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Buy versus Rent Decision of Office Space among Public Corporations in Ghana

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Abstract

The primary focus of this study is to assess whether it is more beneficial for public corporations in Ghana to rent or buy office space for their operations. Economic analysis has been carried out in this study to support the decision to either rent or buy office space. The study was carried out through in-depth data mining of all the rented properties of one public corporation in Ghana over the period 2014 to 2019. Based on the information gathered, and drawing inspiration from the NPV investment appraisal technique, the present value of the cost of each of the options was analysed and compared to choose the best option. The paper found among other things that the company's rented space from 2014 to 2019 grew by 68.5% and at the same time rental value increased by over 200%. The present value analysis however reveals that it is more expensive to rent than to buy and this questions why decision makers of this public corporation still increased their rental space over the period. Using a public corporation from Ghana, this paper has extended the discussion on the lease versus buy decision by actually assessing the option that adds more value to the shareholders' wealth instead of just examining the determinants of the lease versus buy decision. A study of this nature in the context of Ghana is notably non-existent.

Keywords: *Rent (lease), buy, office space, Ghana, present value*

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1. Introduction

Corporate real estate (CRE) supports a company's business functions and represents the user's needs (CoreNet Global, 2015). The selection of space for a company's business is very important but the processes involved are complex (Rothe et al., 2015; Gibler and Lindholm, 2012). One of the decisions to make in this process is whether to lease (rent) or buy the space. Buying and renting are both means of satisfying one's office spatial needs. While buying confers exclusive ownership rights over a determined period, renting gives the right to occupy developed property over a specified period. Literature on whether to rent or buy is longstanding yet inconclusive. While studies including Crowley and Li (2016), and Baum and Wulff (2003) have strongly rated buying over renting, others such as Di, Belsky and Liu (2007) found evidence in favour of renting.

The ability to exercise exclusive ownership rights over any parcel of real property is historically considered to confer high social status in society (Abdulai and Owusu-Ansah, 2014). This ideal trend has been handed down from generation to generation. Ownership rights are believed to confer an incorporeal sense of pride and prestige (Heikkila, 2000). It is well established that ownership of property provides tenurial security coupled with the ability to renovate, and also has pecuniary benefits in the form of increased wealth, a hedge against future rent increases and the ability to leverage (Abdulai and Owusu-Ansah, 2014). This school of thought considers renting as an inferior choice with mantras such as 'rent money is dead money' and 'stop paying off someone else's mortgage'.

Renting a property on the other hand provides an opportunity for portfolio diversification. It allows prospective buyers to invest the avoided one-off costs of buying and other incidental outgoing into other assets. In order words, renters argued that ownership ties a large portion of wealth in one asset whereas renters can hold a more diversified portfolio and better manage inherent risks.

When deciding whether to lease or buy properties for the use of a company, the CRE team should be able to understand clearly the strategic and financial requirements of the organisation in the acquisition process (Zhao and Sing, 2016). A lot of factors need to be considered when deciding to either rent or buy. These factors may include the economic, legal and environmental factors, the costs associated with property acquisition, market trends and the timeframe within which the property is needed (Tajani et al., 2020).

To ensure efficiency and customer satisfaction, the case study public corporation has put in its strategic plan to increase its spatial need. One of the main strategies to meet this spatial need was to create modern office infrastructure to meet its mission statement. The alternative means was to rent office space in situations where the company was unable to build a new office building. The company has consistently made critical investments to acquire office spaces across designated districts. While some of these offices were rented, others were wholly owned. However, it is unclear whether owning an office complex is superior to renting from an economic perspective.

Several studies have been conducted on the subject of lease (rent) versus buy decisions (Beracha and Johnson, 2012; Beracha et al., 2012; Brown et al., 2011; Fox and Tulip, 2014; Hill and Syed, 2012). However, most of these studies have been limited to the countries of the Global North including Australia, the United Kingdom and the Americas. Most of these studies have also been limited to the determinants of leasing and have identified factors such as the nature of the company (whether it is closely held or not), management compensation, tax, the market power of the lessor, the useful life of the asset after the lease, the speciality of the asset, the lessee's bonds covenants, etc as the factors that determine the buy v. lease decision (Duke et al., 2002; Deloof and Verschueren, 2007; Graham et al., 1998; Lasfer and Levis, 1998, Smith and Wakeman, 1985). Despite the identification of these factors in the literature, we support the argument by Morais (2013) that the ultimate decision to lease or to buy must be able to meet the shareholders' goal of maximizing their wealth.

In Ghana and other African countries, studies that have been conducted on corporate real estate are limited to the role that corporate real estate plays in the organisation's corporate strategy (see Boakye-Agyeman et al., 2022; Ntene et al., 2020; Boakye-Agyeman and Bugri, 2019). The decision to buy or rent (lease) is largely left unexplained. The decision as to whether to buy (build) or rent (lease) should be anchored on a reliable and or empirical basis and must have scientific underpinning since it hinges on the prudent allocation of scarce institutional resources. This paper aims to address this gap by examining the best option to acquire office spaces for public institutions in Ghana with this company as the case study. Even though the study is limited to only one public institution in Ghana, the methodology and analysis done in this study can be applied to other public institutions in Ghana and beyond.

The rest of the study is structured as follows. The next section reviews the literature relevant to the study. The resource allocation theory and buying and renting decisions are discussed in the section. Also, the determinants of leasing such as taxes, size of the firm, management compensation, nature of the assets etc are all discussed in this section. In section 3, the research methodology is explained. The penultimate section presents and discusses the empirical results and section 5 concludes and summarises the paper with the policy implications discussed.

2. Literature Review

This section reviews the literature that is relevant to the study. In subsection 2.1, the resource allocation theory is discussed. It continues to discuss leasing and the determinants to lease or buy in subsections 2.2 and 2.3 respectively.

