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Non-Financial Determinants of Industrial Corporate Real Estate Decisions on Leasing versus Owning in Johannesburg

A research report submitted to the Faculty of Engineering and the Built Environment, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Science in Building (Property Development and Management)

Submitted by:

Peter Nandi

Student No.: 1759377



The School of Construction Economics and Management

University of Witwatersrand

Johannesburg

2020

Declaration

I, Peter Nandi, declare that this Research Report is my own, unaided work except where otherwise indicated and acknowledged. It is being submitted for the Degree of Master of Science in Building (Property Development and Management) at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at any other University. I further declare that I have obtained the necessary authorisation and consent to conduct this research.



(Signature of Candidate)

25th day of September 2020

Abstract

Purpose - The purpose of this research paper was to explore the non-financial determinants of leasing versus owning commercial industrial corporate real estate in Johannesburg and Ekurhuleni, South Africa.

Design/methodology/approach - The main data collection technique used in the research was through using standardised questions created on a web-based platform and distributed through an online survey software. The response rate achieved was 83% (43) from a total of 52 organizations who consented to participate in the survey. Most of the respondents who participated in the survey were in senior management positions. Descriptive and inferential statistical methods were used to analyse the participants' response to the research questions. This research used the logistic regression modelling to explore company and site-specific characteristics for lease versus own decisions for industrial corporate real estate sector organizations based in Johannesburg.

Findings - The results suggest that the decision to lease or own industrial corporate real estate in Johannesburg and Ekurhuleni are driven by strategic non-financial considerations, specifically, the locational characteristics of municipality, proximity to key clients/customers and proximity to key suppliers of raw materials. The other variables considered in the model comprised of proximity to source of skilled or general labour, security, standby generator, fibre network availability and 24-hour access. Though ranked as most important by the respondents using the relative importance index (RII) technique, these locational aspects and physical attributes were found not to be statistically significant in the lease or own decision of industrial firms based on the available data.

Research Limitations - The scope of the research was limited to the industrial real estate property sector in Gauteng Province with specific reference to the

Johannesburg and Ekurhuleni Metropolitan Municipalities. Hence, the conclusions of the study may not be generalised to the entire South Africa industrial corporate real estate property sector.

Recommendations - This study highlighted the site-specific characteristics that industrial sector organizations consider in the lease or own decision of their corporate real estate. It is recommended for industrial corporate real estate organizations to identify the correct location for their businesses and prioritize advantages of certain locational areas especially with regard to the municipal region. As a central enabler for realising and creating an environment where businesses want to invest, the study recommends the need for municipalities to focus investment in social and economic infrastructure to include but not limited to mass transit systems, rollout of housing opportunities, reliable supply of bulk utilities and services, improved levels of security, and smart city ecosystems. In addition, the findings of the study validate the necessitate for developers and investors to take cognizance of site-specific characteristics and physical attributes that are prioritized by industrial sector organizations. An appreciation of the influential non-financial factors will assist firms to align their corporate real estate acquisition decisions with their strategic business goals and guide developers to construct specific, workable commercial industrial real estate projects.

Originality/value - This study makes an empirical contribution to the field of corporate real estate research by providing evidence on the significance of non-financial determinants of the lease versus own decisions for South African industrial real estate sector organizations.

Keywords: Industrial corporate real estate; Lease versus own; Non-financial determinants; Site-specific characteristics; South Africa

Dedication

In loving memory of my parents, for raising, guiding, moulding and nurturing me during my youth and throughout the years. I am forever grateful!

To my family, who have loved, understood, inspired, motivated, supported and continue to encourage me in all my endeavours. I am proud to have you as my family and appreciate your love and love you a lot. You are indeed a gem of a family. God bless you!

Indeed, I am richly blessed and truly thankful!

Acknowledgement

I wish to express my gratitude and acknowledge my supervisor Dr Yewande Adewunmi for her guidance, advice, constructive criticism, encouragement and insights throughout the development of this research report.

A special thank you to all those who volunteered to participate in the survey by completing the web-based online questionnaire, your responses were a valuable and indispensable component of the research report.

A word of sincere appreciation to all my colleagues and friends for their support, endless encouragement and candour.

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1. Introduction

1.1. Background to the Study

An evolving trend apparent from around 1995 is the transition of the South African economy from a largely manufacturing-oriented industry sector to the distribution of products and finished goods in, out of and through the African continent. Consequently, this has driven the development of new industrial parks along major highways along the north and eastern regions of Johannesburg over the past decade arising from the deficiency of suitable large warehousing facilities required by distribution and logistics companies (Property24, 2014). Multi-national and national companies looking for industrial and office space, or a combination of these, prefer the advantages of being positioned near major highways and arterial road networks, cargo rail and other transportation nodes such as the Gautrain Stations and OR Tambo International Airport, which is fast developing into an important commercial hub (Broll Industrial Market Report, 2017).

According to O'Mara (1999), one of the most crucial investment decisions that firms need to do is deciding on either to lease or own their operational space. When a firm purchases a property, it acquires legal title to the asset and the entitlement to the usage and services of the property over the ownership period including the power to transfer the property in the future. On the contrary, with leasing, the firm secures only the rights to merely gain some benefit from the property for a period as stipulated in the lease agreement (Smith and Wakeman, 1985). Gibler and Black (2002) suggested despite many organizations own and lease real property they occupy or possess in order to promote their core business, the purchase, administration and sale of such assets is not well defined and does not follow a strategic approach to maximise value to the firms.

Barkham and Park (2011) study on importance of strategic determinants of leasing-versus-buying decision for corporate real estate (CRE) in the United Kingdom, asserted that the leasing versus buying decision process are more complex for CRE assets which have diverse intangible aspects in comparison to ordinary physical assets. Often, the explicit inclusion of key considerations into the leasing versus buying decision evaluation cannot be made. Consequently, the critical factors on the leasing versus buying decision for CRE have not been adequately tackled in previous studies. In examining significance of critical factors in leasing versus buying decision-making process for CRE, the paper advocates for a broader framework in leasing versus buying decision for CRE to encompass non-financial determinants including organizational policy, locational scrutiny, and CRE economic fundamentals.

Neuberger and Rathke-Doppner (2013) asserted in addition to contract- and firm-specific attributes, demographic and socio-economic attributes of businessperson are important factors which define the lease versus buy decisions.

The research study by Chetty (2017) on non-financial determinants of leasing versus buying decision were inconclusive in confirming that location, site specific and company specific factors materially act as predictors of the probability that an organization will purchase or lease their CRE. Limitations arising from insufficient data points for the factors in the logistic regression model precluded drawing detailed inferences on importance of non-financial determinants on leasing versus purchasing decision for commercial office property organizations in South Africa.

The site location of large warehousing space for distribution and logistics companies is a major factor in the industrial sector. It is therefore imperative for such firms to identify the correct location for their business and carefully consider the advantages of certain areas. For instance, if a firm is continually

receiving and dispatching truck deliveries, then their warehouse facility should have suitable access to the major freeways and secondary arterial roads (Broll Logistics Report, 2018).

1.2. Problem Statement

Despite the essence of the lease versus own decision being centred on financial incentives, non-financial variables frequently play a critical role in the process of decision-making. Numerous studies pertaining to tangible assets have explored financial and non-financial characteristics of leasing versus buying appraisal for CRE (Smith and Wakeman, 1985; Sharpe and Nguyen, 1995; Benjamin et al., 1998; Barkham and Park, 2011). Other studies have demonstrated adverse financial effect of CRE ownership (Deng and Gyourko, 1999; Liow, 2004; Brounen and Eichholtz, 2005). Redman and Tanner (1991) asserted that surveys have been conducted and published regarding the evaluation and decision-making in the leasing and purchasing of corporate assets.

However, minimal research has been conducted to define approaches executives use in financing real estate and the rationales used in making leasing and purchasing choices. Barkham and Park (2011) suggested financial variables only are not pivotal in the lease versus purchase decision for CRE. It is imperative for a broader context in leasing versus purchasing decision for CRE to not only include financial factors, but equally consider organizational policy, locational scrutiny, and CRE economic fundamentals. Locational attributes, size of firms, physical characteristics and company preferences are significant determinants with respect to lease versus buy decision for CRE whereas company size and sectoral differences may be less significant determinants. In addition, Lasfer and Levis (1998) averred factors influencing leases are dissimilar across companies of varying size and that leasing, profitability, leverage and taxation have a positive correlation for large

organizations. On the contrary, leases promote continued existence of small companies and contributes to financing development opportunities for small companies.

In view of the importance and relevance of real estate in the asset structure of an organization (Liow and Ooi, 2004), how do firms decide on which assets to lease and which assets to own from both a financial and non-financial perspective?

Very few studies, mainly focused on office real estate sector, have been carried out to explore the benefits of leasing corporate real estate property in South Africa in comparison to its purchase. There is also limited research study that explores how CRE decisions are made for all asset classes in general and specifically in industrial real estate sector in South Africa. More importantly, what are the non-financial determinants that influence leasing versus owning decisions for CRE organizations operating within the industrial sector in Johannesburg, South Africa? What are the major factors and incentives influencing leasing versus owning decision-making of non-real estate firms when sourcing for operational space for their organizations?

This study explored non-financial determinants of leasing versus owning of CRE in South Africa by studying present status of CRE in South Africa.

1.3. Importance of the Problem

Popular industrial nodes within Johannesburg and surrounds along the N1/N3 corridor have continued to attract the attention of major warehousing and logistics developers and owners. However, prime land with excellent frontage is currently limited or not readily available for development. Coupled with this, construction costs, the rising cost of proclaimed industrial land and the prolonged rezoning period have increased the market rents for newly constructed warehousing facilities well above the prevailing rents been

achieved in the older industrial regions, mainly in Isando and Spartan. As such, future developments will therefore have to make concessions on location, accessibility to highways, cost of land and maintenance-related costs. Despite this fact, these sectors and regions remain popular due to their vicinity adjacent to transportation networks and marketplaces (Property24, 2014). Evidently, these non-financial factors influence locational decisions of industrial real estate sector organizations in Johannesburg.

South African property stockholders and real estate developers have benefited from years of soaring rents and assured profits. This has resulted in efficiency losses being obscured by increase in rents and the fair assessment value of real estate properties. A gradual and ever accelerating slowdown in economic conditions in recent years, the continued possibilities of a sovereign downgrade to sub-investment grade and the depressed level of business confidence has forced property stockholders and real estate developers to increase efficiencies and stirred most organizations into the realization of the importance of their real estate assets (Jones Lang LaSalle South Africa, 2017). Clearly, it is apparent there is still absence of enough empirical evidence to support the non-financial factors industrial sector organizations should consider when deliberating corporate real estate choices on the leasing versus owning decision-making process.

According to Brand South Africa (2017), the manufacturing sector, which extensively uses industrial real estate space and warehousing facilities, was the third-largest contributor to national economy in 2013 by contributing 15.2% to the Gross Domestic Product (GDP) of South Africa. The sector serves as a catalyst for promoting growth in numerous sectors of the economy, including financial services, and targeting economic empowerment through job creation. Given the relative importance and the size of the industrial property sector, it is not clearly articulated how South African firms make their decisions when it comes to the options of leasing or owning their CRE assets in the industrial

property sector. Hence, it is important determining the extent to which these decisions influence and impact business goals within the South African industrial property markets.

1.4. Research Aim

The research focus was on non-financial determinants of leasing versus owning decisions of industrial real estate sector in Johannesburg. The research findings on variables that impact leasing versus owning decisions will assist firms to align their corporate real estate acquisition decisions with their strategic business goals, and guide developers to construct specific, workable commercial real estate industrial projects.

1.5. Research Objective

The research objective was to examine and determine the influence of non-financial determinants on leasing versus owning decisions of CRE firms that operate within the Johannesburg and Ekurhuleni industrial property sector.

1.6. Research Questions

In addressing research objectives, the following set of questions were formulated to explore the research problem:

- What are the strategic non-financial determinants of leasing versus owning decision for industrial CRE sector organizations in Johannesburg and Ekurhuleni?
- What is the relative importance assigned to critical non-financial determinants that influence the leasing or owning decision of industrial CRE in Johannesburg and Ekurhuleni?
- What are strategic non-financial determinants that influence decisions to lease or own industrial corporate real estate in Johannesburg and Ekurhuleni?

1.7. Hypothesis

Taking cognizance of the research questions and for purposes of evaluating the correlation between location, site-specific and company-specific variables as important predictors to the probability that an industrial organization will likely be leasing or owning CRE, the following null hypothesis stated as H0 and alternative hypothesis stated as H1 were formulated for the study:

> H0: Locational attributes, site-specific characteristics and company-specific characteristics are strategic non-financial determinants that do not influence the lease or own decision of industrial corporate real estate in Johannesburg and Ekurhuleni.
>
> H1: Locational attributes, site-specific characteristics and company-specific characteristics are strategic non-financial determinants that influence the lease or own decision of industrial corporate real estate in Johannesburg and Ekurhuleni.

1.8. Scope and Limitations of the Study

The research scope was restricted to industrial real estate property sector in Gauteng Province with specific reference to the Johannesburg and Ekurhuleni Metropolitan Municipalities. Both Johannesburg and Ekurhuleni Metropolitan Municipalities are situated in Gauteng Province, South Africa. Ekurhuleni municipality is a large suburban region east of Johannesburg. The two metropolitan municipalities are interconnected by rail and major road networks.

Johannesburg serves as provincial capital of Gauteng and is the largest metropolitan city in South Africa. It is the single, largest metropolitan contributor to national GDP with a contribution of around 15% to national economy in 2016 (City of Johannesburg Draft Integrated Development Plan 2018/19 Review). The economic growth in Johannesburg is driven by a robust and flourishing

private sector, and a city attracting local and foreign investors and entrepreneurs. The economic activity of the city is largely driven by four major industry sectors comprising financial and business services, retail and wholesale trade, and community and social services, and manufacturing sector.

Ekurhuleni is fourth largest city in South Africa and contributed approximately 8.8% to the national economy in 2016 as many of the plants for manufacture of raw materials and production of finished products and services are located in Ekurhuleni (City of Ekurhuleni Integrated Development Plan 2016/17 – 2018/19). Ekurhuleni is regarded as an important transportation hub of the country. It also hosts OR Tambo International Airport, one of the largest and busiest airports in Africa. The economic framework of Ekurhuleni prominently reflects the dominance of four industry categories. These are manufacturing and production sector, finance and business services, community and social services and general government with the trade and hospitality sector contributing to a lesser extent. However, the last decade has seen the steady decline of manufacturing as a dominant sector and a proportionate increase in contribution from the finance and services sector (City of Ekurhuleni Integrated Development Plan 2016-2021).

The study target population were industrial real estate companies that occupy real estate property for their own operational purposes and do not carry out the business of real estate development. There were no restrictions imposed on nature of business activities operated from the industrial premises and these could range from manufacturing, research and development, warehousing and distribution, and even sales and services.

The strategic non-financials determinants explored in the study were limited to locational attributes, site-specific characteristics and company-specific characteristics.

Two major constraints that imposed limitations on the research study were:

- The restriction of the study area to two municipalities within Gauteng Province may cause a sample selection bias. Hence, the conclusions of the study may not be pertinent to the entire South Africa industrial real estate property sector.
- The willingness of individuals to respond to the questionnaire, to respond timeously, and to respond honestly and accurately may result in representativeness bias.

In addition, the researcher could not find more recent literature on the study topic and has therefore not extensively referenced current research in the review. However, the journals referenced in the study are relevant and identified the ideas and approaches that were used in the study.

1.9. Assumptions

The underlying assumptions for the research study were:

- Non-real estate firms focus on financial determinants when making choices on whether to lease or own corporate operating space.
- Strategic property, such as production facilities and warehousing and distribution centres, is real estate companies require to possess and have control over for operational reasons and long-term organizational planning.
- Core property relates to real estate assets such as commercial premises, industrial facilities or retail spaces from which companies conduct business, that organizations must have control of for their existence and or future business activities and for medium term business planning strategies.
- The responses and information collected through the survey for the study represents a true, unbiased consideration of the respondents understanding and interpretations on the factors that influence the leasing versus owning decision.

1.10. Research Structure

The outline of the research structure is as follows:

Chapter One describes the framework of research work, highlights aims and objectives of the research, and outlines the layout of the research report. It also incorporates a brief commentary on the background of the research, and provides reasons for selection of the research area.

Chapter Two comprises literature review, and therefore, includes exploration of models and theoretical frameworks previously introduced to the research area. The intent of literature review is to discuss several peer-reviewed journal articles covering empirical studies on determinants of leasing and owning.

The literature review also examined several journal articles tracing the earliest attempts to underline the significance of corporate real estate and the major hurdles preventing effective use of CRE. In addition, the literature review examined the link between real estate decisions and organizational policy and investigated the concerns and challenges that may occur when an organization opts to outsource its corporate real estate responsibilities.

Chapter Three deliberated on the research approach and methodology. The chapter explained the research procedure and addressed issues pertaining to research philosophy. The methodology chapter contained a brief of the research design, and the preference and application of techniques for collecting the data. The research design highlighted the sequential steps and actions in undertaking an examination important for attaining objective, reliable, and valid information. The research methodology governs the range of options regarding how data was collected, how the data was evaluated, how results were to be reported as well as the nature of conclusions that may reasonably be inferred from the results. The analytical techniques used were descriptive and inferential statistical methods, Relative Important Index composite method

and the logistic regression analysis. Sampling techniques of the study and deliberations on ethical concerns were also be included in this chapter.

Chapter Four incorporated results and deliberations on evaluation and interpretation of primary data collected through structured questionnaires. The presentation of primary data observations and findings was facilitated using bar charts and pie charts. Brief discussions describing the values represented in each chart were included in this chapter.

The chapter plays an important role in attainment of the research aim and objectives. In this chapter primary data findings were compared with outcomes extracted from the literature review. In addition, wide-ranging discussions were provided and presented in relation to the research objectives.

Chapter Five summarised the measure of achievement of the research aim and objectives, and conclusions of the research study. The chapter also included recognition of limitations imposed on the study and highlighted suggestions for further areas of research on the subject.

2. Literature Review

2.1. Introduction

The objective of literature review was to analyse existing body of research literature in CRE for purposes of establishing a better perspective of the research problem and key findings that have been published on lease versus own decisions of CRE organizations. The intent of literature review was also to appraise and discuss journal articles and academic literature covering empirical research on determinants of leasing and owning.

2.2. Characteristics of Corporate Real Estate

Corporate real estate broadly defines real estate property owned by an organization, regardless of whether it is utilized for investment or for use (Manning and Roulac, 1999). The structure of CRE is dependent on nature of business operations undertaken by individual enterprises while the description of property and asset value possessed depends on the nature of its business transactions.

Corporate real estate refers to the functional practice, department, or profession involved with planning, purchase, design, construction/fit-out, management, and administration of real estate assets in support of an organization. Conceptually, CRE, though closely aligned to facilitates management and property management, has a typically wider application in the corporate functional scope since CRE departments generally assign far greater attention and effort on portfolio management or strategic policy. CRE almost solely focuses on commercial property assets, mainly office buildings, with industrial and retail trading being dependent on the organization. Corporate asset portfolios hardly ever incorporate housing property assets (Krumm, 2001).

Manufacturing and production firms would have manufacturing plants, factory facilities, offices and warehousing premises and land for future extension and development. A larger percentage of food retailers own warehousing facilities and distribution hubs and are typically active in the purchase of property assets for expansion and establishment of new outlets. Organizations engaged in the services sector comprising of finance, insurance and legal services will mainly occupy office buildings. Utility firms tend to own land reserves, rights of ways and easements for overhead power transmission lines and overland supply pipelines. Rail transportation organizations will own real estate assets comprising of workshops, warehousing and storage facilities and rights of ways.

The ownership of CRE by firms is largely driven by aspirations of firms to make use of property assets in preference to investments in the property. Adendorff and Nkado (1996) mentioned and distinguished between two main types of real estate owned by organizations, namely strategic property assets and core property assets. Strategic property assets describe real estate organizations require to purchase and control for business operation purposes and long-term business strategic goals. Examples of strategic property assets are manufacturing and production plants and warehousing facilities. Core property assets can be defined as the real estate that an organization desires to control for its existing and or future operational requirements and for medium-term business strategic goals. Some examples of core property assets comprise of commercial premises, industrial facilities or retail trading spaces from which the organizations conduct their operational business.

