 2018, Akinsomi & others examined the role of macro-economic indicators on the direct commercial real estate return in South Africa from 1995 to 2014 (Akinsomi, Mkhabela & Taderera, 2018). They used IPD SA annual property return index which includes total returns, capital values, vacancy, operating expenses and gross rentable area for the microeconomic variables (Akinsomi, Mkhabela & Taderera, 2018). GDP, inflation, interest rates and unemployment rates have been as the most dominant and significant macroeconomic variables in South Africa that explain total return across all property types (Akinsomi, Mkhabela & Taderera, 2018).

According to the study's findings, interest rates are positively related to total returns and capital growth (Akinsomi, Mkhabela & Taderera, 2018). However, GDP was discovered to be negatively correlated to the commercial real estate total return, but positively related to the office rentals and returns (Akinsomi, Mkhabela & Taderera, 2018). South Africa has experienced negative GDP growth in ten of the last twenty years, while the property sector has experienced year on year growth (Akinsomi, Mkhabela & Taderera, 2018). However, the author acknowledges the contradictions of his findings as opposed to those of De Wit and Van Dijk (2003) and Karakozova (2005), who found that GDP has a positive impact on commercial real estate (Akinsomi, Mkhabela & Taderera, 2018). Interest rates and inflation were the most significant drivers of commercial real estate rentals across all property types (Akinsomi, Mkhabela & Taderera, 2018).

All empirical studies on dating economic and property market cycles in the different countries shows that economic and property market cycles exist and are natural occurrence. Fundamentally, the relationship between the general economy and the property market is unavoidable. The foundation of the property market, valuation, is of

particular interest, as fluctuations in the property market is indicated by valuations indirectly.

2.6 The Impact of Economic Cycles and Property Cycles on Property Valuations

2.6.1 Background

Literature and empirical studies have identified the economy and the property market to be cyclical. From previous literature, we have also identified a relationship between the general economy and the property market. Property Valuation is not in isolation, and through the DiPasquale & Wheaton four quadrant model, we have identified property valuations to be sitting in the real estate asset market albeit saying that the functioning of the whole property market has an impact on property valuation. Not only does the economy fluctuations have an impact on the property market as literature reveals, but also on the valuation cashflow variables, especially at the trough and peak of the market (Born & Pyhrr, 1994).

A market valuation of an income producing property usually describes a set of current market conditions and economic trends expected to remain relatively stable into the future (Pyhrr et al., 1996). Literature suggests this not to be the case through the concept of economic and property cycles. These steadily stable assumptions of economic and market conditions in valuation models fails to reflect impacts of cyclicality concepts on valuation, which results in understating and overstating property values (Pyhrr et al., 1996). d'Amato also argue that these stable or perpetual growth assumptions in valuation methodologies, may be one of the factors causing real estate bubbles and the recent financial markets crises (d'Amato, 2015). Economic cycles are not explicitly addressed by the valuation framework (Born & Pyhrr, 1994).

2.6.2 Valuation and the Global Financial Crises

Property valuation has been a central issue in major global financial crises such as the 2008 global financial crises (Mooya, 2011), the 1970's property crash (Gilbertson & Preston, 2005) and the 1930s great depression (DeLisle & Grissom, 2011). They have revealed significant differences in valuation approaches, resulting in large value

differences and, in many cases, unrealistic estimates of similar assets as a result of poorly trained or unregulated Valuers (Gilbertson & Preston, 2005). This resulted in significant valuation reviews and changes (Mooya, 2011). For example, the RICS red book was introduced in the United Kingdom in response to the 1970s property crash caused by poor valuations (Gilbertson & Preston, 2005).

The collapse of the commercial property market in the USA in 2007 was attributed to criticism of the valuation process, including its policies and practices (DeLisle & Grissom, 2011). This non-agency mortgage crises was thought to have caused by property prices that stopped rising (d'Amato, 2015).

Prior to the slowing of growth, high property prices that could not be explained by fundamentals were the result of the property boom (Mooya, 2011). Interest rates and sub-prime lending further gave rise to demand in the property market during this period, resulting in an unsustainable bubble that caused the property market to collapse, leading to the 2008 global financial crises (Mooya, 2011). The collapse of the property market meant default in loan repayments and foreclosures due to affordability issues (Mooya, 2011), as properties could no longer fetch attractive cashflows that were based on the high property values and feasibilities. Tenant distress and fears about continuous depreciating values made forecasting of cashflow in valuation models even difficult (Mooya, 2011). Liquidity issues meant only a few properties were sold in the market that were forced sales, which made it challenging for valuers (Mooya, 2011).

Criticisms of valuation process and its policies typically arises when the market cycle is at a trough and establishing floor in value is difficult, or when the market cycle is at a peak and sales transaction suggest the sky is the limit (DeLisle & Grissom, 2011).

2.6.3 Market Value

Property valuation are required for different purposes, ranging from secured lending, insurance, rental assessments, financial reporting, sales and purchase, deceased estates. It is the process of estimating an opinion of value in exchange under certain assumptions (Wyatt, 2013). The process of commercial property valuation includes forecasting future benefits over time and converting them into a present value that reflects the benefit of purchasing an interest in property as well as the opportunity cost and risk (Wyatt, 2013). The most common bases of property valuation are market

value. Market value correlates more to the concept of value-in exchange (Wyatt, 2013). It is defined as “the estimated amount for which an asset or liability should exchange on the valuation date between a willing buyer and a willing seller in an arm’s length transaction, after proper marketing and where the parties had each acted knowledgeably, prudently and without compulsion” (IVSC, 2020:18).

2.6.4 Valuation Approaches

Different valuation regulating bodies and legislative pieces provide guidance to valuers when embarking on valuation tasks, including prescribing valuation methods and techniques that guide them in value estimations (French, 2011). In Namibia, valuation procedures are supposed to be governed by the Namibian Property Valuers Act of 2012 and regulated by the Namibian Council for Property valuers Profession. The Council is currently inactive; therefore, most valuation practices and procedures are unregulated . In the UK, valuation procedures are regulated to a large extent by the RICS under the provision of the international valuation standards (RICS, 2017).

There are three internationally recognised property valuation approaches: the market approach, income approach and cost approach (IVSC, 2020, Wyatt, 2013). In addition to the three approaches, the profits and residual approach are other valuation methodologies (Scarret,2008 & Wyatt,2013). The selection of the approach and method depends on the bases and premises of value, the terms and purpose of valuation, availability of information, type of property to be valued and the strength and weaknesses (IVSC, 2020). They are all based on the economic principles of price equilibrium, anticipation of benefits or substitution (IVSC,2020). Most importantly the principle of comparison is the foundation of all valuation methods (Wyatt,2013). Below is a description of the most recognised valuation approaches with an emphasis on the income approach.

The Income Approach

This is the most common and suitable approach for valuing income producing properties that can be compared to other income generating properties on the market (IVSC, 2020, Reinert, 2019, Scarrett, 2008, Wyatt, 2013). The value of the property is

based on the income stream it produces (Reinert, 2019). It entails discounting future benefits into a present value (IVSC, 2020, Wyatt, 2013).

There are two methods that are popular in determining values of income producing properties under this approach, which are the direct income capitalisation also known as the all-risk yield method and the discounted cash flow method (Wyatt, 2013).

All Risk Yield/Direct Income Capitalisation Method

The all-risk yield method capitalises the property's annual net rent/income with a yield derived from similar property investments in the market (Scarrett, 2008, Wyatt, 2013). The key variables in this method are net rentals/income and yield (Wyatt,2013). The net rentals/income is calculated by examining gross incomes, expenses, and vacancy rates. Valuers analyse the demand and supply of similar investments, compare their rentals and prices to derive an initial yield, which are adjusted to suit the property in question (Wyatt,2013). Due to the heterogeneity nature of real property, Valuers intuitively adjust the yield to reflect the actual or perceived differences (Scarrett, 2008). These adjustments take into account all of the factors that influence investment value, such as income and capital risk, growth potential, the age and life of the building, location, quality of tenant covenant, amongst others (Scarrett, 2008, Wyatt, 2013).
The all-risk yield implicitly quantify these factors (Wyatt, 2013). The method does not project income or any other variables beyond current market trends; instead, it is backward looking and bases its variables on historical data (Reinert, 2019, Scarrett, 2008, Wyatt, 2013).

The method is criticised because of the implied growth, which in reality it hides income and capital growth (Wyatt, 2013). The yield understates the level of expected return for investors (Scarrett, 2008). It does not simulate investors assumptions or forecasts concerning the holding period, the pattern of income, or changes in the value of the original investment (Pyhrr et al., 1996).
Albeit the criticism, the method is said to be more reliable because of the yield that is based on sales comparable (Wyatt, 2013). A market valuation should use market derived data inputs (Wyatt, 2013). The method is l forecasting, but weaken by the future expectations that are encapsulated in the yield (Wyatt, 2013).

Discounted cashflow technique

The DCF involves forecasting income over a suitable anticipated holding period of the investment and applying an appropriate discount rate and exit yield to determine the value of the property (Wyatt, 2013). It is more of a financial modelling technique which compares property and other forms of investment (Wyatt, 2013).

Unlike the all-risk yield, the DCF considers income and capital growth, depreciation, timing of cashflow, expenditure and the discount rate (Wyatt, 2013).It might require adjustments to be made on the variables input over the holding period (Wyatt, 2013). Pyhrr (1996) explained some of these adjustments are assumptions of constant or fluctuations in rentals, expenses and vacancy levels, and a single terminal capitalisation rate with no analysis of reversion value of each year; (Pyhrr et al., 1996).

Market Approach

The approach provides indication of value by looking at the prices of comparable properties that were sold in the market (IVSC, 2020, Pagourtzi et al., 2003, Scarrett, 2008, Wyatt, 2013). Comparable properties that were sold are compared to the property to arrive at the value of the property (IVSC, 2020, Pagourtzi et al., 2003, Scarrett, 2008, Wyatt, 2013). This is usually the most preferred approach of valuation in determining market value provided that valuers have all necessary information required to complete a valuation.

Cost Approach

On the condition that valuers have all necessary information to complete a valuation, this is usually the most preferred approach of valuation in determining market value.(IVSC, 2020, Scarrett, 2008, Wyatt, 2013). It involves estimating replacement or reproduction cost of a property, depreciating this cost, and adding land value to arrive at the market value of the property (Wyatt, 2013). The approach is primarily based on replacement cost, and applicable to non-income generating properties (IVSC, 2020). It is also applicable in thin markers, were comparable properties rarely trade.

Profits Method

Some trade-related properties are specialised in the sense that they are purpose built, owner occupied or have monopoly value due to their unique location, legal status, or planning permission (Wyatt, 2013). These properties are usually sold as going

concerns and their specialty in nature makes it difficult to obtain rental evidence from the market (Wyatt, 2013). The profits method of valuation is usually appropriate to arrive at such values (Wyatt, 2013). The approach bases value on the property potential net profit adjusted to reflect a reasonable business operator (Scarrett, 2008, Wyatt, 2013). This adjusted net annual profit is then capitalised at a yield to determine the capital value of the property from the perspective of the occupier, or divided into two portions, one which is available as rent for the business premises and the other as residual profit for the business operator (Wyatt,2013). From the investor's perspective, the rent portion is capitalised at a yield to arrive at the value of the property (Wyatt, 2013).The method is therefore based on the economic assumptions that the business makes a profit, and that rent is a surplus paid out of this profit (Wyatt, 2013).

Residual approach

This approach is use in determining values when undeveloped land is ripe for development, redevelopment, and refurbishment (Pagourtzi et al., 2003, Scarrett, 2008, Wyatt, 2013). The approach is based on the economic concept that the value of the land is the surplus remaining after development costs are subtracted from the estimated development value (Wyatt, 2013). The approach calculates the value of the site by; (a) estimating completed development value which involves the use of market rentals for similar properties and capitalising these rentals with an appropriate yield from the market, (b) estimating total development costs by incorporate market related constructions costs, (c) estimating developers profit and the surplus which than becomes the land value (Scarrett, 2008, Wyatt, 2013).

For the purposes of this study, literature suggests that the income approach is the best approach for valuing commercial properties, specifically retail and office properties. The section that follows identifies the challenges of this approach in different economic and property market conditions.

2.7 Challenges of Using the Income approach During a Peak and Trough of the Economic and Property Cycle

It was earlier discussed that a typical market valuation of an income producing property defines a set of current market conditions and economic trends (Pyhrr et al.,

1996). Both methods under the income approach assume market conditions and economic trends to remain stable into the future, because they are trend driven (Pyhrr et al., 1996). The arguments made earlier in the literature review is that the economy and the property market are cyclical.

Key issues associated with the income approach is that it stabilizes cash flow variables in a single or multi-year pro forma, assuming markets are efficient and implicitly discount cash flows at an implicit discount rate (Born & Pyhrr, 1994, d'Amato, Siniak & Mastrodonato, 2019). The approach is said to be biased towards trend analysis and usually assumes constant annual changes in rents and expenses, and constant terminal value capitalization rates with no analysis of reversion value each year (Born & Pyhrr, 1994, Pyhrr et al., 1996). The input data are historic trend driven and do not consider the impacts of economic and market cycle (Pyhrr et al., 1996). Historic trend analysis can result in over or under valuation when the property cycle is approaching a peak or bottom, because factors affecting changes in rents, vacancy rates and expenses over time are not reflected (Pyhrr et al., 1996). These assumptions are also slightly off with the property manager's annual rentals and expenses escalations to account for inflation and projected growths (Pyhrr et al., 1996).

If the income approach assumes markets to be stable, then imagine when the property cycle is near or at a peak, when market demand is more than supply, the trend analysis assumes that current rent levels or income will continue to rise at or above inflation (Pyhrr et al., 1996). At a critical point, supply will exceed demand, and vacancies will rise, making it impossible to maintain these high rents (Pyhrr et al., 1996). When valuing a property during or near a peak of a property cycle, valuers may overstate the property value due to historical trend-driven analysis (Pyhrr et al., 1996). Equally, when the valuation date coincide with a property cycle near or at a trough, when market supply exceeds demand, property value can be understated (Pyhrr et al., 1996). Historical trend driven analysis do not incorporate analytical forecasts structure that shows the impacts of important economic factors affecting changes in these valuation variables over time (Pyhrr et al., 1996).

The reality is that investor's attitude and behaviour is based on dynamic environment characterised by cyclic economic forces (Pyhrr et al., 1996). Usually, these steady or

linear changes assumptions in these valuation variables are not supported by investors decisions (Pyhrr et al., 1996).

Valuers have not included these economic factors for one or more of the following reasons. Lack of knowledge and poor understanding of the impacts of economic cycles on these valuation variables (Pyhrr et al., 1996).Insufficient market analysis due to time constrains and scarce funds to quantify property supply, and the position of the market within the cycle (Pyhrr et al., 1996). Trend analysis are said to be easier, and less expensive than fluctuating market trend analysis (Pyhrr et al., 1996). Valuers also find it difficult to identity analytical models that help them apply the impacts of economic cycles, if known, into a DCF and traditional income model (Pyhrr et al., 1996). Due to a lack of evidence of purchasers using cycle forecasts in their investment decisions, valuers appear to ignore cycle impacts in their valuation (Pyhrr et al., 1996).

Regardless of the reasons stated above, literature shows that economic cycles exist and can be measured, and that they are linked to the property market, from which property valuation variables are derived (Pyhrr et al., 1996).

In his study to evaluate the linkages in the market between urban economy cycles, real estate demand and supply cycles, construction cycles and property life cycles, Pyhrr examined the effects of these cycles on cash flow variables and their significant impact on market value (Pyhrr et al., 1996). He compares the traditional valuation method (DCF) of two appraisers of a 307-unit apartment project in Houston to the validity of a cycle valuation model (Pyhrr et al., 1996). When the Houston real estate cycle was in a trough, a specific REIT declared bankruptcy and requested lenders to reconsider - loan terms in order to reflect depressed market conditions (Pyhrr et al., 1996). Lenders argued that the REIT had no equity based on the lender's appraisal and pressed for foreclosure (Pyhrr et al., 1996). The REIT claimed it had equity based on realistic turnaround scenarios in cities where it had properties, including Houston (Pyhrr et al., 1996).. The lenders appraised the properties for $5,380,000, while the borrowers appraised them for $6,200,000, and the cycle model at $6,985,000 (Pyhrr et al., 1996). Both of the appraisals based their variables on trend analysis and undervalued the properties at the time when the market cycle has passed its trough and clearly into early recovery phase (Pyhrr et al., 1996). Both appraisals DCF models

had a constant annual increase over the holding period for potential gross income, vacancy rates, operating expenses, cashflow capitalization rate, and exit capitalisation rates, and failed to take into account the importance of cycles relationships and their impacts (Pyhrr et al., 1996). The cycle valuation model reflected changes of these variables over the holding period to realistically reflect on additional risk during the property life cycle (Pyhrr et al., 1996).

2.8 Summary

The literature review begins with an introduction to economic cycles, which discovered that the world major economic crises was caused by major undesired fluctuations in the economy. Literature describes the economy to function as a living organism with irreversible and dynamic cyclical processes. The different authors are consistent with Burns and Mitchel definition of economic cycles, which is simply fluctuations in aggregate economy. Economic cycles consists of expansion and contraction phases.

In order to identify the variables required to establish economic cycles, literature and empirical studies on economic indicators are studied. The different authors are consistent with identifying GDP as the most common proxy of the economy. Other variables include interest rates, employment rates, inflation, wholesale and retail sales, industrial production, and income levels. According to literature, in order to measure economic cycles, one must first define a cycle, differentiate between economic fluctuation and other types of fluctuations, detect cycle, and measure its feature. There three approaches to defining economic cycles are: classic, growth, and growth rates. Seasonal adjustment is required to differentiate between economic cycles and other fluctuations in the time series dataset. To extract the cycle component from the data, a filter should be used. The most common filters revealed in the literature are the CF,BK,HP, and band-pass filters. A definition of expansion and contraction phases must be identified in order to measure the cycle feature.

To identify variables used in establishing property cycles, the literature begins this section by providing a background on property cycle. Property markets were previously blamed for some of the major economic crises, owing to fluctuating unrealistic property prices. In order to understand property cycles, it was necessary to review literature on how the property market works. To provide this understanding, a

real estate four quadrant framework is presented. It defines the real estate market as a network of interconnected rent, price, construction, and new development markets. The fundamental relationship between the economy and the property market is seen in this model. Property cycles is explained as fluctuations in the property market, which are similar to economic cycles theory. Most authors identified property prices, rentals, and vacancy rates as indicators of property cycles. Others mentioned capitalisation rates, total property returns, expenses, subdivisions, demand, and supply of property. Unlike the economic cycles, there is a gap in literature on how to measure property cycles. However, empirical studies dating the Malaysian property cycle revealed that the authors used similar filters as described in measuring economic cycles. In the Malaysian case, the Band-pass filter was applied to extract the Malaysian property cycle.

To understand the theory behind the relationship between economic and property cycles, literature on the subject was reviewed. The different authors agree on the theory that the economy is linked to the property market through fundamentals. In the property cycle section, the real estate four-quadrant model begins to provide insight into this relationship. Empirical studies in Malaysia, South Africa, Canada, United Kingdom, United States of America, and Australia suggests that a relationship exist between the economy and the property market under different variables. .

Finally, the literature examined potential issues associated with valuing income producing properties at or near peaks and troughs of the property and economic cycles. Literature identified a market valuation of an income producing property to contain an estimate of variables describing a set of current market conditions and economic trends that are assumed to remain stable into the future. These variables are driven by historical trends driven and do not consider the impacts of economic and market cycle. Valuation has been the central issue in the major financial crises. This criticism appears to arise when the cycles are at a trough, when valuers find it difficult to assign a value to property when the market is recording unusual figures, or at a peak, when sales transaction are recording unusually higher than usual figures.

To get an understanding on the methods used in valuing income producing properties and the respective variables, literature on valuation approaches is examined. The market approach, income approach, cost approach, residual approach, and profits approaches are identified as the five approaches to valuing properties. The income

approach was determined to be the most appropriate approach for valuing income producing properties that can easily compare to others on the market. This approach's most popular methods are direct income capitalisation and the DCF. The future benefit of receiving an income is discounted into a present value using these methods. The variables are based on historic data, which has been criticised in the literature. Historic trend analysis can result in over and under valuation of properties, especially when the property cycle is approaching a peak or bottom, because factors affecting changes in these variables are not reflected. According to the literature, valuers do not incorporate economic and property cycles for reasons provided. Valuers lack understanding on economic and property cycles. They do not conduct adequate market analysis and instead base their valuation on historic trend analysis, which is simpler. They are not informed on analytical models that help them apply the impacts of economic cycles, if known, into a DCF and traditional income model.

Chapter 3 : Methodology

3.1 Introduction

This chapter outlines the research strategy and design, methods of data collection and analysis. The purpose of this study is to establish whether a relationship exist between the Namibian economic cycle and the Windhoek commercial property cycle, and their impacts on the income approach of valuation. In fulfilling this inquiry, the research aims at addressing the following questions: One, what are the economic variables required to establish economic cycles? Two, what are the commercial property variables required to establish commercial property cycles, and are they linked to economic cycles? and three, what are the challenges faced by valuers when valuing commercial properties using the income approach at or near a peak and trough of both economic cycle and commercial property cycle?