2.1. Resource Allocation

The literature on the processes of allocating resources of an organisation started in the 1960s when researchers sought to identify accurate ways of making investment decisions instead of just the traditional capital budgeting techniques (Maritan and Lee, 2017; Haka, 2006). The allocation of resources in an organisation, whether a private or public organisation, is essential in helping the organisation achieve its goals (Maritan and Lee, 2017). According to Chandler (1962: 13), the business strategy of organisations does not only include the determination of organizational goals but also includes the "allocation of resources necessary for carrying out these goals". The allocation of resources is therefore an important part of an organizational strategic plan and hence the need for a "resource budget" (Ansoff, 1965: 218). Public Sector Agencies (PSAs) require office spaces for further production of goods and services. However, these PSAs are resource-limited and thus unable to keep their balance sheets in a balanced state. Any form of capital required for physical infrastructural engineering is limited, be they debt or equity (short-term or long-term, common stock) or retained earnings, accounts payable or notes payable. Thus, when confronted with resource constraints for office property development, an appropriate scientific decision module is key to aid the selection of a project which is economically acceptable. Simkins (2003) argues that, in cases of contending needs, management must identify needs that will contribute most to profits and, consequently, to the value (or wealth) of the company. Ullah and Sepasgozar (2020) investigated the key post-purchase regret factors of property owners and renters in the USA

since 2010. The authors found that the regret levels of real estate consumers are very high. The consumers identified complicated buy-sell process, lack of accuracy of information, housing costs, house size, mortgages, agents, inspections, and emotional decision-making are key reasons for regret. These factors could serve as relevant warning signs for any investor or space user who needs property space Ullah and Sepasgozar (2020) and can inform one's decision to either buy or rent property space.

Lind and Lundström (2010) summarized the important factors that determine the choice between owning and leasing to include the following: (i) How easy it is for the business to raise capital; (ii) The proficiency in property management, including different access to market information; (iii) How well principal-agent problems in leasing can be handled (iv) The accounting and tax benefits of owning or leasing (v) How good the business is in disposing of assets; (vi) The size of the transactions costs for leasing vs owning

Some of these factors are discussed below.

2.2. Property buying

Property-Buying is a form of tenure where a person, called the owner-occupier owns the property in which they live be they a house, apartment or office property. They are constructed by the owner with the intent to occupy. It confers exclusive proprietary and jurisdiction rights to the owner. The owner is responsible for the payment of any rates and taxes that arise. In this paper, ownership is defined as the right to have exclusive possession over an office property over a defined period. There are two main benefits of ownership namely, an investment and consumption good (Ullah and Sepasgozar, 2020; Hutchison, 1994). On the consumption side ownership is beneficial as it affords utility in the form of shelter and space to function and achieve the organizational objectives. There might be non-financial psychic benefits, such as freedom to renovate and security of tenure. However, these benefits of buying are not considered in this paper.

On the investment side, ownership possesses streams of dividends in terms of equity and capital appreciation (Tajani et al., 2020). Ownership allows for monthly payments to go towards building equity instead of the landlords. More importantly, purchasing a property can also be a solid investment with a high return on investment through property appreciation, value creation (a.k.a "sweat equity") and rental income (Fisher and Brueggeman, 2018). Unless cash purchases are

made, the investment will also be leveraged, magnifying your returns by putting 100% of the property's value to work with only a 10%-20% down payment.

Reed and Greenhalgh (2002) provide the following summary of the benefits of owning a property in general (whether an office or residential) (i) There is eventual debt-free ownership after all loan repayments have been paid, with the property owners acquiring perpetual freehold ownership of the property; (ii) Ability to alter the space in any manner at the discretion of the owner, although meeting the local council's requirements. This can take many forms from painting to extensive renovations, being designed to suit the owner's circumstances and tastes without requiring the consent of others; (iii) Intangible sense of pride in space ownership (Heikkila, 2000); (iv) Hedge against inflation – an investment in property will usually keep abreast of inflation, causing a gradual but regular overall increase in the capital value of the property (Waxman, 2000).

The cost of buying a property includes one-off costs and ongoing costs. The key one-off costs are the cost of land, construction costs or buying and stamp duty. In Ghana, stamp duties are levied by the State and collected and accounted for by the Lands Commission in accordance with the Stamp Duty Act 2005 (Act, 689). Stamp duties are typically progressive taxes at Ad Valeorem. Act 689 imposes 1% on the transfer of property. Other costs are conveyancing fees (and other legal costs) and valuation fees.

Ongoing costs include local government rates, maintenance and building insurance. The Local Government rates are imposed and collected by the respective Metropolitan, Municipal and District Assembly in whose jurisdiction the properties reside in accordance with relevant provisions of the Local Governance Act, 2016 (Act 936). Average rates impost across the greater Accra Metropolitan area approximates 0.036% of properties rateable value. Fox and Tulip (2014) estimate that landlords spend 6.3 per cent of gross annual rental income on repairs and maintenance. Data analysed resulted in 25% of rental value annually. The share of building insurance premiums is based on the value of property prices coupled with its risk profile. The average rate of insurance on similar properties of the company is 0.22% of building cost and the same is adopted.