2.3. Corporate Real Estate as Part of Corporate Strategy

Roulac (2001) disclosed that the most common CRE strategies include reducing occupation costs, enhancing flexibility, bolstering human resources aspirations, bolstering marketing information, boosting sales and selling

process, expediting production, operational issues, and delivery of services, supporting management policy and working know-how, and defining real estate value creation of business. Leading-edge corporate property policies boost the organization's competitive dominance and principal capabilities by creating and retaining customers, attracting and retaining competent human resources, contributing to effective business procedures for the optimization of productivity, promotion of values and cultures of the organization, stimulation of novelty and knowledge, and enhancement of shareholder wealth.

The prerequisite benchmark for categorizing CRE as a strategic resource is its ability to hold beneficial, exceptional, unique, and strategically distinctive characteristics that reinforce and preserve competitive dominance of the organization (Park and Glascock, 2010). Corporate real estate is historically perceived to be a tangible asset of an organization with an asset book value usually premised on fair market value of land and refurbishment costs for carrying out improvements. However, recently there has been an increasing realization of CRE as a strategic business resource. This has necessitated the relevance of appraising CRE within the strategic management context in addition to unravelling of innovative constructs which merge corporate strategic policy, sustainable competitive benefits, and corporate real estate (Park and Glascock, 2010).

Nourse and Roulac (1993) suggested that many firms misjudge and neglect considering relevance of specific real estate transactions in the context of the firm's real estate strategy due to the absence of formal real estate strategic policies. A firm's real estate choices become effective when such resolutions boost the firm's long-term business goals. Similarly, dynamic real estate choices are critical to attainment of long-term business goals.

Wilson et al. (2001) explored value-add services in public sector corporate real estate. The study suggested customer satisfaction can longer be achieved

through operational effectiveness and efficiency by providers of public sector real estate services and infrastructure. Transformative developments necessitate ever-increasing and innovative value add services. Contemporary public sector CRE organizations are maturing and emerging to not only become strategic experts but also better advisers at overseeing risks associated with real estate assets belonging to their customers. In pursuit of adding value driven by changing demands of customers, public sector real estate companies are realizing rewards through a focus on provision of strategic guidance and support of customer organisational policies. The value-add services include integration of services, remote delivery and support of service desk, opportunity and risk assessment, value for money and enhanced service qualities.

Gibler and Black (2002) reported that, while the majority of firms lease and own real property used in supporting their principal business, a limited number of organizations apply strategic guidelines in acquiring, administrating and disposing of their real estate assets. In addition, fewer firms adopt strategic initiatives in managing their real estate assets. Globally, CRE executives tend to pursue the traditional aims of providing required space at the cheapest cost as opposed to concentrating on production and flexibility.

The value of CRE is not entirely captured in the firm's share prices since it is usually obscured from the investor (Liow and Ooi, 2004). To bolster shareholder value, the divestiture of non-core real estate portfolios presents tenable alternatives for many firms. Liow and Ooi (2004) compared key factors and incentives for non-real estate organizations to acquire property assets in Asia, Europe, United States of America and Africa notwithstanding the reasoning that acquisition of corporate real estate assets seems to dampen wealth of shareholders.

Roulac (2001) contended that corporate property has previously focused on the property and hardly taken cognisance of the importance of property assets in which firms conduct business as a conduit for linking those firms to their respective markets for resources and customers. The majority of standard corporate real estate practices target reduction of occupational costs, improving flexibility, enhancing human resource aspirations, bolstering marketing information, boosting sales and retailing process, expediting production, operations, and delivery of services, facilitating supervisory practices and work expertise, and emphasizing real estate value creation for business operations. Exceptional corporate property strategy policies encourage several objectives of key benefit, creativity, organizational expansion, productivity, human resources, profitability of business and wealth creation. In conclusion, Roulac (2001) highlighted the importance of CRE as a critical resource which progresses the preferences of business.

In aligning CRE with organizational corporate planning, Nourse and Roulac (1993) asserted the importance of considering and deliberating on the following questions. Is real estate strategic approach consistent with and bolstering corporate strategy? Do real estate resolutions endorse corporate strategy and other operational policies? Are real estate resolutions coherent with real estate approach and do they support other operational policies?

2.4. Determinants of Lease Versus Own Decision

Empirical studies on determinants of leasing have focused on two correlated issues, namely, determinants of leasing versus owning decision and determinants of preference between operational and financial leases (Morais, 2014). However, the goals of organizations when making leasing decisions may differ from their objective when they decide to purchase.

Balance sheet funding is becoming increasingly challenging as and when revisions to accounting principles are introduced. Manning (1991) stated that

CRE managers' have a preference for "leasing partnership deals" with property investors and developers who agree to share in the residual value of property assets that they are leasing. "Leasing partnership deals" are usually preferred over straight leases or outright acquisition of property premised on its efficiency in reducing corporate tenancy expenses. The increase in financial complexity and greater perception of property investors, developers and real estate managers inspire collaborative partnering to extend reduced tenancy expenses to firms while boosting the return to the developer in relation to asset risk. The research analysis was based on the informal research findings from personal interviews with corporate real estate executives, developers and corporate real estate consultants in North America and therefore has limitations imposed by representativeness bias. The preliminary research is pioneering in investigating the corporate organization and developer practices in the setting up of real property lease covenants with residual rights of ownership such as equity joint deals and/or equity opportunities. The study was limited to a few selected large corporate real estate organizations and highlighted the common beliefs of these executives on the advantages of leasing from developers.

Allen et al. (1993) asserted that CRE executives often elect to lease as the preferred financial option for the acquisition of supplementary real estate property for utilization in commercial operations of the organization. The study was based on office space lease announcements for firms listed on the New York Stock Exchange. Several studies have illustrated detailed models and techniques for exploring options of either leasing or owning. In contrast, limited studies have been undertaken to report the impacts real estate leasing choices have on the wealth of the shareholders of the lessee organizations. The conclusions of the study determined that the average impact on the wealth of the shareholder of a real estate lease briefing is positive, and although the source of the wealth effect cannot be identified, it is thought to be linked to

either the finance decision (lease/buy) or the capital allocation (procurement) decision.

Sharpe and Nguyen (1995) contended that the economics of a lease far exceed tax reduction goals with the most common set of incentives underpinning the leasing-versus-owning decision involving the utilization of leases to decrease transactional costs that are generated when an organization anticipates the prospective utility of the capital equipment not to surpass its prospective usability. Importantly, the authors suggested that the role of leasing which alleviates financial contracting costs should be considered when conducting an exhaustive review of corporate capital framework. The study which was based on Compustat North American Data did not examine the dynamics of lease financing options in mitigating costs associated with financial contracting.

Benjamin et al. (1995) in examining two types of agency problems, namely, under maintenance and overuse, which influence contractual provisions of real estate leases observed in the real world as suggested by Smith and Wakeman (1985) and other researchers, concluded that when leasing contracts are perceived to be inequitable, the tenant will acquire the property. Because tenants are not incentivised to maintain or under-utilise rented premises, often referred to as the asset abuse problem, contracts with flexible lease premiums that align the rental premiums to magnitude of asset abuse, such as rental retainers for security purposes, damages deposits for reinstatement purposes, and compensatory penalty provisions, generally tend to outperform contracts based on fixed rental payments.

Lasfer and Levis (1998) disclosed that leases, which are perceived to be an aspect of the funding options for the firm, can be structured in several different ways. The most important financial structures adopted include sale and leaseback, operational leases and straight financial or capital leases. Their study of unlisted and publicly listed organizations in United Kingdom revealed

that organizations with a preference for leasing are predisposed to incurring tax losses, require high-fixed capital investments and transactions, bear high debt-to-equity ratios through lender financing and are larger than organizations which prefer to acquire and own real estate property assets. In previous studies, three main incentives sustaining the presence of leasing in flawed market surroundings have been investigated and identified. These are the perks of tax differentials, options related to debt substitutability and benefits of agency costs. The study was based on finance lease and hire purchase options. It excluded the assessment of operational leases which are classified as short-term cancellable leases and are therefore not captured in the "borrowing" section of the financial statements of companies.

In exploring the potential motivations for leasing rather than owning commercial property in United States, Benjamin et al. (1998) focused on cash flow anxieties for both the landlord and the tenant. The prevalence of commercial real estate leasing indicates that some market imperfections allow both landlords and tenants to gain significant value from a lease in comparison to an outright sale. Apart from the rental payment and depreciation, the landlord additionally benefits from the projected resale value of the leased property. The tenant, by concluding a lease agreement, gains from the wealth appropriated from the landlord through the excessive use of the property and under-maintenance of the asset. The study was limited to discussing the consequences of an informational advantage of the lessor, even in the presence of asset abuse problems. Other possible justifications for the existence of leased property were identified to be tax subsidies, disparities in accessibility to credit markets, transactional costs, risk transfer, comparative benefits in the sale of the asset, asymmetric information, economies of scale and other agency challenges.

Chaney et al. (2012) investigated correlation between collateral guarantee values and structure of financial agreements based on using accounting data of listed firms headquartered in the United States. The objective of their study

was to establish implications of using less or more covenants by a firm having more valuable security, or the use of loan covenants based on longer maturity periods. They averred that collateral guarantees boost an organization's financial capacity while providing investors with an alternative option of liquidating guaranteed assets ex post which serves as a potent persuasive non-payment deterrent for debtors. Therefore, organizations that encounter greater financial attritions have higher inducements to lease their real estate assets, and due to their lack of commitment, struggle to derive future liquidity from the collateral guarantees. Hence, from a perspective of availability of liquid assets to a company, an extra rand of collateral is less valuable to organizations than an extra rand of cash. The authors indicated that there is estimation bias in the results. The estimation bias is caused by the lack of appropriate set of instruments to address source of endogeneity arising from the decision of leasing or owning real estate being correlated with opportunities for investment of the organization. The study did not investigation the correlation between collateral guarantee values and terms and conditions of financial covenants to verify whether an organization having more valuable security must utilize less or more contracts, or if it must adopt and make use of loan agreements with longer maturity periods.

Neuberger and Rathke-Doppner (2013) observed that leases are the most influential external financing source for small firms in Germany. The increased use of leasing was credited to its consequences of being able to generate liquidity, unlock shareholder or equity capital and improve the accounting performance indicators or ratios. It was also observed to enable firms to bolster credit ratings, thereby securing better access to financial facilities and business loans. The paper was innovative in that it included and presented for the first-time demographic factors such as age, education status, gender and marital status of the businessperson as a third group of independent variables in analysing determinants of leasing. The results suggested the necessity to

conduct more research on impacts that personal characteristics have on the use of leases.

Morais (2014) stated that many companies finance their activities through the use of leases. However, the objective of companies may not be the same when they decide to lease or buy. The study reviewed empirical research into the determinants of leases based on European and North American samples. The study addressed the determinants of leasing and excluded other areas of focus to include the lease accounting standards and the economic effects and valuation of leases. Critically and based on review of empirical study on determinants of leasing, the author concluded there still exist ambiguity on the question of whether debt and leases are complementary or substitutes for each other. The author acknowledged that the factors that concurrently impact debt and leasing necessitate for the control of endogeneity challenges and companies' fixed effects. The study recommended that more research into leases and debt need to control for endogeneity challenges and companies' fixed effects.

According to Mendes (2015) there are two related dispositions of the 'leasing versus owning' decision, namely, the alternative financing the organization has accessibility to in the financial markets such as leases, ordinary debt, secured debt, and the alternative which is most beneficial to the organization given its specific characteristics. The study which was based on several European countries (France, Germany, Italy, Netherlands, Spain, Sweden, Switzerland and United Kingdom) focused solely on capital leases and excluded operating leases in which the risks and rewards integral to the property are retained by the lessor.

Previous research on the lease versus own decision-making process is largely based on European or North American studies. There exists a gap in knowledge and referenced research regarding the strategic determinants of

lease versus own of CRE in South Africa. This study was based on the empirical research conducted by Barkham and Park (2011) and adopted to determine and establish the strategic non-financial determinants that industrial sector organizations should take cognizance of when deliberating and making corporate real estate decisions on leasing versus owning decision-making process.

2.5. Advantages and Disadvantages of Leasing

According to Benjamin et al. (1998), the most important considerations in favour of leasing are the powers of landlords and property managers to reduce free-rider problems, to take advantage of the scale of economies in property management, and to practice exclusively in valuation, maintenance and conveyance of commercial real estate assets. Greater understanding of projected residual asset values suggests that accrued information and proficiency rewards property executives with a residual value that exceeds the loss arising from the tenant's asset abuse.

Advantages of Leasing Corporate Real Estate

While it seems pragmatic to invest in property assets, numerous advantages accrue from leasing commercial real estate property. The majority of benefits emanate from greater flexibility in comparison to owning commercial real estate property. Benjamin et al. (1995) postulated four possible reasons for firms to lease and these include:

- Enhanced liquidity.
- Tax benefits.
- Greater asset flexibility.
- No risk of obsolescence.

According to Ghyhoot (2003), the other advantages of leasing corporate real estate include the following:

- Firms can relocate where flexibility in the space usage is necessary.
- Firms are not contracted to long term commitment relating to the use of space should it desire to test the location of its operations.
- Firms are not compelled to utilise all the space, nor is it a necessity for the entire site to be developed.
- Firms enjoy the flexibility to increase or decrease the space required.
- Leasing permits for occupation of space in prime nodes or buildings.
- Transactional costs associated with ownership are not incurred.
- Maintenance of the property associated with ownership are avoided based on the terms of the covenants written into the lease agreement.
- More efficient use of space is achieved with lease property.
- Capital invested in property can be redeployed to more profitable operations within the business entity.
- Operating expenses are tax deductible.
- Net profits are reported more accurately as property costs are captured in the profit and loss accounts.
- Capital is not encumbered which increases liquidity, which is beneficial to companies with high operating costs.

Disadvantages of Leasing Corporate Real Estate

The value in leasing commercial real estate certainly has its own disadvantages. The main drawback comes from the absence of control over the commercial property. Neuberger and Doppner (2013) indicated that the main motives against leasing included:

- Loss of residual value of assets.
- Higher payment obligations through rental increments.
- Lack of control or legal ownership over the property.

Other disadvantages of leasing corporate real estate according to Ghyhoot (2003) include the following:

- Onerous lease clauses restricting flexibility.
- Flexibility to undertake renovations and extensions to the property are at the owners' discretion.
- Where sub-lease options are excluded, the lessee is contractually bound to settle the full lease payments.
- Lease agreements are usually subject to rent reviews, whilst the owner has the option of fixing interest payments.
- Lessee has no right to capital appreciation of the property on expiry of the lease.
- Lessee has no control over adjacent tenants.

2.6. Advantages and Disadvantages of Owning

Advantages of Owning Corporate Real Estate

Commercial real estate is considered a long-term investment asset that retains its value over time. For this specific reason and other more general incentives, most firms and shareholders seek to invest in commercial real estate space that is owner-occupied. Manning (1991) and Liow (2004) suggested that non-real estate organizations prefer purchasing or owning commercial real estate assets for various reasons including:

- Equity upside.
- Asset appreciation.
- Potential for rental income.
- Tax benefits.
- Firms that purchase or own commercial real estate assets generally tend to occupy the bulk of the premises they acquire or own.
- Greater control over the property.

Other benefits of purchasing or owning commercial real estate assets according to Ghyhoot (2003) include the following:

- Owner may develop when there is shortage of stock, which is specific to the company's operations.
- Cost of management can be monitored and controlled.
- The needs and image of the firm can be catered for with customised space designs.
- The owner has direct control of the asset.
- Potential capital growth and appreciation accrues to the owner.
- Tax incentives are applicable to certain asset types.
- Interest, operating expenses and depreciation are tax deductible costs.
- Owner can earn additional income from sub-letting space not utilized by the firm.
- Interest payments can be fixed unlike rent, which is subject to increases and instabilities dictated by inflation.
- Over the long-term the costs of occupancy in owning are less than the costs associated with leasing.
- The owner is not obliged to relocate which guarantees long term sustainability of operations.
- Where institutional investors are hesitant to invest in specific areas, the owner has the option to develop in these areas.

Disadvantages of Owning Corporate Real Estate

Despite the numerous benefits of purchasing or owning commercial real estate, there are also common impediments. Several disadvantages arise from the fact that commercial real estate property is a solid, immovable asset and hence an illiquid investment.

In exploring CRE ownership implications, Brounen and Eichholtz (2005) suggested that some of the impediments to ownership were:

- Advance capital commitments.
- Increased obligations.
- Downside risks.
- Lack of flexibility.

According to Ghyhoot (2003), other disadvantages of owning corporate real estate include the following:

- Capital required for profitable operations is tied up in owning property.
- Liabilities on the balance sheet may be over inflated, which can influence the performance indicators of the organization.
- Owning property attracts management responsibilities which extend to other tenants occupying the same space.
- Owning real estate may distract management from concentrating on its primary operational duties.
- Dilution of liquidity occurs due the high capital costs.
- Assets, which increase in value, are carried at book value and may encourage take-over bids for the business.
- Possibilities exist for unproductive use of space.
- Market risks having an impact on the residual value of the property.

2.7. Financial Reasons for Leasing versus Owning

Numerous studies have identified several financial incentives for leasing rather than owning real estate assets.

Benjamin et al. (1995) suggested that when a lease contract is perceived to be inequitable, the lessee will be inclined to acquire the asset. Where lease payments are fixed, tenants will have a strong tendency to abuse the leased

asset. However, contracts with flexible lease premiums that align the rentals to the magnitude of asset abuse, such as rental retainers for security purposes, damages deposits for reinstatement purposes, and compensatory penalty provisions, generally tend to outperform contracts based on fixed rental payments unless the misuse is relatively expensive to identify. Where the landlord possesses a comparative advantage in the maintenance of the leased property, the residual asset will be of better quality and have an above average disposal value.

In contrast to large firms, the majority of small firms do not view leases as being substitute for debts (Bathala and Mukherjee, 1995). Stringent covenants in loan agreements such as restrictions on future borrowing and dividend payments than in lease agreements entices small firms to lease relative to large manufacturing companies which exhibit higher debt ratios and growth in sales. Moreover, small firms in comparison to large firms rarely perform quantitative evaluations in computing Net Advantage to Leasing (NAL) or IRR of the lease versus borrow decision.

Sharpe and Nguyen (1995) stated that a firm's disposition to leasing is significantly affected by the financial contracting costs associated with information asymmetry. Tax-related incentives also help to clarify the relative disposition for leasing while firms encountering high costs of external financial resources can cut back on the cost of finance through leasing.

Lasfer (2005) contended that large and high growth organization have a preference for leasing than for owning real estate. Furthermore, organizations which lease display greater efficiency in using their real estate assets, the upside gains which are accrued and compounded in valuation of the share price. Consequently, a strong, positive relationship exists between leasing predisposition and other indicators of firm value, such as market-to-book, buy and hold stock returns.

To preserve liquidity, mainly cash, large and high-growth organizations are likely to opt for leasing as opposed to owning real estate assets to finance growth prospects (Lasfer, 2007). Besides, organizations that lease display greater efficiency utilizing real estate assets attain benefits which are accrued in share price valuation since leasing predisposition is robustly non-linear, but inversely U-shaped, signifying that the real estate market takes into consideration the costs related to not owning real estate.

According to Eisfeldt and Rampini (2008), ownership influences the capability to repossess as it makes it easier for a landlord to reclaim an asset that has been leased from the tenant than it is for an indemnified lender to recover or foreclose on surety. The repossession benefit of leasing suggests that a landlord can expend higher credit against an asset that is leased than an indemnified lender can. Hence, capital that is leased possesses a larger capacity and leasing is presumed to maintain capital. Financially constrained organizations will opt to lease a larger portion of their capital than less constrained organizations. Furthermore, the larger debt capacity of leasing may be an especially important incentive to lease for small corporations and new enterprises, which are likely to be severely financially constrained.

Morais (2014) pointed out that organizations that are highly leveraged prefer to use leasing rather than other structures of funding. Because these organizations have lower debt capacity, finance leasing becomes attractive when bankruptcy risks increase. The number of variables determining options between leasing and debt include the size of the firm, taxation benefits, nature of real estate assets, financial constraints and management reward. There still exists ambiguity as to whether debt and leases are complementary or substitutes for each other.

In companies where managerial compensations are pegged on the return on capital invested with absence adjustments for operating leases, executives will

prefer operational leases to capital leases or purchasing, since operational leases generate similar operational outcomes without necessarily increasing the total assets (Morais, 2014). The propensity for operational leases has typically been linked to managerial reward schemes in companies with compensation plans which are linked to income after interest.