Figure 3.1 illustrates the full research methodology of the study. The research takes a deductive approach in reasoning, with the purpose of determining, correlating and describing. Existing theories are evaluated through observation, taking a positivist paradigm. The research will take a mixed-use approach in addressing the research problem. It makes use of secondary data analysis, correlational analysis, and field survey design. The study will make use of secondary data by retrieving all required reports from the relevant websites, and a questionnaire to collect the primary data. This strategy confers to the definition of a strategy as defined by Mintzberg (1987) which is a perspective, a position, a comprehensive plan, behavioural pattern, and tactics in achieving a goal (Mintzberg, 1987).

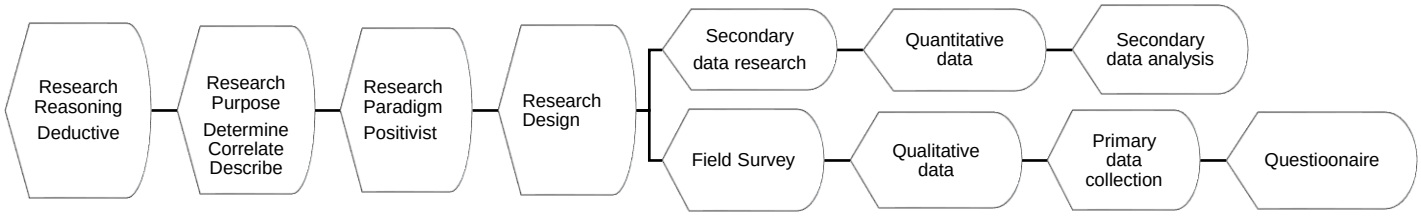

Figure 3.1 Research Plan

3.2 Research Approach

The three popular approaches to carrying out research are qualitative, quantitative, and mixed methods (Williams, 2007). The research question will enable the researcher to anticipate the type of data required, subsequently the research approach (Williams, 2007).

3.2.1 Inductive and Deductive cognition

This research takes a deductive approach by testing existing theories. A deductive approach uses concepts and patterns to test existing theory through new empirical data (Bhattacherjee, 2012). In inductive approach the research infers theoretical concepts and patterns from observed data (Bhattacherjee, 2012, Walliman, 2010), that is, it is theory building (Bhattacherjee, 2012).

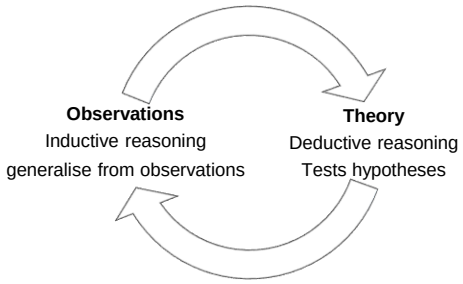

Figure 3.2 Deductive and inductive reasoning

(Bhattacherjee, 2012).

The literature review conducted in chapter two presented and reviewed existing theories on economic and property cycles and how they are linked. The theory suggest that economic and property cycles exist, and that they are linked. It further revealed that valuation fit in this framework. Literature suggested that during peaks and troughs of these cycles, valuers tend to overvalue and undervalue properties. To test whether these theories are applicable in the Namibian context, secondary data on both economic and property markets will be collected to establish the existence of these cycles. It will then test the theory of correlation between the two cycles. To test whether both cycles troughs and peaks have an impact on property valuation, a

questionnaire will collect primary data from valuers to identify whether they face challenges during these times as suggested by the literature.

3.2.2 Quantitative and Qualitative Considerations

The research objectives and questions provide a good guide on the type of data used in this research. Data can be categorised into two characteristics, that is, qualitative and quantitative (Bhattacherjee, 2012, Williams, 2007).

Quantitative approach

Quantitative research was introduced in the 1250 A.D, driven by investigators with the need to quantify data (Williams, 2007). The approach assumes that "the reality is relatively independent of the context and can be abstracted from their contexts and studied using objective techniques such as standardized measures" (Bhattacherjee, 2012). This type of research can be used in research where relationships between variables is of interest (Williams, 2007). Numbers are used to record a phenomenon in this approach (Bhattacherjee, 2012, Lowhorn, 2007, Walliman, 2010).

Qualitative approach

This approach assumes that social phenomenon is shaped by human experiences and is therefore best studied from their viewpoints (Bhattacherjee, 2012, Williams, 2007). Non-numeric data is used to record a phenomenon (Bhattacherjee, 2012). This type of research is purposefully meant for describing, explaining, and interpreting data (Bhattacherjee, 2012, Williams, 2007).

Mixed approach

A mixed approach is the combination of quantitative and qualitative approaches in research (Bhattacherjee, 2012, Williams, 2007). It uses both numeric and non-numeric data (Bhattacherjee, 2012, Williams, 2007).

The research takes form of both quantitative and qualitative data, that is, a mixed data approach.

3.3 Research Paradigm

A paradigm is the method by which scientists comprehend and examine the world's reality (Rehman & Alharthi, 2016). This research takes a *positivist paradigm*, which are in support of theory testing through observations (Bhattacherjee, 2012). French philosopher Auguste Comte introduced the philosophy of p*ositivism*, about the same century of German idealism (Bhattacherjee, 2012). He proposed that theory and observations are independent of each other (Bhattacherjee, 2012). He reasoned that, theories are only reliable if tested through observations (Bhattacherjee, 2012, Walliman, 2010).

Positivism is based on the researcher's perspective, which produces generalization by dealing with observable reality within society (Alharahsheh & Pius, 2020). It emphasizes the significance of what is presented in general and places a stricter emphasize on taking into account only the facts and pure data, free from the interpretation of human bias (Alharahsheh & Pius, 2020).

Realism is the ontological stance of positivists (Rehman & Alharthi, 2016). It aims to comprehend society in the same way that it does the natural world (Rehman & Alharthi, 2016). Since reality is context free, researchers from many eras and locations will come to the same conclusions regarding a certain phenomenon (Rehman & Alharthi, 2016). Positivists holds an objectivist view of epistemology (Rehman & Alharthi, 2016). Researchers enter the field as unbiased observers to investigate the phenomena that exist apart from them; they have no influence over or interference with what is being observed (Rehman & Alharthi, 2016). They will describe phenomena using words and symbols that are completely unaltered from any form of description (Rehman & Alharthi, 2016).

Theories that claim that economic and property cycles exist, is identified in the literature, including problems associated with valuing properties during different phases of both cycles. This study uses data gathered, and through observations, it will be able to attest to whether the pre-existing theory hold true for the occurrences investigated, this paradigm is consistence with the previously provided explanation.

3.4 Research Design and Strategy

Research design is an inclusive plan for data collection aimed at providing answers to the research questions (Bhattacherjee, 2012). It usually specifies the process of data collection, instrument development and sampling (Bhattacherjee, 2012).

The general research problem and questions are formed at first by the continuous lectures on urban land economics and valuation courses. Exploratory research including literature review and unstructured discussions with lectures and valuers motivated the study.

As previously stated, the study employs both a qualitative and quantitative approach. It necessitates secondary data research, correlation, and survey design. A purposive sampling approach with the support of snowball strategy was used to identify the sample of commercial property valuers. A questionnaire was used to collect primary data. The questionnaire is administered through google forms. Data analysis is descriptive. The following sections gives detail explanations of the design entailed above.

3.4.1 Research Strategy

Research generally has three purposes which are to explore, describe and explain a behaviour or phenomena (Bhattacherjee, 2012). Jackson (2015) suggests similar purposes except that exploratory research is substituted with predictive research. The notes below will reflect on all four purposes.

Exploratory research

This type of research is used when the purpose of the research is to "scope out the magnitude of a phenomena, problem, or behaviour, to generate some initial ideas hunches") about that phenomenon, to test the feasibility of undertaking a more extensive study regarding that phenomenon" (Bhattacherjee, 2012:9).

Descriptive research

Careful observations and detailed documentation of a phenomenon of interest is made in descriptive research (Bhattacherjee, 2012). The what, where, and when of a

phenomenon are examined (Bhattacherjee, 2012). It allows a researcher to describe a phenomenon (Jackson, 2015).

Predictive research

In this research, the factors that displays when a phenomenon will occur is identified (Jackson, 2015). The researcher can anticipate a phenomenon's dependence on another phenomenon (Jackson, 2015).

Explanatory research

The researcher is able to identify the causes that determines why and when a phenomenon, problem, or behaviour occurs (Jackson, 2015). This type of research seeks answers to why and how questions (Bhattacherjee, 2012).

The study objectives and questions take a descriptive approach. Firstly, it is descriptive in a sense that it seeks to determine whether or not economic and commercial property cycles exist in Namibia, secondly to determine whether a relationship exist between the cycles and thirdly to identify problems faced by valuers when valuing during peaks and troughs of both cycles.

3.4.2 Research Design

There are several types of research design applied to different research projects, depending on the research problem posed by the research objectives and questions (Walliman, 2010). This research has identified *secondary data research* and *correlation research* to be the best design for the first two research objectives and questions. The *Field survey* was identified to be the best research design for the third research objective and question.

Secondary Data Research

In this design, the researcher uses data that has already been collected and organised by others (Bhattacherjee, 2012, Miller & Brewer, 2003). This type of design is usually beneficial if collecting primary data is costly and impractical (Bhattacherjee, 2012). It also avoids biasness in data collection because the researcher is not involved in the

planning and collection of the data primarily (Church, 2002). The approach is in infamous in qualitative analysis due to ethical issues (Miller & Brewer, 2003).
Collecting macroeconomic variables and property variables from scratch is costly and time consuming. It also requires authority to gain access to such data. This research design is suitable for the first and second objectives of this research.

Correlation Research

This type of research is aimed at examining a correlation relationship between two concepts or causal relationships (Walliman, 2010). In the correlation between two concepts, the link between concepts is studied and one concept or variable can have some sort of influence on the other concept or variable (Walliman, 2010). The correlation can either be none, positive or negative (Walliman, 2010). Causal relationships usually describe what is referred to the “cause and effect” relationship (Walliman, 2010). The cause is usually referred to as the independent variable and the affected variable as the dependent variable (Walliman, 2010).
This research design suits part of the second research objective, which is to link the commercial property cycle to the economic cycle.

Field Surveys Research
Field surveys observes a phenomena from a random sample of subjects in field settings through means of survey questionnaire or a structured interview (Bhattacherjee, 2012). Field surveys can be cross-sectional or longitudinal (Bhattacherjee, 2012). Most literature is quiet on the classification of *field survey method*, that is whether they are quantitative or qualitative research (Jansen, 2010). Jansen (2010) however argues it is qualitative if it does not quantify the frequencies of categories, but searches for observations in the phenomena under study, even if their attributes are expressed in numbers (Jansen, 2010).
This design suits the third objective and question of the study, which is to investigate the challenges faced by valuers when valuing commercial properties using the income approach at or a near a peak and trough of both the economic cycle and the commercial property cycle.

3.5 Organisation of Study

The study is conducted by reviewing secondary data and surveying a group of valuers through a questionnaire to obtain the necessary and required data.

3.5.1 Secondary Data Collection

Literature revealed economic cycles to manifest themselves through GDP, interest rates, unemployment, and inflation. In addition to the above, other variables were identified which could not be collected due to lack of data availability. The period under study is 2010 to 2020. This data was retrieved from published reports on NSA,BON, and World Bank websites.

Data collected on commercial property cycles includes retail and office vacancy rates and cap rates. The identified REIT whose properties are located in Windhoek; website was visited were all the above variables contained in their published audited financial statements was recorded. The data was recorded in Microsoft excel database.

3.5.2 Primary Data Collection

The third objective of this research is to investigate whether valuers face challenges in valuing commercial properties using the income approach when both cycles are at or near a peak and trough. This objective is supported by the research question; what are the challenges faced by valuers when valuing commercial properties using the income approach at or near a peak and trough of both economic cycle and the commercial property cycle? In order to answer this research question, the research sample comprised of valuers practising commercial property valuation in Windhoek.
The primary data from the valuers is collected using a structured questionnaire consisting of close ended, contingency, and unstructured questions.

Target population

The targeted population is all valuers practising commercial property valuations in Windhoek. This population would have easily been identified through a valuation register of the Namibian Council for Property Valuers Profession. Unfortunately, the council is inactive hence there is no list of valuers practising valuation in Windhoek.

Sample

In this research, purposive sampling and a snowball sampling strategy is employed to identify the group of valuers practising commercial property valuation in Windhoek. In purposive sampling, when it comes to selecting the units to be studied, sampling relies on the researcher's judgment. Typically, the sample is size is small (Rai & Thapa, 2015). The purposive sampling is supported by the snowball strategy adopted in this research, were a researcher starts by identifying respondents that match the criteria for inclusion in the study who then refer the researcher to other respondents (Bhattacherjee, 2012, Miller & Brewer, 2003). Although this method hardly leads to representative samples, it may sometimes be the only way to reach hard-to reach populations or when no sampling frame is available (Bhattacherjee, 2012, Miller & Brewer, 2003).

Instrument Development

Developing an appropriate and accurate instrument for gathering useful and relevant information is essential in answering research questions (Roopa & Rani, 2012). In developing an understating around data collection instruments, literature revealed a questionnaire to be the suitable instrument for the collection of this study's primary data.

There are different methods of reaching the targeted respondents using questionnaire from face to face interviews, telephonic interviews, mail questions and internet questions (Roopa & Rani, 2012). An invitation was sent out to the email address of the identified valuers with the cover letter as part of the questionnaire. The questionnaire was administered through online service of google forms.

In order to investigate the challenges faced by valuers, close ended, contingency, and unstructured questions were asked. The questions were set on google forms in a way that a responded could not proceed to the next question until required questions were answered. This secured a greater completion rate.

In developing the questionnaire, the research considered the prerequisite of a good question checklist as stated by (Bhattacherjee, 2012:76-77).

- Is the question clear and understandable?
- Is the question worded in a negative manner?

- Is the question ambiguous?
- Does the question have biased or value-laden words?
- Is the question double barrelled?
- Is the question too general?
- Is the question too detailed ?
- Is the question presumptuous?
- Is the question imaginary?
- Do respondents have necessary information to answer the question correctly?

It is important to validate a questionnaire to verify that it measures what it is intended to measure (Roopa & Rani, 2012). For content validity, the questionnaire was presented to the supervisor of this research. The questionnaire was also sent out to two valuers for face validity, after an explanation of the research aims and objectives given.

Questionnaire Content

The questionnaire was divided into eleven sections to collect data on the challenges faced by valuers when valuing commercial properties using the income approach at or near a peak and trough of both economic cycle and commercial property cycle.

Section one was the *information and consent sheet* of the questionnaire. Section two was the *title of the research*. Section three*: demographic information*, consist of seven questions. This collected information on the respondents' age group, experience, geographical area of practise, qualifications and registration with valuation regulating bodies outside Namibia.

Section four: *awareness of economic cycles*, consist of only one yes or no question which was to determine whether or not valuers were aware of economic cycles. A no to this question enabled the respondent to skip section five, while a yes answer allowed them to procced to section five.

Section five: *understanding of economic cycles*, consist of two questions, which were to determine whether valuers or not valuers that responded yes in section four really do understand economic cycles.

Section six: *awareness of commercial property cycles*, consist of one question with a yes and no answer which intended to determine whether or not valuers are aware of

commercial property cycles. A no to this question allowed respondents to proceed to section eight, while a yes had to answer section seven.

Section seven: *understanding of commercial property cycle*, consist of two questions which were also to determine whether valuers do understand commercial property cycles or not.

Section eight: *the use of the direct income capitalisation method to value commercial properties*, consist of one question, which was to verify that the respondents do indeed apply the method to value commercial properties. If the answer was yes to this question, the respondent was allowed to proceed to section nine. If the answer was no to this question, the respondent was complete with the questionnaire for submission. Section nine: *application of the direct income capitalisation method*, consist of thirteen questions. This section purpose was to identify the challenges of valuing during peaks and troughs of both cycles. The questions started off with attempting to identify the variables used under this method, determine whether these variables are projected over a period of time if so whether assumptions are made, and whether it is easier, difficult or both to value during peaks and troughs of both economic and commercial property cycles.

Section ten: *the use of the discounted cashflow technique to value commercial properties*, consist of one question, which was to verify that the respondents do indeed apply the DCF to value commercial properties. If the answer was yes to this question, the respondent was allowed to proceed to section eleven. If the answer was no to this question, the respondent was complete with the questionnaire for submission. Section eleven: *application of the DCF*, consist of thirteen questions. This section purpose was to identify the challenges of valuing during peaks and troughs of both cycles using the DCF. The questions started off with attempting to identify the variables used under this method, determine whether these variables are projected over a period of time if so whether assumptions are made and whether it is easier, difficult or both to value during peaks and troughs of both economic and commercial property cycles.

Questionnaire Administration

After securing the email addresses from each identified participant from the snowball strategy, a questionnaire comprising of information and consent sheet was emailed to

all participants using google forms. A weekly reminder for four weeks was sent out to all participants and the survey was closed by the end of the fourth week.

3.5.3 Data Analysis

The first and second objectives of the research are to determine whether economic and commercial property cycles exist in Namibia, and whether a relationship exist between the two cycles. Therefore, the purpose of the first two objectives is to determine the existence of phenomena and test relationship. The third objective is to examine the challenges faced by valuers when using the income approach to value commercial properties at the various phases of both economic and commercial property cycles. Therefore, the objective's purpose is to identify challenges faced by valuers. Therefore, the data analysis method is descriptive.

The data analysis of these first two research questions comprised of examining the annual publications, by finding consistence in the forms of value recording. The numeric values of four identified economic cycle variables were recorded in a time series database using Microsoft excel. Similarly, the commercial property cycle variables identified two variables for each market, which numeric values were recorded in a time series database using Microsoft excel. The database was analysed using Microsoft excel. The same datasets were captured in the mFilter package which implements several time series filters useful for smoothing and extracting trend and cyclical components of a time series (Karangwa,2021). The data presentation, interpretation and findings are discussed in chapter four.

The data analysis of question three comprised of examining each response for completeness and correctness. The questionnaire was sent out to 22 participants of which 14 responded. Data from the questionnaire was analysed using Microsoft excel as a tool to analyse the data. Since the sample is small the study made use of respondent's codes, that is R1 to R14 to identify the respondent. The data presentation, findings, and analysis are discussed in chapter.

3.6 Conclusion

This chapter identified the research strategy and design, population, and samples of this study. The quantitative data based on the secondary data collection of population 1 and 2, and qualitative data collected through the questionnaire will be analysed, interpreted, and discussed in chapter four.

Chapter 4 : Findings and Analysis

4.1 Introduction

This chapter presents the findings of the study together with their analysis of the quantitative secondary data collected, and the qualitative data obtained from the questionnaire.

The chapter will proceed in four sections to allow for a clear presentation of findings and analysis of each research question. Subsection 4.2 and 4.3 presents findings and analysis on the variables required to establish economic and commercial property cycles in Namibia and Windhoek respectively, based on secondary data collected. Subsection 4.4 presents the findings and analysis of the survey questionnaire participants' responses on the challenges faced when valuing commercial properties during peak and trough of both economic and commercial property cycles. The findings and analysis of the three research questions are summarised in Section 4.5.

4.2 Establishing the Namibian Economic Cycle

To find the economic variables required to establish economic cycles, the study reviewed relevant literature in chapter two. As discussed in section 2.2, literature revealed that economic cycles manifest themselves through GDP, inflation, interest rates and unemployment rates. Based on this evidence, annual data for all four variables were collected and captured in an excel database between 2010 and 2020. A four-step process was applied to establish the cycle as reviewed in chapter 2. The mfilter package was used to seasonally adjust the fluctuations and extract the cyclical component in the time series. In step one, the cycle was defined using the classical and growth rate approaches. In step two, the data was seasonally adjusted to differentiate between economic fluctuations and other types of fluctuations in the database. In step three, the cyclical components were extracted from the dataset using the HP filter within the mfilter package. Step four involved dating the cycles by identifying expansions, contractions, peaks, and troughs phases. To identify the expansion and contraction periods, the number of periods between the lowest point and the highest point of the cycle were considered as expansion phase, while the period between the highest and the lowest point was considered as contraction a

phase. The highest points were considered as the peak and the lowest points as the trough in each cycle.

4.2.1 Economic Cycle based on GDP

Figure 4.1 shows that the country experienced negative growth between 2019 and 2020. Overall growth trend of GDP is sloping downward indicating declining economic growth.

Figure 4.2 suggests that two economic cycles occurred between 2011 and 2020.The cycles lasted for a period of five and four years for cycle one and two, respectively. During the first cycle between 2011 and 2016, the Namibian economy experienced three years of expansion in growth and two years of growth contraction. The second cycle was observed between 2016 and 2020, with economic expansions lasting for three years and contractions for a year. The second cycle recorded the highest peak in 2019 compared to the first cycle, and the steepest trough in 2020 of cycle one.