2.3. Property renting (leasing)

Renting is a contract where payment or consideration is made for the temporary use of a property or space in a property owned by another over a specified period (Fisher and Brueggeman, 2018; Chris and Somefun, 2007). Leases of land emerged as a form of property; leases of personal property were regarded as a special type of bailment in most common law countries (Bridge, 2015). This is split ownership where the landlord maintains legal ownership and the tenant has equitable ownership. The main benefits of renting (leasing) a property include the following (i) Renting entails minimal capital expenditure as rent is paid periodically: on a weekly, fortnightly or monthly basis, and does not require a large monetary commitment such as a deposit to be amassed. It is based on a 'pay as you earn' principle; (ii) Fixed rent over an agreed period offers a degree of certainty and is not subject to fluctuations compared to other expenses, such as interest rate rises, etc; (iii) No entry/exit fees – as opposed to purchasing a property where there is a myriad of fees attached including stamp duty, solicitor's fees, loan application and processing fees, building inspection fees, etc. However, there are no such fees attached to a rental agreement, with the exception of a bond that normally equates to four weeks' rent and is completely refundable at the end of the lease if the premises are maintained in a reasonable state; (iv) There is a higher level of mobility as tenants are free to move out of the property when business objectives change. (v) Certain ongoing expenses are paid by the landlord that would otherwise be the responsibility of a property owner, such as statutory rates, etc; and (vi) No capital maintenance costs are paid by the tenant, as all such costs are borne by the landlord; No possibility of 'negative equity', which commonly occurs after a downturn in the housing market (Lind and Lundstrom, 2010; Hutchison, 1994). In a depressed property market, the tenant remains unaffected and may even benefit if alternative investments are with negatively correlated assets.

2.4. Determinants of renting (leasing) vs buying

Studies such as Tajani et al (2020) have examined limited real estate development in different areas across the world and recommend leasing as an alternative to individuals and firms. Many companies use leases as a means of financing the activities of the firm. The leasing objectives may be different from the buying objectives. Authors such as Grenadier (1996, 1995) believe that leases provide greater flexibility to the lessee because the lease transactions contain such embedded options. The ultimate decision to lease or to buy, however, must be able to meet the shareholders'

goal of maximizing their wealth (Fisher and Brueggeman, 2018; Morais, 2013).

Myers et al. (1976) developed a theoretical lease-buy decision model and concluded that leasing is a substitute for debt financing. Other authors like Yan (2006), Beattie et al. (2000), Lasfer and Levis (1998) have also examined whether leases can be used as an alternative financing source and agreed with the conclusion drawn by Myers et al (1976). For Yan (2006) and Beattie et al. (2000), although there is a substitute effect as suggested by Myers et al. (1976), its magnitude is less than a full trade-off because according to them, some risk sharing occurs between the lessee and the lessor. Yan (2006) noted that companies (i) that do not pay dividends (more asymmetric information), (ii) that have more investment opportunities (higher agency costs from underinvestment) or (iii) with higher marginal tax rates (transferring tax shields is less valuable) are able to substitute more. In examining the relationship between lease and debt for SMEs in Belgium, Deloof et al. (2007) also found results that support the substitution theory.

Even though leases may serve as an alternative for debt financing as demonstrated above, the overall empirical evidence is mixed. Authors like Kang and Long (2001), Adams and Hardwick (1998), Bathala and Mukherjee (1995) and Branson (1995) found leases to be a complement to debt and not a substitute as indicated by other authors. Kang and Long (2001) found that companies with high levels of regular debt also have higher levels of leases. Leases are more frequently used by companies that have financial constraints (Eisfeldt and Rampini, 2008).

The determinants of leasing (both operating and financial) have been well discussed in the literature. The determinants of operating leases have been examined by studies such as Duke et al. (2002), Graham et al. (1998), Sharpe and Nguyen (1995) etc. and studies such as Deloof and Verschuren (2007), Lasfer and Levis (1998) have also examined the determinants of financial leases. In all these, tax motivation has been identified as the main reason for leasing in the literature (see Morais, 2013). The determinants of leases include (2.4.1) the nature of the assets (2.4.2) taxes (2.4.3) ownership structure (2.4.4) industry (2.4.5) management compensation (2.4.6) size and (2.4.7) leverage and financial constraints (Morais, 2013).

2.4.1. The nature of assets

Asset specificity is a great determinant of capital structure (Owusu-Ansah and Abdulai, 2012). In determining the use and intensity of leases also, the nature of assets plays a key role. Graham et

al. (1998) and Sharpe and Nguyen (1995) found that there is a negative relationship between leases and asset specificity. This is the case because fixed assets can be transferred easily and so are readily available on the market. In general, companies tend to lease assets that are less specific and have a more general purpose. It is therefore not surprising that previous studies have found that manufacturing companies' levels of leasing are lower than mining and transportation industries whose assets are not specific to their respective companies (see Krishnan and Moyer, 1994). Gavazza (2010) also found that more liquid assets are more likely to be leased and so concluded that the liquidity of assets affects the lease decision.

2.4.2. Taxes

According to the literature, a company that is not in a fully tax-paying position should buy the asset so that the depreciation of the asset can lead to a lower tax deduction rate as compared to leasing the asset. The reason is that the company in this case can deduct both the interest payment and the depreciation tax shield and so lower its tax payments (Lasfer and Levis, 1998; Graham et al., 1998, Sharpe and Nguyen, 1995). Miller and Upton (1976) demonstrated that unless companies face different tax rates, they do not care about leasing or buying an asset. In examining whether low-tax rate companies lease more than high-tax-rate companies or not, Graham et al. (1998) found that when the tax rate for a company is high, leasing intensity decreases. That is, companies with low tax rates tend to lease more.

2.4.3. Ownership structure

Debt and leases expose the owners of companies to financial risk (Hillier et al., 2020). However, when assets are leased for a period which is shorter than the economic life of the asset, the lessor will bear most of the obsolescence risk. Flath (1980) therefore argues that companies that are more closely held should have more lease contracts. Also, as found by Mehran et al. (1999), companies whose CEOs have larger ownership stakes tend to use more leases so that their obsolescence and other asset-specific risks can be reduced.