Mendes (2015) argued that firms in better financial status which display high profitability and lower levels of financial hardship seem to be less susceptible to lease financing than financially constrained organizations. An organization's propensity to utilize capital leases declines with their size for reasons that larger firms benefit from economies of scale when trading in publicly listed securities, due to the underlying fixed costs, in comparison to smaller firms; larger firms are often more diversified and have greater financially stability than smaller ones; and, larger firms are likely to identify better alternative uses for their assets than the smaller firms. These realities permit larger firms to make use of funding with favourable terms and conditions and to opt for greater flexibility debt funding to lease funding.

In summary, the various financial incentives for leasing rather than owning CRE assets highlighted in the literature discussion above were studied by Redman and Tanner (1991) in their survey on financing of CRE assets.

Redman and Tanner (1991) noted that leasing is a common form of financing which offers the following major advantages:

- Cash preservation capability.
- Tax benefits of lease payments.
- Off-balance sheet financing for leases.
- Flexibility leases permit in the operations of the companies and the needs of the managers.

Other miscellaneous benefits of leasing corporate real estate as cited by Redman and Tanner (1991) include:

- Flexibility in the management of assets.
- Necessity to lease.
- Ease of acquisition and disposal of assets.
- Properties becoming productive quickly.
- Ease of securing properties with superior locations.
- Political reasons.
- Capacity to bolster value of the real estate asset owned by firms.

2.8. Non-Financial Reasons for Leasing versus Owning

Several studies have highlighted various non-financial incentives for leasing rather than owning CRE assets.

Barkham and Park (2011) argued that leasing versus owning decisions for CRE are not solely dependent on financial considerations. It is therefore imperative for a broader context in leasing versus buying decision for CRE to not only include financial factors, but equally consider corporate policies, locational evaluation and real estate economics. Locational characteristics, size of operations, physical attributes and company preferences are significant determinants in the leasing versus buying decision for CRE estate whereas company size and sectoral differences may be less significant determinants.

Neuberger and Rathke-Doppner (2013) contended that in addition to contract- and firm-specific characteristics, demographic and socio-economic traits of the businesspersons are important variables that justify the leasing versus buying decisions. Small and fledgling organizations tend to be hindered in the leasing space but utilize leases to boost the capacity of their debts. Older and highly qualified businesspeople have greater accessibility to leases than those who are younger or less educated. Consequently, the youthful generation or less

educated are more inclined to lease than well-educated businesspeople. Female and unmarried businesspeople running start-up companies utilize leases to improve the capacity of their debt.

The type of the property asset is another aspect justifying the use and propensity of leasing (Morais, 2014). Companies have a tendency for leasing assets whose function is of a more general character and less specific. Conventional fixed assets are easily transferable and consequently more readily available in the leasing space. Other studies have observed that manufacturing and production firms engage in lesser magnitudes of leasing compared to retail trade, transport sector and mining and minerals sectors, whose have assets that are more general and less company specific.

Morais (2014) highlighted ownership framework in the leasing decisions of assets. Reference to prior studies indicated that greater levels of management ownership are directly correlated to higher occurrences of leasing finance and debt. Leasing necessitates agency costs occasioned through segregation of ownership and control of capital, since a tenant may not have similar motives as the landlord to reasonably use or properly undertake maintenance on the asset. The major point of debate relates to debt and leases exposing the vulnerability of proprietors of organization to financial risk. However, when the lease period for an asset is shorter than its beneficial life, the landlord assumes the bulk of the obsolescence risk and other fluctuations in the value of the asset. On the contrary, a lessor organization having both a differentiated asset portfolio and broadly diversified shareholding structure may be able to mitigate these risks with measures that require less expenditure. Generally, companies with single principal majority shareholders prefer using more leases to minimize their vulnerability to dilapidation and other asset-related risks.

The “industry” determinant for leasing or owning is related to the investment opportunity portfolio and the nature of assets enlisted by the company (Morais,

2014). Numerous studies have shown that leasing has a tendency of being more prevalent in certain business sector than in others, and that leasing occurs in almost every industry group.

According to Mendes (2015), smaller organizations that enlist relatively more specific assets have a stronger propensity to leasing than owning. Similarly, organizations with comparatively more fixed assets, due to higher liquidity values and better surety options on their loans, have easier accessibility to multiple debt funding instruments than less transparent organizations, which perceive lease funding to be a less of a risk and a more readily available substitute for their lack of surety and low levels of liquidity. Capital leases and long-term debt propose to offer a compromise relationship, as findings suggest that they are optional external funding instruments. In addition, an organization's propensity to lease is fundamentally dependent on its country of residence, the industry sector within which it operates and the regional macroeconomic characteristics.

The use of 'green' space by companies and organizations is gaining prominence with respect to corporate space-leasing decisions and is increasing globally. Eichholtz et al. (2010) describes 'green' real estate as real estate property identified for displaying excellent environmental performance indices. In addition, firms that adopt ecologically responsive business practices, and for which non-financial utility is of minor importance, have a fairly strong probability of renting 'green' space. This is prone to be driven by the environmental responsibility rationale. Generally, organizations appear to be willing to enter into lease agreements with higher rental premiums for 'green' office spaces, implying that this enhancement is perhaps partially demand-driven.

In analysing the occupation of 'green' office buildings by firms and their industrial characteristics, Eichholtz et al. (2009) identified four factors

influencing environmental decision-making with respect to decisions corporates need to make when leasing facilities. Firstly, occupation of buildings awarded a ‘green’ label can be financially profitable through lower operational and maintenance costs of the buildings. Second, ‘green’ corporate headquarters may indicate that an organization has some long-term commitment to a Corporate Social Responsibility (CSR) policy which may enhance and improve the firm’s reputation. Third, through acceptance of the highest legislative environmental code now, firms can prepare for future legislation and mitigate risks arising from costly litigation later. Fourth, despite the investors profit-driven motivation for firms, there is a recognizable category of prospective tenants for which non-financial utility driven through the pursuit of a pro-active CSR policy far outweighs the potential funding requirements of such a policy. As such, non-profit organizations and governments can be pioneers and therefore be actively engaged in CSR, before purely profit-driven firms can.

The behaviour of corporate tenants can have significant implications for the transition to a more sustainable built environment, as increased demand for ‘green’ buildings compels real estate developers to adapt rapidly to more rigorous environmental expectations of tenants and investors.

In summary, the various non-financial incentives for leasing compared to owning CRE assets highlighted in the literature discussion above are:

- Locational characteristics.
- Size of operations.
- Physical attributes.
- Company preferences.
- Ownership structure.
- Contract- and firm-specific attributes.
- Demographic and socio-economic peculiarities of businesspersons.

- Nature of asset.
- ‘Green’ buildings.

2.9. South African Warehousing Sector

According to the Broll Logistic Report (2018), there are gradual shifts in the structure of local economy principally towards becoming more knowledge-based, with an emphasis on technology, e-commerce and financial services. This shift in economic activity is apparent in the commercial real estate property sector and particularly the industrial real estate sector, with an upsurge in the number of new logistics-related construction projects being launched within the region in response to the increase in demand. These new developments are predominantly concentrated along major highways, in particular along the N1/N3 Corridor, with a focus in Samrand, Midrand, Woodmead area, Waterfall Park and Long Meadow Business Estate. The architectural design concepts for these newer developments are premised on the functional approach of establishing secure industrial parks with modern facilities. It is evident that the demand for warehousing and distribution facilities are focusing more and more on logistics parks, and that modern facilities are becoming increasingly popular. On the contrary, the demand for older warehousing facilities is declining with a corresponding increase in the vacancy periods. These older warehousing facilities do not have good office amenities, lack sufficient roller shutter doors and do not have adequate yard space for articulated trucks to access, park and manoeuvre.

The South African warehousing sector is evolving rapidly and having a direct influence on the locational decision of developers, investors and tenants alike (Broll Logistics Report, 2018). Some key factors that influence the location selection are:

- Proximity to major consumer hubs.
- Regulatory framework.

- Shifting demographics and enhanced levels of value-added services boost the relevance of proximity to all areas of the skilled and unskilled labour resources.
- Transportation networks.
- Total cost to value parameters as developers, investors and tenants increasingly accounts for the total supply chain costs.
- Access to large power grid, mainly sought by manufacturers.

After the locational decision has been made, companies that need warehousing or distribution centre facilities will consider the following additional factors:

- The layout and amenities of the property such as warehouse design functionality, offices and ablution facilities.
- Ease of movement of goods into and out of the warehousing facility.
- Size of the warehousing facility and office amenities which are dependent on the operational functions of the company.
- Volumetric capacity of the warehousing facility to accommodate the stacking of goods and products.
- Refrigeration or air-conditioning requirements depending on the product.
- Adequate space for warehousing equipment such as dock levellers and forklifts.
- Accessibility and movement space for articulated trucks necessitating between 1,500m² to 2,000m² of open area for provision of turning circles large enough for the trucks to park and manoeuvre.
- Additional yard laydown area for storage of containers, pallets, etc.
- Sufficient fire-fighting equipment with fire extinguishers every 30 metres, smoke detectors, sprinklers, tanks and pumps especially for large warehousing facilities with high volumetric ceiling spaces.

- Exit doors equipped with fire break glass and self-opening locks for emergencies.
- Security features comprising of:
    - Remote-control security systems.
    - Technologically advanced camera systems strategically positioned to overlook the entire warehousing facility internally and externally.
    - A strong room for securing the storage of surveillance recordings of activities around the premises with off-site regular backup archiving every 24 hours and quick retrieval of data.
    - Secure perimeter fencing around the facility preferably with electrified fencing along the street facade.
    - Dedicated security services with 24-hour armed response and reaction units.
    - Access controlled system with turnstiles and cards assigned to company staff.

The City of Ekurhuleni Aerotropolis Master Plan Initiative, which is a strategic plan focused on establishing an integrated development framework for the construction of critical infrastructure services and relevant urban projects within the region, seeks to integrate and cluster industrial and commercial land-use to offer speedy connectivity between businesses and their suppliers, customers and partners. The Aerotropolis is envisioned to create an entrepreneurial environment that will be attractive to national and multi-national organizations searching for mixed-use development space for purposes of consolidating their businesses, centralizing their manufacturing plants, merging their warehousing and logistics centres, and establishing their corporate headquarters.

Industrial warehousing and logistics constitute a significant component of most business organizations where there is a requirement for storage and distribution of inventory and newer industrial developments are focused on meeting this demand. The more established, reputable property developers

and diversified, large-portfolio investors are extremely competitive in terms of the concessions offered to their clients such as allowances for tenant installation costs, rent-free periods upon signing a lease, lower escalation in rentals and other perks including solar powers (South African Property Owners Association Research Industrial Vacancy Report, 2019)

2.10. Gap in Literature

Majority of the studies on the determinants of leasing versus owning decisions for corporate real estate organizations have been carried out predominantly in North America mainly United States (Manning, 1991; Allen et al., 1993; Chaney et al., 2012) and Europe (Lasfer and Levis, 1998; Barkham and Park, 2011; Mendes, 2015). Chetty (2017) explored the importance of non-financial determinants of the lease versus buy decision for corporate office real estate in Johannesburg.

Clearly, there is a need to study and better understand the factors influencing the lease versus own decisions of executives in the industrial real estate sector, particularly in developing countries including South Africa.

2.11. Conclusion

The literature review examined several journal articles tracing the earliest efforts to interrogate the importance of corporate real estate (CRE), the major hurdles preventing effective use of CRE, and the vital role competent corporate real estate management contributes towards organizations predominantly operating in commercial real estate sector.

In addition, the literature review also attempted to examine several peer-reviewed journal publications that explored the lease versus own decisions of corporate real estate (Manning, 1991; Benjamin et al., 1998, Barkham and Park, 2011, Morais, 2014), studied the effects of corporate real estate assets

on stockholder values (Ooi and Liow, 2002), related real estate decisions to corporate policies and strategies (Nourse and Roulac, 1993; Lindholm, 2008) and measured the performance of business real estate assets (McDonagh and Frampton, 2002).

The literature review outlined above suggests that while the fundamental determinants of leasing versus owning decision for CRE may typically be influenced by financial factors, non-financial motives equally dominate the decision-making process.

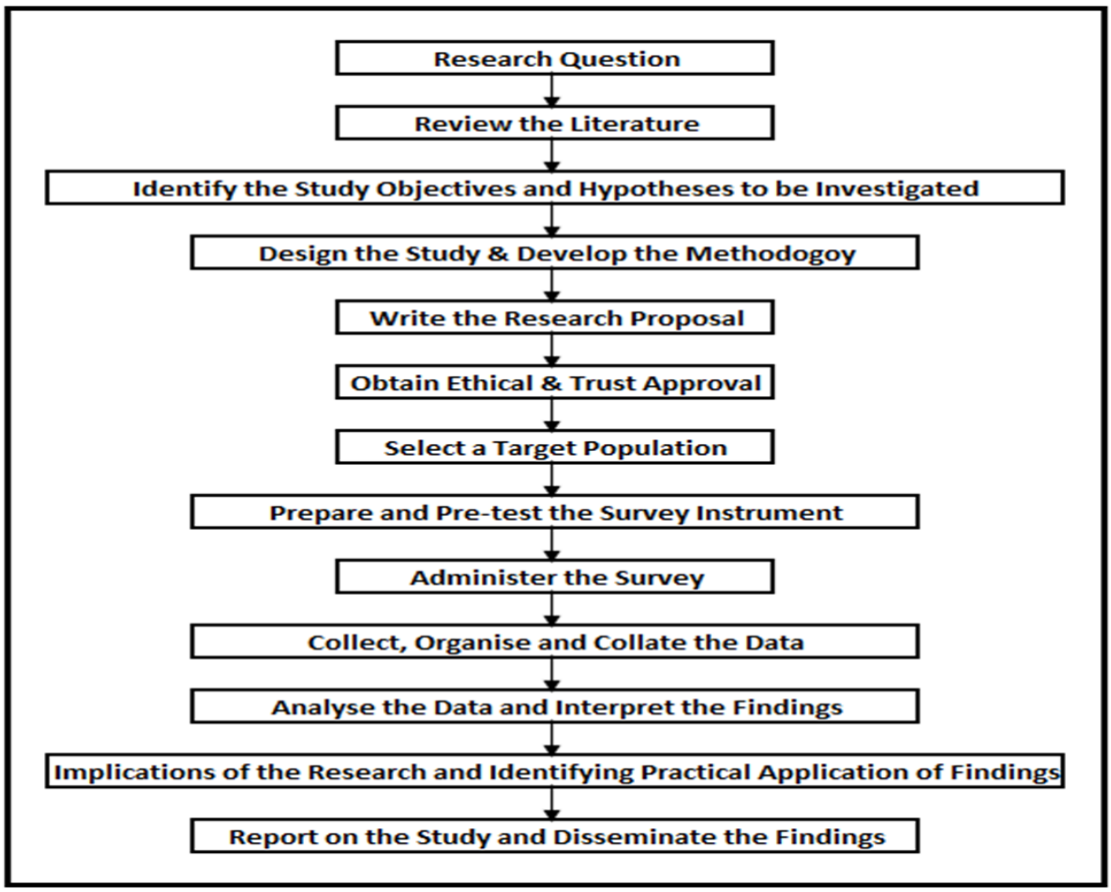
This study was focused on exploring the strategic non-financial determinants that influence leasing or owning decisions of industrial corporate real estate sector organizations in Johannesburg and Ekurhuleni.

3. Research Methodology

3.1. Introduction

The research methodology describes the conceptual approach within which the research was administered by outlining the methods, procedures and approaches that were adapted for managing the research. The function of the research methodology was to provide for collection of relevant evidence with optimal effort, duration and cost. This chapter explored several methodologies that could be applied to study and analyse the non-financial determinants of leasing or owning decision. Table 3.1 below summaries the different elements of the research methodological approach.

Table 3.1: Research Methodological Approach



The section focused on research design, research sample, sampling techniques, research data, data collection techniques, data evaluation methods, data findings and effective presentation techniques.

3.2. Research Philosophy and Approach

Research philosophy is a crucial element of research methodology. Three classifications of research philosophy are ontology, epistemology and axiology. These philosophical approaches allow the researcher to select which approach to adopt for the research and reasons why, which is formulated from the research questions (Saunders, Lewis and Thornhill, 2013).

The philosophical approach of positivism postulates that “factual” knowledge attained through observation to include measurement, is trustworthy. Positivism studies the function of the researcher and limits itself to collection of data and interpretation of data in an objective way, and research conclusions are usually discernible and measurable. The research strategy approach was based on collection of data and hypothesis construct. The hypotheses postulated was tested and confirmed and can therefore be used for further research. Another feature of this philosophy is that the positivist researcher adheres to a highly logical structured process to formulate the hypothesis. Furthermore, positivism relies on observations which are measurable in order to allow for statistical analyses.

In positivism studies, the researcher is detached from the study and needs to concentrate on facts with the exclusion of human interests in the study. Crowther and Lancaster (2012) argued that positivist studies adopt the empirical research approach. This study therefore adopted the positivism approach as the primary research philosophy and that the quantifiable observations related to non-financial factors in lease or own decisions could be measured using statistical tools. The review of non-financial factors of lease or own decisions could be interpreted in an objective way.

3.3. Methodology

The research design for the study was structured to relate to a descriptive and interpretive case study which was evaluated using qualitative and quantitative methods. Kummerow (2000) stated that a combination of research methods (quantitative and qualitative) assists in dealing with the intricacy and ambiguity in real estate research which improves the quality of the information inferred and deducted. Qualitative research depicts data as descriptive narrations using words. Quantitative research illustrates statistical outcomes derived from numerical or statistical data. Quantitative research is based on questionnaires, surveys and experiments to collate data which is edited and enumerated in figures. This permits data to be defined using statistical methods (Hittleman and Simon, 1997). Quantitative research measures variables on a sample of objects and expresses dependency between variables using statistical tools such as correlations, relative frequencies, or standard deviations. The focal point of quantitative research is largely intent on the verification of theory.

According to the research objectives, a survey was used to obtain data on the lease versus own decisions through questionnaires since surveys permit the study of more variables concurrently in field studies. In order to articulate inferences from the data collected with regard to existing relationships, it was necessary to utilise quantitative analytical methods.

3.4. Research Methodology Choice

There are various research methodologies enlisted for quantifying CRE decisions on leasing versus owning.

Bathala and Mukherjee (1995) methodology was based on a random selection of 862 firms in 13 different industry sectors. Regression analyses was then used to determine the magnitude of leasing financing by small organizations.

The study conducted by Lasfer and Levis (1998) used univariate analysis for comparison of factors of leasing decisions for small and large firms. The factors considered were size of the firm, taxation capacity, the debt-equity ratio on lender funding, potential expansion prospects and profitability index of the organizations. Logit analysis was also applied for purposes of illustrating the logit regression, with dependent variable being a dummy variable equal to 1 if the firm was utilizing leasing and zero if it was owning.

In demonstrating significance of CRE as a critical asset which promotes firm preferences, Roulac (2001) chose to review strategic management literature of CRE as opposed to presenting empirical work for a rudimentary approach to illustrate importance of corporate property policy to corporate business policy. Eight different real estate policies were reviewed and assessed in relations to different options organizations encounter regarding the localities and spaces within which they conduct their businesses.

Seiler et al. (2001) adopted the least squares model regression estimation to interrogate the impact the proportion real asset holdings have on systematic risk (beta) of organizations and for assessing the impact of real assets on risk-adjusted returns to corporation stockholders. Four variables that were contemplated to impact both the systemic risk and risk-adjusted return of the organization were analysed. The variables considered in the evaluation were size of firm, leverage clout, industry sector, and proportion of real estate asset holdings.

Kang and Long (2001) applied two-stage regression analysis with the first stage predicting the firms' total utilization of fixed form financing and the second stage considering the specified magnitude of lease financing. Factors assumed to impact fixed financing decisions which were considered are the capability of the organization to generate cash flows, bankruptcy costs and agency problem costs. Factors considered in impacting leasing decisions over regular

borrowing decisions included forecasted tax percentages, information asymmetry, nature of the assets, agency problem costs, the personal taxation structure and the corporate tax model.

Gibler and Black (2002) used Chi-square tests and Kruskal-Wallis tests at a significance level of 0.05 to test for significant differences among countries that participated in their survey. Exploratory factor analysis approach applied using principal factor component extraction and varimax rotation once a correlation analysis indicated the data were approximately multivariate normal and amenable to factor analysis.