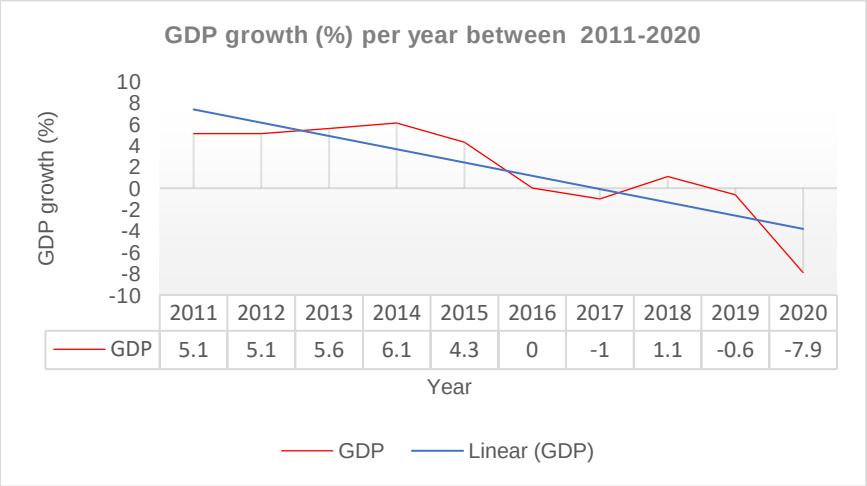

Figure 4.1 Namibian annual GDP trend between 2011 and 2020

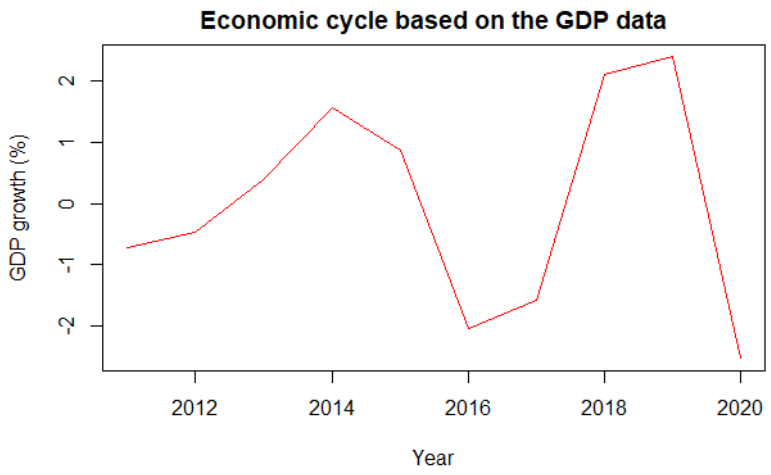

Figure 4.2 Namibian economic cycle based on GDP between 2011 and 2020

4.2.2 Economic Cycles based on Inflation

In figure 4.3, the Namibian price of goods and services experienced a down sloping growth over the period under study.

Figure 4.4 suggests that three economic cycles occurred between 2011 and 2020 based on inflation rates. The first cycle was recorded between 2011 and 2015, comprising of one year of expansion and three years of contraction. The second cycle lasted for three years, that is, between 2015 and 2018. Periods of prosperity lasted for one year while declined growth for two years. The second cycle recorded the steepest trough in 2017 and the highest peak in 2016 compared to the first and third cycle. The third cycle began in 2018 and ended in 2020, lasting for two years. Expansions and contractions phases lasted for a year each.

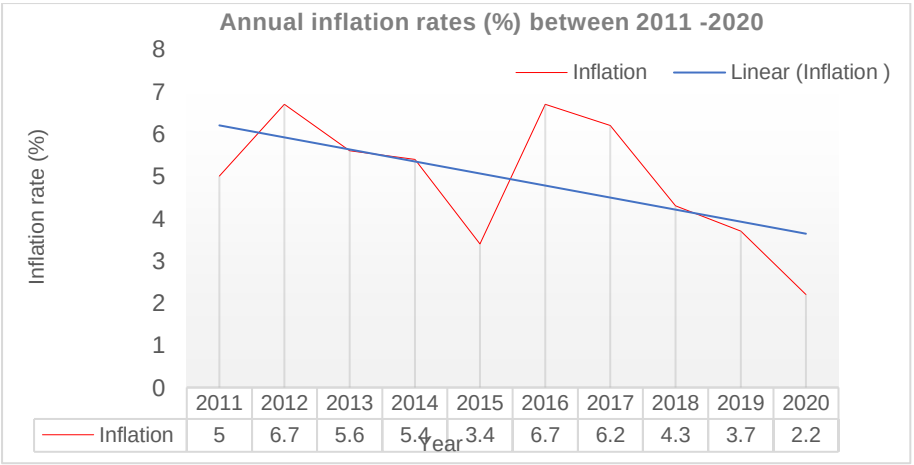

Figure 4.3 Namibian annual inflation rates trend between 2011 and 2020

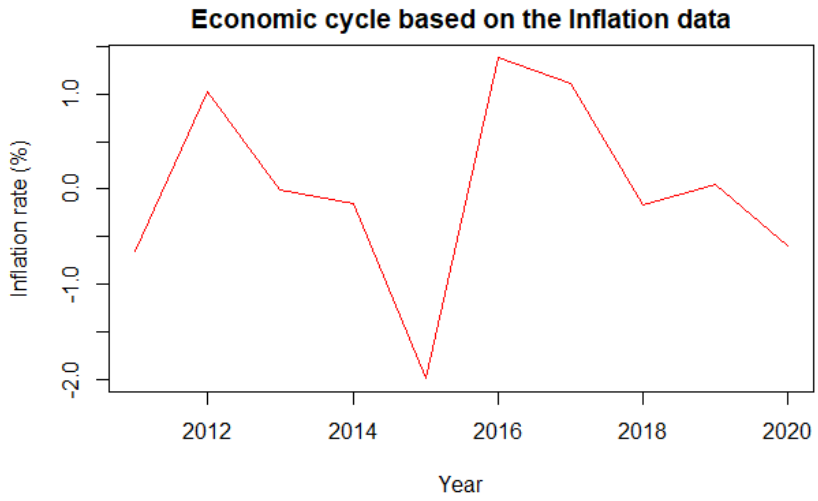

Figure 4.4 Namibian economic cycle based on inflation between 2011 and 2020

4.2.3 Economic Cycles based on Unemployment

Figure 4.5 suggests that the country experienced increased unemployment during the study period The average unemployment rate is 19.9%. The highest unemployment rate was 23.4% in 2016, and the lowest was 16.8% in 2012.

Figure 4.6 suggests that two economic cycles were recorded between 2011 and 2020. The first cycle occurred between 2012 and 2014, with both expansion and contraction lasting for a year each. This cycle begins a year after the GDP and inflation first cycles. For unemployment data, 2011 marked a period of contractions for an existing cycle. The second cycle was recorded between 2014 and 2018, lasting for four years with expansion and contraction lasting for two years each. The figure also shows that 2018 marked the beginning of an existing cycle. The trough recorded in 2012 was the steepest compared to the 2014 and 2018 troughs. Similar to inflation cycle, 2016 recorded the highest peak for unemployment.

Figure 4.5 Namibian unemployment trend between 2011 and 2020

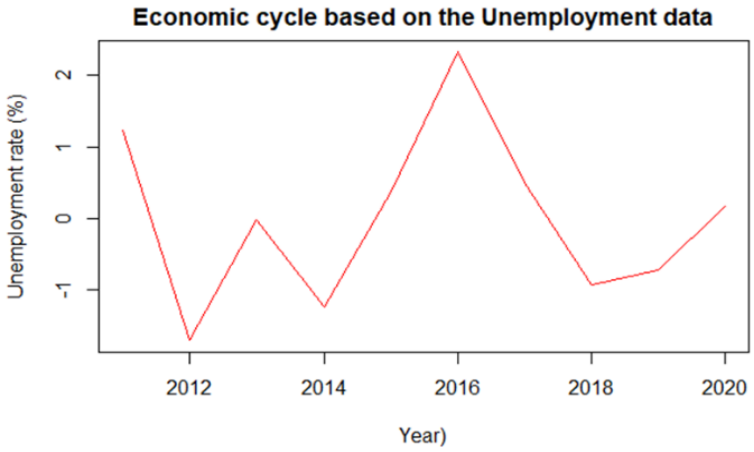

Figure 4.6 Namibian Economic Cycle based on unemployment between 2011 and 2020

4.2.4 Economic Cycle based on Interest rates

The slope of the trendlines in figure 4. 7 and 4.8 shows very small margins of positive and negative growth for the country's prime lending rate and repo rate. There is stable growth in the costs of borrowing from the bank of Namibia.

Figure 4.9 and 4.10 suggests that two economic cycles occurred between 2011 and 2020. In contrast to GDP, inflation, and unemployment, the first cycle under both prime lending rate and repo rate only begins in 2013. It lasted for four years, that is, between 2013 and 2017, with periods of expansion lasting for three years and contractions for a year for both prime lending and repo rates. The second cycle was recorded between 2017 and 2020, with expansion phase lasting for two years and contraction one year

for both prime lending and repo rate. The second cycle recorded the highest peak in 2019 and the steepest trough in 2020 compared to the first cycle of both prime lending and repo rates.

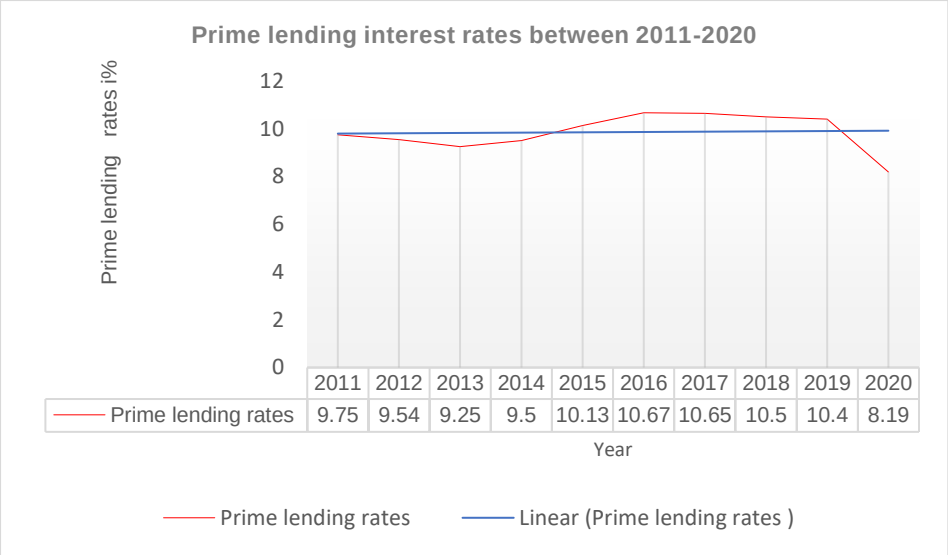

Figure 4.7 Namibian annual prime lending rates trend between 2011 and 2020

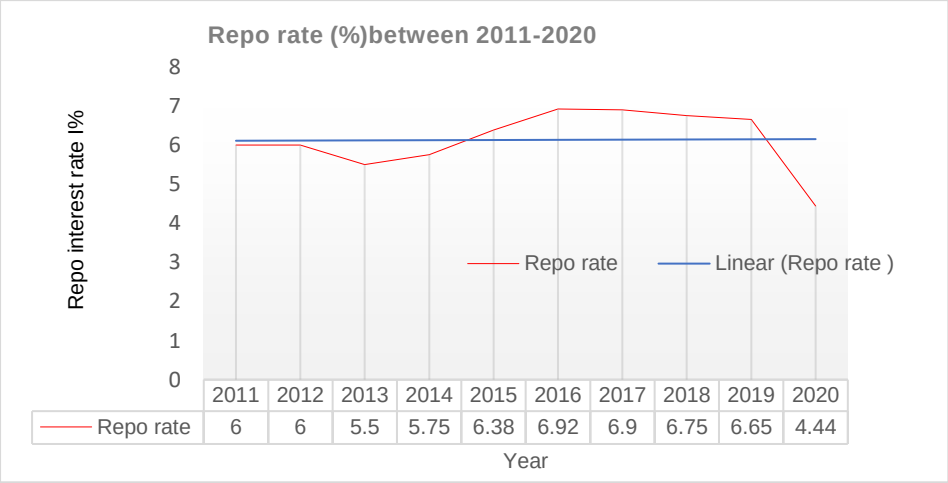

Figure 4.8 Namibian annual repo rate trend between 2011 and 2020

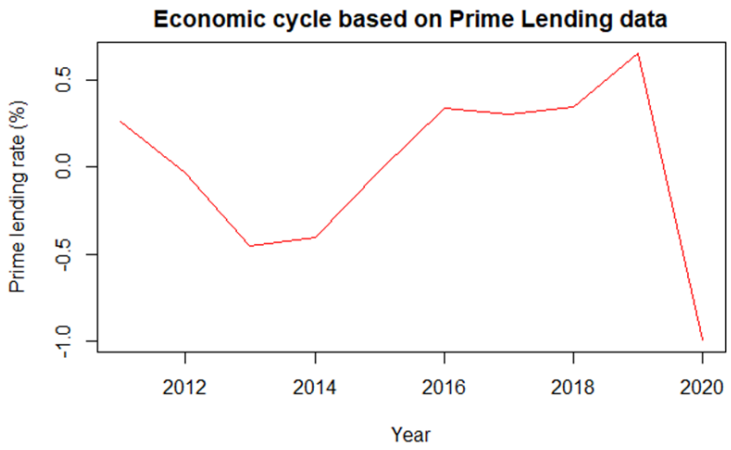

Figure 4.9 Namibian economic cycle based on prime lending rate

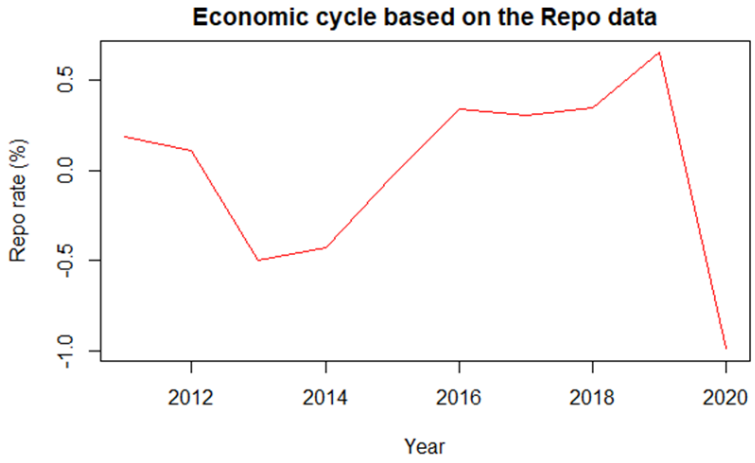

Figure 4.10 Namibian economic cycle based on repo rate between 2011 and 2020

The results above shows that the Namibian economy is cyclical under GDP, inflation, unemployment, and interest rates. All economic variables above shows that two to three cycles existed between 2011 and 2020. These economic cycles are two to five years in long, with most cycles showing longer phases of expansion than contraction.

4.3 Establishing the Windhoek Commercial Property Cycle and Linking it to the Namibian Economic Cycle

To find the commercial property variables required to establish commercial property cycles and their relationship to economic cycle, the study reviewed relevant literature in chapter two. As discussed in section 2.3 and 2.4, property prices, rentals, operating expenses, vacancies, cap-rates, demand, supply, land values and subdivisions of property are the variables that depicts property cycle, and that a relationship does

exist between economic cycle and commercial property cycle respectively. The research has limited data collection to vacancy and cap-rates of both retail and office property market due to lack of availability of data. Similar to the economic cycle, to meet this question objective, the use of HP filter was considered to extract the commercial property cycle from the dataset. A cross correlation analysis was considered to determine the relationship between the two cycles.

This subsection first establishes the commercial property cycle using the retail property market variables and then the office property market variables. Thereafter, it links the Windhoek commercial property market to the Namibian economic cycle.

4.3.1 Commercial Property Cycle based on Retail Property Market

Retail Vacancy Rates

Figure 4.11 shows that the retail vacancy rates are on a rise but with small margins. On average retail vacancy rates are at 0.74%, with 2020 recording the highest vacancy rates of 2%.

Figure 4.12 suggests that two commercial property cycles occurred between 2010 and 2020. The first cycle lasted for three years, that is, between 2012 and 2015, with expansion and contraction phases lasting for one and two years respectively. The second cycle was recorded between 2015 and 2019, lasting four years. Expansions and contractions lasted two years each. The highest peak and steepest trough were both recorded in the second cycle in 2017 and 2019 respectively. The end of 2019 marked the beginning of the existing cycle.

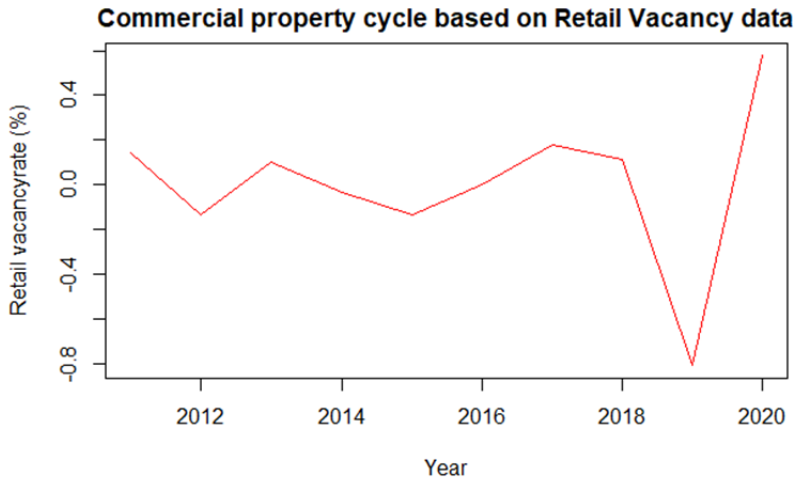

Figure 4.11 Windhoek commercial property cycle based on retail vacancy rate between 2010 and 2020

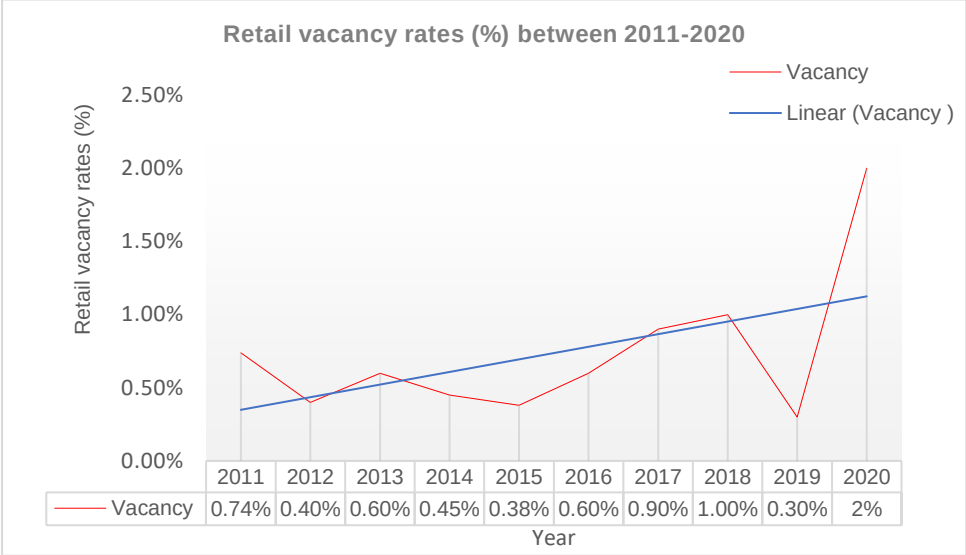

Figure 4.12 Windhoek retail annual vacancy rates trends between 2010 and 2020

Retail Cap rates

Figure 4.13 shows that retail cap-rates are declining, suggesting an increase in property values.

Figure 4.14 shows that two commercial property cycles occurred between 2010 and 2020. The first cycle was recorded between 2013 and 2017, lasting for four years with shorter and longer expansion and contraction phases respectively. The 2013 trough recorded in cycle one was the steepest compared to the second cycle. The second cycle lasted for only two years between 2017 and 2019. Both expansions and

contractions lasted for one year. The second cycle recorded the highest peak in 2018 compared to the first cycle.