2.4.4. Industry

Even though the study by Ang and Peterson (1984) showed the irrelevance of the type of industry in determining whether to lease or to buy, other literature shows that some industries tend to lease more than others. Finucane (1988) for instance showed that companies in industries like retailing

and air transport used more leases than other industries. Among other things, he identified asset specificity, availability of assets as collateral, rate of asset obsolescence, debt capacity and managerial tax rate as the reasons for this. Gosman and Hanson (2000) also concluded that airlines and retail stores use more leases. Service and utilities companies have also been identified to use more leases and companies in the construction industry use fewer leases (Adams and Hardwick, 1998).

2.4.5. Management Compensation

The compensation paid to managers is largely based on accounting measures and as rational managers, they would do anything possible to make sure that the accounting measure target is achieved so that they can maximise their compensation (Hillier et al., 2020). Generally, companies tend to use leases more frequently when the compensation of managers is based on accounting measures (Smith and Wakeman, 1985). The reason is that buying the asset will alter the firm's balance sheet greatly and may affect the other measures to the detriment of the managers' compensation. El-Gazzar (1986) found a positive and significant relationship between management compensation plans and the use of operating leases and concluded that companies who base their compensation plans on accounting measures are more likely to choose operating leases over finance leases or buying. The study by Robicheaux and Fu (2008) showed that companies with more incentive compensation and more outside directors are more likely to use leases in order to reduce agency costs.

2.4.6. Size

Studies that have examined the relationship between the size of a company and the lease-buy decision have produced mixed results. While Adams and Hardwick (1998), Graham et al. (1998) and Sharpe and Nguyen (1995) found a negative relationship between size and leasing, other studies like Deloof and Verschueren (2007) and Lasfer and Levis (1998) showed a positive relationship. Most studies that examine the determinants of leasing include the size of the firm for several reasons as identified by Morais (2013). Among the reasons are that (i) the size of the firm affects the costs of borrowing and obtaining other external funds. Smaller companies' cost of borrowing is generally higher than bigger companies due to asymmetric information issues (Hillier et al., 2020; Graham et al., 1998). Therefore, instead of lending to smaller companies, the lessor may prefer to lease so that the uncertainty surrounding their claims can be reduced. In general, the

intensity of leasing is expected to be higher for smaller companies than it is for larger companies, all other things being equal. (ii) the size of the company is also related to the diversification and how well the company can redeploy assets internally. Generally, larger companies can diversify more than smaller companies and these diversification possibilities help the larger firms to lease more (Mehran et al., 1999). (iii) Some studies have also used total sales as a measure of size. These authors believe that in general, larger firms can generate more sales than smaller firms, all other things being equal. Adams and Hardwick (1998) found that small companies tend to lease more than large companies and that as the company increases in size (sales), the percentage of leasing tends to decline.

2.4.7. Leverage and financial constraints

Leverage is an important variable that is included in most studies that examine the determinants of leasing. Most of the studies have established a positive relationship between leverage and leasing (Eisfeldt and Rampini, 2008; Sharpe and Nguyen, 1995). When a company is highly geared, its debt capacity reduces and so the company is more likely to lease than to buy. As argued by Eisfeldt and Rampini (2008), leases provide creditors with more security and priority when the company goes into bankruptcy. It is therefore seen as an effective way to reduce moral hazard and adverse selection problems. Companies with financial ratios that are closer to the limits of covenants tend to prefer operating leases to financial leases or buying (El-Gazzar et al., 1986).

It is clear from this section that the lease versus buy decision is a complex one and several factors have been identified in the literature as the determinants of this decision. However, since the goal of the firm is to maximise the shareholders' wealth, the decision to lease or buy must also contribute to the shareholders' wealth maximization goal (Hillier et al., 2020).

3. Research Methodology

In this paper, we investigate the rent versus buy decision with one of Ghana's public corporations as the case study. The quantitative research methodology is employed for this analysis. This involves the use of descriptive statistics measures such as the mean, and standard deviation as well as the use of the net present value (NPV) approach to determine whether it is cheaper for the case study company to rent or buy. The public company used for this analysis (named company X) has an office in all the sixteen regional capitals in Ghana and has some offices in different

metropolitan, municipal and district offices. Because the data provided by the company was given on the condition of anonymity and confidentiality, the name of the company and its detailed description are left out in this study. The company has been named X above to make the study real. Even though the company name is left out, the analysis done in this paper is still useful even without the name of the company.

The creation of a conducive office is a top priority in the company's Strategic plan. The move has resulted in increasing operational offices to 217 nationwide. Some of the offices are however rented. Out of the 40 offices the company operates in Greater Accra for instance, 25 of them are rented. The rented space accounts for approximately 15,587 square meters out of a total of space approximately 23,108 square meters. Additional space rented to augment the company's head operation in Accra is approximately 5,500 square meters at an average rental rate of GH¢127 [1]per square meter.

Previous studies have examined the determinants of leasing by employing several econometric models (Yan, 2006; Kang and Long, 2001; Deloof and Verschueren, 2007; Mehran et al., 1999; Adams and Hardwick, 1998; Graham et al., 1998; Lasfer and Levis, 1998; Sharpe and Nguyen, 1995). We argue in this paper that, even though the econometric models to identify the determinants of leasing are important, they do not help to appreciate as to which of the decisions help to contribute to the goal of the firm, which is to maximise the shareholders' wealth. We employ the net present value (NPV), an investment appraisal technique to investigate whether it is beneficial to rent or buy office property for a public corporation head office operation from an economic perspective.