The research conducted by McDonagh and Frampton (2002) applied principal component analysis (PCA) in evaluating variables influential in CRE asset management. The construct developed captured most of the factors or dimensions of performance observed and described by earlier researchers. It was applied to generate a single factor that was representative of the consolidated impact of six out of seven factors or dimensions of CRE asset management performance described in previous research.

Lindholm (2008) utilised a constructive research approach (CRA) to present main steps and development process of a construct which identified the added value of CRE. The essence creating the construct was to furnish CRE and facilities managers with necessary tools required for identifying and presenting their contribution towards the wealth of the firm. Constructive research approach refers to research processes focused on generating innovative constructs for models, diagrams and plans with the aim of resolving emerging challenges arising from the operational issues of running business organizations.

Barkham and Park (2011) undertook an empirical approach using logistic regression technique to investigate company and site characteristics for lease versus buy decision for corporate real estate based on a survey of 2,248 United

Kingdom organizations. Subgroup of survey questions sought response on ownership issues regarding tenure choice, site-specific characteristics of individual sites comprising location, size and physical attributes of site, and company-specific characteristics comprising size of firm, sector of industry and tenure preference of organizations that participated in the survey. All questions including answers were binary, with the questions requiring only closed responses.

Morais (2014) conducted a research that was based on reviewing previous literature focusing on examining the factors of leasing decisions and deliberating on determinants of lease-buy decision and the optional determinants between finance lease and operating leases. Eight other incentives along with tax motivation were identified for leasing. Among the eight reasons were the separation of asset values from utility derived and maintenance, assets not specially designed for organization, lessee's expected lease duration not exceeding the beneficial life of the asset, specific financial policy agreements being written into the lessee's bond documentation, basis of management compensation being directly correlated to the return on capital invested, the restrictive nature of the company shareholding, the lessor market influence, and the comparative advantages the lessor has in disposal of the asset.

The methodology adopted for this study was based on the empirical research conducted by Barkham and Park (2011) for leasing versus owning decisions for CRE organizations in United Kingdom. This study was distinguished by its geographical location in South Africa.

3.5. Research Design

Sovacool et al. (2018) emphasised the importance of having a well-articulated research design to ensure that the research questions are answered, and the study objectives achieved. The research design describes how the research

method for this study was executed with reference to the techniques for gathering and analysing the data collected. According to Sovacool et al. (2018), the aim of a research design is to make the study transparent by providing enough detail so as to assist readers to evaluate the study relative to the declared research aims, while enabling replication.

The research approach used in this study was the quantitative method based on surveys involving collection of data through structured questionnaires based on a sample of respondents from a relevant target population. Sovacool et al. (2018) asserted that quantitative methods are best suited for verifying hypotheses or appraising relationships.

This study was based on cross-sectional research design. According to Mann (2003), cohort, cross-sectional, and case-control studies are collectively referred to as observational studies. Levin (2006) stated that cross-sectional research studies are carried out at a single point in time or over a short time period on all applicable variables. A cross-sectional study design is undertaken to estimate frequency of outcome of interest for a given population and is typically used in the form of a survey where the purpose of the research is descriptive in nature. This format of research study requires the selection of either the entire population or a subgroup from whom data are collected to assist answer the research questions (Olsen and St George, 2004). It is referred to as cross-sectional since collected information about X and Y illustrates events happening at only a single point in time. Time, which is overlooked as a study variable in a cross-sectional research models, is presumed to have random effect that does not produce bias but only contributes variance.

Some advantages of cross-sectional studies are that they are relatively cheap requiring fewer resources, need little time to conduct and can generate an estimation of the frequency of outcome of interest since the sample is typically

drawn from the entire population (Levin, 2006). However, cross-sectional studies neither rationalize nor provide justification for their conclusions (Mann, 2003).

The relevant use of observational studies to investigate frequency and deduce causation made cross-sectional research design suitable for the study. The cross-sectional model approach to this study assisted in ensuring that the appropriate information was collected, and that the data analysis was correct.

3.6. Population and Sampling

In any research study, it is sometimes impractical to investigate the entire population (Acharya et al., 2013). Alternatively, we study a “sample” which is large enough and a representative of the entire population. A sample is a subcategory of the population, selected to be representative of the bigger population. By working with representative samples, incurred costs are reduced, the time taken to conduct the research is shortened, and fewer human resources are required to conduct the study. Sample representativeness is conditional on sampling methodology, size of sample and response rate.

In order to obtain a sample, it is a prerequisite to outline the target population. The target population identified for this research study were industrial real estate sector organizations in the Johannesburg and Ekurhuleni metropolitan municipalities within Gauteng Province, South Africa. However, there were no restrictions placed on the kind of business activities performed on the industrial estates. These could range from manufacturing and production of goods, research and development, distribution and warehousing, and even sales and services. In total 52 industrial real estate sector organizations were approached to participate in the survey. Of these, 28 firms were situated in Johannesburg and 24 firms were operating in Ekurhuleni.

After identifying an appropriate target population, it was necessary to apply a thorough sampling method to make strong inferences to target population. Broadly, sampling methods classifications fall into two categories, namely probability or non-probability (Etikan et al., 2016). The sampling technique used depends on the type, nature and objective of the study.

Probability sampling implies every single member of the population has a known non-zero likelihood of being chosen (Kitchenham and Pfleeger, 2002). Or more generally stated that every participant has an equal opportunity of being chosen from the population. Some commonly used probability sampling methods include random, systematic, stratified, and cluster sampling.

Non-probability sampling requires participants to be selected from the population through some non-random approach involving the application of subjective methods to determine which elements are to be included in the sample (Kitchenham and Pfleeger, 2002). Hence, non-probability sampling refers to a sampling technique through which samples are collected using processes that do not offer all participants or elements in the population equal odds of inclusion. Non-probability samples are those in which the odds that a subject is selected is undetermined and results in selection bias in the study.

In their article on survey research and sampling techniques, Kitchenham and Pfleeger (2002) identified the most commonly used non-probability sampling methods as convenience, judgment, quota, and snow-ball sampling. The benefit of probability sampling is possibility of determining the sampling error. Sampling error refers to extent to which a sample may differ from the population. When inferencing the population, the results are reported plus or minus the sampling error. In non-probability sampling, it may not be possible to articulate extent to which the sample might differ from the population. Kitchenham and Pfleeger (2002) stated that non-probability samples are generated when those surveyed are selected because they are readily

available, or the researchers have some reason for thinking that they are representative of the population. Generally, samples reflect traits of the population from which it is drawn.

According to Etikan et al. (2016), convenience sampling is typically used in exploratory research where the researcher is seeking to find affordable estimations of the truth. The sample is chosen for reasons that they are convenient, and it is essentially an economical approach. The major benefits of using non-probability methods is during preliminary research efforts when the target is to achieve an overall assessment of results, while incurring minimal expense or time required to select a random sample. Hence, this study was based on convenience sampling where members of the target population who met certain pragmatic criteria, such as being readily available, geographic location or readiness to participate were included for purposes of the study.

Convenience sampling allows the researcher to easily obtain participants although the probability of bias is greater than in random sampling because every member of the population does not have an equal opportunity of inclusion in the survey. Etikan et al. (2016) postulated that the main assumption correlated with convenience sampling is that the members of the target population are identical, implying the research results would not differ from the findings obtained from a random sample. Kothari (2004) contended that the perception of the researcher conducting the study plays a significant role in the sampling method.

Sample Size

Size of sample defines the number of objects selected from the population to represent a sample. The size of sample should be optimal, neither being overly large, nor being too small. An optimal sample is one which meets requirements of efficiency, representativeness, reliability and flexibility (Kothari, 2004). In deciding sample size, it is necessary to establish the accuracy required to

establish an appropriate confidence level for the estimate. Kothari (2004) asserted that the size of population variance also requires consideration as a bigger sample is required in case of larger variance. In addition, the size of population, the factors of interest in the research study and budgetary constraints must be considered when deciding the size of sample.

Bartlett et al. (2001) proposed that ratio of observations relative to independent variables should not be lower than five when using multiple regression analysis. Typically, the risk of overfitting can occur where this minimum is not adhered to. Miller and Kunce (1973) and Halinski and Feldt (1970) suggested a more pessimistic ratio of ten observations for every independent variable was ideal.

This study identified 98 industrial real estate sector organizations located in Johannesburg and Ekurhuleni Metropolitan Municipalities. The organizations were randomly selected to have a representative sample from the various industrial suburbs within each municipality. Of the 98 identified industrial real estate sector organizations approached, 46 organizations were either not willing to participate in the survey or refused to provide contact details of the managers responsible for their corporate real estate strategic decisions. In total 52 industrial real estate sector organizations accepted to participate in the survey. The study was based on the 43 respondents who completed and returned the questionnaire.

3.7. Development of the Research Instrument(s)

Mauch and Park (2003) suggested that the main objective of developing the research instrument was to assist in producing or gathering data to address the issues highlighted in the problem statement (Mauch and Park, 2003).

The main data collection technique used in the research was largely through questionnaires using standardised questions. The questionnaires were distributed through an online web-based survey platform. Questionnaires were

used to evaluate participants' decision criteria for leasing and owning, and to determine the relative importance of non-financial determinants influencing decision-making processes. The main objective of the questionnaire was to address issues relating to tenure and ownership, and specific characteristics of individual companies and site locations. The questionnaire covered survey questions that related to site-specific and company-specific characteristics that influence the leasing or buying decision of industrial real estate sector organizations. The questionnaire for this research was created, adapted and developed from the survey questions extracted from literature reviewed from Barkham and Park (2011) who investigated the importance of strategic determinants of leasing versus buying decisions for CRE in United Kingdom. Additional questions were incorporated into the questionnaire to address specific physical attributes that were considered relevant within the South African context.

Questions on site-specific characteristics regarding locational aspects and physical attributes, and company-specific characteristics are contained within the survey questionnaire in the appendix.

The research study utilised the Likert scale which is a commonly used method for scaling responses in survey research and because they are one of the most reliable ways to measure opinion, perceptions and behaviours allowing for more granular feedback (Joshi et al., 2015). In contrast, binary questions give only two answer options. Joshi et al. (2015) stated that the Likert item is basically a statement that the respondent is requested to appraise by providing a quantitative value premised on subjective or objective aspects, with level of agreement or disagreement being the aspect most frequently adopted.

A well-designed Likert item will display both "symmetry" and "balance" (Joshi et al., 2015). Symmetry implies that it contains an equal number of positive and negative positions whose respective distances apart are bilaterally symmetric

about the "neutral"/zero value and provides freedom to a participant to select any response in a balanced and symmetric way in both directions. Balance infers distance between each response value is identical. This permits quantitative assessment indices such as averaging to have validity across items having greater than two response values.

Wakita et al. (2012) stated that most Likert scales comprise of four to seven rankings. The preference is to have an odd number of choices when a neutral anchor, such as “Neither agree nor disagree” is desirable. In contrast, the selection of an even number of choices is preferred when it is intended to prompt participants’ viewpoints or sentiments through responses such as “Agree” or “Disagree”. Often five ordered response categories are used. However, empirical studies have observed that items with five or seven categories generate slightly higher mean scores in relation to highest possible achievable score, in comparison to those generated from using 10 categories, and that the distinction between the two is statistically significant. Preston and Colman (2000) suggested that five to ten categories are easy to rate with five categories being sufficiently short to choose an answer quickly and three or four categories being sufficiently comprehensive for participants to satisfactorily convey their sentiments.

Joshi et al. (2015) stated that results from previous studies suggested a maximum of five categories as acceptable for most scales. The study adopted the format of the five-level Likert scale item with a rating of 0 to 4 which comprises of the following categories:

- 0 - Not Applicable
- 1 - Not Important
- 2 - Fairly Important
- 3 - Important
- 4 - Very Important

3.8. Data Collection Protocol

The data collection protocol explains the procedures for collecting and recording data. It addresses the management and administrative details (e.g. who does what and when) of data collection and establishes systematic processes to ensure the collection of high-quality data by the researcher (Mauch and Park, 2003). The process of data collection must be pertinent to research problem and characteristics of the data.

Primary data were used to interrogate the strategic non-financial determinants of leasing or owning decisions of industrial real estate sector organizations in Johannesburg and Ekurhuleni.

The data collection instrument was administered through web-based questionnaires in which the respondents received an e-mail in which they clicked on a link that directed them to a secure website to complete the survey questionnaire. QuestionPro, an internet survey software portal, was used to host the online survey which was accessed via a link sent to respondents. Internet based research has advantages of being quicker and less detailed and are very cost effective (Kothari, 2004). Some drawbacks and potential challenges of web-based questionnaires include the requirement to have access to email addresses, screening mechanisms in many worksite places which block access to employee emails, low rate of response and questions on the validity of such surveys as respondents might hurriedly complete the survey and may therefore give inaccurate responses or omit replies to certain questions. To overcome some of these challenges, an initial pre-test survey involving a few pre-selected participants was conducted for testing the questionnaire. This was done to identify and address any ambiguous questions in the questionnaire.

Before e-mailing the questionnaire to the participants, contact was established through an introductory letter and/or telephone call. Immediately after

establishing initial contact, the web-questionnaire with the link was sent to the participants. One week later there was a mail follow-up survey for non-respondents. The questionnaire was prefaced with instructions to participants and the ethical release form informing participants about the limits to confidentiality, the use of data, voluntary participation, right of refusal, the chance to withdraw and the potential for feedback. It was also necessary during the telephone call to prepare the respondents for the data-gathering process and assure them of impartiality, privacy and protection of the confidentiality of their feedback. Respondents were also given an opportunity to retract their participation in the survey.

3.9. Data Analysis

The data collected was processed and analysed to discover patterns, concepts, themes and meanings. Kothari (2004) stated that processing infers editing, coding, classification and tabulation of collected data to make them responsive to evaluation. Data analysis denotes computation of certain measures together with looking for patterns of relationship existing among data sets. The process of data evaluation commences with grouping and arrangement of data in search of patterns, critical themes and meanings emanating from the data in such a way that they answer the research question(s). In addition, it is essential to create and generate some indices or measures summing up collected and classified data through adopting procedures of generalising from small clusters or samples to the population (Kothari, 2004).

Data collection and evaluation was conducted concurrently in an iterative manner since the conclusions of the analysis could assist and guide the subsequent collection of data.

Descriptive and inferential statistical methods were used to evaluate participants' response to research questions. Descriptive statistics narrate

establishment of certain indices from raw data, whereas inferential statistics explain processes of rationalization (Kothari, 2004). Inferential statistics or sampling statistics primarily focus on approximation of population parameters and testing of statistical assumptions. The relevant statistical measures used in summarising survey data were measures of central tendency or statistical averages, measures of dispersion, measures of asymmetry (skewness), measures of relationship and the Relative Importance Index (RII) technique.

The RII technique established relative priorities of key drivers influencing the locational aspects and physical attributes. The five-point Likert scale developed and used in the questionnaire ranged from 0 (Not Applicable) to 4 (Very Important). This scale was modified to have a range from 1 (Not Applicable) to 5 (very Important) which was then adopted and transformed to relative importance indices (RII) for each variable as follows:

$RII = \Sigma W / (A*N)$

Where:

W = Weighting given to each factor by the respondents (ranging from 0 to 4).

A = Highest weight (i.e. 5 in this case), and

N = Total number of respondents.

A simple cross tabulation report was constructed and used in the survey analysis to determine results of survey responses and compare how respondents answered the survey questions. In many research reports, survey results are presented in aggregate only in which data tables are based on the entire group of survey respondents. Cross tabulations provide a way of analysing and comparing relationships between two or more variables and assist in identifying trends (Mohn, 1990). Simple cross tabulation data tables present results of the entire survey respondents as well as results from sub-groups of the survey respondents to enable scrutiny of relationships within data

that might not be readily apparent when analysing the total survey responses. This study was limited to cross tabulation only; the variables tabulated were not analysed to test whether there were any statistically significant interactions. White (2004) asserted that when strictly independent events having two characteristics that are independently defined are tabulated in a contingency table, the laws of probability can be used to model, from the marginal totals (rows, columns) of the table, what its cell values would be if the variables were statistically independent. Statistical analysis to determine the correlation between these variables is beyond the scope of this study.

Given a dichotomous or binary (lease/own) dependent variable, logistic regression analysis was considered a suitable regression technique to be used for exploring and testing the data. Peng et al. (2002) stated logistics regression is applied for evaluating and describing data and for explaining relationship between one dependent binary variable and one or more nominal, ordinal, interval or ratio-level independent variables. Generally, logistic regression is well suited for illustrating and testing hypotheses regarding relationships between a categorical outcome variable and one or more categorical or continuous predictor variables. Like all regression analysis, the logistic regression is a predictive model. According to Peng et al. (2002) logistic regression applies maximum likelihood estimation after transforming the dependent into a logit variable (the natural log of the odds of the dependent occurring or not) with the aim of correctly predicting the outcome of a dependent variable using the most parsimonious model.

Ary et al. (2019) affirmed that a hypothesis is a possible answer to a research question. They postulated the main purpose of hypothesis testing in quantitative research was to integrate information that directs the researcher to make tentative statements on the relationship between the variables, gives direction to the research as to the type of data required for testing the preposition and provides a structure for reporting the outcomes and

conclusions of the study. A hypothesis is typically tested for possible rejection or approval depending on outcomes of the research study which may lead to supporting or not supporting a hypothesis. Accordingly, the characteristics of a useable hypothesis includes testability, simple and concisely stated, and consistent with the existing body of knowledge (Ary et al., 2019).

The following null hypothesis (H0) and alternative hypothesis (H1) were postulated for this study:

H0: Locational attributes, site-specific characteristics and company-specific characteristics are strategic non-financial determinants that do not influence the leasing or owning decision of industrial corporate real estate in Johannesburg and Ekurhuleni.

H1: Locational attributes, site-specific characteristics and company-specific characteristics are strategic non-financial determinants that influence the leasing or owning decision of industrial corporate real estate in Johannesburg and Ekurhuleni.

According to Peng et al. (2002), the purpose of logistic regression analysis is to correctly predict outcome of a dependent variable using the most parsimonious model. Unlike ordinary least squares (OLS) regression, variables do not have to be normally distributed nor assume homoscedasticity in logistic regression. Logistics regression does not presume linear relationship between independent and dependent variables and estimates impact of a vector of independent variable on the log odds of an event occurring:

$$\text{Probability (event)} = \frac{e^{Z}}{(1 + e^{Z})} = \frac{e^{Z}}{(1 + e^{-Z})}$$

Where $Z = ß_0 + ß_1X_1 + ß_2X_2 + ß_3X_3 + \ldots\ldots, ßp1p$

Logistic regression applies maximum likelihood estimation after transforming the dependent into a logit variable (the natural log of the odds of the dependent occurring or not) with coefficients from regression providing an indication of significance that an independent variable is in increasing the probability of ownership (Peng et al., 2002).

The data was analysed using logistic regression techniques and carried out by IBM SPSS Version 25. Tables, figures and charts were included to extensively assess and evaluate the outcomes and assumptions to be verified.

According to Peng et al (2002), success and effectiveness of logistic regression models can be assessed by looking at overall model evaluation, statistical test of individual predictors, goodness-of-fit statistics and validations of predicted probabilities. They have extensively articulated on the sound interpretation of the logistic regression model as briefly described below.

Overall model evaluation appraises whether the logistic model provides a better fit to data and therefore validates an improvement over intercept-only models (also called the null model). An intercept-only model does not incorporate predictors and therefore serves as an excellent baseline.

Statistical significance of individual regression coefficients or independent variables (B) is tested using the Wald chi-square statistics. The soundness of the logistic regression model was evaluated using the Wald chi-square statistical test of individual predictors which determines the significance of individual regression coefficients and goodness-of-fit statistics which assesses fit or appropriateness of a logistic model against actual outcomes (Peng et al., 2002).

Goodness-of-fit statistics assesses the fit of the logistic model against actual results. The inferential goodness-of-fit test, the Hosmer and Lemeshow test is an indicator of a good model fit. The R square indices defined by Cox and Snell

and Nagelkerke are two additional descriptive measures of goodness-of-fit. The Cox and Snell's R square attempts to replicate interpretation of multiple R square based on likelihood and its maximum is usually less than 1.0, making its interpretation cumbersome. Nagelkerke's R square is a further modification of the Cox and Snell coefficient for reassuring that it can vary from 0 to 1 (Nagelkerke, 1991).

Validations of predicted probabilities measures degree to which predicted probabilities concur with the actual results which is expressed as either a measure of association or classification table. The classification table shows correct and incorrect classifications of the dichotomous dependent variable.