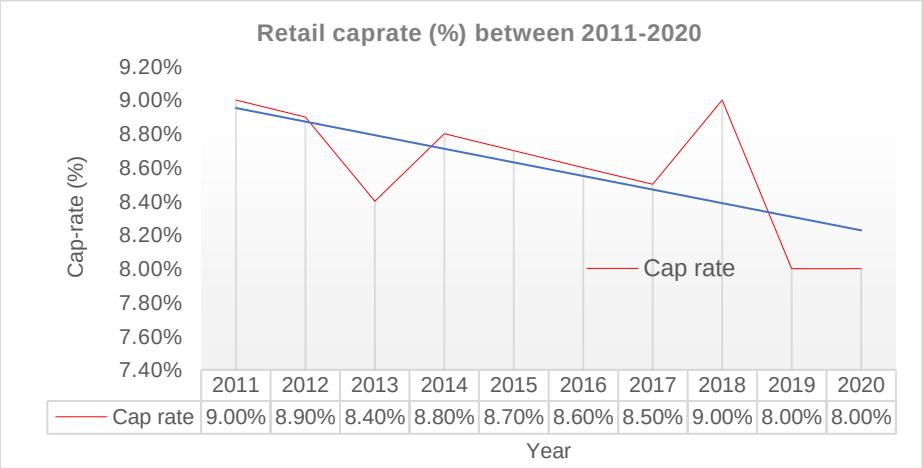

Figure 4.13 Windhoek retail cap-rates annual trend between 2010 and 2020

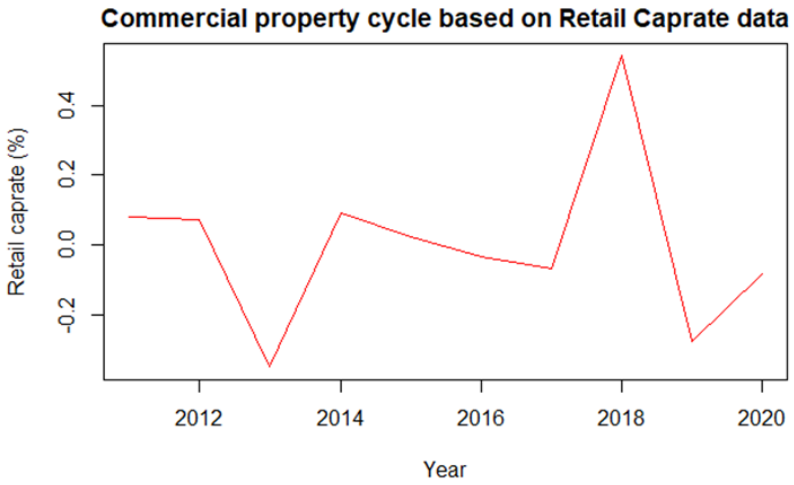

Figure 4.14 Windhoek commercial property cycle based on retail cap-rates between 2010 to 2020

4.3.2 Commercial Property Cycle based on Office Property Market

Office Vacancy Rates

Figure 4.15 suggest that vacancy rates for office property market are declining, indicating higher occupancy rates subsequently higher income levels.

Figure 4.16 shows that three commercial property cycles existed between 2010 and 2020. The first and second cycles lasted for three years each, that is, between 2011

to 2014 and 2014 to 2017 respectively. The first and second cycle experienced longer periods of flourish compared to their contractions. The highest peak and steepest trough were both recorded in the first cycle, that is 2013 and 2014 respectively. The third cycle lasted for two years, that is, between 2017 and 2019. Unlike the case of the first two cycles, the third cycle had equal periods of expansions and contractions.

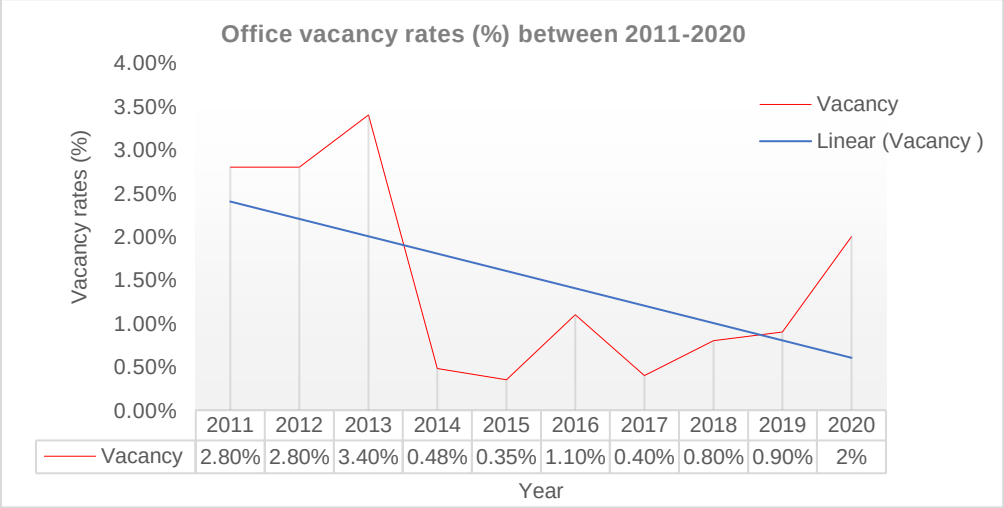

Figure 4.15 Windhoek office vacancy rate trend between 2010-2020

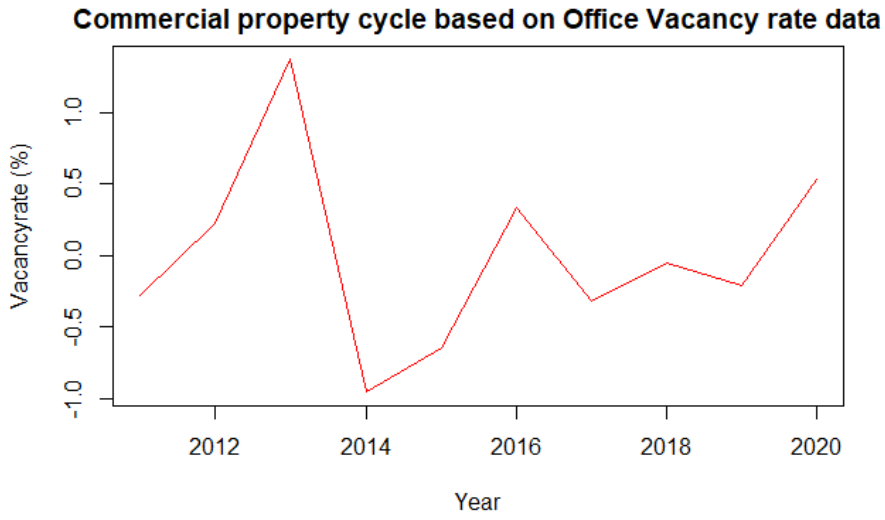

Figure 4.16 Windhoek commercial property cycle based on office vacancy rates between 2010 to 2020

Office Cap rates

Figure 4.17 is indicating decreasing office cap-rates which suggest increasing property values

Figure 4.18 suggest that commercial property cycles exist based on office cap-rates Two commercial property cycles were recorded for the period under study. The first cycle lasted for four years with more periods of expansion than contractions. The second cycle lasted for two years, both expansion and contraction periods lasting for a year each. The first cycle recorded the highest peak in 2015. The second cycle recorded the steepest trough in 2018 compared to the 2012 and 2016 troughs.

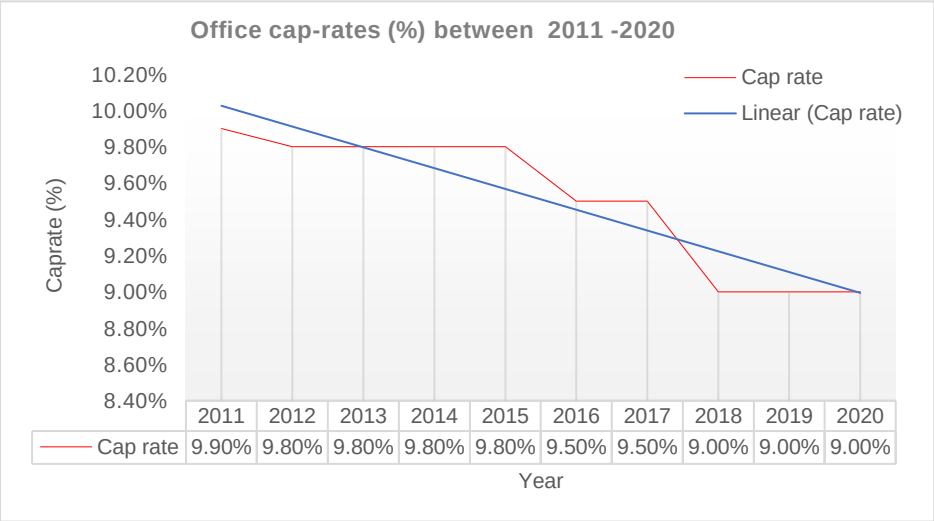

Figure 4.17 Windhoek office cap-rate trend between 2010-2020

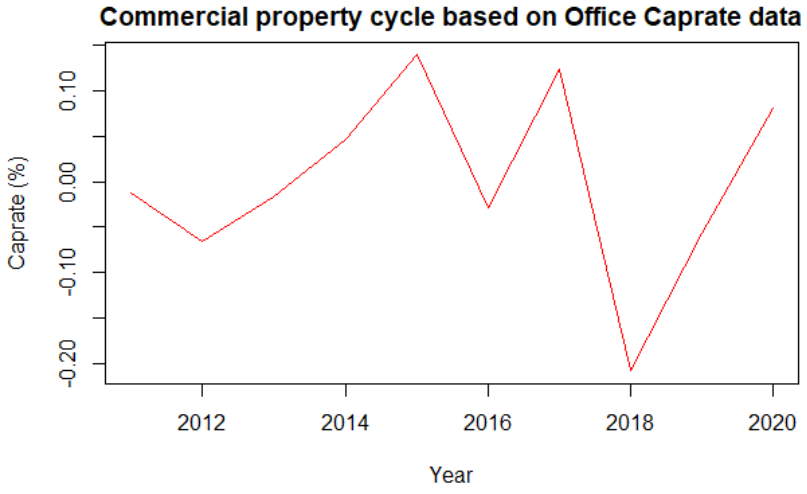

Figure 4.18 Windhoek commercial property cycle based on office cap-rate between 2010-2020

The results above shows that the Windhoek commercial property market is cyclical under the retail and office vacancy rates and cap-rates. Between the period 2010 and 2020, two to three commercial property cycles occurred with periods lasting for two to four years. Expansion phases lasted between one to two years while contractions lasted one to three years.

4.3.3 Relationship between the Namibian Economic Cycle and the Windhoek Commercial Property Cycle

The data presented above confirms that both the Namibian economy and the Windhoek commercial property market are cyclical under all identified variables. In this section, all the variables that were used above to establish the Namibian economic cycle are linked to all variables used in establishing the Windhoek commercial property cycle. A sample cross correlation function is used to link the cycles.

Linking the Namibian Economic Cycle based on GDP to the Commercial Property Cycle based on the Retail Property Market

Figure 4.19 below shows the relationship between the Namibian economic cycle based on GDP and the Windhoek commercial property cycle based on retail property market. When compared to GDP and vacancy rate, retail cap-rate was more volatile. The retail cap-rate cycle had the highest peak and the steepest trough. A relationship exists between GDP and office vacancy rates. Figures 4.20 and 4.21 below further explains these relationships.

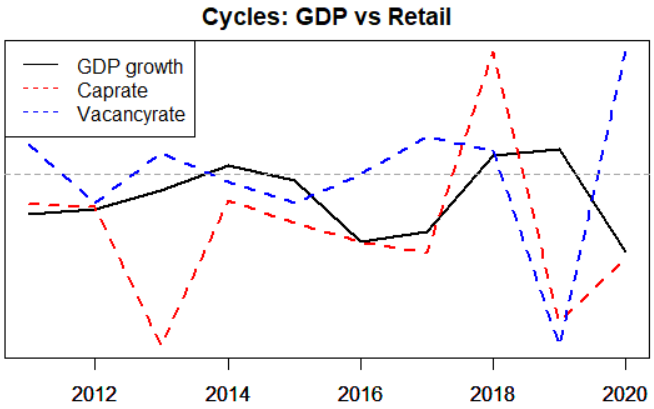

Figure 4.19 Namibian economic cycle (GDP) vs Windhoek commercial property cycle (Retail property market)

Figure 4.20 below indicates a strong negative correlation between the Windhoek retail vacancy rate and the Namibian economy GDP. At lag 0, correlation equates to -0.66. This suggests that when GDP increases, there will be decreases in the retail vacancy rate. The data also suggests that a positive increase in GDP indicates a positive performance in the retail property market based on vacancy rates.

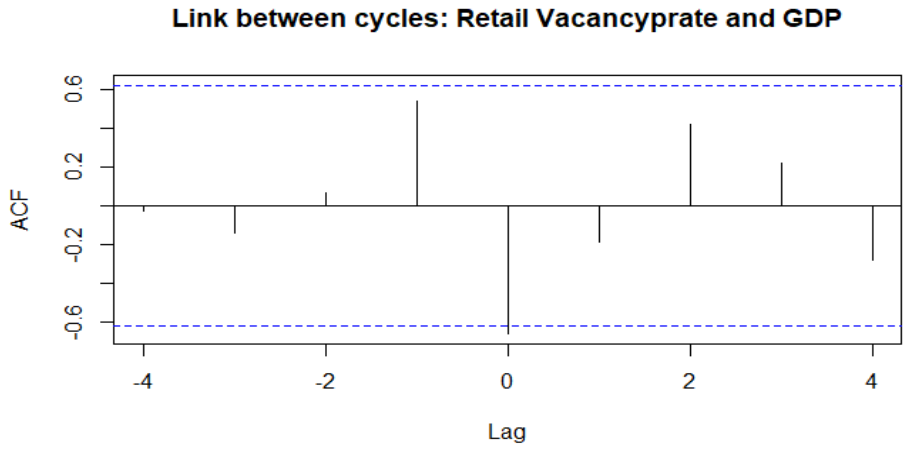

Figure 4.20 Cross correlation between retail vacancy rate and GDP

Figure 4.21 shows that there is no relationship between the Namibian economy GDP and the Windhoek property retail cap-rate.

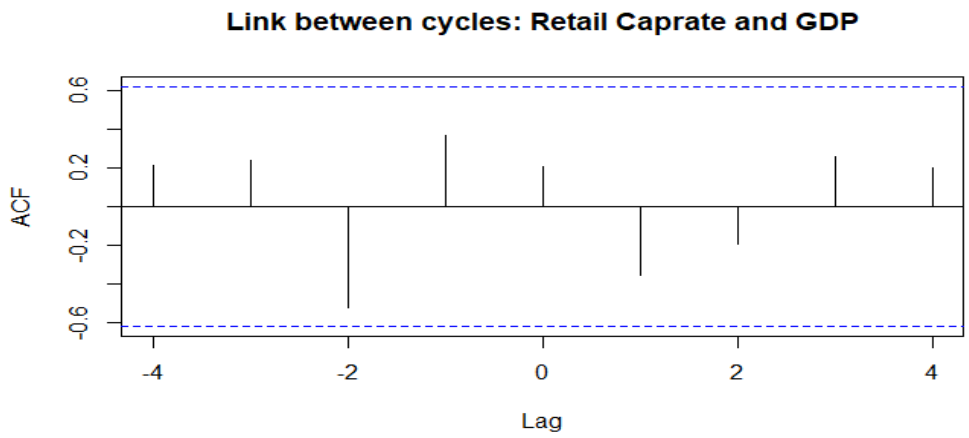

Figure 4.21 Cross correlation between retail cap-rate and GDP

Linking the Namibian Economic Cycle based on GDP to the Windhoek Commercial Property Cycle based on the Office Property Market

Figure 4.22 below the shows the relationship between the Namibian economic cycle based on GDP and the Windhoek commercial property cycle based on office property market. The retail property market was more volatile compared to the economy based on GDP. Vacancy rates and cap rates both recoded the highest peaks and steepest troughs during the study period. There is a relationship between GDP and office vacancy rates, similar to the retail property market in figure 4.19, but no relationship between GDP and cap rates. The correlation is explained further in figure 4.23 and 4.24 below.

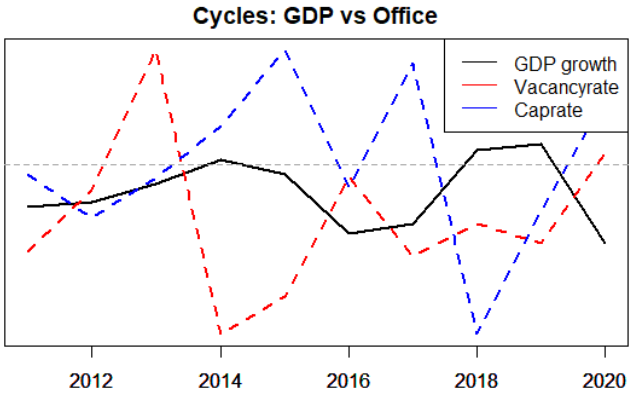

Figure 4.22 Namibian economic cycle (GDP) vs Windhoek commercial property market (Office Property Market)

Figure 4.23 below shows a negative correlation between the Windhoek office vacancy rates and the Namibian GDP. At lag -4 correlation equates to -0.70. This suggest that a countercyclical relationship exist between the two. When there are changes in GDP after four years there will be changes in the office vacancy rates. A similar rational to the retail property market correlation, that a poor performing economy based on GDP also suggests a poor performing office property market based of vacancy rates.

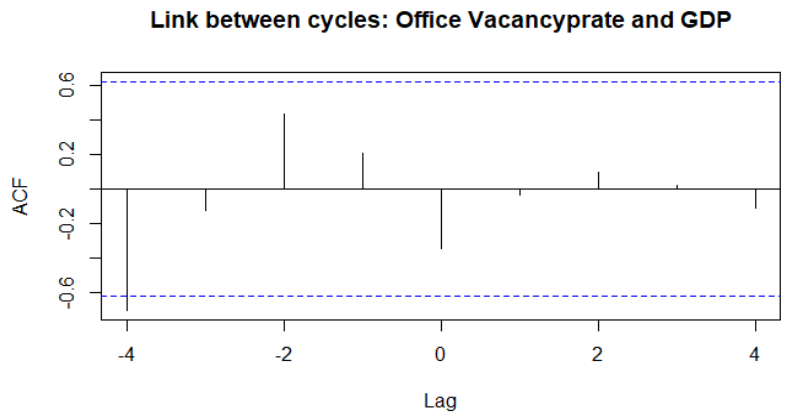

Figure 4.23 Cross correlation between office vacancy rates and GDP

Figure 4.24 below suggests that there is no relationship between the Windhoek office cap-rate and the Namibian GDP.

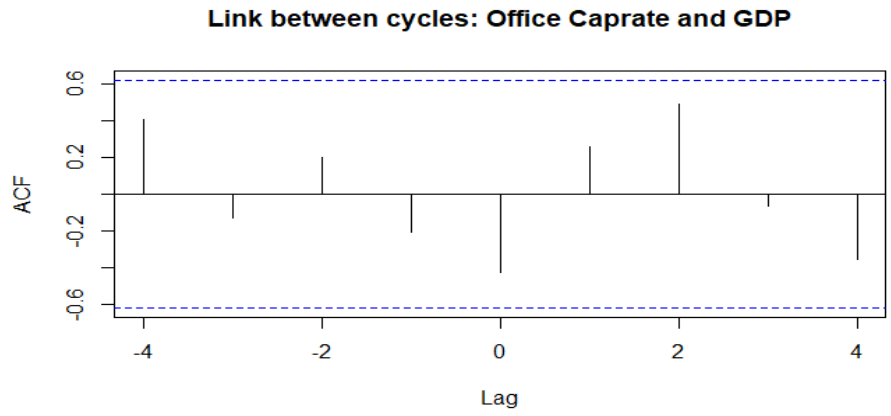

Figure 4.24 Cross correlation between office vacancy rates and GDP

Linking the Namibian Economic Cycle based on inflation to the Commercial Property Cycle based on the Retail Property Market

Figure 4.25 below shows the relationship between the Namibian economic cycle based on inflation and the Windhoek commercial property cycle based on the retail property market. The retail vacancy rate was more volatile compared to the cap rate and inflation. Unlike in the case of the retail property market compared to GDP in figure 4.19 and 4.22, there is no relationship between inflation and retail vacancy rate, but a relationship exists between inflation and retail caprates. The correlations are explained further in figure 4.25 and 4.26 below.

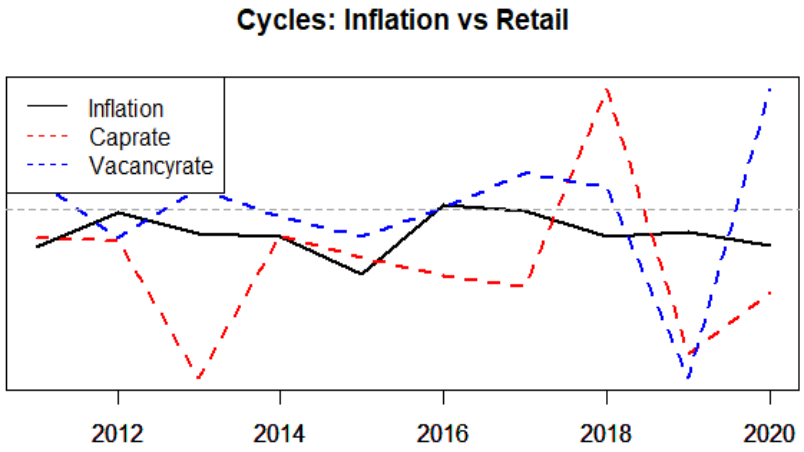

Figure 4.25 Namibian economic cycle (Inflation) vs Windhoek commercial property cycle (Retail property market)

Figure 4.26 below shows that there is no correlation between inflation and retail vacancy rates.