Even though there are other several investment appraisal techniques such as the payback period, internal rate of returns, profitability index, accounting rate of returns etc, the NPV is theoretically superior to the other investment appraisal techniques (Hillier et al., 2020). A lot of studies have also confirmed the empirical superiority of the NPV as compared to the other investment appraisal techniques and hence it's widely applied in practice. In Canada, the work of Bennouna et al. (2010) shows that about 58% of chief financial officers (CFOs) employ the NPV in their decision-making. About 61% of CFOs in Sweden (Daunfeldt and Hartwig, 2014), 74% in Sweden, Norway and

[1] Exchange rate of $1 = GH¢6.04010 as at 31st August 2021

Denmark (Horn et al., 2015), 89% in China (Hermes et al., 2007), 50% in India (Verma et al., 2009), 72% in Latin America (Masquieira et al., 2012), 81% in Brazil (Mendes et al., 2014). Even though the work of Addico et al. (2022) has shown that CFOs in Ghana prefer the payback period to the NPV, obviously because of its simplicity, among all the techniques, it is only the NPV that provides exactly how many managerial decisions on investments adds to the value of the shareholders' wealth which is in line with the firm's goal of maximizing the shareholders' wealth. Therefore, the NPV is used as the main analytical technique in determining whether the company should rent (lease) or buy its office spaces.

We obtained data on monthly rental values and other incidental outgoings from 2014 to 2019 from the Estate Unit of company X. This period of data is employed because we have data consistently available for the period. This data helped to assess the NPV of renting. Also, development cost, estimated annual maintenance cost, service charges and other incidental outgoing were collected to assess the NPV of buying. The Monetary Time Series of the Bank of Ghana also provided data on average inflation, and exchange rate, for the period 2014 to 2019.

Given that the useful life of building purchases could be up to 30 years and even beyond, depending on the condition of the building, we used the historical figures between 2014 and 2019, to project the rental values for the next 30 years. This helped us to calculate the present value (PV) of the future rentals to be paid at an appropriate discount rate. The present value of the cost of buying is also estimated using the development cost, maintenance cost, service charges and other incidental outgoings obtained from the historical information between 2014 and 2019. The decision rule is that buying is a better option than renting if the present value of the cost of buying is less than the present value of the cost of renting a property with the same characteristics and locational details. That is, accept buying if PV (cost of buying) < PV (cost of renting) and vice versa. When the PV of the cost of buying is less than the PV of the cost of renting, it means that the net advantage to leasing (NAL) is negative and so the company should not lease but should rather buy.

Given that company X as a public institution is prohibited from debt financing regimes such as mortgages, we assume that the company would do a 100% outright purchase.

The paper derived the PV of buying by discounting the cost of one-off buying after adjusting for the resale value after the 30 years at an estimated 30-year Eurobond coupon rate of 8.627% plus a

market growth rate of 1.5% and a risk premium of 3%. This resulted in the annualized discount rate of 13.127% and the same was adopted. The one-off cost of buying included the buying cost plus stamp duty fee, brokerage fees, conveyancing and other legal costs. The property after purchase is estimated to appreciate at the average inflationary rate from 2014 to 2019 which is estimated at 14% per annum.

NPV of renting is also estimated by discounting rent payable for comparable property (Buying Scenario). Here net floor area of the comparable property is multiplied by the rental rate per square meter to derive Gross Rent Value (GRV). Similar to the buying scenario, rent payable is estimated to increase concerning the annual depreciation rate of the Cedi against the USD. Average annual rates of 11% from 2014 to 2019 were estimated. The paper adopted the annual rented floor area as a proxy to measure the rate at which the company rented properties from 2014 to 2019.

The data is modelled into an Excel spreadsheet and the decision rule is made with the aid of a what-if analysis tool.

4. Presentation and analysis of results

The main aim of the paper is to assess whether it is appropriate for public corporations in Ghana to buy or rent office space for operations by using company X as a case study. To achieve this aim, this section began by comparing the ratio of ownership to rented offices in regional lines. It proceeded with the presentation and analysis of the sequence of rentals from 2014 to 2019 and concluded by adopting NPV analysis in an Excel spreadsheet to perform the Rent versus Buy decision and finally subjected the result to the decision rule.

4.1 Ownership v Rental Office Spaces

Company X operates in 212 offices throughout the country. Out of the 212 operational offices, 141 (67%) are wholly owned while 71 (33%) are rented. The company like many other public institutions in Ghana is resource-constrained and thus must make acquisition decisions on sound empirical footing.

Figure 1 shows the regional distribution of ownership and rental offices as of the end of 2019. It is important to note that offices are still organized into 10 regions instead of 16 regions to ensure consistency of data. The figure shows that Greater Accra has the highest number of rental

properties (25 properties) followed by Western (9 properties) and Volta Region (6 properties). This implies that the company's expenditure on rental in Greater Accra is relatively high as rental values in Accra, Tema, Kumasi and Takoradi are relatively higher than the other regional capitals in Ghana (Owusu-Ansah and Asante, 2021) and rental offices in Accra are mostly indexed to the United State Dollar. This notwithstanding, it is unclear whether ownership would be more beneficial. Volta Region, on the other hand, recorded the highest number of owned offices (26 properties), followed by Western Region (23 properties) and then Brong-Ahafo Region (19 properties).

In Table 1, the regional expenditure on rent for the year 2019 is presented. The table shows that the company's expenditure on rent amounts to GH¢11,272,213.34 for 2019 and about 86.75% of this is expended on rentals in Greater Accra alone. This is not surprising given that the Greater Accra Region has the highest number of rental properties and rental values in the Region are in general higher than that of the other regions as indicated above.