After analyses of data using the statistical software package (IBM SPSS), the hypothesis formulated earlier was tested to determine if the facts supported the hypothesis or they happen to be contrary. Generally, hypothesis testing results in either an acceptance of the hypothesis or in its rejection. In research studies where there is no hypothesis articulated, generalizations established based on data may be stated.

3.10. Validity and Reliability

Research-based measurement must verify accuracy of measurement and whether the researcher was justified in anticipating a certain collection of objects to produce interpretable statements regarding individual disparities (Cronbach, 1951). Conclusions drawn from evaluating survey data are only acceptable to the degree to which they are determined valid. Validity and reliability are two critical concepts in ascertaining the quality of survey information and are two major considerations used in evaluating a measurement tool (Kothari, 2004). Sound measurement must satisfy the tests of validity and reliability to enhance accuracy of assessment and evaluation of the research study (Tavakol and Dennick, 2011).

Validity determines whether the research results are accurate and whether the research truly measures that which it was designed to measure (Golafshani, 2003; Thatcher, 2010). Essentially, is the research instrument allow hitting the “bull’s eye” of the research object? It refers to the accuracy of the conclusion drawn from the information generated from the survey responses and is used to evaluate whether the research measures what it was designed to measure and to estimate accuracy of the outcomes. Validity is therefore a critical measure of the magnitude to which variances observed with a measuring instrument capture true variance among the issues being tested. Content validity of research is appraised to be good if measuring instruments consist of a representative sample of the population and provides ample coverage of the subject under study (Kothari, 2004). Content validity is primarily judgemental and intuitive. A subcategory of content validity is face validity, where a panel of expert practitioners are asked to judge how well an instrument measures the model intended (Heale and Twycross, 2015).

Although there is no numerical way to express or determine how well the measuring instrument conforms to the standard, the validity of the research was enhanced by conducting an initial survey to make sure that all ambiguities in the questions were addressed and cleared. An informed consent form outlining the project information statement accompanied the questionnaires to guarantee the anonymity and confidentiality of information supplied by the respondents. This was done to solicit honest responses from the research participants.

The test of reliability is another critical test of sound measurement. According to Golafshani (2003), reliability is defined as extent to which outcomes can be replicated, are consistent over time and convey an accurate representation of total population under study. Reliability refers to consistency in the responses generated by the data collection and necessitates using information collection instruments that are standardized and survey methods that are designed to

increase consistency. Golafshani (2003) indicated that reliability could also be thought of as the magnitude to which an experiment, test, or any measuring procedures yields outcomes that are consistent over time and an accurate representation of total population under study. Do items or questions on a survey repeatedly generate the same answer irrespective of when the survey is administered or whether the respondents are men or women? Twycross and Shields (2004) summarised reliability with reference to consistency, stability and repeatability of results. Testing for reliability guarantees that consistent results are obtained in identical situations but under different circumstances.

Kothari (2004) stated that reliable measuring instruments do not necessarily contribute to validity, although a reliable instrument need not be a valid instrument. In contrast, a valid instrument is always reliable and hence, reliability is not as critical as validity. The fundamental principle articulated in the definition of reliability is the idea of replication and repetition of results or observations. The focal point of reliability hinges on the accuracy of the actual measuring instrument or procedure. Consequently, reliability is not as critical as validity and is also simpler to evaluate when compared to the validity. Kothari (2004) avers that transient and situational factors will not interfere with the results if quality of reliability is fulfilled by an instrument. Reliability can be enhanced by standardising conditions under which measurement takes place to enhance stability aspects and through carefully designing guidelines for measurement through expanding the sample of items used to improve the similarity aspect.

According to Tavakol and Dennick (2011), reliability relates to competence of an instrument to measure consistently and that an instrument will only be valid if it is reliable. However, the reliability of an instrument is independent on its validity. The most commonly used objective measure of the reliability of an instrument is the Cronbach's alpha which provides a measure of the internal consistency of a test or scale. Heale and Twycross (2015) defined internal

consistency as degree to which all objects on a scale measure the same construct and is therefore connected to the inter-relatedness of objects within the test. Strong correlations show high reliability, whereas weak correlations reveal that the instrument is unreliable.

Since the measurement instrument represented multiple questionnaire items, Cronbach's alpha reliability was used as a measure of reliability. A reliability coefficient establishes whether the test measuring instrument is correct in anticipating a certain collection of objects to produce statements that can be interpreted in relation to the individual differences (Cronbach,1951). Cronbach's alpha reliability defines the reliability of a sum (or average) of q measurements where the q measurements may represent q events, alternative forms or questionnaire items (Bonett and Wright, 2015). The Cronbach's alpha result is expressed as a number between 0 and 1. There are contradictory opinions on the acceptable value of alpha which vary from 0.70 to 0.95 (Tavakol and Dennick, 2011). Heale and Twycross. (2015) indicated that an acceptable reliability score is one that is 0.70 and higher. In exploratory research a lenient cut-off of 0.60 is common. However, the generally agreed-upon lower limit for the alpha is 0.70 and an upper cut-off value of 0.80 for a good scale (Hair et al., 2013).

The Cronbach's alpha value for the site-specific variables was 0.60 which affirmed the reliability of the data supplied in the study and added validity and accuracy to the interpretation of the data.

Reliable measures will always yield the same results, regardless of the data collector or interviewer. To ensure reliability of the survey, the questionnaire was developed and adapted from literature review of previous research conducted on the subject matter. The questionnaires were administered at agreed times with the respondents over a defined time period and sensitive issues were excluded from the questionnaire. In addition, the respondents were

reassured of anonymity of data, confidentiality of their answers and protection of the data collected.

Structured, standardized and clear questions were used in the survey. All independent variables were checked for acceptable values in Cronbach's alpha coefficients, and all outliers discarded. External validity was achieved by gathering samples across different demographics in Gauteng, South Africa. To ensure and guarantee the study sample was representative of the two municipalities, it was necessary to stratify the population according to the two municipalities, namely Johannesburg and Ekurhuleni.

Error as a Source of Bias

One major objective of sample surveys is to calculate the predictions of population traits (Bethlehem, 2010). Such predictions are never identical to population characteristics. Survey data are rarely completely free from error, there will always be some degree of error arising from many causes. Error in survey data may generally lead to poor reliability and validity. However, if the survey information is free from significant error, the information will be reliable and valid. The consequence of errors is an inconsistency between survey estimate and population characteristic being estimated.

Bethlehem (2010) identified sampling errors and non-sampling errors as two broad categories of error in survey data. Sampling errors occur because estimates are derived from a sample and not entire populations. Sampling errors are therefore introduced through the sampling design procedure. Sampling errors can either be estimation errors or specification errors. Sampling errors will cease to exist if the entire population is surveyed. Non-sampling errors arise when entire populations are scrutinized and typically symbolize process errors in receiving responses to questions asked. Non-sampling errors are classified as either observation errors or non-observation errors. Observation errors occur when obtaining and recording responses and

include over-coverage, measurement and processing errors. An over-coverage error infers elements not belonging to the population are included in the survey. Measurement errors arises when respondents do not comprehend a question or prefer giving wrong answers. Processing errors occur during data processing such as entering the data. Non-observation errors arise because intended measurements are impossible to complete and include under-coverage and non-response errors. Under-coverage errors infer members of target population have not been contacted and therefore are not captured in the sampling structure. In surveys, potential bias happens due to a low response rate occasioned by absence of information from some members of the sampled population. Non-response errors imply members chosen in the sample failed to provide information required. To eliminate non-response errors in the survey and prevent respondents from simply continuing with the survey without selecting answers, the question validation option was enabled so that respondents could continue with submission of the survey only after answering the questions.

Error is deemed significant when its magnitude influences research findings. Bias specifically creates a risk of significant error and is occasioned by systematic sources. Bias leads to inaccurate conclusions since it is systematic in nature. Bias in data collection instruments primarily threaten reliability but can be lowered by repetitive tests and modification of collection instruments. Kothari (2004) proposed that to ensure that there are sufficient safeguards against bias and unreliability, the survey questions must be well examined and unambiguous.

Controlling Error

Sampling errors refer to random variations in sample predictions around true population parameters (Kothari, 2004). They happen randomly and are equally distributed in either direction with the expected value of sampling errors being

equal to zero because of their compensatory nature. The magnitude of sampling errors is inversely related to the sample size and will decline with increase in sample size. Homogeneous populations have smaller magnitudes of sampling errors. Increasing the size of the sample size to eliminate sampling errors has limitations considering the additional costs for collecting data from a large sized sample and increased chances of enhancing the systematic bias. The estimation error can be assessed through application of probability theory and the sampling design provides a measure of controlling its significance (Bethlehem, 2010). It was necessary to ensure that the sampling procedure selected for the study caused relatively small sampling error and assisted in controlling systematic bias.

According to Bethlehem (2010), over-coverage errors and measurement errors occur in web surveys despite use of a proper sampling frame. Over-coverage errors were eliminated by excluding organizations that were not within the boundaries of the two metropolitan municipalities. The development of questionnaire structures is of critical importance in web surveys which are self-administered surveys which do not require interviewers. Similarly, web surveys also have probabilities for high non-response rates. Lack of high-speed modems, intermittent internet connectivity, costly internet subscription premiums, low-end browser speeds, and vague navigation instructions may irritate respondents who frequently discontinue the completion of the questionnaire. To ensure an acceptable response level for the survey required a careful design of the web questionnaire instrument. Hence, it was imperative for the survey to develop and implement measures for minimizing and offsetting non-responses and assessing its impact. A high response rate was achieved through initiating pre-survey contact to request cooperation and a second survey request follow-up reminder to non-responsive participants.

Although it is improbable to entirely eliminate error, it can be decreased to tolerable levels through carefully designing and standardizing data collection

instruments, deploying suitable sample designs and sampling procedures, applying satisfactory survey control processes, and applying data verification and correction procedures, notably measures for corroborating answers submitted in response to structured questionnaires or survey interviews (Lyberg, 2012). Of importance is the pretesting of data collection instruments to eliminate flaws in their design. An initial pre-test survey was conducted to gather feedback from the participants to ensure responses and information generated were relevant to the study. In addition, the data collected for the study was thoroughly double-checked and verified to prior to data analyses to minimize introducing measurement errors.

3.11. Ethical Risks and Mitigation Strategy

In planning and conducting research, and presenting research conclusions, Resnik (2005) emphasized the necessity to first and foremost determine if the research will occasion inconvenience or harm to potential third parties not involved with the research. Orb et al. (2001) contended that ethics relates to accomplishing good and preventing harm and that harm can be mitigated through applying the relevant ethical principles. To meet prerequisite ethical norms, research projects must be planned to minimize misleading results and conclusions, resolve questionable ethical norms through peer review and take measures to protect and maintain dignity and well-being of all participants, including those likely to be affected by outcomes of the research study.

Resnik (2011) stated that there are several important reasons for observing ethical standards in research and lists following five ethical norms:

1. Promoting objectives of research, including knowledge, truth, and avoidance of error.
2. Promoting values key to collaborative effort, including trust, accountability, mutual respect, and impartiality.
3. Ensuring researchers have a responsibility to members of public.

4. Helping to promote public advocacy for research.
5. Promoting important principled and societal ideal, including social accountability, equality and human rights, animal welfare, compliance with legislation, and health and safety standards.

Ethical Principles

Bell and Byrman (2007) identified eleven ethical principles deconstructed from nine social scientific groups. Their exploratory analysis study of contents of ethics codes articulated these eleven principles for mitigating ethical risks in research:

- Harm to participants by ensuring physical welfare of research participants.
- Dignity of research to avoid instigating discomfort or anxiety.
- Informed consent of research participants.
- Privacy of research participants by avoiding invasion of their privacy.
- Confidentiality of research data.
- Anonymity of individuals or organizations.
- Deception through lies or misleading behaviour.
- Affiliation such as conflicts of interest and sponsorship which may have induced the research.
- Misrepresentation to avoid deception, confusion, distortion or untruthful reporting of research findings.
- Honesty and transparency for confidence-building.
- Reciprocity in form of partnership involvement.

Researchers involved in collection of data from participants have a moral duty to respect independence and privacy of each individual participant. The research survey needs to be conducted in an ethical manner and comply with best practice research guidelines. Important ethical considerations to observe when conducting fieldwork surveys are respecting the participant's right to

confidentiality, informed consent to participate in the study, right to freely elect whether to participate in the survey, right to retract at any time without being penalized and observing any legislative requirements on data protection. In conclusion, the research study had to considered and fulfilled the following five basic ethical principles:

- Minimising the risk of harm
- Getting informed consent
- Safeguarding confidentiality and anonymity
- Preventing dishonest practices
- Granting the right to withdraw

The ethics clearance application was prepared using the guidelines published by the School of Construction Economics and Management (SCEM). The Ethics clearance certificate for conducting the research activities was obtained from the SCEM Research Ethics Committee of the University of the Witwatersrand, Johannesburg. Although the ethics review committees have an obligation and duty of care to scrutinize most research proposals, the researchers ultimately bear responsibility for protecting the participants.

3.12. Conclusion

The research methodology chapter has defined the conceptual framework within which the research was conducted. Various research methodologies have been applied to examine financial and non-financial factors that influence leasing versus owning decisions of corporate real estate organizations. Prior research studies conducted include review of previous empirical research in academic journals related to CRE management and finance, and structured questionnaire surveys with a mix of closed- and open-ended questions gathered through face-to-face interviews and discussions with CRE executives. This study was based on a structured web-based online questionnaire survey.

4. Research Findings, Analysis and Discussion

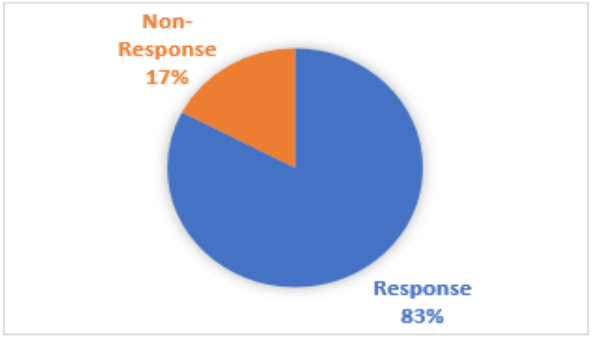
4.1. Introduction

This chapter analyses and discusses data captured from online survey. The chapter also discusses results and how it correlates to existing literature on the research topic. The objective of the study was to establish importance of non-financial determinants that influence leasing versus owning decisions for industrial real estate property sector in Gauteng Province. The survey questionnaire covered focus areas such as company-specific characteristics, site locational aspects and physical attributes of the premises. As previously stated in the literature review, the survey was restricted to industrial real estate property sector in Gauteng Province with specific reference to the Johannesburg and Ekurhuleni Metropolitan Municipalities.

4.2. Response Rate

A total of 52 organizations consented to participate in the survey. A response rate of 83% was achieved, with a total of 43 questionnaires being completed and returned. 17% (9) of the participants did not complete the questionnaire. The high response rate can be attributed to initiating contact with participants prior to emailing the questionnaire, and subsequent follow up emails and telephone calls to confirm receipt of the survey link email.

Figure 4.1 Response Rate



4.3. Company-Specific Characteristics

The aim was to capture the basic company characteristics of the respondents within the sample, namely: sector of activity, municipal locality, number of years of occupation at current premises, number of employees, annual turnover, existence of corporate real estate department, lease or own of premises and position of respondent in the company.

4.3.1. Sector of Activities

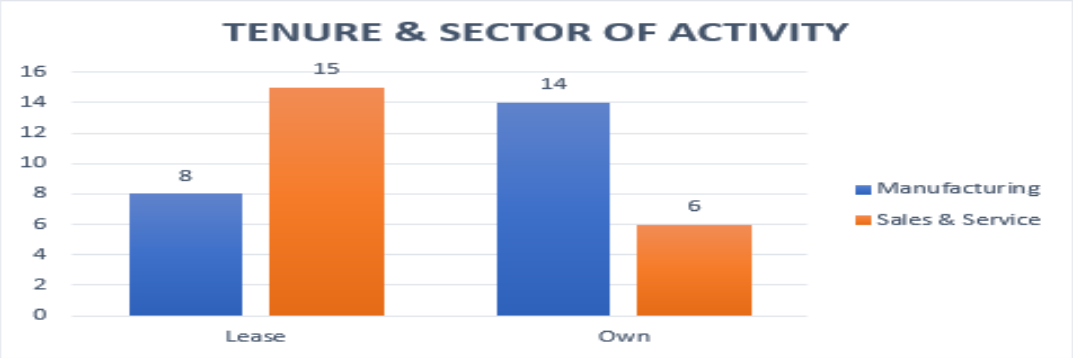
Slightly more than half of the respondents representing 51.2% (22) were in the Manufacturing sector with the balance 48.8% (21) in the Sales and Service sector. There were no respondents in the Research and Development sector and Other. The respondents were almost equally split between the manufacturing and sales and services sectors.

Table 4.1 Sector of Activities

Sector	Lease	Own	Totals	%
Manufacturing	8	14	22	51.2%
Sales and Service	15	6	21	48.8%
Total	23	20	43	100%

More than half the respondents in the manufacturing sector representing 63.6% (14) owned their premises with the remaining 36.4% (8) occupying leased premises. In contrast, 28.6% (6) of the respondents in the Sales and Service sector were owner-occupiers with the balance 71.4% (15) leasing their premises.

Table 4.2 Tenure and Sector of Activity



Most respondents in the manufacturing sector owned their premises whereas in the sales and services sector leasing was the prevalent mode of tenure. According to Morais (2014), several studies have indicated that leases are usually more common in certain industries than in others, and that firms prefer leasing properties whose purpose is more general and less specific. The prevalence of owning in the manufacturing sector as reflected in the data collected supports the findings of Krishnan and Moyer (1994) that manufacturing enterprises engage in lower levels of lease contracts compared to retail trade, transportation and mineral extraction industries, whose possess less company specific assets.

4.3.2. Location of Premises

Slightly more than half the respondents representing 53.5% (23) were located within Johannesburg Metropolitan Municipality while the Ekurhuleni Metropolitan Municipality accounted for 46.5% (20) of the respondents.

There were more respondents who leased their premises in Johannesburg representing 73.9% (17) than those who owned representing 26.1% (6) of the respondents. The prevalence of leasing in Johannesburg can be ascribed to the rising demand for expansive warehouse facilities among distribution and logistics firms in close proximity major highways and secondary arterial roads

between the north and eastern regions of Johannesburg (Broll Logistics Report, 2018).

In contrast, most respondents in Ekurhuleni representing 70% (14) owned their premises compared to 30% (6) who were leasing. Ekurhuleni has the highest concentration of industry in South Africa boosting many production plants for goods and commodities (City of Ekurhuleni Development Guide, October 2010, p. 2). Its dominance as a manufacturing hub is reflected in the high levels of ownership indicated by the respondents.

Table 4.3 Location of Premises

Location	Lease	Own	Totals	%
Johannesburg	17	6	23	53.5%
Ekurhuleni	6	14	20	46.5%
Total	23	20	43	100%

4.3.3. Number of Years at Current Premises

More than half the respondents representing 53.5% (23) had occupied their current premises for more than 10 years; 25.6% (11) of the respondents had occupation periods of between 5 and 10 years; 16.3% (7) had occupied their current premises for between 2 and 5 years and 4.6% (2) had less than 1 year's occupation period at their current premises. More than 75% (34) of the respondents had occupancy periods exceeding 5 years. The long occupancy periods reflected in the data collected can be attributed to a combination of ownership and the minimum lease period for commercial leasing which are usually concluded for periods of five to eight years.

Table 4.4 Number of Years at Current Premises

Answer	Count	Percent	20% 40% 60% 80% 100%
Less than 1 year	2	4.65%	
2 - 5 years	7	16.28%	
5 - 10 years	11	25.58%	
> 10 years	23	53.49%	
Total	43	100 %	

4.3.4. Number of Employees on Site

Slightly under a third of the respondents representing 30.2% (13) had less than 50 employees on site; 25.6% (11) respondents had between 50 to 100 employees; 16.3% (7) had between 101 to 200 employees; 13.9% (6) had between 201 to 500 employees; 7.0% (3) had between 501 to 1 000 employees and 7.0% (3) had over 2 500 employees. Almost 30.2% (13) of the respondents had less than 50 employees meaning that this firms can be classified as small businesses as defined by the Department of Small Business Development, South Africa (Wet, 2019). Medium-sized enterprises with between 51 and 200 employees on site constituted 41.9% (18) of the respondents. Large organizations with over 200 employees on site represented 27.9% (12) of the respondents. The sample comprises predominantly of medium-sized firms with an almost equal representation between small businesses and large organizations. The tendency to own would be greater as the required operational site became larger.