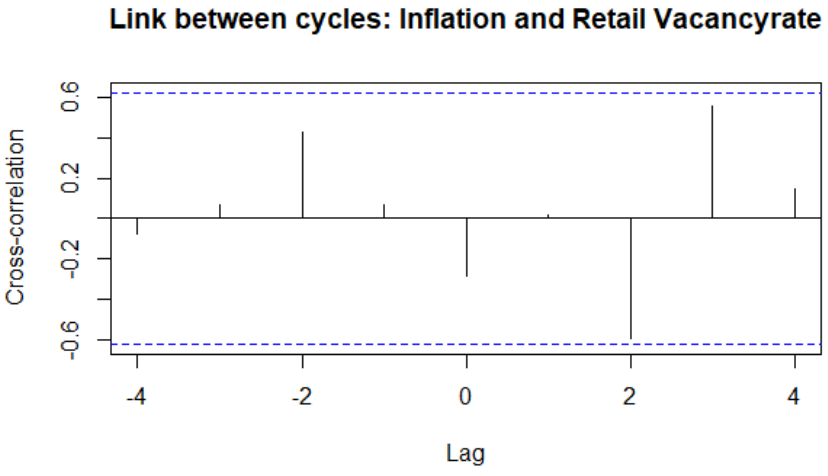

Figure 4.26 Cross correlation between inflation and retail vacancy rate

Figure 4.279 shows a negative correlation between inflation and the retail cap-rate. At lag -2 correlation equates to -0.82. This suggest that when there are changes in inflation rates causes there will be changes in retail cap-rates after two years. In every two years when inflation increases, retail cap-rates decreases and vice versa.

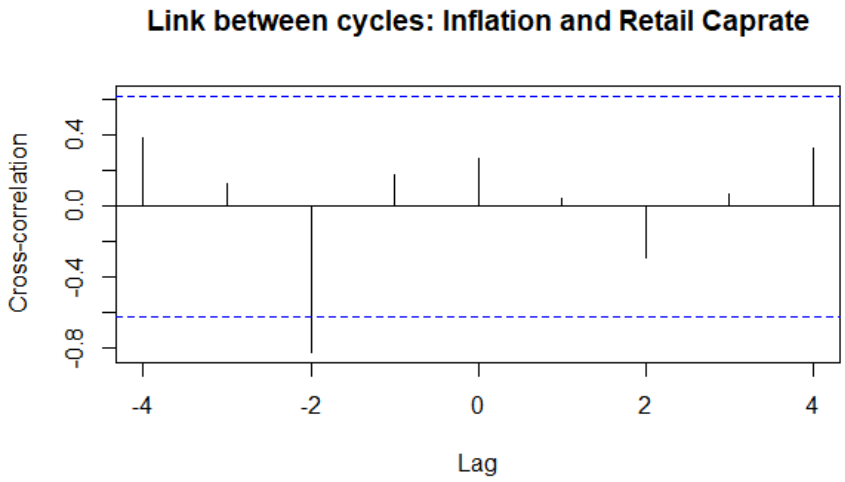

Figure 4.27 Cross correlation between inflation and retail cap-rate

Linking the Namibian Economic Cycle based on inflation to the Commercial Property Cycle based on the Retail Property Market

Figure 4.28 below shows the relationship between the Namibian economic cycle based on inflation and the Windhoek commercial property cycle based on the office property market. Similar to the relationship between GDP and the office vacancy rates in figure 4.23, there is a relationship between inflation and office vacancy rates. However, there is no relationship between inflation and office cap-rates. The correlation is explained further below in figure 4.31 and 4.32.

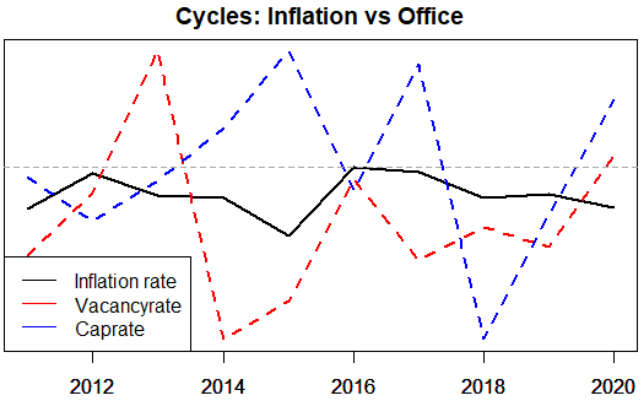

Figure 4.28 Namibian economic cycle (Inflation) vs Windhoek commercial property cycle (Office property market)

Figure 4.29 shows a negative correlation between inflation rates and the office vacancy rates. At lag -2 correlation equates to -0.82. Changes in inflation rates leads to changes in the office vacancy rates. This also suggests that when inflation rises, office vacancy rates drop indicating good performance of the retail property market and vice versa.

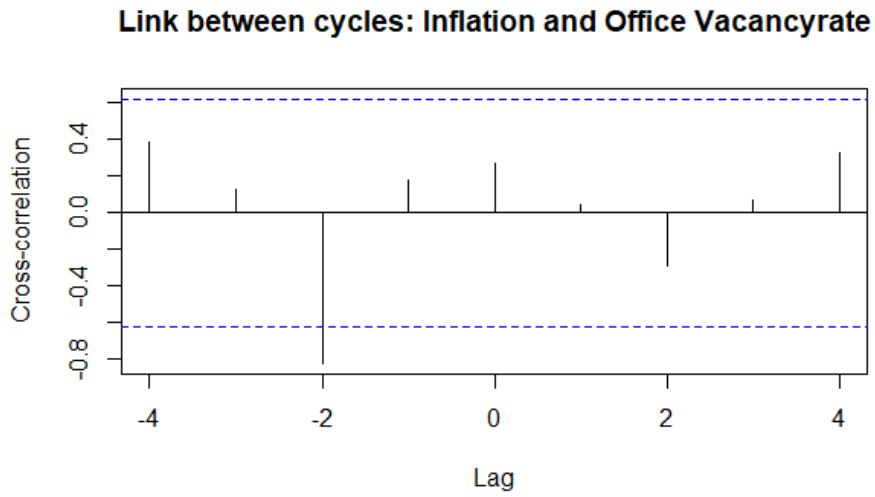

Figure 4.29 Cross correlation between inflation and office vacancy rates

Figure 4.30 below shows that there is no link between Windhoek office cap-rate and the Namibian inflation rate.

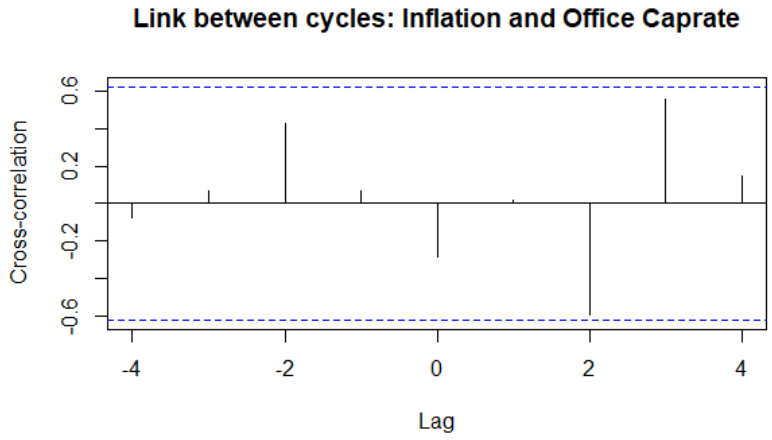

Figure 4.30 Cross correlation between inflation and office cap-rate

Linking the Namibian Economic Cycle based on Unemployment to the Commercial Property Cycle based on the Retail Property Market

Figure 4.31 below shows the relationship between the Namibian economic cycle based on unemployment rates and the Windhoek commercial property cycle based on retail property market. There is no relationship between the Namibian unemployment rates and the retail property market in Windhoek. The correlations are presented in figure 4.32 and 4.33 below.

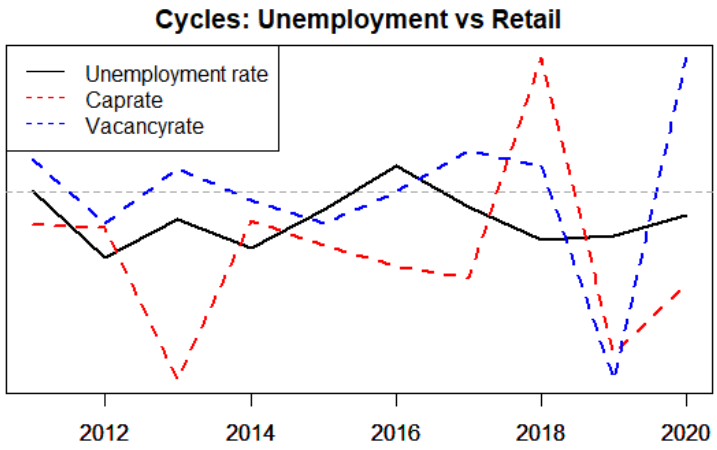

Figure 4.31 Namibian economic cycle (unemployment) vs commercial property cycle (retail property market)

Figure 4.35 and 4.36 shows that there is no correlation between unemployment and retail property market.

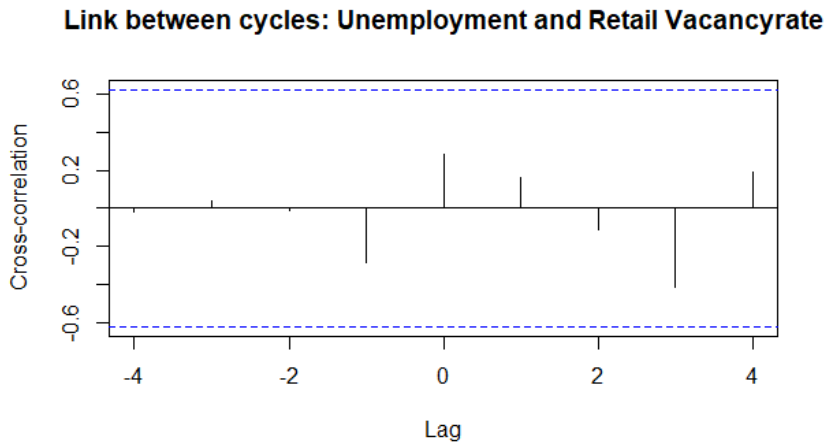

Figure 4.32 Cross correlation between unemployment and retail vacancy rates

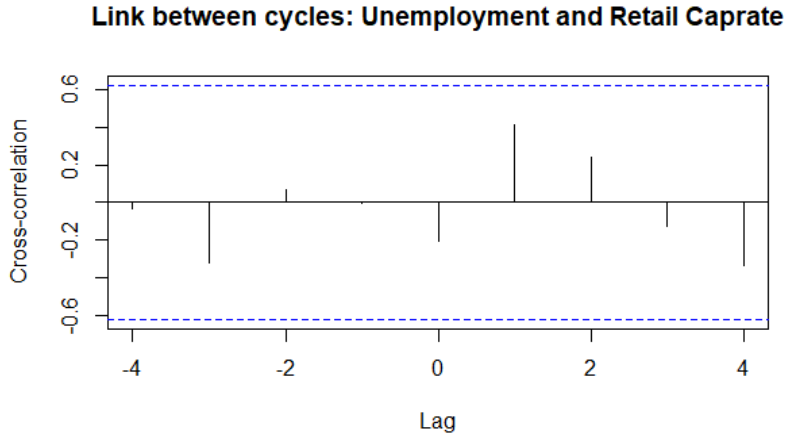

Figure 4.33 Cross correlation between unemployment and retail cap-rates

Linking the Namibian Economic Cycle based on unemployment to the Commercial Property Cycle based on the Office Property Market

Figure 4.34 below shows the relationship between Namibian economic cycle based on unemployment and the Windhoek commercial property cycle based on the office property market. There is no relationship between unemployment rates and the office property market. The correlations are presented below in figure 4.35 and 4.36.

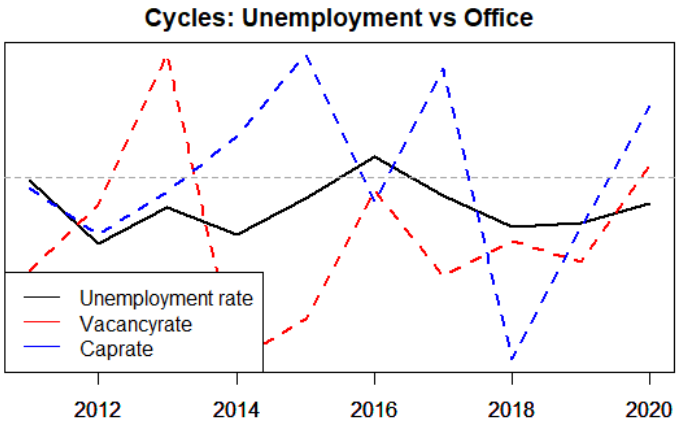

Figure 4.34 Economic cycle (unemployment) vs Windhoek commercial property market (office property market)

Figure 4.35 and 4.369 shows that there is no relationship between the Windhoek office property market and unemployment rates. Changes in the Namibian unemployment rates have no effect on the office vacancy rates and cap rates. In general, one would expect a relationship to exist between, but this is not the case in the Namibian context with the data provided.

Figure 4.35 Cross correlation between unemployment and office vacancy rates

Figure 4.36 Cross correlation between unemployment and office cap-rate

Linking the Namibian Economic Cycle based on interest rates and the Commercial Property Cycle based on the retail and office property market

In subsection 4.2.4 results show that the repo rate and prime lending rate cycles are the same. In terms of the relationship to the commercial property market, the correlation for both interest rates yields the same results. As a result, , only graphs illustrating the relationship and links between the repo rate and the commercial property market are presented in this section.

Figure 4.37 below shows the relationship between the Namibian economic cycle based on repo rate and the Windhoek commercial property market based on the retail property market. The is a relationship between the repo rate and the retail vacancy rate. There is no relationship between the repo rate and retail cap rate. The correlations are presented below in figure 4.38 and 4.39.

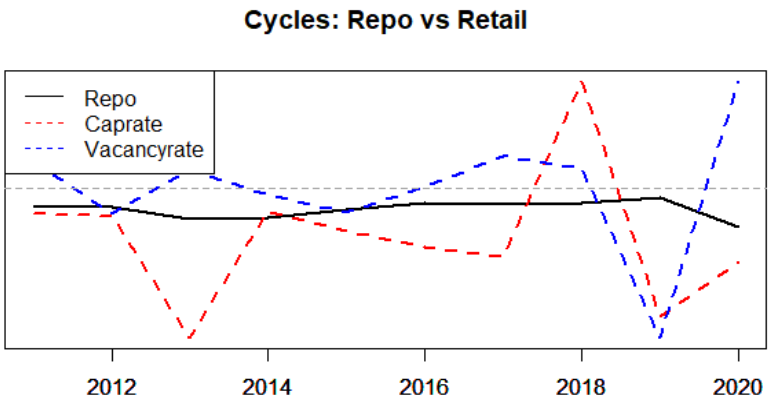

Figure 4.37 Namibian economic cycle (repo rate) vs Windhoek commercial property cycle (retail property market)

Figure 4.38 below shows a positive correlation between repo rate and retail vacancy rates. At lag -2 correlation coefficient equates to 0.82. This suggests that increases in repo rates leads to increases in retail vacancy rates by two years. This may also mean that when the Bank of Namibia increases the repo rate, demand for retail space drops.

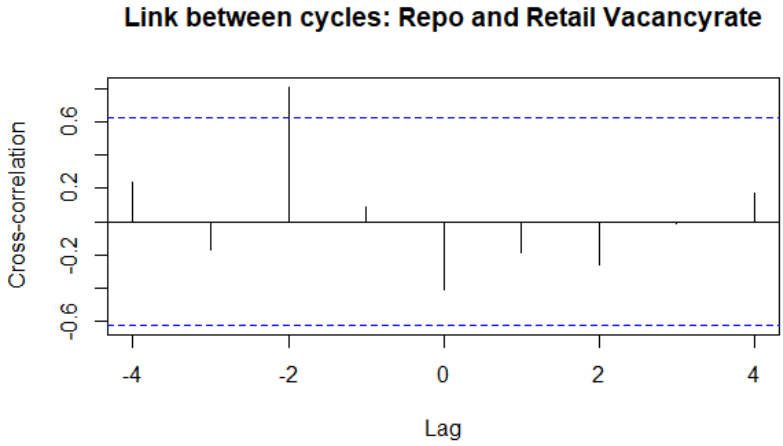

Figure 4.38 Cross correlation between repo rate and retail vacancy rates

Figure 4.49 below shows that there is no relationship between repo rate and the retail cap-rate.

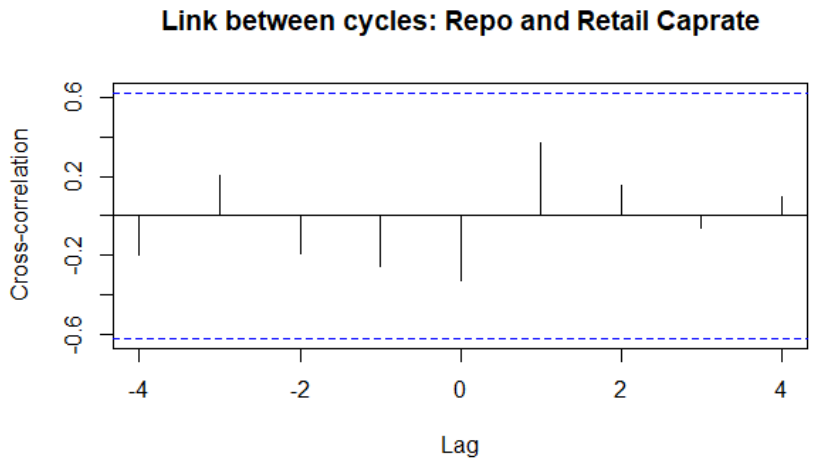

Figure 4.39 Cross correlation between repo rate and retail cap-rate

Linking the Namibian economic cycle based on repo rate to the commercial property cycle based on the office property market

Figure 4.40 below shows the relationship between the Namibian economic cycle based on repo rate and the Windhoek commercial property cycle based the office property market. In contrast to the retail property market, there is a relationship between the repo rate and the office cap rate but none between the repo rate and the office vacancy rate.

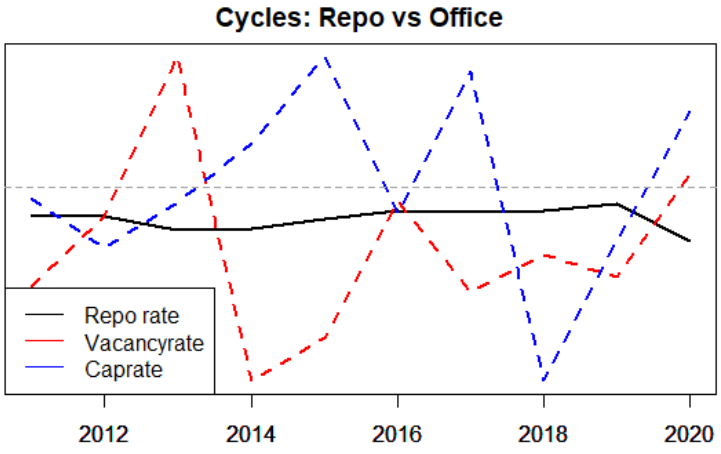

Figure 4.40 Namibian economic cycle (repo rate) vs Windhoek commercial property cycle (office property market)

Contrary to the findings above, figure 4.41 suggest that there is no relationship between repo rates and office vacancy rates, but a relationship exist between repo

rates and office cap-rates as shown in figure 4.42. At lag -2 correlation coefficient equates to 0.80 in figure 4.43. This suggests that an increase in the repo rates leads to an increase in the office cap-rates after two years. This also means that, when interest rates rise, office property yields tend to fall.