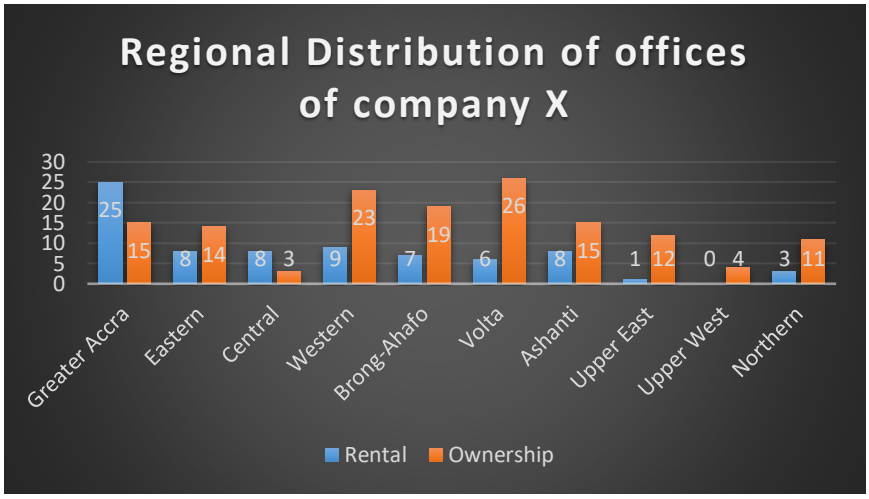

Figure 1: Regional Distribution of Properties

Source: Field Data, (2021)

The data further indicated that, out of the rent expenditure for Accra, the company's head office Extension which occupies approximately 5500 square meters recorded 68% of rent expenditure while the remaining 20 offices recorded 32% of rent expenditure allocated for Accra.

Table 1: Regional Rental Analysis of Company X

Region	Rent Per annum GH¢	Region	Rent Per annum GH¢
Greater Accra	9,779,734	Brong-Ahafo	51,600
Central	403,631	Volta	30,636
Western	396,180	Eastern	378,844
Ashanti	141,588	Upper West	28,800
Northern	61,200		
Total	**Gh¢ 11,272,213.34**		

Source: Field Data, (2021)

4.2 Trend analysis of rental office spaces

Trend analysis of the rate at which the company rented offices in Accra from 2014 to 2019 is carried out and the results are presented in Figure 2. In doing this, the annual floor area rented over the years is plotted and the objective of the trend analysis is to ascertain the rate at which the company rented properties from 2014 to 2019. The figure revealed a consistent increase in rented spaces from 2014 to 2018 and nose-dived in 2019.

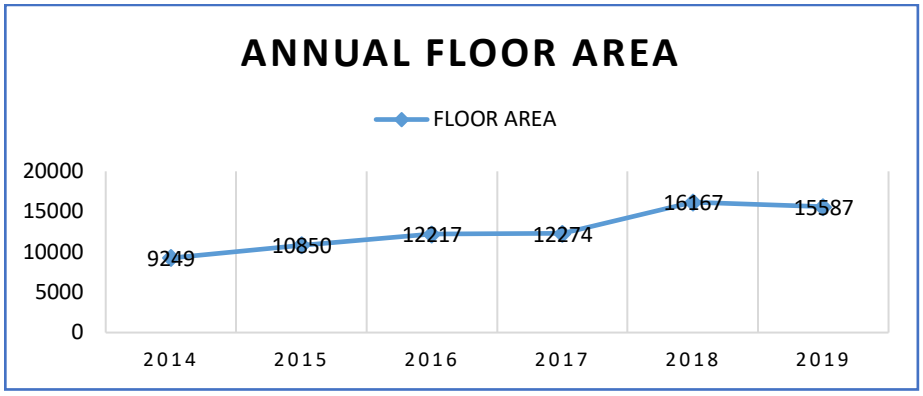

Figure 3: Annual Floor area of company X

Source: Field Data, 2021

Cumulatively, rented spaces stood at 9,249m^2, 10,850m^2, 12,274m^2, 16,167m^2 and 15,587m^2 for the years 2014, 2015, 2016, 2017, 2018 and 2019 respectively. The rented floor area has been on the ascendency every year between 2014 to 2018, rising from 9,249m^2 in 2014 to about 16,167m^2 in 2018. However, there is a little drop in the floor area between 2018 and 2019. It is instructive to note that the Accra head office alone occupies an area of 5,500 square meters which is approximately 35.29% of the total rental space of 15,587 square meters. As of now, we still do not know the factors that management consider in deciding whether to own or rent their even though the literature has identified several of these factors (see Morais, 2013; Gavazza, 2010; Duke et al., 2002). The available data do not lend itself to such studies to be conducted.

We do a trend analysis of rent paid from 2014 to 2019 and the results are presented in Figure 3. It is clear from the figure that the general increase in rent paid over the five-year period has not been uniform. While there has been a gentle rise in annual rent between 2014 to 2017, the period between 2017 and 2018 saw a dramatic increase in annual rental payments. The figure shows that, the cumulative increase in rent from 2014 to 2019 amounts to 272%. This translates to an average increment of approximately 54% annually.

The highest year-on-year rent growth rate of 83% was recorded in 2018 while the least year-on-year recorded growth rate of 5% was experienced in 2017. Further interrogation of the data for the 5% growth revealed that the majority of the rent paid covered a two-year term from 2016 to 2017. It should be noted that the high annual rental growth may be partly due to the depreciating nature

of the Ghana Cedi. Most of the rents are indexed in US dollars but paid in Ghana Cedis. Therefore, anytime the Ghana Cedi depreciates, tenants pay more.