Table 4.5 Number of Employees on Site

Answer	Count	Percent	20% 40% 60% 80% 100%
Under 50	13	30.23%	
50 - 100	11	25.58%	
101 - 200	7	16.28%	
201 - 500	6	13.95%	
501 - 1 000	3	6.98%	
1 001 - 2 500	0	0%	
> 2 500	3	6.98%	
Total	**43**	**100 %**	

4.3.5. Company Size (Number of Employees in the Entire Company)

Slightly under half of the respondents representing 41.9% (18) had under 100 employees working for the entire company; 25.6% (11) respondents had a total staff complement of between 100 to 500 employees; 9.3% (4) had between 1 001 to 2 500 employees; 7.0% (3) two had between 2 501 to 5 000 employees; 7.0% (3) had between 5 001 to 10 000 employees and 9.3% (4) had over 10 000 employees.

Most respondents representing 67.5% (29) can be categorized as small and medium-sized companies having less than 500 employees working for the entire organization. Firms with over 500 employees represented 32.5% (14) of the respondents with seven organizations having more than 5 000 employees. It can be inferred that the larger firms operate in diverse geographical regions offering various products and services. The small and medium-sized firms operate in limited geographical locations and offer niche products for a limited customer base.

Table 4.6 Number of Employees in the Entire Company

Answer	Count	Percent	20% 40% 60% 80% 100%
Under 100	18	41.86%	
100 - 500	11	25.58%	
501 - 1 000	0	0%	
1 001 - 2 500	4	9.3%	
2 501 - 5 000	3	6.98%	
5 001 - 10 000	3	6.98%	
> 10 000	4	9.3%	
Total	43	100 %	

4.3.6. Annual Turnover in Last Financial Year

Slightly over one-third of the respondents representing 34.9% (15) had an annual turnover in excess of R500 million; 9.3% (4) of the respondents reported revenues of between R250 million and R500 million; 16.3% (7) generated annual revenues ranging from R100 million to R250 million; 16.3% (7) generated revenues of between R50 million and R100 million; 9.3% (4) had revenues of between R10 million and 50 million; 4.6% (2) recorded revenues of between R5 million and R10 million and 9.3% (4) respondents had annual turnovers of less than R5 million.

According to the Department of Small Business Development, South Africa (Wet, 2019), the maximum turnover ceiling for a company to qualify as a medium-sized enterprise is R220 million. Slightly more than half the firms representing 55.8% (24) respondents can be classified as medium-sized enterprises with annual turnover not exceeding R250 million. Large organizations with an annual turnover in excess of R250 million constituted 44.2% (19) of the respondents of which 15 firms had turnovers in excess of R500 million. Apart from these 15 mega-firms, most of the respondents generated annual revenues ranging from R10 million to R250 million. Looking

at the yearly turnover of the respondents, it may be concluded that the sample size is representative of both small, medium-sized and large organizations.

Table 4.7 Annual Turnover in Last Financial Year

Answer	Count	Percent	20% 40% 60% 80% 100%
Under R1 000 000	2	4.65%	
R1 000 000 - R2 000 000	1	2.33%	
R2 000 001 - R5 000 000	1	2.33%	
R5 000 001 - R10 000 000	2	4.65%	
R10 000 001 - R50 000 000	4	9.3%	
R50 000 001 - R100 000 000	7	16.28%	
R100 000 001 - R250 000 000	7	16.28%	
R250 000 001 - R500 000 000	4	9.3%	
> R500 000 000	15	34.88%	
Total	43	100 %	

4.3.7. Presence of Corporate Real Estate Department

Most respondents representing 76.7% (33) did not have a corporate real estate department. Only 23.3% (10) organizations had a corporate real estate department. This contrasts with the study conducted by Chetty (2017) for corporate office real estate in Johannesburg where 92.3% (12) companies had a corporate real estate department. However, the findings closely align with the survey research of Lalloo (2013) in which 80% or 64 firms traded on the Johannesburg Stock Exchange reported no formal real estate business unit within their organisations. Lalloo (2013) postulated that the absence of formal real estate units not only reflects misconception among senior executives on importance of real estate but also points to the infancy in adopting corporate real estate for strategic corporate asset management.

Table 4.8 Presence of Corporate Real Estate Department

CRE Function	Lease	Own	Totals	%
Yes	7	3	10	23.3%
No	16	17	33	76.7%
Total	23	20	43	100%

4.3.8. Presence of Internal/Out-Source of Maintenance Functions

Slightly under half of the respondents representing 44.2% (19) undertook their own in-house maintenance functions with the majority (16) owning their premises. On the contrary, 20 of the 24 respondents who out-sourced their maintenance requirements to third parties were occupying leased premises.

Table 4.9 Presence of Internal/Out-Source of Maintenance Functions

CRE Function Strategy	Lease	Own	Totals	%
Internal	3	16	19	44.2%
Outsource	20	4	24	55.8%
Total	23	20	43	100%

From the 20 industrial firms that owned premises, 80% (16) indicated having formal, organized internal real estate maintenance units. Perhaps some of the main reasons for self-managing the properties is prompted by potential cost savings and operational control of the real estate asset. However, firms need to balance the savings with the risks of self-management and the higher premiums insurers may charge for self-managed properties. On the contrary, from the 23 firms that leased premises, 87% (20) outsourced their maintenance requirements. Several studies suggest that outsourcing promotes concentration on core business, provides access to a better quality of service

and is undertaken for strategic business reasons such as the motivation for potential cost savings by reducing or controlling operating expenditure (Hayward, 1999). Importantly, a firm that leases it's premises is not under an obligation for the maintenance of the leased property unless the tenant enters into a triple net lease agreement in which case the tenant will bear the responsibility for settling property taxes for the building, building insurance, and the maintenance or repairs costs for the building for the duration of the lease.

4.3.9. Leasing versus Owning

Slightly more than half the respondents representing 53.5% (23) lease their premises while the other half constituting the remaining 46.5% (20) own their premises. This conclusion is consistent with the outcomes observed by Lalloo (2013) who found that the majority of organizations listed on the Johannesburg Stock Exchange own their premises with only 14.1% who chose to lease. Some of the main reasons for owning included mitigating rental increments and long-term commitments to lease covenants. The observations from these research surveys conducted in South Africa differ from the data collected by Barkham and Park (2011) which indicated that 36% of respondents were owner-occupiers of corporate real estate industrial users in the United Kingdom.

Table 4.10 Leasing versus Owning

Answer	Count	Percent	20% 40% 60% 80% 100%
Lease	23	53.49%	
Own	20	46.51%	
Total	43	100 %	

4.3.10. Position in Company

Of the total respondents, 76.7% (33) held senior management positions within their company; 9.3% (4) were middle-level managers; 7.0% (3) were in junior

management positions and another 7.0% (3) occupied other seniority positions within their organizations. Considering that most of the respondents were in senior managerial positions, it can be inferred that the information collected through the survey is a true, unbiased consideration of the respondents understanding and interpretations on the determinants that influence the leasing versus owning decision-making process.

Table 4.11 Position in Company

Answer	Count	Percent	20% 40% 60% 80% 100%
Senior Management	33	76.74%	
Middle Management	4	9.3%	
Junior Management	3	6.98%	
Other (Please Specify)	3	6.98%	
Total	43	100 %	

4.4. Non-Financial Determinants of Leasing versus Owning Decisions

4.4.1. Significance of Locational Aspects

The significance of locational aspects aims to explore some key drivers influencing the location selection, namely: business support services, proximity to high quality residential neighbourhoods, proximity to key clients/customers, proximity to key suppliers/raw materials, proximity to source of skilled and general labour, access to arterial routes/major freeways, prestigious location and prominent visibility.

The location of industrial warehousing is a significant factor in the locational choice of investors and tenants operating in the industrial real estate sector (Broll Logistics Report, 2018). It is imperative for industrial warehousing organizations to identify the correct location for their businesses and pay attention to the advantages of certain locational areas. As an example, if a firm

is constantly receiving truck deliveries, their warehouse facility should have suitable access to the major highways and main arterial roads. Likewise, for a firm that deals in large amounts of air freight cargo, their warehousing facility should ideally be situated in close proximity to an airport.

The data that was collected was evaluated by means of the Relative Importance Index (RII) technique based on answers and rankings assigned by the respondents to the questions on the significance of the locational aspects when deciding to lease or own. The RII values ranged from of 0 to 1; higher values of RII inferred greater importance of the locational aspect. These rankings permitted for comparison of relative importance of locational aspects as identified by respondents. The RIIs were then categorized, and the outcomes are shown in Table 4.12 below.

Table 4.12 Locational Aspects Ranking

No.	Importance of Locational Aspects on Lease or Own Decisions	Very Important & Important	Fairly Important	Not Important	Not Applicable	RII	Rank
1	Access to airport, public transportation and major freeways	81.4% (35)	11.6% (5)	4.7% (2)	2.3% (1)	0.809	1
2	Proximity to source of skilled labour	67.5% (29)	18.6% (8)	7.0% (3)	7.0% (3)	0.744	2
3	Proximity to source of general labour	55.8% (24)	20.9% (9)	18.6% (8)	4.7% (2)	0.693	3
4	Proximity to key suppliers/raw materials	48.8% (21)	25.6% (11)	14.0% (6)	11.6% (5)	0.660	4
5	Proximity to key clients/customers	44.2% (19)	32.6% (14)	16.3% (7)	7.0% (3)	0.656	5
6	Prominent visibility	34.9% (15)	23.3% (10)	37.2% (16)	4.6% (2)	0.600	6
7	Business support services (banking, restaurants, retail, etc)	25.6% (11)	37.2% (16)	25.6% (11)	11.6% (5)	0.563	7
8	Prestigious location of site	23.3% (10)	32.6% (14)	37.2% (16)	7.0% (3)	0.553	8
9	Proximity to high quality residential neighbourhoods	16.2% (7)	32.6% (14)	34.9% (15)	16.3% (7)	0.502	9

The top three most important locational aspects when deciding to lease or own as ranked by RII technique in order of most important were:

- Access to airport, public transportation and major freeways (RII = 0.809).
- Proximity to source of skilled labour (RII = 0.744).
- Proximity to source of general labour (RII = 0.693).

Access to airport, public transportation and major freeways was ranked first and considered as either important or very important by the majority of respondents representing 81.4% (35) of the responses received in the decision regarding the locational aspect of their industrial premises; 11.6% (5) believed that it was fairly important; 4.7% (2) stated that it was not important, whilst 2.3% (1) of the respondent indicated that it was not applicable in deciding the locality of their industrial premises. The findings are consistent with the study done by Barkham and Park (2011) indicating that operational sites providing excellent transport networks to public transportation are an appealing feature in the lease versus own decision for industrial firms.

Proximity to source of skilled labour was ranked second and considered as either important or very important by slightly over two-thirds of the respondents representing 67.5% (29) of the responses received in the decision regarding the locational aspect of their industrial premises; 18.6% (8) believed that it was fairly important; 7.0% (3) stated that it was not important, whilst 7.0% (3) of the respondents indicated that it was not applicable to them in the decision regarding the location of their premises. The education levels, skills set, and experience of available labour are important in determining the location of the premises. The findings are consistent with the study done by Barkham and Park (2011) indicating that increase in firm excellent access to strategic human resources would have strategic importance to the occupier and would therefore influence the lease versus own decision for industrial firms.

Proximity to source of general labour was ranked third. Of the total respondents, 55.8% (24) of the respondents considered proximity to source of general labour as either important or very important in the decision regarding the locational aspect of their industrial premises; 20.9% (9) believed that it was fairly important; 18.6% (8) stated that it was not important, whilst 4.7%(2) of the respondents indicated that it was not applicable to them in determining the location of their premises. The findings are inconsistent with the study done by Barkham and Park (2011) which concluded that accessibility to general labour did not increase the locational value of sites unlike skilled labour that provided competitive advantages to organizations. The contradictory findings can perhaps be attributed to the disparity in the industrialization levels of the two countries. The South African industrial sector probable needs more local artisans and workers of various trades than the more advanced technical enterprises and economic productivity in the United Kingdom.

The three least important locational aspects when deciding to lease or own as ranked by RII technique in order of least importance were:

- Proximity to high quality residential neighbourhoods (RII = 0.502).
- Prestigious location (RII = 0.553).
- Business support services (RII = 0.563).

Proximity to high quality residential neighbourhoods was ranked last. Of the total respondents, 16.2% (7) of the respondents considered proximity to high quality residential neighbourhoods as either important or very important in the decision regarding the locational aspects of industrial premises; 32.6% (14) indicated that it was fairly important; 34.9% (15) stated that it was not important, whilst 16.3% (7) of the respondents stated that it was not applicable to them. The findings correlate with the results of the study done by Chetty (2017) indicating that only 14.4% of the respondents considered proximity to high quality residential neighbourhoods as either important or very important in the

locational decision concerning the lease or own of office premises. Specific local external effects such as proximity to industrial properties impact property values negatively and would therefore preclude the development of high-quality residential developments (Kauko, 2003).

Prestigious location was ranked the second least important locational aspect and considered as either important or very important by 23.3% (10) of the responses received in the decision regarding the locational aspect of their industrial premises; 32.6% (14) believed that it was fairly important; 37.2% (16) stated that it was not important, whilst 7.0% (3) of the respondents indicated that it was not applicable to them in the decision regarding the location of their premises. The findings contradict the results observed by Chetty (2017) for corporate office real estate in Johannesburg which indicated that 75% of the respondents suggested that prestigious location of site was either important or very important in determining the lease or own decision for office premises. This supports the proposition by Mourouzi-Sivitanidou (2011) that prestigious suburban nodes are preferred locations for major office-using sectors within the economy comprising of finance, insurance and real estate, and services including primarily professional services, business services, and legal and social services. This variable was not considered by Barkham and Park (2011) amongst the strategic determinants for inclusion in the final regression model.

Business support services was ranked third least important and considered as either important or very important by slightly over one-fifths of the respondents representing 25.6% (11) of the responses received in the decision regarding the locational aspect of their industrial premises; 37.2% (16) believed that it was fairly important; 25.6% (11) stated that it was not important, whilst 11.6% (5) of the respondents indicated that it was not applicable to them in the decision regarding the location of their premises. The results observed by Chetty (2017) for corporate office real estate in Johannesburg indicated that 46.2% of the respondents considered that business support services were

either important or very important in the decisions regarding the locational aspects of their office premises. Barkham and Park (2011) did not include this variable amongst the strategic determinants as an independent variable.

Cross Tabulation Analysis of Locational Aspects

A simple cross-tabulation table constructed for locational aspects, where one variable was tenure status, and the other was the ranking of locational aspects, is shown in Table 4.13 below.

Table 4.13 Cross Tabulation of Locational Aspects

No.	Importance of Locational Aspects on Lease or Own Decisions	Tenure Status	Very Important & Important	Fairly Important	Not Important	Not Applicable	Totals
1	Access to airport, public transportation and major freeways	Lease	87% (20)	13% (3)	-	-	100% (23)
		Own	75% (15)	10% (2)	10% (2)	5% (1)	100% (20)
2	Proximity to source of skilled labour	Lease	61% (14)	26% (6)	4% (1)	9% (2)	100% (23)
		Own	75% (15)	10% (2)	10% (2)	5% (1)	100% (20)
3	Proximity to source of general labour	Lease	39% (9)	31% (7)	26% (6)	4% (1)	100% (23)
		Own	75% (15)	10% (2)	10% (2)	5% (1)	100% (20)
4	Proximity to key suppliers/raw materials	Lease	40% (9)	26% (6)	17% (4)	17% (4)	100% (23)
		Own	60% (12)	25% (5)	10% (2)	5% (1)	100% (20)
5	Proximity to key clients/customers	Lease	57% (13)	35% (8)	4% (1)	4% (1)	100% (23)
		Own	30% (6)	30% (6)	30% (6)	10% (2)	100% (20)
6	Prominent visibility	Lease	35% (8)	22% (5)	39% (9)	4% (1)	100% (23)
		Own	35% (7)	25% (5)	35% (7)	5% (1)	100% (20)
7	Business support services (banking, restaurants, retail, etc)	Lease	30% (7)	35% (8)	22% (5)	13% (3)	100% (23)
		Own	20% (4)	40% (8)	30% (6)	10% (2)	100% (20)
8	Prestigious location of site	Lease	17% (4)	35% (8)	39% (9)	9% (2)	100% (23)
		Own	30% (6)	30% (6)	35% (7)	5% (1)	100% (20)
9	Proximity to high quality residential neighbourhoods	Lease	13% (3)	43% (10)	22% (5)	22% (5)	100% (23)
		Own	20% (4)	20% (4)	50% (10)	10% (2)	100% (20

Access to airport, public transportation and major freeways was considered as either very important or important by over two-thirds of respondents who either leased (87%, 20) or owned (75%, 15) their premises. Organizations leasing premises gave higher preference to accessible for their operational sites.

Considering proximity to source of skilled labour, 75% (15) of owner-occupier organizations ranked it as either important or very important compared to 61% (14) of organizations leasing their premises.

Proximity to source of general labour (75%, 15) and key suppliers/raw materials (60%, 12) revealed a higher preference for owner-occupier organizations under the ranking of either very important or important. Organizations leasing premises considered proximity to source of general labour (39%, 9) and proximity to key suppliers/raw materials (40%, 9) as either very important or important.

Considering proximity to key clients/customers, 57% (13) organizations leasing their premises considered it as either very important or important compared to 30% (6) of owner-occupier organizations.

The other locational aspects comprising of prominent visibility, business support services, prestigious location of site and proximity to high quality residential neighbourhoods had low overall rankings but comparable preferences for leasing and owner-occupier organizations under the ranking of either fairly important or not important.

Owner-occupier organizations, when considering locational aspects, demonstrated higher preference for proximity to source of skilled labour, proximity to source of general labour and proximity to key suppliers/raw materials. Locating near the source of raw materials and human capital are considered as important location factors for manufacturing industries.

Organizations leasing their premises placed greater priority on access to airport, public transportation and major freeways, and proximity to key clients/customers. With global growth in e-commerce and increased demand for organizations to serve customers' demands on time, delivery service factor including proximity to key customers and upside delivery flexibility through easy access to public transportation is an important factor determining the location of warehousing and distribution centres. Firms in the sales and services sector that need speedy delivery of products or require close contact with customers will locate adjacent to public transportation networks.

4.4.2. Significance of Physical Attributes

The importance of physical attributes seeks to explore some key drivers influencing the desired amenities for the premises, namely: security, 24-hour access, large turning circle for trucks to park and manoeuvre, enough warehouse headroom for trucks to dock, exterior appearance of building, user recognition, multi-tenanted site, flexibility of use of space, space for future expansion, back-up standby generator set, refrigeration or air-conditioning requirements and fibre network availability.

In addition to the locational decision, companies that require industrial premises will also consider additional factors specific to the desired amenities for the premises. According to the Broll Logistics Report (2018), aspects such as the layout and amenities (offices, ablution facilities, correct ceiling heights for stacking purposes, column spacing and the type of floor), the flow of goods in and out of the premises, adequate space for warehousing equipment comprising of dock levellers and forklifts, accessibility and adequate area for articulated trailers to manoeuvre, additional yard space for storing containers and pallets, and security all need to be determined.

The data collected was also evaluated by means of RII technique based on answers and rankings assigned by respondents to the questions on the

significance of the physical attributes. The RII values ranged from 0 to 1; higher values of RII inferred greater importance of the physical attribute. The RIIs were then categorized, and the outcomes are shown in Table 4.14 below.