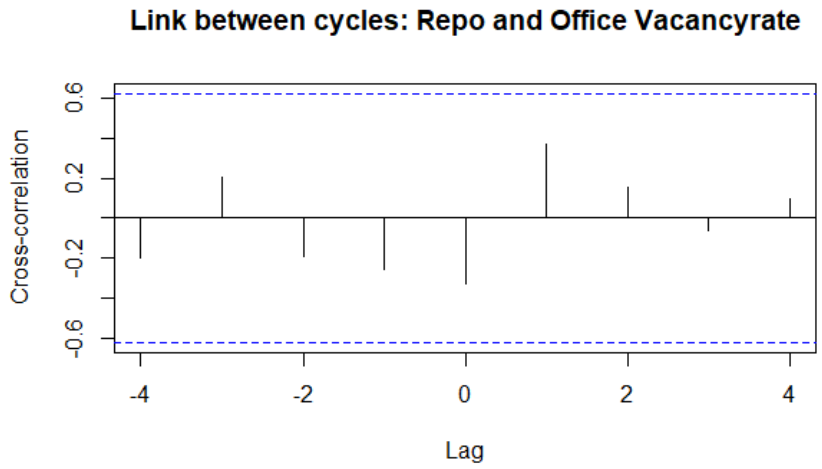

Figure 4.41 Cross correlation between repo rate and office vacancy rate

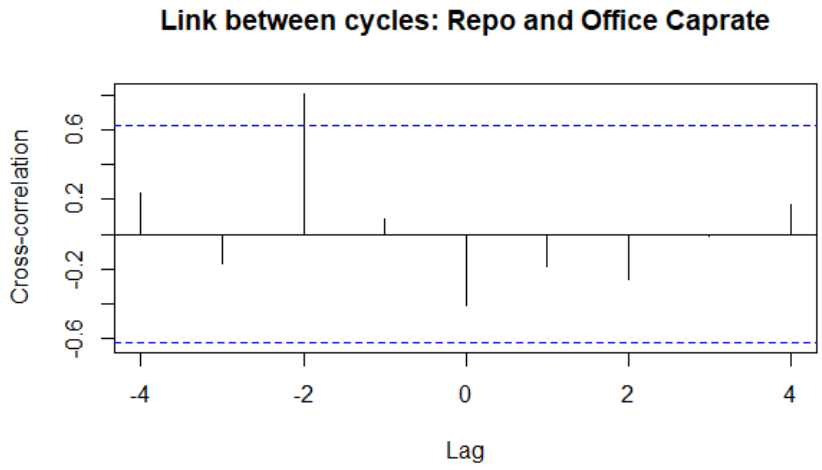

Figure 4.42 Cross correlation between repo rate and office cap-rate

4.4 Challenges Associated with Valuing Commercial Properties during Peak and Trough of the Namibian Economic Cycle and the Windhoek Commercial Property Cycle

To determine whether valuers face challenges when valuing commercial properties during peaks and troughs of both economic and commercial property cycles, literature was reviewed in chapter 2. Subsection 2.7 discussed typical problems associated with the income approach application to property valuation during troughs and peaks of both economic and commercial property cycles. A questionnaire was used to collect this data. The sections below present the findings and analysis of the responses.

4.4.1 Coding

For a clear presentation of response, the respondents were coded as R1 to R14.

4.4.2 Response Rate

The sample for this study comprised of property valuers that practise commercial property valuations in Windhoek, Namibia. The sample was identified using the snowball strategy as discussed in chapter 3. An online questionnaire using google forms was sent out to **22** participants and **14** of the invitees completed the questionnaire, giving a response rate of 64%. An acceptable response rate based on the number of participants was determined to be 50% for this study.

4.4.3 Demographic

This section of the questionnaire is important for the study as it provides an overview of the demographic profile of the sample. Where appropriate, graphs and charts are used to give a better presentation of the results.

Age Group

The participants were valuers between the ages 26 and above 51 years. From the participants, 7.1% of the respondents are aged between 26 and 30 years, while 28.6% are above 51 years. The Valuers above 51 years group were the second highest participants showing an aging profession. The remaining age group participants are presented in figure 4.43 below.

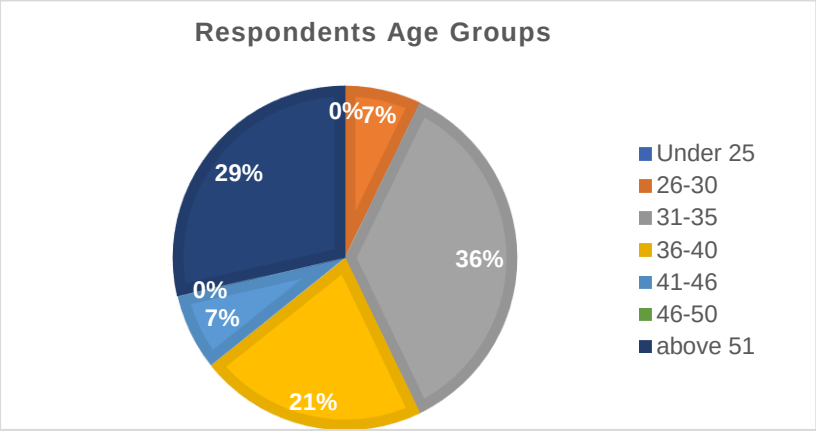

Figure 4.43 Age group

Number of years in the profession

The participants were asked to indicate their years of experience in the industry. This is important to confirm whether participants have practical experience in the field of valuation. Figure 4.44 below shows that all 14 respondents have valuation practical experience above 6 years, with the highest experience between 6 and 10 years and the lowest between 26 and 30 years. This clearly suggest that the participants are well experienced in the field of property valuation.

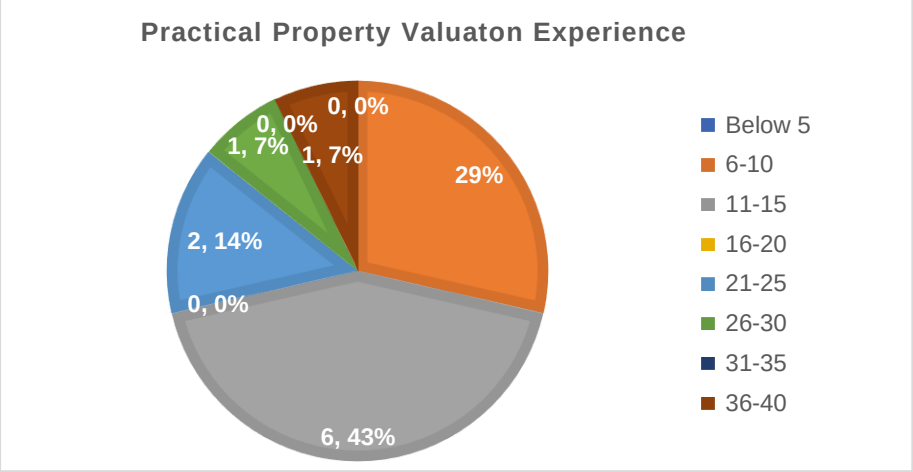

Figure 4.44 Valuation experience

Geographical area of property valuation practice

In order to verify and confirm that the participants practise commercial property valuations in Windhoek, they were asked to indicate their geographical area of practise. Thirteen of the respondents indicated Windhoek including other parts of the country. One of the respondents indicated urban valuations, which was unrelated to the subject. This also suggested that the participants were the correct valuers in terms of geographical area of practise.

Professional valuation related qualifications

To determine whether the participants had educational background to the field of valuation, they were asked to indicate their valuation related professional qualifications. All 14 participants have valuation qualifications, with 10 holding degrees and 4 with diplomas. The high number of degree holders compared to the diploma holders gives a good indication that the participants have good theoretical understanding of property valuation, and that they have covered most, or all topics and theories contained in the questionnaire.

Other professional qualifications

Participants were asked to indicate whether they possess other types of qualifications other than valuation. The importance of this question is to assess whether other additional qualifications add advantage to the understanding of the impact of other disciplines to valuation. Only 8 of the respondents had qualifications

in other discipline ranging from financing and banking, agriculture, project management, business administration, radiography, and integrated land management.

Registration with professional valuation body outside Namibia

The relevance of this question was to determine whether valuers are registered with any valuation regulating bodies outside Namibia since currently there is no valuation regulating body in Namibia. Seminars and workshops held by professional bodies tend to assist valuers with how they conduct valuations especially in different economic environments. According to the respondent's results, 71.4% of the respondents are not registered with any professional valuation body, while 14% are registered with SAIV, 7% with RICS and the remaining 7% with VSRBZ.

4.4.4 Participant's Awareness of Economic Cycles

To determine whether participants had knowledge of economic cycles, they were asked to indicate whether they are aware of periodic changes in the economy and how they identify these changes.

Awareness of periodic changes in the economy

The respondents were asked to indicate whether they are aware of periodic changes in the general economy. All 14 respondents indicated that they are aware of these changes.

Variables used to identify a booming economy

Figure 4.45 shows that GDP is the most commonly used indicator to identify a thriving economy. GDP had a frequency rate of 43%, indicated by respondents R1, R6, R8, R9, R10, and R11 demonstrated this in their responses. Increases in sales transactions and prices, as well as consumer purchasing power, each had a frequency rate of 36%, indicated by respondent R2,R3,R4,R6,R8, and R1,R5,R7,R11, R13, respectively. Increases in interest rates, property income, and cap rates each had a frequency rate of 7%, denoted by respondents R11, R14, and R12, respectively.

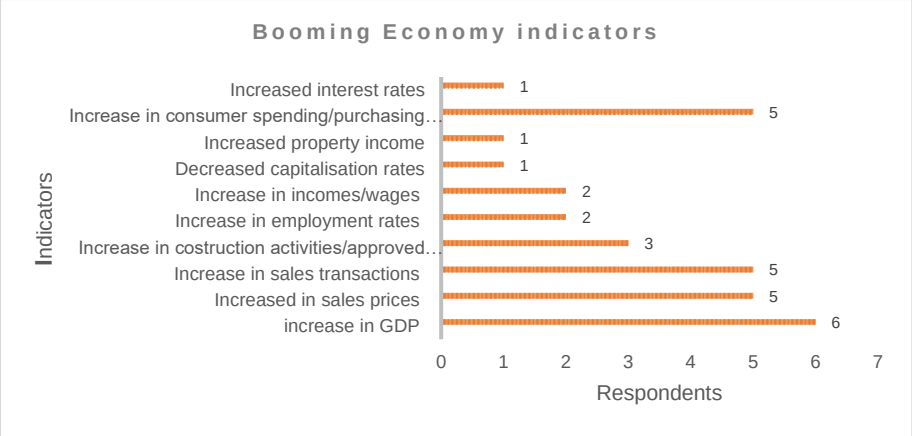

Figure 4.45 Valuer's indicators of a booming economy

Variables used in identifying economic downturn

Figure 4.46 shows that the majority of respondents responded to this question by indicating the inverse of the variables identified in the booming economy. A decrease in purchasing power had a 36% frequency rate during the economic downturn, followed by an increase in employment rates and a decrease in GDP with 29% each, and 21% for a decrease in investments, sales transactions, and sale price each. A drop in construction or approved building plans appeared at a frequency rate of 14%, while a drop in business transactions, vacancy rates, property income, cap rates, and income/wages and others at a frequency of 7%.

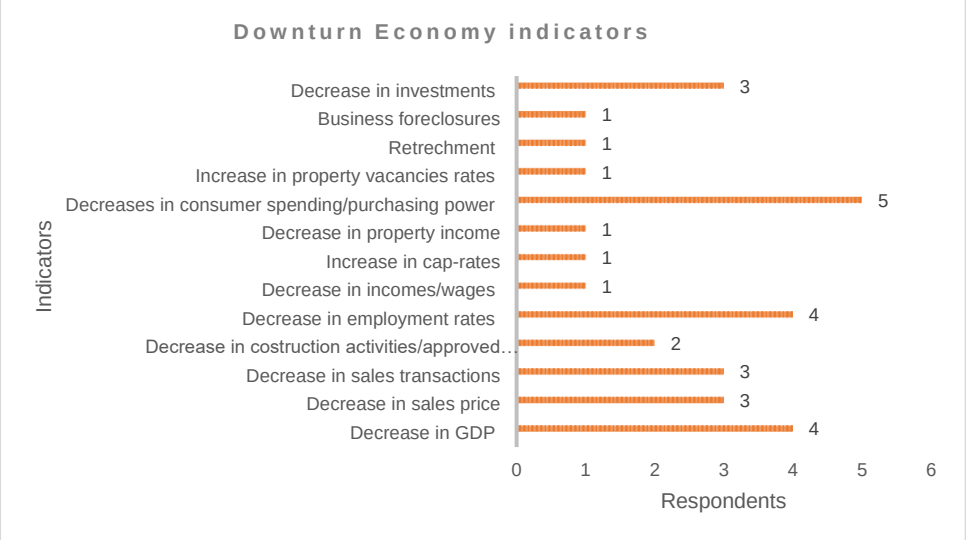

Figure 4.46 Valuer's indicators of economy downturn

4.4.5 Participants Awareness of Commercial Property Cycles

Similar to the purpose of the previous section, questions in this section were to determine whether the participants had knowledge of commercial property cycles.

Awareness of periodic changes in the commercial property market

Participants were asked to indicate whether they are aware of periodic changes in the commercial property market. Of the 14 respondents, 12 indicated that they are aware while the remaining 2 indicated that they are not aware.

Variables used in identifying a commercial property boom

According to Figure 4.47, the most frequent indicators used by valuers to identify a thriving commercial property market are vacancy rates, cap rates, rental rates, space demand and construction activities. The decrease in vacancy rates was indicated by respondents R2,R5,R8,R11,R5 and R8 with a frequency rate of 43%. Increases in cap rates, rental rates, space demand and construction activities each with 29% frequency. Other indicators are depicted in figure 4.48 below.

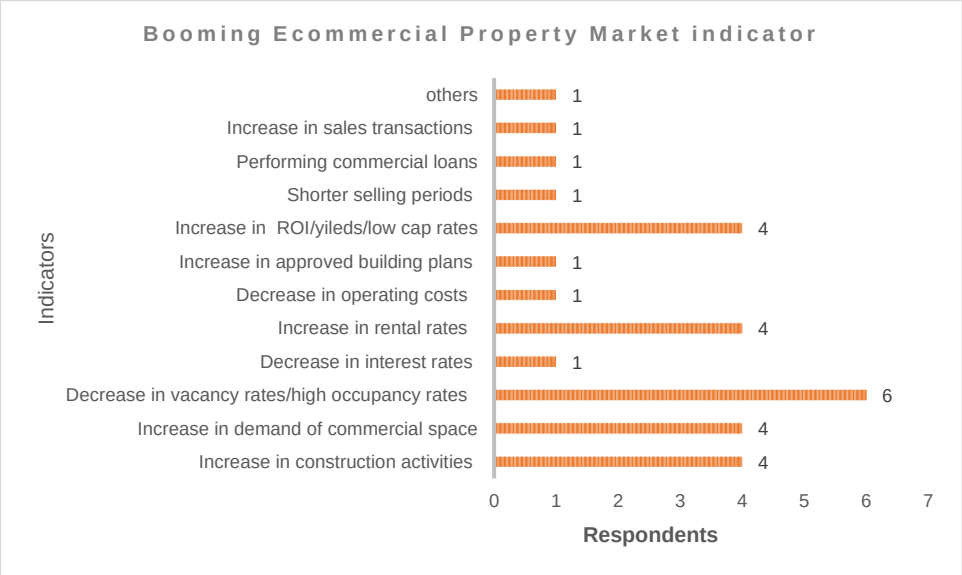

Figure 4.47 Valuers indicators of commercial property boom

Variables used in identifying a commercial property downturn

Figure 4.48 indicates that valuers use the inverse of the variables identified in the booming environment to identify a commercial property market downturn. Increase in property yields and vacancy rates had the highest frequency rate of 57% each, followed by decrease in demand for space and increase in cap rates with 29% each, decrease in approved building plan and increase in interest rates with 14% each, increase in employment rates and poor performing commercial loans with 7% each.

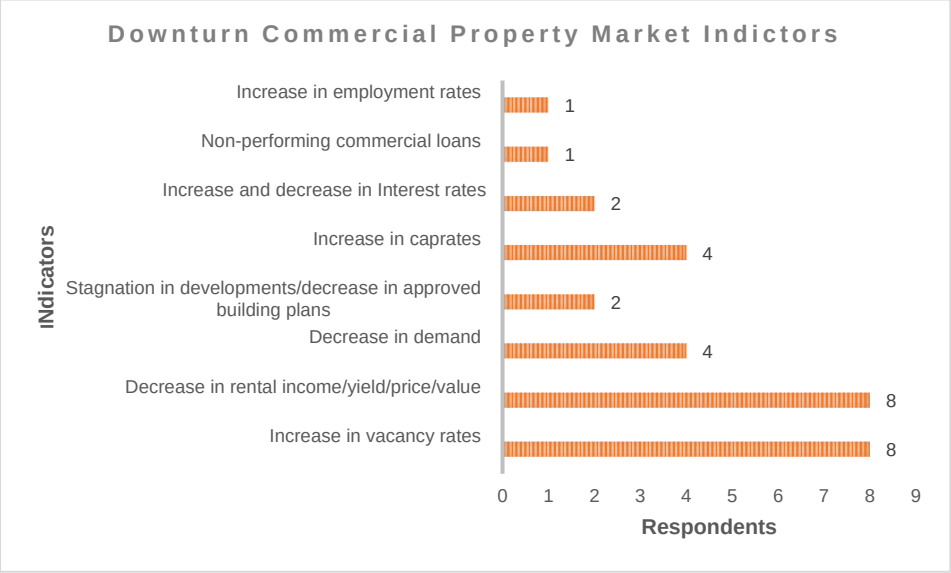

Figure 4. 48 Valuers indicators of commercial property downturn

4.4.6 The Direct Income Capitalisation Method to Value Commercial Properties during a Peak and Trough of both Economic and Commercial Property Cycle

Based on the literature review, the mostly used and appropriate valuation approach for valuing commercial properties is the income approach. Under this approach literature also indicated the direct income capitalisation and the DCF to be the most popular methods. The purpose of this section was to ask questions that would lead to the identification of challenges faced by the participants under different economic and property market conditions when using the direct income capitalisation method.

The use of the direct income capitalisation method to value commercial properties

To confirm whether respondents do make use of the direct income capitalisation method to value commercial properties, they were asked whether they make use of this method. All 14 respondents indicated that they do use the direct income capitalisation method.

Key variables used in the direct income capitalisation method

The respondents were further asked to identify the key variables they use in the direct income capitalisation method. This question is important because firstly it confirms the consistency in variables used for the method, secondly is later used in the question of ease and difficulties that valuers face using these variables to value commercial properties during the different economic environments. Twelve of the respondents indicated that they use actual and market property rentals and income, outgoings, cap-rates, vacancies as their key variables. However, two of the response indicated variables that are irrelevant to the question such as that of R6 “Future value”, and R 11 which included location, size, property quality, comparable sales, and potential.

Period of projections

After identifying the key variables of the direct income capitalisation method, the respondents were further asked whether they project these variables over a period of time under this method. Section 2.6 and 2.7 of chapter pointed to the method to be trend driven assuming economic trends to remain stable in the future. It stabilises the property income in a single one year’s income and implies stable growth in perpetuity for the investment. This question is put forward to firstly confirm the one-year period of the variables under this method. It was also asked to allow follow up questions which leads to the question on challenges faced when valuing during economic and commercial property cycle trough and peak.

Eight of the respondents indicated projections between 0 to 3years, while two indicated three to 6 months. Two of the respondents gave no definite periods and suggested that during booming markets the variables are projected over a shorter period while in downturns projections are over a longer period. One respondent indicated a period of 60 years, which was considered as an error. R 11 explains that “As Is valuations, forecasts are difficult to make, and one can’t see into the future”. These

responses imply two thoughts, that the valuers do not comply with the direct income capitalisation principles or cannot differentiate this method to other income approach methods such as the DCF.

Projection's assumptions

The respondents were further asked whether they make any assumptions regarding the period of projections. The purpose of this question was to determine whether valuers assume these variables to be fixed over the period of the investment that they identified earlier or they are assumed to reflect the changing economic environments. Ten of the respondents do make assumptions while the remaining four do not.

Those that have answered yes to the previous question, were further asked to identify these assumptions that they make in the direct income capitalisation method. Five of the ten respondents who answered yes to the previous question, assume that the variables used in their valuation is market related. Respondent R2 "rentals have not increased in this period; vacancy remained the same" response was such explanation provided. One of the respondents answered yes in the previous question, provided no answer while the remaining three respondents provided irrelevant response. . This shows that valuers under the study lack understanding on appropriate and reasonable assumptions required under the method in terms of projections. One would expect assumptions to be made around what the variables projection means for the specified period.

Challenges faced when projecting valuation variables during a peak of economic cycle

The respondents were asked to choose whether it was easy, difficult or both easy and difficult to project the variables under the direct income method during a booming economy. The option of both easy and difficult was purposely put forward for those that experience both aspects during this time to choose from. Figure 4.59 shows that 42.90% of the respondents finds it easier to value during a booming economy, while 14.3% finds it both easy and difficult, and the remaining 42.90% difficult.

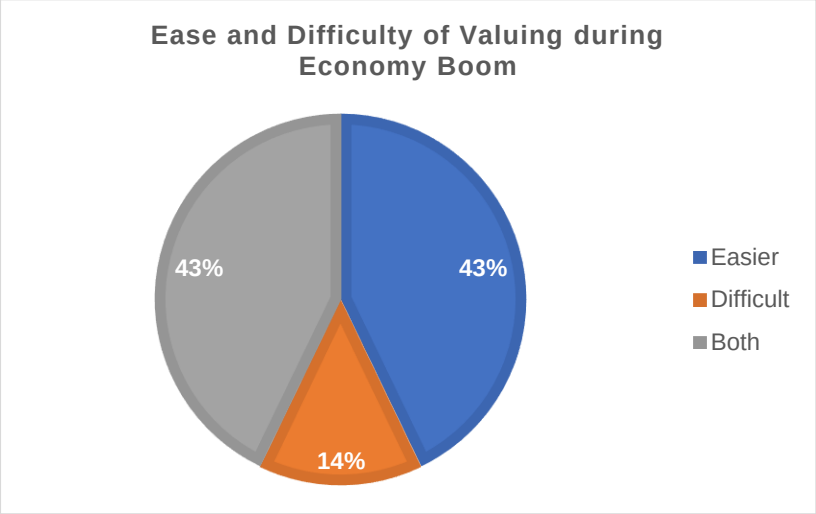

Figure 4.49 Ease and difficulty of valuing during economic boom using direct income capitalisation method

As a follow up question, respondents were asked to explain their answer above.