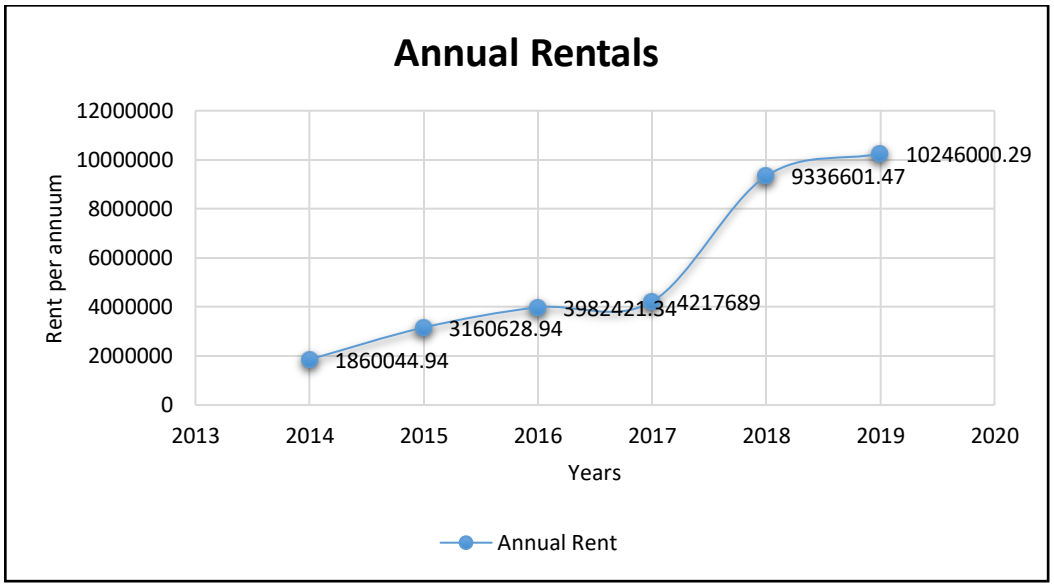

Figure 4: Annual Rental Values of Company X

Source: Field Data, (2019)

4.3 NPV analysis of Rent v Buy decision

Several factors would be considered before the decision to rent or buy (Duke et al., 2002) as already identified in the literature (even though such determinants are not empirically explored in this paper). However, the ultimate decision that will be taken to either buy or rent should be able to maximise the wealth of the shareholders (Hiller et al., 2020) as already discussed in the literature. There is therefore the need to conduct the NPV analysis to satisfy the objective of whether it is better to rent or buy office property for the company's head office operations. The decision rule as stated earlier is that, accept to rent if the PV of the cost of renting is less than the PV of the cost of buying and vice versa (Hiller et al., 2020). Table 2 presents the assumptions made in carrying out the NPV analysis.

Table 2: Assumptions underlying the rent v. buy scenarios

PURCHASING SCENARIO		**RENTING SCENARIO**	
Office Price (GH¢)	38,000,000.00	Gross Rent (GH¢)	7,207,200.00
Interest Rate/Annum	14%	Inflation	14%
Term (years)	30.00	Annual Rent Tax (Commercial)	15%
Annual Property Rate	0.04%		
Annual Maintenance Cost	5%		
Property Appreciation	14%		
Annual Insurance Cost	75,000.00		

Tables 3 to 5 in the appendix present the NPV analysis of buy versus rent decisions. The analysis yielded PV of GH¢141,824,721.30 and GH¢147,108,908.82 for buying and renting respectively over the 30-year period. As already indicated, the PV amount for the rental option is the series of periodic anticipated costs (rent) and the maintenance thereof that the company is expected to meet (pay) over the 30-year period discounted at an appropriate discount rate to the present value. The PV of buying included initial purchase cost and annual maintenance thereof over the 30-year period. The present value of the cost of buying is thus less than the present value of the cost of renting. It should be noted that the resale value after the 30-year period is not factored into the analysis. When that is estimated and factored, then the present value of the cost of buying will be far less than the present value of the cost of renting. It is therefore economically viable for the company to buy their office spaces rather than rent in Accra.

5. Discussion

The allocation of resources in an organisation is essential in helping the organisation achieve its goals (Maritan and Lee, 2017). A lot of factors are considered before organisations decide whether to rent or buy an office space for their operations. As discussed in the literature, factors such as the nature of the asset (Gavazza, 2010; Graham et al., 1998; Sharpe and Nguyen, 1995); taxes (Lasfer and Levis, 1998); ownership structure (Mehran et al., 1999); type of industry and branding required (Gosman and Hanson, 2000); management compensation (Robicheaux and Fu, 2008); size of the firm (Morais, 2013) and leverage and financial constraints (Eisfeldt and Rampini, 2008) are the main determinants of buying versus the leasing.

Due to the nature of real estate for office space, the majority of the factors identified may favour leasing over renting. Real estate as an asset is not specific and may not be necessary for the company to buy it, company X is a large company with branches in all the administrative regions in Ghana so the company may not be able to buy the space for all the offices due to the capital intensive nature of real estate (Wijburg and Waldron, 2020), and hence may prefer renting. The managers, because of their own compensation benefits may prefer renting so that cash can be freed up for other activities for which they will benefit directly. Lastly, due to financial constraints, and the fact that the public company cannot borrow up to the setting limit, renting may be the best alternative (Graham et al., 1998). Among the factors, it is only taxes and branding that favour the buying decision. Larger trends in society suggest that leasing will continue to expand at the expense of ownership (Merrill, 2020). Leasing as already discussed, encompasses the acquisition of assets for limited periods of time, and ownership entails the permanent acquisition of assets. According to Merrill (2020), leasing is an attractive method of financing the acquisition of assets, especially for persons who have limited capital or would like to conserve their capital and cash flows for other purposes. Leasing also helps to minimize the risks that either lessees or lessors will bear for owning assets; although leasing also creates risks, various lease modifications have been developed to manage these derivative risks. By dividing the rights to an asset between lessor and lessee, leasing permits the parties to specialize in different functions and to solve various impediments to contracting that would be difficult to overcome among separate owners. A review analysis by Lind and Lundström (2010) also provided enough evidence to support the argument that the public sector needs to rent instead of own.