Table 4.14 Physical Attributes Ranking

No.	Importance of Physical Attributes on Lease or Own Decisions	Very Important & Important	Fairly Important	Not Important	Not Applicable	RII	Rank
1	Security	97.7% (42)	2.3% (1)	-	-	0.940	1
2	Back-up standby generator set	86.0% (37)	9.3% (4)	4.7% (2)	-	0.898	2
3	Fibre network availability	83.7% (36)	11.6% (5)	2.3% (1)	2.3% (1)	0.888	3
4	24-hour access	83.8% (36)	9.3% (4)	7.0% (3)	-	0.856	4
5	Space for future expansion	69.8% (30)	20.9% (9)	9.3% (4)	-	0.777	5
6	Large turning circle for trucks to park and	69.7% (30)	16.3% (7)	4.7% (2)	9.3% (4)	0.772	6
7	Enough warehouse headroom for trucks to dock	74.5% (32)	2.3% (1)	9.3% (4)	13.9% (6)	0.758	7
8	Flexibility of use of space	60.5% (26)	34.9% (15)	4.7% (2)	-	0.749	8
9	User recognition (company branding)	60.5% (26)	18.6% (8)	20.9% (9)	-	0.735	9
10	Exterior appearance of building	53.5% (23)	34.9% (15)	11.6% (5)	-	0.693	10
11	Refrigeration or air conditioning requirements	41.9% (18)	25.6% (11)	11.6% (5)	20.9% (9)	0.623	11
12	Multi-tenanted site	9.3% (4)	20.9% (9)	39.5% (17)	30.2% (13)	0.423	12

The top three most important physical attributes when deciding to lease or own as ranked by RII technique in order of most important were:

- Security (RII = 0.940).
- Back-up standby generator set (RII = 0.898).
- Fibre network availability (RII = 0.888)

Security was considered the highest ranked physical attribute influencing the lease or own decisions of industrial premises. Security was considered as either important or very important by the vast majority of respondents representing 97.7% (42) of the responses received in the decision regarding the physical attributes of their industrial premises, whilst 2.3% (1) of the respondent considered security to be fairly important.

Security refers to the existence of high security requirements at the premises such as remote-controlled security, technological advanced camera systems strategically positioned to overlook the entire warehousing facility internally and externally, a strong room for securing the storage of surveillance recordings of activities around the premises with off-site regular back-ups every 24 hours, secure perimeter fencing preferably with electrified fencing, security services with armed response and access-control systems with cards assigned to company staff (Broll Logistic Report, 2018). The findings are consistent with the study done by Barkham and Park (2011) which observed that higher security requirements would influence the leasing versus owning decision for industrial organizations with the likelihood of ownership increasing with higher investment in security outlay and control. Chetty (2017) also observed that all the respondents in his survey indicated that security was either important or very important.

The availability of a back-up standby generator set was ranked second amongst the physical attributes for lease or own decisions for industrial premises. Of the total respondents in the survey, 86% (37) of the respondents indicated that the availability of a back-up standby generator set as either important or very important in the decision regarding the physical amenities of their industrial premises; 9.3% (4) stated that it was fairly important, whilst 4.7% (2) of the respondents indicated that a back-up standby generator set was not important to them in influencing the physical attributes of their premises.

There is limited information on whether previous studies have considered the significance of this variable in their analyses. South Africa currently finds itself in a peculiar situation as the country continues to experience rolling scheduled blackouts since Eskom Holdings Limited, the State-Owned Enterprise power utility company, does not have adequate generation reserve margins. Frequent incidents of load shedding have had an extremely negative impact on the economy. With the increased possibilities of future load shedding, there is an increasing trend for commercial property developers to include an option for owners and tenants to have backup power installed in business premises. The availability of a standby power generating unit ensures business continuity and mitigates the loss of revenue that could be occasioned due to load shedding.

Fibre network availability was ranked third amongst the physical attributes for lease or own decisions for industrial premises. Approximately 83.7% (36) of the respondents indicated that fibre network availability was either important or very important in the decision regarding the physical amenities of their industrial premises; 11.6% (5) stated that it was fairly important; 2.3% (1) believed that it was not an important physical attribute in the lease or own decision, whilst another 2.3% (1) of the respondent indicated that fibre network availability was not applicable to them.

There is limited information on whether previous studies have considered the impact of this variable in their analyses. The Broll Logistics Report (2018) asserts that with consumer attitudes and globalisation having a significant role in the evolving industrial landscape which is growing globally and locally, e-commerce and technological developments continue to impact on consumers' needs causing industrial warehousing and distribution centres to evolve and adapt to using multiple communication channels and platforms in their daily business transactions. The availability of a reliable, fast fibre network system ensures that the operational activities of the business are not disrupted, and customers experience consistent, high levels of service and convenience.

The three least important physical attributes when deciding to lease or own as ranked by the RII technique in order of least importance were:

- Multi-tenanted sites (RII = 0.423)
- Refrigeration or air conditioning requirements (RII = 0.623)
- Exterior appearance of building (RII = 0.693).

Multi-tenanted site was the lowest ranked physical attribute influencing the lease or own decisions of industrial premises. Of the total respondents, 9.3% (4) of the respondents considered multi-tenanted sites as either important or very important in the decision regarding the physical attributes of industrial premises; 20.9% (9) indicated that it was fairly important; 39.5% (17) stated that it was not important, whilst 30.2% (13) of the respondents stated that it was not applicable to them. Barkham and Park (2011) asserted that multi-tenanted sites infer the presence of small operational firms, which decreases the likelihood of ownership suggesting institutional ownership of multi-tenanted estates with multiple tenants on one site.

Refrigeration or air conditioning requirements was ranked the second least important factor in influencing the physical amenities of their premises and considered as either important or very important by 42.9% (18) of the responses received in the decision regarding the locational aspect of their industrial premises; 25.6% (11) believed that it was fairly important; 11.6% (5) stated that it was not important, whilst 20.9% (9) of the respondents indicated that it was not applicable to them.

There is limited information whether previous studies have considered the impact of this variable in their analyses. Air conditioning is commonly used to achieve ambient indoor environment of an occupied space to enhance the comfort of occupants. It is also utilized to cool and dehumidify working spaces that have heat-producing devices such as desktop computers and computer servers. The requirement for refrigeration is dependent on the product. Some

examples of products that may require cold storage or at least a temperature-controlled warehousing solution include perishable food (vegetables, fruits, dairy products, meat and seafood), horticultural produce and biopharmaceutical products. Although ranked amongst the least important physical factors, slightly over 40% of the respondents still indicated that refrigeration or air conditioning was either important or very important. The findings perhaps arise from the reason that it is common design practice to provide air conditioning for office facilities located within warehousing premises to reduce the high thermal loads generated within the premises and to increase the comfort level of occupants (De Angelis et al., 2015). The respondents were not required to distinguish between general air conditioning services and refrigeration requirements necessitated by the products being warehoused for storage.

Exterior appearance of building was ranked third least important and considered as either important or very important by slightly over half of the respondents representing 53.5% (23) of the responses received in the decision regarding the physical attributes of their industrial premises; 34.9% (15) believed that it was fairly important; 11.6% (5) stated that it was not important, whilst none of the respondents indicated that it was not applicable to them in the decision regarding the physical facilities of their premises. The findings correlate with the study conducted by Barkham and Park (2011) which suggested that this variable, although enhancing the chances of ownership, was insignificant. Similarly, the results of the study conducted by Chetty (2017) for corporate office real estate in Johannesburg indicated that 69.23% of the respondents considered that the exterior appearance of a building was either important or very important in the lease or own decision-making process.

Cross Tabulation Analysis of Physical Attributes

A simple cross-tabulation table constructed for physical attributes, where one variable was tenure status, and the other was the ranking of physical amenities, is shown in Table 4.15 below.

Table 4.15 Cross Tabulation of Physical Attributes

No.	Importance of Physical Attributes on Lease or Own Decisions	Tenure Status	Very Important & Important	Fairly Important	Not Important	Not Applicable	Totals
1	Security	Lease	96% (22)	4% (1)	-	-	100% (23)
		Own	100% (20)	-	-	-	100% (20)
2	Back-up standby generator set	Lease	82% (19)	9% (2)	9% (2)	-	100% (23)
		Own	90% (18)	10% (2)	-	-	100% (20)
3	Fibre network availability	Lease	83% (19)	13% (3)	-	4% (1)	100% (23)
		Own	85% (17)	10% (2)	5% (1)	-	100% (20)
4	24-hour access	Lease	92% (21)	4% (1)	4% (1)	-	100% (23)
		Own	75% (15)	15% (3)	10% (2)	-	100% (20)
5	Space for future expansion	Lease	69% (16)	22% (5)	9% (2)	-	100% (23)
		Own	70% (14)	20% (4)	10% (2)	-	100% (20)
6	Large turning circle for trucks to park and manoueuvre	Lease	69% (16)	9% (2)	9% (2)	13% (3)	100% (23)
		Own	70% (14)	25% (5)	-	5% (1)	100% (20)
7	Enough warehouse headroom for trucks to dock	Lease	69% (16)	-	9% (2)	22% (5)	100% (23)
		Own	80% (16)	5% (1)	10% (2)	5% (1)	100% (20)
8	Flexibility of use of space	Lease	56% (13)	35% (8)	9% (2)	-	100% (23)
		Own	65% (13)	35% (7)	-	-	100% (20)
9	User recognition (company branding)	Lease	48% (11)	22% (5)	30% (7)	-	100% (23)
		Own	75% (15)	15% (3)	10% (2)	-	100% (20)
10	Exterior appearance of building	Lease	39% (9)	44% (10)	17% (4)	-	100% (23)
		Own	70% (14)	25% (5)	5% (1)	-	100% (20)
11	Refrigeration or air conditioning requirements	Lease	48% (11)	22% (5)	8% (2)	22% (5)	100% (23)
		Own	35% (7)	30% (6)	15% (3)	20% (4)	100% (20)
12	Multi-tenanted site	Lease	9% (2)	26% (6)	43% (10)	22% (5)	100% (23)
		Own	10% (2)	15% (3)	35% (7)	40% (8)	100% (20

Security was considered as either very important or important by the majority of respondents who either leased (96%, 22) or owned (100%, 20) their premises. Owner-occupier organizations regarded security of paramount importance for their operational sites.

Availability of back-up standby generator set (90%, 18) and fibre network connectivity (85%, 17) highlighted higher preference for owner-occupier organizations under the ranking of either very important or important. Organizations leasing premises considered availability of back-up standby generator set (82%, 19) and fibre network connectivity (83%, 19) as either very important or important. Considering 24-hour access, 92% (21) of owner-occupier organizations ranked it as either important or very important compared to 75% (15) of organizations leasing their premises.

In addition, owner-occupier organizations, when considering physical amenities, expressed higher priority for expansive site yards with space for future expansion, large turning circles for tracks to park and manoeuvre, enough warehouse headroom for trucks to dock, user space flexibility, user recognition and exterior appearance of building.

Organizations leasing their premises disclosed higher preference for refrigeration or air conditioning requirements.

Multi-tenanted sites, with an overall low ranking, was preferred by leasing organizations when compared with owner-occupier organizations.

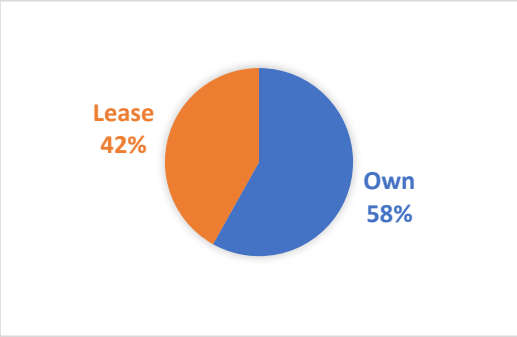
4.5. Lease versus Own Preferences

Eighteen (18) respondents in the survey stated that their optimal preference, notwithstanding the current limitations of options, is leasing their industrial premises representing 42% of the participants, whilst 25 respondents indicated a preference to own their premises representing 58% of the participants in the survey. This implies that five of the respondents who currently lease their

premises would rather prefer to own. These results indicate the strong preference to own predominates for industrial real estate sector organizations in Johannesburg and Ekurhuleni. These findings align with the observations in the survey conducted by Maetle (2017) which showed that South African non-real estate organizations in general have a bias towards owning their CRE assets. Similarly, Barkham and Park (2011) noted 62% of respondents expressed preference for owning although only 36% of the respondents actually owned their premises. However, they indicated that due to the limitations in the data collected, it was difficult to interpret this variable and that this variable could be linked to other motives as to why a firm might have a preference for owning.

Figure 4.2 below depicts the lease versus own preference of the respondents in the survey.

Figure 4.2 Lease vs Own Preferences



Several studies have identified the various reasons for owning rather than leasing real estate assets. According to Ghyhoot (2003), some of the main reasons for the preference to own include mitigating risks associated with long-term commitments to lease conditions such as rental increases, onerous lease clauses restricting flexibility, lack of control over the asset, potential for additional income through sub-letting, capital growth and asset appreciation which accrues to the owner.

4.6. Influence of Strategic Non-Financial Determinants on Decisions to Lease or Own

The results of the logistic regression analysis are presented in this section of the study. The final sample comprised of 43 respondents who specified the tenure status of their occupied real estate. From the total sample collected, 47.5% (20) stated that they own their premises while 53.5% (23) indicated leasing. The data was analysed using logistic regression techniques.

The Cox and Snell R square and Nagelkerke R square provide an interpretation of the amount of variability in dichotomous dependent variable, own or lease (Nagelkerke, 1991). The Cox and Snell's R square statistics indicated approximately 51.2% of the variability in dependent variable was described by the logistic regression model while the Nagelkerke R square value revealed that 68.4% of variability in the data was explained by the model.

The results of the model summary are shown in table 4.16 below.

Table 4.16 Model Summary

Step	-2 Log Likelihood	Cox & Snell R Square	Nagelkerke R Square
1	28.529[a]	0.512	0.684

a. Estimation terminated at iteration number 7 because parameter estimates changed by less than .001.

The Hosmer and Lemeshow goodness-of-fit test yielded a X2 (8) and with a value of 0.675 being insignificant at the 0.05 level suggesting a well-fitting model. This implies that there is no misspecification in the predictive capability of the model to the data. Essentially, rejection of null hypothesis based on a good model fit to the data was tenable.

The Hosmer and Lemeshow test outcomes are shown in the table 4.17 below.

Table 4.17 Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	5.756	8	0.675

The classification table documents resulting predicted probabilities that can be revalidated with actual outcome to verify if high probabilities are linked with events and low probabilities with non-events. According to classification table 4.16 below, out of the 20 respondents who indicated that they own their premises, 16 (80%) were correctly classified and from the 23 who leased their premises, 19 (82.6%) were correctly classified by the model. The model as a whole is significant and correctly predicts owning or leasing decision in 81.4% of observations. It depicts non-significance on the Hosmer and Lemeshow goodness-of-fit test at the 0.05 level, suggesting the evidence of a model that is well-fitting.

The results of the classification table are shown in table 4.18 below.

Table 4.18 Classification Table

Observed			Predicted		
			Decision		Percentage Correct
			Own	Lease	
Step 1	Tenure Status	Own	16	4	80.0
		Lease	4	19	82.6
Overall Percentage					81.4

a. Note: The cut value is 0.500

With a binary dependent variable based on tenure status of owning or leasing being equated to a dummy variable that equals one if the property is owned and zero if the organization is leasing, a sequence of regressions iterations were run using strategic non-financial determinants as independent variables.

The outcomes of all coefficients and variables included in the final model are shown in table 4.19 below.

Table 4.19 Variables in the Equation

Variables in the Equation		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1a	Municipality	-3.196	1.284	6.199	1	0.013	0.041	0.003	0.507
	Key Suppliers/Raw Materials	-0.98	0.535	3.36	1	0.067	0.375	0.132	1.07
	Source of Labour	-1.28	0.941	1.85	1	0.174	0.278	0.044	1.759
	Key Clients/Customers	1.814	0.703	6.663	1	0.01	6.134	1.547	24.317
	Security	-0.111	1.142	0.01	1	0.922	0.895	0.095	8.383
	Standby Generator	-0.914	0.785	1.356	1	0.244	0.401	0.086	1.867
	Fibre Network Availability	0.804	0.747	1.16	1	0.281	2.235	0.517	9.657
	24-hour Access	1.127	0.743	2.3	1	0.129	3.086	0.719	13.239
	Constant	3.234	7.15	0.205	1	0.651	25.373		

a. Variable(s) entered on step 1: municipality, key suppliers/raw materials, source of labour, key clients/customers, security, standby generator set, fibre network availability, 24-hour access.

The empirical evidence inferred from the analysis indicated that, for all companies in the sample, the municipality and proximity to key clients/customers were positively correlated to the probability of owning and were statistically significant at 5% level while proximity to key suppliers/raw materials was statistically significant at a significance level of 10%. The rest of the predictors were not statistically significant according to the available data.

4.6.1. Municipality

The municipality variable required each respondent to state whether their premises was located in the Johannesburg Metropolitan Municipality or the Ekurhuleni Metropolitan Municipality. The difference in regional economic characteristics of the two municipalities has an influence in the own or lease decision of industrial firms. The prevalence of leasing in Johannesburg could be ascribed to the rising demand for expansive warehousing facilities among distribution and logistics organizations with preference of being positioned adjacent to major highways and secondary arterial road networks along the northern and eastern regions of Johannesburg (Broll Logistics Report, 2018). In contrast, Ekurhuleni has the largest concentration of industry in South Africa boosting many plants for the manufacture of raw materials and production of goods and commodities. Its dominance as a manufacturing hub is reflected in the high levels of ownership indicated by the respondents (City of Ekurhuleni Development Guide, 2010).

4.6.2. Proximity to Key Clients and Customers

Proximity to key clients and customers indicates if the operational facility is situated close to main purchasers of goods, products and services offered by individual companies. Sites that provides access to clients and customers by way of proximity create greater strategic relevance to the occupier and thus enhances the chances of ownership (Barkham and Park, 2011).

4.6.3. Proximity to Key Suppliers/Raw Materials

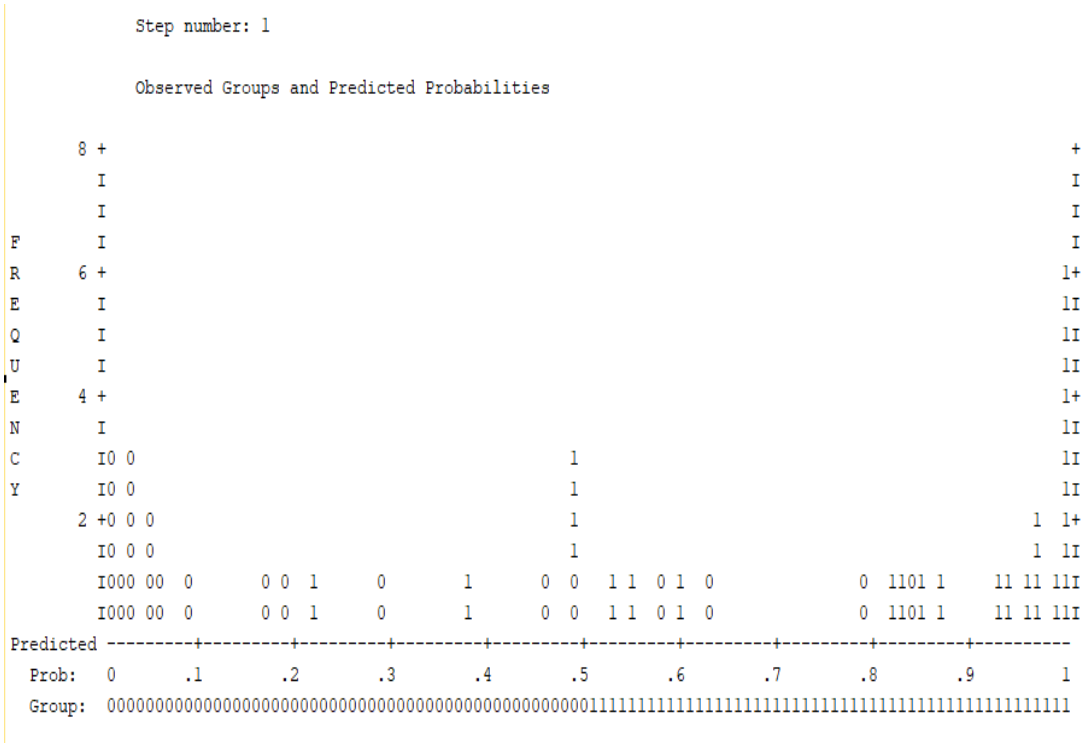
Proximity to key suppliers/raw materials variable establishes whether the operational facility is situated adjacent to main suppliers of raw materials. Continual supply of the raw material is a key element in the locational determination of manufacturing facilities and would provide greater strategic value to the occupant thereby enhancing the likelihood of ownership (Barkham and Park, 2011).

The other variables considered in the model comprising of proximity to skilled or general labour, security, standby generator, fibre network availability and 24-hour access, though ranked as most important locational and physical attributes by the respondents using the RII technique, were not statistically significant in the lease or own decision of industrial firms based on the available data.

Figure 4.3 below depicts a proper U-shape which indicates that the predictions have been well differentiated except for a few predictions. There were a few misclassified classes as shown in the figure 4.3 below. The number of combinations on the left represent the false positive rate which measures percentage of observations wrongly classified as owning in relation to all of those classified as owner-occupiers.