Of the 6 respondents who indicated that it is easier gave the following reasons:

R4 says that it is easier to value during this time because there is more data which makes it easier. R7 suggest that during this period one is certain that the economy is stable and will not face a downturn any time soon making it easier to value. R8 explains that the market is busier during this period making information easily accessible. Other respondents who selected easier also lean to more information availability.

The respondent who indicated that it is difficult lean more on the issue of information availability. R2 explains that depending on information at your disposal it can be difficult. R3 respondents was irrelevant.

The respondents who answered both easy and difficult lean more the issue of information correctness. R1 explains that market data will be available during this time but sometimes these market data inputs are on the high notch. This creates uncertainty and overvaluation of properties during this period. R9 explains that it is a challenge to get the correct data and reliable data. R11 suggests that it's both easy and difficult because it depends on the availability of data. The other three respondents' answers were irrelevant to the topic.

Challenges faced when projecting valuation variables during a trough of economic cycle

Similar to the question above, the respondents were asked to indicate whether it is easier, difficult or both easy and difficult to value during this period. Figure 4.50 shows that 8 of the respondents indicated that is it difficult, while the remaining 6 indicated that it is both easy and difficult to value during economy downturn.

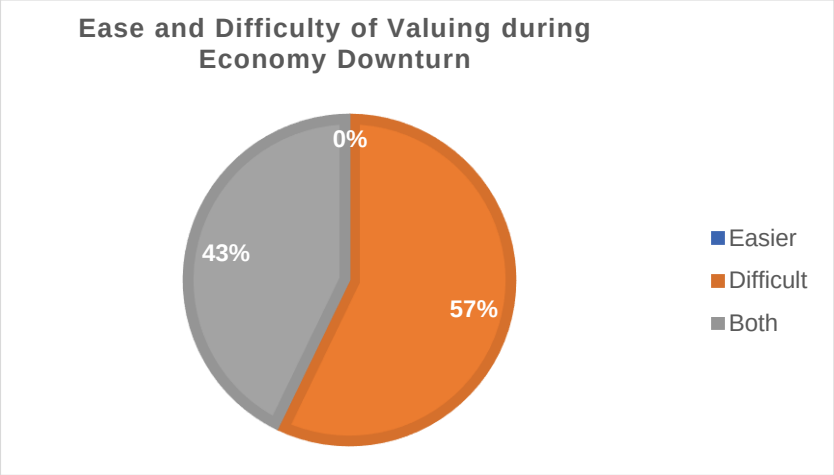

Figure 4.50 Ease and difficulty of valuing during economy downturn using the direct income capitalisation method

The respondents that selected difficult response were around data availability issue and downturn uncertainty. R1, R4 and R10 explains that during this time market data is limited and most likely available data will be on the low side making it difficult to value. R3 describes that that one cannot project to the end of the downturn. R7 and R 8 explains that there is high level of uncertainty on the length of the downturn.

The 6 respondents who answered both easy and difficult could not clearly explain their reason. R13 explains that R2 and R13 answered around the data availability issue, stating that this depends on availability of data. R9 mention that it's a challenge to get reliable information during this time.

Challenges faced when projecting valuation variables during a peak of commercial property cycle

Figure 4.51 below shows that 7 of the respondents find it both easy and difficult, while 6 find it easier and 1 difficult to project these variables during a peak of the commercial property cycle.

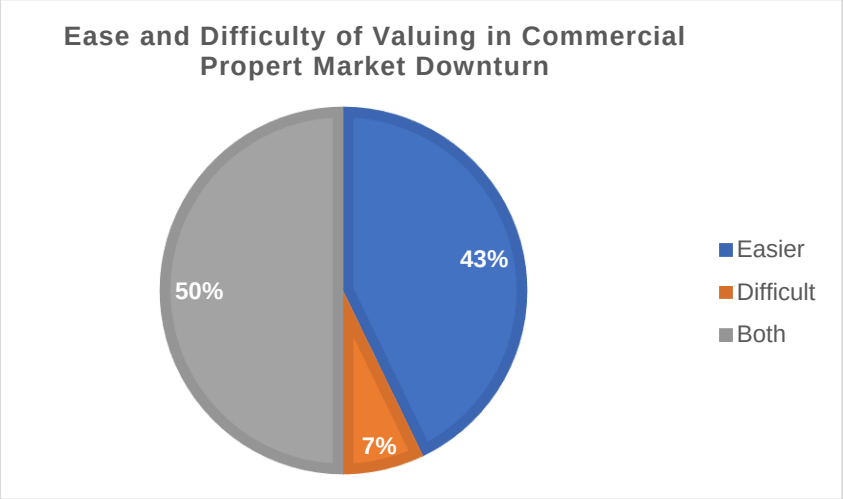

Figure 4.51 Ease and difficulty of valuing in a commercial property cycle peak using direct income capitalisation method

The respondents were further asked to explain why they selected easier, difficult and both easy and difficult.

The respondents who indicated that it is easier to value during commercial property cycle gave similar reasoning as in the case of economic cycle peak. Their response pointed to availability of information and market stability. R1 respondent to say that "there will be plenty of reliable commercial property market data" (R1). R4 explained that "more reliable market data abound which makes it easier. Trendlines are much more meaningful" (R4). R7 explain that "because you are almost certain that the market is stable and will not take a downturn anytime soon after the valuation date" (R7).

The 7 respondents who answered that it is both easy and difficult gave similar explanations as that in the case of the economic cycle peak. For example, R 9 explained that "Always a challenge getting information the correct and reliable variables" (R9). R11 also gave the same answer that it depends on the information available. Some of the respondents' answers were not specific and clearly elaborated hence not considered. For example, R 5 answered that it's both easy and difficult due to risk.

The one respondent R3 who state that it is difficult to value during the peak of the commercial property cycle explained that property variables all differ, leaving this response very ambiguous.

Challenges faced when projecting valuation variables during a trough of commercial property cycle

Figure 4.52 below shows that 7 of the respondents find it difficult to value during a commercial property downturn, while 1 finds it easier and 6 both easy and difficult.

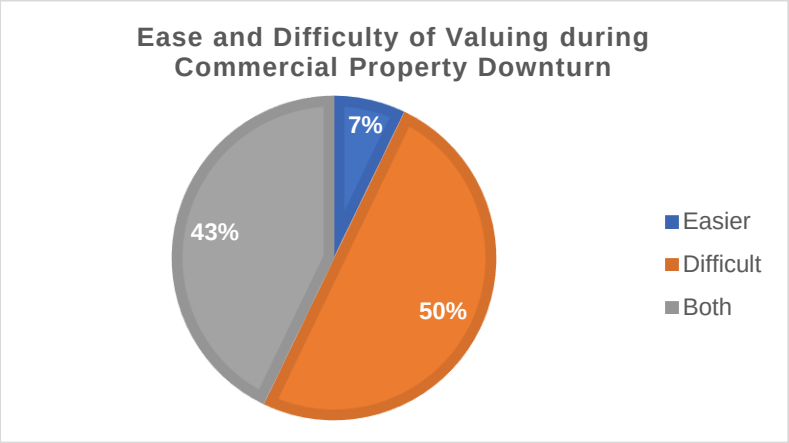

Figure 4.52 Ease and difficulty of valuing during commercial property downturn using direct income capitalisation method

The respondent's response under this question was similar to that of the case of the economic cycle trough. For example, R1 and R4 explained that it is difficult because of limited data during this period. R 8 explains that it is difficult because it is not known when the downturn begins making it difficult to make any adjustments to the variables. R 7 and R6 provided no explanation. R 10 explains that its difficult due to lack of rentals.

R5 indicated that it is easier but failed to give a relevant explanation to why it's easier. Similar to the case of economic cycle trough, 6 respondents indicated that it is both easy and difficult. Most relevant explanation were provided by R2 and R9 that it depends on the information one has at that point in time and that it is always a challenge to get the correct and reliable data. One respondent provided no answer and the remaining three irrelevant explanations.

4.4.7 The DCF Technique to Value Commercial properties at or near peak and trough of Economic Cycle and Commercial Property Cycle

This section consists of the respondent's responses on the series of questions that were asked in the questionnaire, with the objective to determine whether valuers face challenges using the DCF to value commercial properties during peak and trough of economic and commercial property cycles.

Use of the DCF to value commercial properties

Only eight of the respondents do make use of the DCF, while the remaining 6 do not. This leaves 57% of the valuers under this study to make use of the technique. This also implies the technique to be fairly popular although you would expect all valuers to make use of this techniques especially in commercial property valuations.

Key variables of the DCF

All eight respondents identified projected cashflows, vacancy rates, discount rate, cap rate, exit value and holding period as variables that they use in the DCF technique. These variables are part of those reviewed and identified in the literature review. This suggest that the valuers do make use of the appropriate DCF variables.

.

Projection assumptions

All eight respondents indicated that they do make projection assumptions of the identified variables above.

Five of the respondents explained that DCF variables are assumed to remain the same during the projected period. One respondent provided no answer, while the remaining two, R 1 and R 5 indicated that the assumptions they make are "cashflows", and "future costs and cashflows" respectively. The literature review revealed that the DCF technique assumes changes in the variables over the holding period, whether constant or fluctuating. The assumptions made here by the five valuers is not consistent with the literature and is leaned towards the direct income capitalisation

method assumption. This suggests that the valuers are not applying the technique correctly.

Challenges faced when valuing during economy peak

Figure 4.53 below shows that 5 of the respondents find it easier to value commercial properties using the DCF during economic peak while the remaining 3 finds it both easy and difficult.

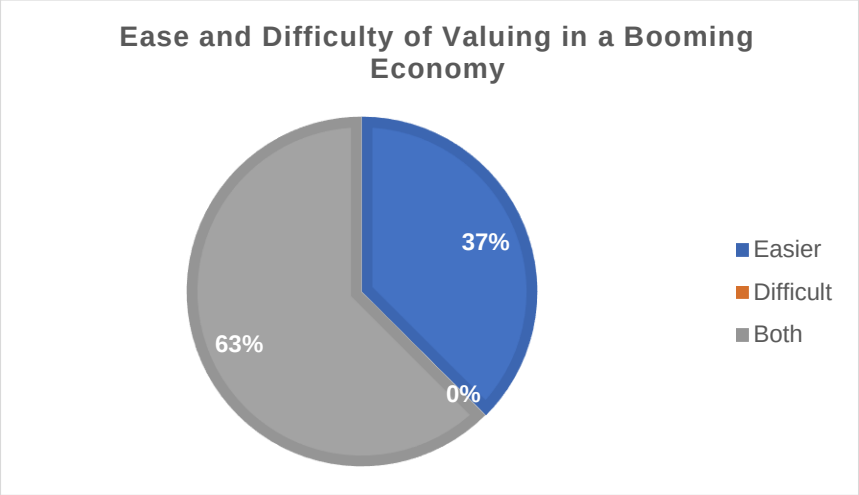

Figure 4. 53 Ease and difficulty of valuing during economic boom using the DCF

Respondents R1, R2 and R4, indicated that it is easier to project DCF variables during this time because the market is more active, and data is easily accessible and available. The other 2 respondents provided irrelevant explanations.

Respondents R5, R13 and R14 indicated that it is both easy and difficult to project these variables during economy cycle peak. R13 explained that this will depend on the availability of market data to support the valuation.

Challenges faced when valuing during economy trough

Figure 4.54 below shows that 4 of the respondents find it both easy and difficult to project DCF valuation variables during economic cycle trough, while 3 indicated difficult and 1 easier.

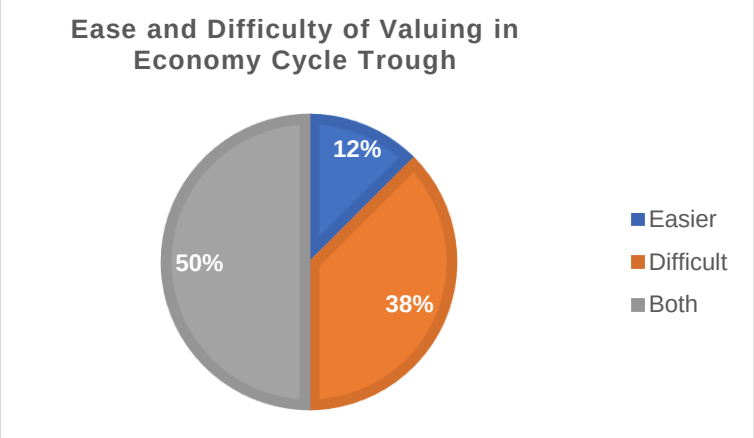

Figure 4.54 Ease and difficulty of valuing projecting DCF variables during economic cycle trough

Respondents R1 and R4 explained that it is difficult to project these variables during economic trough because of the availability of market data which is limited. This implies that when the economy is in a trough, market transactions is limited. R 7 failed to provide a relevant explanation.

R5 indicated that it is easier but also failed to provide a relevant explanation.

R2, R6, R13 and R14 indicated that it is both easy and difficult, with R2 and R13 explaining that its dependence on the availability of market data at that point in time. R6 failed to explain why it is both easy and difficult and R14 provided irrelevant explanation.

Challenges faced when valuing during peak of a commercial property cycle

Figure 4.55 below shows that 5 of the respondents indicated that it is easier to project DCF valuation variables during commercial property market peak, while 3 indicated that it is both easy and difficult.

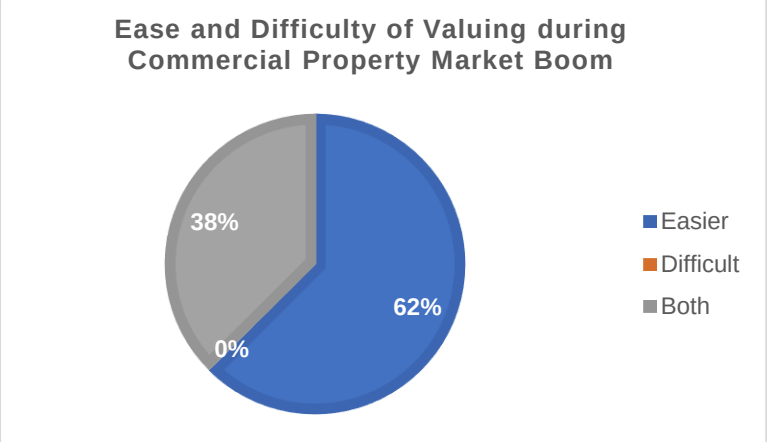

Figure 4.55 Ease and difficulty of projecting DCF variables during commercial property market trough

Respondents R1, R2, R4, R6 and R7 indicated that it is easier to project valuation variables during this time. Their response was identical to the explanation they provided in the case of the economy peak, that is, data is easily available. R5, R13 and R14 indicated that it is both easy and difficult to project the cashflow variables during this period. R5 and R14 provided irrelevant explanation while R13 provided the same reason as in the case of the economy peak, that its dependents on the availability of data.

Challenges faced when valuing during trough of a commercial property cycle

Figure 4.56 below shows that 4 of the respondents indicated that it is difficult and the remaining 4 it is both easy and difficult to project DCF valuation variables during commercial property market trough.

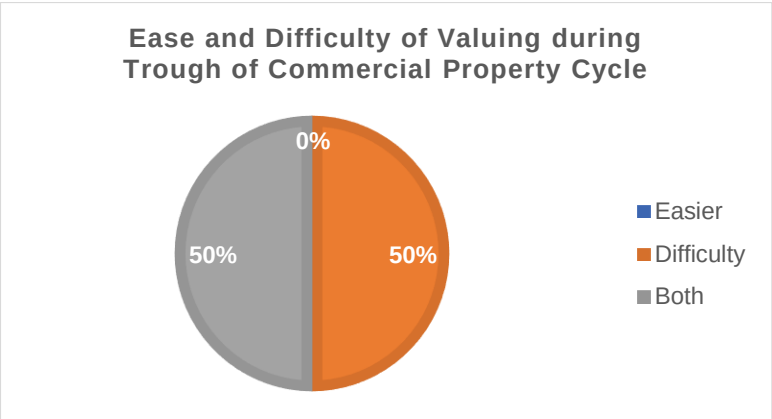

Figure 4.56 Ease and difficulty of projecting DCF valuation variables during commercial property market trough

Respondents R1, R2,R4 and R7 indicated that it is difficult. Their explanations were the same as the explanations under the economy trough, that the market transactions are limited, and data is not easily available.

R5,R6, R13 and R14 indicated that it is both easy and difficult with the same explanations as in the case of the economy trough, that it depends on the availability of data.

4.5 Summary

Analysis of data in question 1 suggests that the Namibian economy is cyclical under GDP, inflation, unemployment, and interest rates. During the period between 2011 and 2020, two to three economic cycles existed under all variables. The analysis also points to these cycles to be kitchin cycles due to their fluctuation's patterns of two to five years. Basing economic cycles solely on GDP, the data revealed that periods of prosperity lasts longer than periods of contractions. This is not the case under inflation, contractions tend to take longer than expansions. Both unemployment and interest rates are pointing to equal length of expansions and contractions. The data also suggest that GDP and inflation data reveals the cycles earlier than unemployment and interest rates cycles. According to the data, the first cycle under GDP and inflation was recorded in 2011, while for unemployment and interest rates were recorded only in 2012 and 2013 respectively.

Similar to the analysis of the economic cycle, the data also revealed that commercial property cycles also exist under both retail and the office property markets. Between 2011 to 2020, the retail property market experienced two property cycles while the office market recorded three cycles. All cycles lasted between 2 to 4 years in length.

In linking the two cycles, analysis of question two revealed that the Namibian economic cycle is linked to the Windhoek commercial property cycle under certain variables. A countercyclical relationship was found between the Namibian GDP and the Windhoek vacancy rates for both retail and office markets. There exists a countercyclical relationship between the Namibian inflation and the Windhoek retail vacancy rates and office cap-rates. A procyclical relationship was also established between the Namibian interest rates and the Windhoek retail vacancy rates and office cap-rates.

Analysis of question 3 suggests that during peaks and troughs of both economic and commercial property cycle, the 14 respondents find it easier, difficult and some cases both easy and difficult. The respondents demonstrated understanding of economic and commercial property periodic changes. The variables used by valuers in identifying boom and bursts in the general economy and the commercial property market are consistence with the findings under literature review. In valuing the Windhoek commercial properties, the direct income capitalisation method is more popular compared to the DCF. When valuing commercial properties during boom phases of both economic and commercial property cycle, majority of participants indicated that it is easier to project these methods variables. During this period, information is easily accessible and available in the market, due to increased property transactions. During economic and commercial property downturns, majority of the valuers indicated that it is difficult to project valuation variables. Key explanations were the inverse of a booming environment that during this time data is limited and not easily available.

.

Chapter 5 Conclusions and Recommendations

5.1 Introduction

The following sections, the research proposition, questions, objectives, and the research presented in this thesis will be summarised, the implications of the results will be considered, the limitations encountered, and finally some suggestions will be provided for future research.

5.2 Summary of Findings

The study set out to determine whether the Namibian economy and the commercial property market are cyclical, and the impacts they have on the valuation of income producing properties. Literature and empirical studies review indicated that the economy and the property market are cyclical. It also revealed that valuation variables do not reflect the cyclicality of the economy and the property market. The Namibian valuation profession is not regulated, hence the inclusion of the cyclicity of the economy and property market are not monitored in commercial property valuations. The study is therefore intended to add to the existing body of knowledge for further research into the cyclicity of the economy and the commercial property market, and how they impact commercial property valuations.

Based on literature studies a general research problem is brought forward, asking is there a link between the Namibian economic cycle and the commercial property cycle, and what impact do they have on the income approach of valuation?

The specific research questions flowing from this problem seek to understand the economic and commercial property variables required to establish economic cycles and commercial property cycles, and if there is a link between the two cycles. Furthermore, whether valuers face challenges when valuing commercial properties using the income approach during or near peaks and troughs.

The discussion below presents the findings of each of the three specific research objectives and questions, and evaluation of the research problem.

5.2.1 Research Objective 1

The first objective of this study was to investigate whether economic cycles exist in Namibia. Literature review revealed that the economy behaves in a cyclical manner. Empirical studies in India and Portugal indicate that both country's economies are cyclical. To meet this objective, the question 'what are the variables required to establish economic cycle'? was put forward to identify the variables through literature review. The study collected annual data on GDP, inflation, unemployment, and interest rates as identified in section 2.2 of the literature review .Using the classical, growth rate approach and HP filters, the study revealed that the Namibian economy is cyclical. The country experienced two to three economic cycles between 2011 and 2020.

5.2.2 Research Objective 2

The second objective of this study was to investigate whether commercial property cycles exist in Windhoek, and to establish whether they are linked to the Namibian economic cycle. Literature review revealed that the commercial property market is cyclical. Empirical studies in Australia, Canada, UK, USA, Malaysia, and South Africa reveals that the property cycle is cyclical and is linked to economic cycle. To meet this objective, the study put forward the research question 'what are the variables required to establish commercial property cycle, and are they linked to economic cycle?'. The study collected annual data on retail and office vacancy and cap rates between 2011 abd 2020 as identified section 2.3 of literature review. Using the classical, growth rate approach and HP filters, the study revealed that the Windhoek commercial property market is cyclical. The Windhoek commercial property market experienced two to three cycles between 2010 and 2020.

The research further linked the Namibian economic cycle to the Windhoek commercial property cycle using sample cross correlation. The link between the two cycles was established. There is a countercyclical and procyclical relationship between the Namibian economic cycle and the Windhoek commercial property cycle under certain variables.

5.2.3 Research Objective 3

The third research objective was to investigate whether valuers face challenges in valuing commercial properties using the income approach at peaks and troughs of both cycles. The research question ‘What are the challenges faced by valuers when valuing commercial properties using the income approach at or near a peak and trough of both economic and commercial property cycles?’ was put forward to meet the objective. A survey questionnaire was utilised to collect this data.

All participants indicated that they use the income approach to value the Windhoek commercial properties. The analysis of the survey revealed that during economic and commercial property troughs and peaks, valuers find it easier, difficult, and sometimes both easy and difficult to value commercial properties. During the peaks of both cycles’ valuers find it easier to value commercial property cycle. During this phase of both cycles, markets tend to be more active making market data easily accessible and available. However, it said to be more difficult to value during troughs of both cycles, due to limited market data availability. Participants also indicated that in some cases it can be both easy and difficult to value during both peaks and troughs of both cycles due to information availability. Central to the challenges faced by valuers during peaks and troughs of both the economy and commercial property cycle is market data availability.

5.2.4 General Research Question

From the discussions it may be inferred, based on the conclusions of the three particular study questions above and the empirical data obtained, that economic cycles and commercial property cycles do exist in Namibia, Windhoek under certain variables. The Namibian economy is linked to the commercial property cycle under certain variables. The study also indicated that valuers do face challenges when valuing commercial properties using the income approach during peaks and troughs of both economic and commercial property cycles.

5.3 Limitations of study

There are a few flaws in this study that deserve to be addressed.

Although the study was able to establish the existence of economic cycles and commercial property cycles using annual data, monthly or quarterly data would have given a richer analysis of the results. The study is limited to establishing the existence of both cycles and not an empirical study of their drivers. Literature on the drivers was reviewed to get a depth understanding of the theory.

Even though a snowball strategy was utilised to survey the valuers, a list of all registered commercial property valuers in Windhoek could have given a higher response resulting in bigger data set providing richer and more response on the challenges faced by valuers during the different phases of the cycles.

Despite these unforeseen limitations which were only identified after the collection of data the information was sufficient and valid to establish the existence of economic cycles and to provide insight into valuers understanding on economic and commercial property cycles and challenges, they face when valuing during changes in both cycles.

5.4 Recommendations and further study

As stated in the opening to this chapter, the goal of this research is to add knowledge to the existing body of knowledge and to encourage further research into the link between economic cycle and the commercial property cycle and their impact on valuation.

The study revealed that economic and commercial property cycles exist but linked under GDP, inflation, and interest rates. No relationship was found between the Namibian unemployment rates and the Windhoek commercial property cycle. The study also revealed valuers find it easier to value commercial properties during economic and commercial property peak and difficult during trough phases of both cycles and both in some cases

The following is therefore recommended for both further research studies:

- It will be interesting to stablish the Namibian economic cycle over a longer period to reflect the long cycle.
- Further studies may have to establish whether commercial property cycles exist in other towns of the country in comparisons to the Windhoek commercial property cycle.
- It would also be interesting to determine whether valuers face challenges when using other approaches of valuations when valuing properties at the different phases using other approaches of valuation.

Reference

Akinsomi, O., Mkhabela, N. & Taderera, M. 2018. The role of macro-economic indicators in explaining direct commercial real estate returns: evidence from South Africa. *Journal of Property Research.* 35(1):28-52.

Alharahsheh, H.H. & Pius, A. 2020. A review of key paradigms: Positivism VS interpretivism. *Global Academic Journal of Humanities and Social Sciences.* 2(3):39-43.

Bagliano, F.C. & Morana, C. 2012. The Great Recession: US dynamics and spillovers to the world economy. *Journal of Banking & Finance.* 36(1):1-13.

Bhattacherjee, A. 2012. *Social science research: Principles, methods, and practices.* Zurich, Switzerland.

Bormotov, M. 2009. *Economic cycles: historical evidence, classification and explication*. (MPRA Paper No. 19660). Available: https://mpra.ub.unimuenchen.de/19660/ [2021, 8 May].

Born, W. & Pyhrr, S. 1994. Real Estate Valuation: The Effect of Market and Property Cycles. *Journal of Real Estate Research.* 9(4):455-485. DOI:10.5555/rees.9.4.t21866r7h4406x20.

Cairncross, A.K. 1934. The Glasgow building industry (1870-1914). *The Review of Economic Studies.* 2(1):1-17. DOI:10.2307/2967546.

Church, R.M. 2002. The effective use of secondary data. *Learning and motivation.* 33(1):32-45.

Crafts, N. & Fearon, P. 2010. Lessons from the 1930s great depression. *Oxford Review of Economic Policy.* 26(3):285-317.

d'Amato, M. 2015. Income approach and property market cycle. *International Journal of Strategic Property Management.* 19(3):207-219.

d'Amato, M., Siniak, N. & Mastrodonato, G. 2019. “Cyclical assets” and cyclical capitalization. *Journal of European Real Estate Research.*

DeLisle, J. & Grissom, T. 2011. Valuation procedure and cycles: an emphasis on down markets. *Journal of Property Investment & Finance.* 29(4/5):384-427.

Devarajan, S. & Kasekende, L.A. 2011. Africa and the global economic crisis: Impacts, policy responses and political economy. *African Development Review.* 23(4):421-438.

DiPasquale, D. & Wheaton, W.C. 1992. The markets for real estate assets and space: A conceptual framework. *Real estate economics.* 20(2):181-198.
Dobos, I. & Ábel, I. 2018. A theory of economic cycles. *Society and Economy.* 40(2):169-184.
Dua, P. & Banerji, A. 2012. *Business and growth rate cycles in India*. (Working Paper No. 210). Delhi, India: Centre for Development Economics, Department of Economics, Delhi School of Economics,,.
French, N. 2011. Valuing in the downturn: understanding uncertainty. *Journal of Property Investment and Finance.* 29(3):312-322.
Garrison, R.W. 1999. The great depression revisited. *The Independent Review.* 3(4):595-603.
Giacalone, M., Mattera, R. & Nissi, E. 2020. Economic indicators forecasting in presence of seasonal patterns: time series revision and prediction accuracy. *Quality & Quantity.* 54(1):67-84.
Gilbertson, B. & Preston, D. 2005. A vision for valuation. *Journal of Property Investment & Finance.*
Grinin, L., Tausch, A. & Korotayev, A. 2016. *Economic cycles, crises, and the global periphery.* Geneva, Switzerland: Springer.
Grover, R. & Grover, C. 2013. Property cycles. *Journal of Property Investment & Finance.* 31(5):502-516.
Hoskins, N., Higgins, D. & Cardew, R. 2004. Macroeconomic Variables and Real Estate Returns: An International Comparison. *Appraisal Journal.* 72(2).
Hoyt, H. 1947. The Effect of Cyclical Fluctuations Upon Real Estate Finance. *The Journal of Finance.* 2(1):51-60. DOI:10.2307/2975516.
Hui, H.-C. 2013. Housing price cycles and aggregate business cycles: Stylised facts in the case of Malaysia. *The Journal of Developing Areas.*149-169.
IVSC. 2020. International Valuation Standards.
Jackson, S.L. 2015. *Research methods and statistics: A critical thinking approach.* Cengage Learning.
Jadevicius, A. & Huston, S.H. 2017. How long is UK property cycle? *Journal of Property Investment & Finance.* 35(4):410-426.
Jansen, H. Ed. 2010. The logic of qualitative survey research and its position in the field of social research methods.

Kitchin, J. 1923. Cycles and trends in economic factors. *The Review of economic statistics.*10-16.
Kwasnicki, W. 2008. Kitchin, Juglar and Kuznetz business cycles revisited. *Wroclaw: Institute of Economic Sciences.*
Laposa, S. & Mueller, A. 2017. The Great Recession and real estate cycles–challenges, opportunities, and lessons learned. *Journal of Property Investment & Finance.* 35(3):321-340.
Lucas Jr, R.E. Ed. 1977. Understanding business cycles. North-Holland. 7-29.
Miller, R.L. & Brewer, J.D. 2003. *The AZ of social research: A dictionary of key social science research concepts.* Sage.
Mintzberg, H. 1987. The strategy concept I: Five Ps for strategy. *California management review.* 30(1):11-24.
Mooya, M. 2011. Valuers and the Global Financial Crisis of 2008: implications for the (South) African valuation profession. *In 11th African Real Estate Society Conference. AfRES*. Windhoek, Namibia, 2011. Available: https://ideas.repec.org/p/afr/wpaper/afres2011_102.html.
Mueller, G.R. & Pevnev, A. Eds. 1997. An analysis of rental growth rates during different points in the real estate market cycle. Citeseer.
NSA. 2018. Namibia Land Statistics.1-52.
NSA. 2019. Annual National Accounts;2019.1-58.
Osakwe, P.N. 2008. Africa and the global financial and economic crisis: impacts, responses and opportunities. *ThE FINANcIAl AND EcONOmIc crISIS.*203.
Pagourtzi, E., Assimakopoulos, V., Hatzichristos, T. & French, N. 2003. Real estate appraisal: a review of valuation methods. *Journal of Property Investment & Finance.*
Pandey, R., Patnaik, I. & Shah, A. 2017. Dating business cycles in India. *Indian Growth and Development Review.*
Pholphirul, P. & Rukumnuaykit, P. 2009. The real estate cycle and real business cycle: evidence from Thailand. *Pacific Rim Property Research Journal.* 15(2):145-165.
Prabhakar Akhilesh, C. & Prabhakar Akhilesh, C. 2016. The Great Recession and the Great Depression. In *The Current Global Recession.* Emerald Group Publishing Limited. 35-52. DOI:10.1108/978-1-78635-158-620161004.
Proietti, T. 2005. New algorithms for dating the business cycle. *Computational Statistics & Data Analysis.* 49(2):477-498.

Pugh, C. & Dehesh, A. 2001. Theory and explanation in international property cycles since 1980. *Property management.*
Pyhrr, S.A., Born, W.L., Robinson III, R.R. & Lucas, S.R. 1996. Real property valuation in a changing economic and market cycle. *The Appraisal Journal.* 64(1):14.
Rai, N. & Thapa, B. 2015. A study on purposive sampling method in research. *Kathmandu: Kathmandu School of Law.* 5.
Reed, R. & Wu, H. 2010. Understanding property cycles in a residential market. *Property management.* 28(1):33-46.
Rehman, A.A. & Alharthi, K. 2016. An introduction to research paradigms. *International Journal of Educational Investigations.* 3(8):51-59.
Reinert, J. 2019. Comparison of the DCF and German income approach. *Journal of Property Investment & Finance.*
RICS. 2017. *RICS Valuation-Global Standards 2017: Incorporating the IVSC International Valuation Standards.* Royal Institution of Chartered Surveyors [RICS].
Roopa, S. & Rani, M. 2012. Questionnaire designing for a survey. *Journal of Indian Orthodontic Society.* 46(4_suppl1):273-277.
Rua, A. 2017. Dating the Portuguese business cycle. *Revista de Estudos Económicos do Banco de Portugal.*
Scarrett, D. 2008. *Property valuation: The five methods.* Abingdon, Oxon: Routledge.
Scott, P. & Judge, G. 2000. Cycles and steps in British commercial property values. *Applied Economics.* 32(10):1287-1297.
Semuel, H. & Nurina, S. 2014. Analysis of the effect of inflation, interest rates, and exchange rates on Gross Domestic Product (GDP) in Indonesia. *Proceedings of the International Conference on Global Business, Economics, Finance and Social Sciences (GB15_Thai Conference) Bangkok, Thailand, 20-22 February*. 2014.
Škare, M. & Stjepanović, S. 2016. Measuring business cycles: a review. *Contemporary Economics.* 10(1):83-94.
Temin, P. 2016. Great Depression. In *Banking Crises.* Springer. 144-153.
Vanichvatana, S. 2007. Thailand real estate market cycles: case study of 1997 economic crisis. *Government Housing Bank Journal.* 1(1):38-47.
Venclauskiene, D. & Snieska, V. 2009. Real estate market and slowdown interaction in countries with transition economy. *Economics and management.* (14):1026-1031.
Walliman, N. 2010. *Research methods: The basics.* Routledge.

Wheaton, W.C. 1987. The cyclic behavior of the national office market. *Real estate economics.* 15(4):281-299.
Williams, C. 2007. Research methods. *Journal of Business & Economics Research (JBER).* 5(3).
Wyatt, P. 2013. *Property valuation.* John Wiley & Sons.

6.

Appendix 1

Information sheet and consent sheets

INFORMATION & CONSENT SHEETS -COMMERCIAL PROPERTY VALUERS

An investigation of the linkage between Economic Cycle and the Commercial Property Cycle in Namibia, Windhoek, and their impact on the Property Valuation Income Approach.

My name is Else Katjihingua, a masters in property studies student at the University of Cape Town, South Africa. In fulfilment of the said program, I am required to complete a minor dissertation.

The first and second objectives of the research is to establish whether economic cycles and commercial property cycles exist in Windhoek. In addition to these objectives, the research will further establish whether a relationship exist between the two cycles. The third objective of the research is to study challenges associated with valuing commercial properties during peak and trough of both the cycles using the income approach to property valuation. The third objective can only be achieved through a structured questionnaire answered by Valuers who undertake commercial property valuations (offices/retail) in Windhoek.

I would appreciate if you can take 30 minutes of your time to answer the questionnaire.

Please note that participation is voluntary. If you wish not to participate, please feel free not to do so as there will be no undesirable consequences. There are no rewards in participating in this research, however participation will enable the research to meet its objectives. There will be no identity disclosure, and the answered questionnaire will be kept in confidential and used for the sole purpose of this research.

For further information regarding the study, kindly email me at KTJELS001@myuct.ac.za or lckatjihingua@gmail.com.

Appendix 2

Valuers Survey

Questionnaire

QUESTIONNAIRE

SECTION 1 :DEMOGRAPHIC INFORMATION

What is your current age group?

Under 25 years

26- 30 years

31-35 years

36-40 years

41-45 years

46-50 years

51-55 years

56-60 years

Above 61 years

How long have you been practising property valuation?

Under 5 years

6-10 years

11-15 years

16-20 years

21-25 years

26-30 years

31-35 years

36-40 years

41-46 years

Above 47 years

What is your geographical area of property valuation practise?

_____

_____

_____

What professional valuation related qualifications do you have, and from which institution?

_____
_____
_____

What other professional qualifications do you have, and from which institutions?

_____
_____
_____

Are you registered with any professional valuation body outside Namibia? Yes/No.

_____

If your answer is yes in 1.6, State the body name.

_____
_____

SECTION 2: ECONOMIC CYCLES

Are you aware of changes in the economy, yes/no?

_____

If your answer is yes in 2.1, continue.

How do you tell when the economy is booming?

_____
_____
_____
_____
_____
_____

How do you tell when the economy is in a downturn?

_____
_____
_____
_____
_____
_____
_____

SECTION 3: COMMERCIAL PROPERTY CYCLES

Are you aware of changes in the commercial property market (office/retail), yes/no?

_____

If your answer is yes in 3.1 continue.

How do you tell when the commercial property market (offices/retail) is booming?

_____
_____
_____
_____
_____

How do you tell when the commercial property market (offices/retail) is in a downturn?

_____
_____
_____
_____
_____
_____
_____

SECTION 4: DIRECT INCOME CAPITALIZATION METHOD OF VALUATION AT OR NEAR A PEAK AND TROUGH OF ECONOMIC CYCLE AND COMMERCIAL PROPERTY CYCLE

Do you use the direct income capitalization method to value commercial properties (offices/retail), yes or no?

_____

If answer is yes in 4.1, continue.

What are the key variables that you use in your direct income capitalization method to arrive at the Market value of commercial properties (offices/retail)?

_____
_____
_____
_____

Are these variables (identified in 4.2) projected over a period, yes/no?

_____

If your answer is yes in 4.3, how long is your projection?

_____

Are there any assumptions that you make in your variables (identified in 4.2) projections, yes/no?

_____

If your answer is yes in 4.5, what are these assumptions?

_____
_____
_____
_____
_____
_____
_____

When the economy is booming, is it easier or difficult to project your valuation variables (identified in 4.2)?

_____

4.8 Explain your answer in 4.7

_____
_____
_____
_____
_____
_____
_____

4.9 When the economy is in a downturn, is it easier or difficult to project your valuation variables (identified in 4.2)?

_____

Explain your answer in 4.9

_____
_____
_____
_____

4.11 When the commercial property market (offices/retail) is booming, is it easier or difficult to project your valuation variables (identified in 4.2)?

_____

4.12 Explain your answer in 4.11

_____
_____

_____
_____
_____
_____
_____

4.13 When the commercial property market (offices/retail) is in a downturn, is it easier or difficult to project your valuation variables (identified in 4.2)?

_____

4.14 Explain your answer in 4.13

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_

SECTION 5: DISCOUNTED CASH FLOW TECHNIQUE AT OR NEAR A PEAK AND TROUGH OF ECONOMIC CYCLE AND THE COMMERCIAL PROPERTY CYCLE

5.1 Do you use the discounted cash flow technique to value commercial properties (offices/retail), yes/no?

_____

If answer is yes in 5.1 continue.

5.2 What are the key variables that you use in your DCF to arrive at the Market value of commercial properties (offices/retail)?

_____
_____
_____
_____

Are these variables (identified in 5.2) projected over a period, yes/no?

_____

If your answer is yes in 5.3, how long is your projection?

_____

Are there any assumptions that you make in your DCF valuation variables (identified in 5.2) projections, yes/no?

_____

If your answer is yes in 5.5, what are these assumptions?

_____
_____
_____
_____
_____
_____
_____

When the economy is booming, is it easier or difficult to project your DCF valuation variables (identified in 5.2)?

_____

5.8 Explain your answer in 5.7

_____
_____
_____
_____
_____
_____
_____

When the economy is in a downturn, is it easier or difficult to project your DCF valuation variables (identified in 5.2)?

_____

5.10 Explain your answer in 5.9

_____
_____
_____
_____
_____
_____
_____

5.11 When the commercial property market (office/retail) is booming, is it easier or difficult to project your DCF valuation variables (identified in 5.2)?

_____

5.12 Explain your answer in 5.11

_____
_____
_____
_____

5.13 When the commercial property market (office/retail) is in a downturn, is it easier or difficult to project your DCF valuation variables (identified in 5.2)?

_____

5.14 Explain your answer in 5.13

_____
_____
_____
_____

Appendix 3
Ethics Committee Approval Form

ETHICS APPLICATION FORM

Please Note:
Any person planning to undertake research in the Faculty of Engineering and the Built Environment (EBE) at the University of Cape Town is required to complete this form **before** collecting or analysing data. The objective of submitting this application *prior* to embarking on research is to ensure that the highest ethical standards in research, conducted under the auspices of the EBE Faculty, are met. Please ensure that you have read, and understood the **EBE Ethics in Research Handbook** (available from the UCT EBE, Research Ethics website) prior to completing this application form: http://www.ebe.uct.ac.za/ebe/research/ethics1

APPLICANT'S DETAILS		
Name of principal researcher, student or external applicant		Eke Katjhingua
Department		Construction Economics and Management
Preferred email address of applicant:		[illegible]
If Student	Your Degree: e.g., MSc, PhD, etc.	Msc in Property studies
	Credit Value of Research: e.g., 60/120/180/360 etc.	60
	Name of Supervisor (if supervised):	Associate Professor Manya M Mooya
If this is a researchcontract, indicate the source of funding/sponsorship		No
Project Title		An investigation of the linkage between Economic cycles and Commercial Property cycles and their impacts on the Valuation Methodology used in valuing Commercial properties in [illegible], [illegible].

I hereby undertake to carry out my research in such a way that:

- there is no apparent legal objection to the nature or the method of research; and
- the research will not compromise staff or students or the other responsibilities of the University;
- the stated objective will be achieved, and the findings will have a high degree of validity;
- limitations and alternative interpretations will be considered;
- the findings could be subject to peer review and publicly available; and
- I will comply with the conventions of copyright and avoid any practice that would constitute plagiarism.

APPLICATION BY	Full name	Signature	Date
Principal Researcher/ Student/External applicant	Eke Katjhingua	-	27/10/2020

SUPPORTED BY	Full name	Signature	Date
Supervisor (where applicable)	MANYA MOOYA		30/10/2020

APPROVED BY	Full name	Signature	Date
HOD (or delegated nominee) Final authority for all applicants who have answered NO to all questions in Section 1; and for all Undergraduate research (Including Honours).	Louie van Schalkwyk		6 Nov 2020
Chair: Faculty EIR Committee For applicants other than undergraduate students who have answered YES to any of the questions in Section 1.	Louie van Schalkwyk		6 Nov 2020

Page 1 of 1