Based on figure 4.3, there were 4 false positive predictions classified incorrectly as owner-occupiers. Similarly, there were 4 false negative classifications implying that 4 respondents who were leasing were incorrectly classified as owner-occupiers.

Figure 4.3 Observed Groups and Predicted Probabilities



4.7. Conclusion

The study analysed 43 completed and returned questionnaires from a total of 52 organizations who participated in the survey. The questionnaires were major source of primary data used in this study for investigating the strategic non-financial determinants of leasing or owning decision of industrial CRE organizations in Johannesburg and Ekurhuleni. The data collected was processed and analysed to establish patterns, concepts, themes and meanings. Descriptive and inferential statistical techniques were used to interrogate participants' response to the study questions.

Logistics regression was used to interpret the data and define the relationship between the dichotomous or binary (lease/own) dependent variable and several predictor independent variables that were considered to influence the

lease or own decision-making process. The success and validity of the logistic regression model was assessed and demonstrably supported by significance tests of the overall model, significance test of individual predictors, descriptive and inferential goodness-of-fit indices and validations of predicted probabilities. The logistics regression model was found to be robust implying a well-fitting model with no misspecification in the predictive capability of the model to the data.

More respondents in Johannesburg leased their premises. In contrast, the majority of respondents in Ekurhuleni owned their premises. Slightly over two-thirds of the respondents were classified as small and medium-sized organizations employing fewer than 500 employees and having an annual revenue of between R10 million and R250 million.

According to Relative Importance Index (RII), three most important locational aspects as ranked by the respondents were access to airport, public transportation and major freeways, proximity to source of skilled labour and proximity to source of general labour. The top three most important physical attributes when deciding to lease or own were security, availability of back-up standby generator set and availability of fibre network.

The response from the data collected indicated a strong preference for firms to own their industrial premises as five of the respondents who currently lease their premises would rather prefer to own.

Based on the data available and for all companies in the sample, the logistic regression model demonstrated that the municipality, proximity to key clients/customers and proximity to key suppliers of raw materials were positively correlated to the probability of owning industrial CRE in Johannesburg and Ekurhuleni. The rest of the predictors were not statistically significant according to the available data.

With reference to the study hypothesis posed earlier – “locational attributes, site-specific characteristics and company-specific characteristics are strategic non-financial determinants that do not influence the lease or own decision of industrial corporate real estate in Johannesburg and Ekurhuleni” – the logistics regression results supported the alternate research proposition that some of the independent variables had a correlation with the dependent variables.

5. Conclusions and Recommendations

5.1. Introduction

The aim of this research study was to examine non-financial determinants of leasing versus owning CRE in Johannesburg and Ekurhuleni, and main reasons that influence the leasing versus owning decision-making of industrial corporate real estate sector organizations in Johannesburg and Ekurhuleni. The study was motivated by the existing gap in knowledge and referenced research regarding how corporate real estate decisions are made for all asset classes in general and specifically in the industrial real estate property sector in Johannesburg and Ekurhuleni.

This chapter concludes the study by highlighting summary of the findings, then appraising implications of the findings, and finally presenting recommendations and suggestions for further areas of research.

5.2. Summary of Findings

Company Specific Characteristics

Slightly over two-thirds of the respondents (67.5%) were small and medium-sized organizations employing less than 500 employees and presumably operated within the confines of Gauteng Province while offering niche products.

Most of the firms (76.7%) did not have a corporate real estate division within their organizations indicating the infancy in adopting corporate real estate for strategic corporate asset management.

Significance of Locational Aspects

The significance of locational aspects aims to explore some key drivers influencing the locational decision of investors and tenants operating in

industrial real estate sector. It is essential for industrial warehousing and logistic distribution companies to find the correct location for their businesses and pay attention to the advantages of certain locational areas.

The top three most important locational aspects when deciding to lease or own as ranked by RII technique in order of importance were access to airport, public transportation and major freeways, proximity to source of skilled labour and proximity to source of general labour.

The three least important locational aspects when deciding to lease or own as ranked by RII technique in the order of least importance were proximity to high quality residential neighbourhoods, prestigious location and business support services.

Owner-occupier organizations, when considering locational aspects, demonstrated higher preference for proximity to source of skilled labour, proximity to source of general labour and proximity to key suppliers/raw materials. Organizations leasing their premises placed greater priority on access to airport, public transportation and major freeways, and proximity to key clients/customers.

Significance of Physical Attributes

The importance of physical attributes seeks to explore some key drivers influencing the desired amenities for the premises. The top three most important physical attributes when deciding to lease or own as ranked by RII technique in order of importance were security, back-up standby generator set and fibre network availability.

The three least important physical attributes when deciding to lease or own as ranked by RII technique in order of least importance were multi-tenanted sites, refrigeration or air conditioning requirements and the exterior appearance of building.

Both owner-occupier and leasing organizations significantly prioritized security, availability of back-up standby generator set, fibre network connectivity, and 24-hour access when considering the lease or own decision of their operational sites.

Owner-occupier organizations, when considering physical amenities, expressed higher priority for expansive site yards with space for future expansion, large turning circles for tracks to park and manoeuvre, enough warehouse headroom for trucks to dock, user space flexibility, user recognition and exterior appearance of building. Organizations leasing their premises disclosed higher preference for refrigeration or air conditioning requirements and multi-tenanted sites.

Strategic Non-Financial Determinants Influencing the Lease or Own Decisions

With a binary dependent variable based on tenure status represented by a dummy variable that equals one if the property is owned and zero if the firm is leasing, logistic regression analysis was used to explore the data and describe correlation between dependent binary variable and independent variables. The outcomes of this study addressed the research aim and objectives and identified the significant non-financial determinants that influence leasing versus owning decisions of CRE firms that operate within the Johannesburg and Ekurhuleni industrial property sector.

The empirical evidence inferred from the analysis indicates that, for all respondents in the sample, the municipality, proximity to key clients/customers and proximity to key suppliers/raw materials were statistically significant in determining the lease or own decision of industrial CRE sector organizations in Johannesburg and Ekurhuleni. The rest of the predictors were not statistically significant according to the available data.

The other variables considered in the model comprising of proximity to source of skilled or general labour, security, standby generator, fibre network availability and 24-hour access, though ranked as most important locational aspects and physical attributes by the respondents using the RII technique, were not statistically significant in the lease or own decision of industrial firms based on the available data.

The results from the study by Barkham and Park (2011) showed significance for locational characteristics, operational size of the firm, and physical features of CRE assets. Site location, proximity to key purchasers (customers), proximity to source of skilled labour, prominent visibility, size of operational site and site security were significant variables increasing the probability of ownership. Proximity to key suppliers of raw materials, proximity to source of general labour, accessibility to public transport networks and multi-tenanted sites were statistically insignificant and were observed not to influence leasing versus owning decision for CRE in United Kingdom.

The logistic regression results supported the alternate research hypothesis that locational attributes, site-specific characteristics and company-specific characteristics are important non-financial determinants in the leasing or owning decision of industrial corporate real estate in Johannesburg.

5.3. Implications of Findings

Company Specific Characteristics

In analysing the ownership tenure regarding location of premises, the prevalence of leasing was notable in Johannesburg which may be ascribed to the increasing demand for large warehousing space. On the Contrary, most firms in Ekurhuleni owned their premises which reflects its dominance as a manufacturing hub (City of Ekurhuleni Development Guide, 2010).

Large firms with over 500 employees within the entire organization most likely have a national presence and operate in diverse geographical regions with several regional offices, including several manufacturing, production and retail sites.

Significance of Locational Aspects

Easy access to public transportation and major highways eases the flow of raw materials to the premises and the distribution of goods and services to clients and customers. Availability of skilled and general labour provides strategic advantages to the companies which would enhance the chance of ownership (Barkham and Park, 2011).

Significance of Physical Attributes

Higher security requirements would influence the leasing versus owning decision for industrial organizations with the likelihood of ownership increasing with higher investment in security outlay and control. The availability of a standby power generating unit ensures business continuity and mitigates the loss of revenue that could be occasioned due to load shedding. With e-commerce and technological developments continuing to impact on consumers' needs, the availability of a reliable, fast fibre network system ensures that the operational activities of the business are not disrupted, and customers experience consistent, high levels of service and convenience.

Multi-tenanted sites infer the presence of small operational firms which decreases the probability of ownership (Barkham and Park, 2011). It is common design practice to provide air conditioning for office facilities located within warehousing premises whereas the requirement for refrigeration is dependent on the product. However, the respondents were not required to distinguish between general air conditioning services and refrigeration requirements.

5.4. Contribution to Knowledge

Due to sluggish economic conditions, rising building costs and increased cost of proclaimed industrial land, South African property stockholders and real estate developers are realising importance of their real estate asset portfolios. Future developments will also have to compromise on location, accessibility to highways, costs of purchasing land for development and maintenance-related costs due to scarcity of prime land available with excellent access and frontage (Broll Logistics Report, 2018).

The location of large warehousing facilities among distribution and logistics companies is a big factor in the industrial sector. It is therefore imperative for such firms to identify the correct location for their business and carefully consider the advantages of certain areas. Hopefully, the research findings on factors influencing the lease versus own decision will assist firms to align their corporate real estate acquisition decisions with their strategic business goals.

For developers and investors, this research highlights the site-specific characteristics that industrial sector organizations consider when making corporate industrial real estate acquisition decisions. It is essential to establish which strategic non-financial factors potential tenants take cognizance of when making choices regarding options on whether to lease or own their corporate real estate. An understanding and recognition of these strategic non-financial factors will incentivise real estate property stockholders and property developers to undertake the development of commercial industrial real estate and for property investment companies to finance these industrial developments. The research findings on factors motivating the lease versus own decision should guide developers to construct specific, workable commercial industrial real estate projects in locations and with amenities that are attractive to organizations that operate within the industrial sector.

5.5. Recommendations

Existing literature on CRE acknowledge that while fundamental determinants of leasing versus owning decision-making process for CRE may be financial, influential factors in the decision-making process are equally dominated by non-financial reasons.

This study contributes to the limited research literature that already exists on CRE management in South Africa. It specifically addressed existing gap in knowledge and referenced research regarding the strategic non-financial determinants of leasing versus owning CRE in Johannesburg and Ekurhuleni.

Based on the research results, it can be concluded that the decisions on leasing or owning industrial CRE in Johannesburg and Ekurhuleni are also driven by strategic non-financial considerations, specifically, the locational characteristics of municipality, proximity to key clients/customers and proximity to key suppliers of raw materials. Other variables considered though statistically insignificant based on the data available are proximity to source of skilled or general labour, security, standby generator set and fibre network availability.

It is recommended for industrial corporate real estate organizations to find the correct location for their businesses and pay attention to advantages of certain locational areas especially with regard to the municipal region.

As a central enabler for realising and creating an environment where businesses want to invest, municipalities need to focus investment in social and economic infrastructure to include but not limited to mass transit systems, rollout of housing opportunities, reliable supply of bulk utilities and services, improved levels of security, and smart city ecosystems.

Considering that industrial corporate real estate sector organizations decisions to lease or buy are influenced by locations and amenities that are attractive to

organizations that operate within the industrial sector, developers and investors need to take cognizance of site-specific characteristics and physical attributes that are prioritized by industrial sector organizations. An understanding and recognition of these strategic non-financial factors will incentivise real estate property stockholders and property developers to undertake the development of commercial industrial real estate and for property investment companies to finance these industrial developments

This study was limited to cross tabulation only; the variables tabulated were not analysed to test whether there were any statistically significant interactions. There is need to explore and statistically analysis the survey data to determine the correlation between the dichotomous or binary (tenure status - lease/own) dependent variable and the independent variables to enable scrutiny of relationships within the data and assist in identifying trends to compare how respondents answered certain questions.

5.6. Limitations

Limitations of this study based on the scope and design were:

- The restriction of the study area to two municipalities within Gauteng Province which may have caused a sample selection bias. Hence, the findings of the study may not be pertinent to the rest of South Africa industrial real estate property sector.
- The willingness of individuals to respond to the questionnaire, to respond timeously, and to respond honestly and accurately to eliminate representativeness bias.

To minimise the limitations imposed on the study and ensure validity of the research and reliability of the survey, the questionnaire was developed and adapted from previous research undertaken on the subject area and ambiguities in the questions were addressed and cleared.

5.7. Further Research

This study demonstrated and highlighted the importance of three specific non-financial determinants in leasing versus owning decisions for CRE and lays the foundation for further research, particularly in South African. However, to reach a better understanding of the leasing or owning dynamics, further studies based on a larger geographical area needs to be undertaken to determine the correlation and relative significance of important financial and non-financial factors that influence the leasing or owning decisions of industrial corporate real estate within South Africa.

Certain areas have been identified for conducting further research on leasing versus owning dynamics of CRE. These areas of further research are:

- Evaluating whether advantages and benefits of leasing are country specific.
- Exploring the benefits of leasing based on market values, and types of real estates and their locations.
- Identifying any generalizations for reasons of investing and owning CRE properties by non-real estate corporations.
- Uncovering complexities of corporate real estate investment decision-making process.
- Understanding impacts that personal traits such as age, education status, gender and marital status of entrepreneurs have on availability and use of leasing.

According to Eichholtz et al. (2010), investment in ‘Green’ buildings is gaining popularity because firms may be willing to pay rental premiums in comparison to conventional buildings. This demand is also becoming a trend within the industrial real estate sector. Broll Logistics Report (2018) asserts that the design of warehouses and distribution centres change as the logistics industry

evolves. Efficiency benefits, sustainability and potential cost-saving measures related to lighting costs, building insulation, water conservancy, rainwater harvesting, and solar power supply are increasingly becoming priorities for an increased green footprint. Future studies should therefore attempt to examine the influence of 'green' buildings on leasing versus owning decisions of industrial corporate real estate.

5.8. Concluding Remarks

This study strongly suggests that strategic non-financial considerations influence the decisions on leasing or owning industrial CRE in Johannesburg and Ekurhuleni. Based on the data collected and the empirical evidence inferred from the data analysed, the following conclusions may be drawn;

- Company specific characteristics related to sector of activities tend to influence the lease versus own decision-making process. Manufacturing firms have a prevalence towards owning their premises while firms in the sales and services sector prefer to lease their premises.
- Locational characteristics prioritised as key drivers influencing the decision of industrial real estate sector organizations to lease or own their premises are access to major infrastructure networks, proximity to source of skilled labour and proximity to source of general labour.
- Physical attributes influencing the desired amenities for the premises when deciding to lease or own are security, back-up standby generator set and fibre-network connectivity.

The findings of this study has some similarities with some of the previous studies conducted in other countries where site location, proximity to key clients/customers, proximity to source of skilled labour, size of operational site and site security were significant variables influencing leasing versus owning decision for CRE. In addition, some context-specific variables including availability of back-up standby generator set and fibre network connectivity

were ranked as important physical amenities for industrial premises. The significance of these two variables are driven by the energy crisis currently being experienced in South Africa with frequent occurrences of load shedding and the phenomenal, global growth of e-commerce. Accordingly, locational attributes, site-specific characteristics and company-specific characteristics are important non-financial determinants influencing the leasing and owning decision of industrial premises.

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Appendix A: Survey Questionnaire

Start of Block: Default Question Block

Q1 What sector of activities does the company operate in?

- Manufacturing
- Sales and Service
- Research and Development
- Other (Please Specify) _____

Q2 In which municipality are your offices located in?

- Johannesburg
- Ekurhuleni

Q3 How many years has the company occupied the current premises?

- Less than 1 year
- 2 - 5 years
- 5 - 10 years
- > 10 years

Q4 What is the number of employees on your site?

- ○ Under 50
- ○ 50 - 100
- ○ 101 - 200
- ○ 201 - 500
- ○ 501 - 1 000
- ○ 1 000 - 2 500
- ○ > 2 500

Q5 How many employees work for the entire company?

- ○ Under 100
- ○ 100 - 500
- ○ 501 - 1000
- ○ 1 001 to 2 500
- ○ 2 501 to 5 000
- ○ 5 001 - 10 000
- ○ > 10 000

Q6 What is the company's annual turnover in the last financial year?

- ○ Under R1 000 000
- ○ R1 000 000 - R2 000 000
- ○ R2 000 001 - R5 000 000
- ○ R5 000 001 to R10 000 000
- ○ R10 000 001 - R50 000 000
- ○ R50 000 001 - R100 000 000
- ○ R100 000 001 - R250 000 000
- ○ R250 000 001 - R500 000 000
- ○ > R500 000 000

Q7 Does the company have a corporate real estate department?

- ○ Yes
- ○ No

Q8 Does the company have an internal in-house maintenance/corporate real estate function, or do you outsource this function?

- ○ Internal
- ○ Outsource

Q9 Does the company lease or own the premises?

- ○ Lease
- ○ Own

Q10 What is your position in the company?

- ○ Senior Management
- ○ Middle Management
- ○ Junior Management
- ○ Other (Please Specify) _____

Q11 When deciding to lease or own your corporate real estate, how would you rate the significance of the following locational aspects on a scale of 0 - 4, where 0 being that the factor is not applicable to your company: 1 being the least important and 4 as the most important.

	0 (Not Applicable)	1 (Not Important)	2 (Fairly Important)	3 (Important)	4 (Very Important)
Business support services (banking, restaurants, retail, etc) (1)	○	○	○	○	○
Proximity to high quality residential neighbourhoods (2)	○	○	○	○	○
Proximity to key clients/customers (3)	○	○	○	○	○
Proximity to key suppliers/raw materials (4)	○	○	○	○	○
Proximity to source of skilled labour (5)	○	○	○	○	○
Proximity to source of general labour (6)	○	○	○	○	○
Access to airport, public transportation and major freeways (7)	○	○	○	○	○
Prestigious location of site (8)	○	○	○	○	○
Prominent visibility (9)	○	○	○	○	○

Q12 When deciding to lease or own your corporate real estate, how would you rate the significance of the following physical attributes on a scale of 0 - 4, where 0 being that the factor is not applicable to your company: 1 being the least important and 4 as the most important

	0 (Not Applicable)	1 (Not Important)	2 (Fairly Important)	3 (Important)	4 (Very Important)
Security (1)	○	○	○	○	○
24-hour access (2)	○	○	○	○	○
Large turning circle for trucks to park and manoueuvre (3)	○	○	○	○	○
Enough warehouse headroom for trucks to dock (4)	○	○	○	○	○
Exterior appearance of building (5)	○	○	○	○	○
User recognition (company branding) (6)	○	○	○	○	○
Multi-tenanted site (7)	○	○	○	○	○
Flexibility of use of space (8)	○	○	○	○	○
Space for future expansion (9)	○	○	○	○	○
Back-up standby generator set (10)	○	○	○	○	○

Refrigeration or Air Conditioning Requirements (11)	○	○	○	○	○
Fibre Network (12)	○	○	○	○	○

Q13 What is your ideal preference, if not given the current limitations of choice?

- ○ Lease
- ○ Own

End of Block: Default Question Block

Appendix B: Ethics Clearance Certificate

School of Construction Economics & Management

University of the Witwatersrand, Johannesburg -PO Box 20, Wits 2050, South Africa • Tel: +27 (0)11 717 7652/77669 · Fax: +27 (0)11 717 9729 Email:CEM@wits.ac.za

SCHOOL OF CONSTRUCTION ECONOMICS AND MANAGEMENT RESEARCH ETHICS COMMITTEE

CLEARANCE CERTIFICATE	**PROTOCOL NUMBER** CEM/19/03/PN/MSC
PROJECT TITLE	Corporate real estate decisions on leasing versus owning – a review of non-financial determinants for South African industrial real estate sector organizations in Gauteng Province
INVESTIGATOR	Peter Nandi 1759377
SCHOOL/DEPARTMENT	SCHOOL OF CONSTRUCTION ECONOMICS AND MANAGEMENT
DATE CONSIDERED	24th March 2019
DECISION OF THE COMMITTEE EXPIRY DATE	25th March 2020
DATE	25th March 2019
CHAIRPERSON	Dr. Kola Ijasan
cc: Supervisor:	Dr. Yewande Adewunmi

DECLARATION OF INVESTIGATOR

To be completed in duplicate and **ONE COPY** returned to the Secretary Mrs. M. Sithole at the CEM reception desk.

I fully understand the conditions uncer which I am authorized to carry out the abovementioned research and I guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee. **I agree to completion of a yearly progress report.**



Signature **Date** 27TH MARCH 2019