Even though most of the factors identified in the literature favour the rent decision, the NPV analysis conducted in this study favours the buying decision. That is, managers should not only consider the qualitative factors but pay attention to the quantitative factors as well. Since the goal of the firm is to maximize the shareholder's wealth (Hiller et al., 2020), the decision by the NPV analysis that buying is a better option than renting cannot be ignored.

6. Conclusion

Even though the determinants of the rent versus buy decision are well documented in the literature, we argue that since the goal of the firm is to maximise the wealth of the shareholders (Hillier et al., 2020), the ultimate decision to rent or buy an office space should be based on the one that helps to contribute positively to the wealth of the shareholders. Therefore, empirical analysis of the cost of renting versus buying should be done before such a decision can be taken rather than only depending on the factors that have been identified in the literature. In this study, we have empirically analysed the rent versus buy decision using data from company X, a public institution in Ghana. The study was carried out through in-depth data mining of all rented properties of this public corporation in Ghana, company X, and the data was modelled via Microsoft Excel. Among other things, the study found that rent paid for offices in Accra alone accounts for 86.75% of total rent expenditure; the company’s head offices extensions occupy a rented floor area of 5500 square meters and account for 68% share of rent expenditure in Accra and rented space has been increasing over the period. The analysis also reveals that the net advantage to leasing (NAL) is negative. That is, managers pay more for leasing than for buying and so it is economically viable for the company to buy office space for its activities in Accra rather than renting.

It is important to note that this analysis was done with the headquarters in Accra as the case study. The option may not hold in office spaces in frontier stations and hinterlands where rental values are very low. However, the methodology and analysis done in this study will form the foundation for further research to be done in these areas to ascertain rent versus buying decisions.

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APPENDIX

Table 3: Present value of the rent scenario

Rent Scenario		
Period (Years)	Gross Rent	Discounted Gross Rent
0		
1	7,207,200.00	6,370,892.89
2	7,999,992.00	6,251,108.14
3	8,879,991.12	6,133,575.57
4	9,856,790.14	6,018,252.84
5	10,941,037.06	5,905,098.38
6	12,144,551.14	5,794,071.45
7	13,480,451.76	5,685,132.02
8	14,963,301.45	5,578,240.87
9	16,609,264.61	5,473,359.47
10	18,436,283.72	5,370,450.03
11	20,464,274.93	5,269,475.49
12	22,715,345.17	5,170,399.46
13	25,214,033.14	5,073,186.24
14	27,987,576.79	4,977,800.81
15	31,066,210.23	4,884,208.81
16	34,483,493.36	4,792,376.51
17	38,276,677.63	4,702,270.84
18	42,487,112.17	4,613,859.32
19	47,160,694.51	4,527,110.10
20	52,348,370.90	4,441,991.93

21	58,106,691.70	4,358,474.14
22	64,498,427.79	4,276,526.65
23	71,593,254.85	4,196,119.91
24	79,468,512.88	4,117,224.98
25	88,210,049.30	4,039,813.42
26	97,913,154.72	3,963,857.35
27	108,683,601.74	3,889,329.38
28	120,638,797.93	3,816,202.69
29	133,909,065.70	3,744,450.91
30	148,639,062.93	3,674,048.21
Present value of rent		**147,108,908.82**

Table 4: Present value of the buy scenario

						Buy Scenario			
(Yrs)	Cost of Buying	Property Rate	Rent Tax @15%	Periodic Maintenance	Insurance	Capital Appr.	Capital Appr.	Net Appr.	NPV (Buy)
0	38,000,000								
1		13,680.00	1,081,080.00	360,360.00	75,000.00	38,000,000.00			
2		15,595.20	1,199,998.80	399,999.60	85,500.00	43,320,000.00	5,320,000.00	3,618,906.40	2,827,774.74
3		17,778.53	1,331,998.67	443,999.56	97,470.00	49,384,800.00	6,064,800.00	4,173,553.25	2,882,751.11
4		20,267.52	1,478,518.52	492,839.51	111,115.80	56,298,672.00	6,913,872.00	4,811,130.65	2,937,528.37
5		23,104.97	1,641,155.56	547,051.85	126,672.01	64,180,486.08	7,881,814.08	5,543,829.68	2,992,116.70
6		26,339.67	1,821,682.67	607,227.56	144,406.09	73,165,754.13	8,985,268.05	6,385,612.06	3,046,526.14
7		30,027.23	2,022,067.76	674,022.59	164,622.95	83,408,959.71	10,243,205.58	7,352,465.05	3,100,766.60
8		34,231.04	2,244,495.22	748,165.07	187,670.16	95,086,214.07	11,677,254.36	8,462,692.87	3,154,847.84
9		39,023.38	2,491,389.69	830,463.23	213,943.98	108,398,284.04	13,312,069.97	9,737,249.68	3,208,779.50
10		44,486.66	2,765,442.56	921,814.19	243,896.14	123,574,043.80	15,175,759.77	11,200,120.23	3,262,571.08
11		50,714.79	3,069,641.24	1,023,213.75	278,041.60	140,874,409.94	17,300,366.13	12,878,754.76	3,316,231.96
12		57,814.86	3,407,301.78	1,135,767.26	316,967.42	160,596,827.33	19,722,417.39	14,804,566.08	3,369,771.39
13		65,908.94	3,782,104.97	1,260,701.66	361,342.86	183,080,383.15	22,483,555.83	17,013,497.40	3,423,198.52
14		75,136.19	4,198,136.52	1,399,378.84	411,930.86	208,711,636.79	25,631,253.64	19,546,671.23	3,476,522.34

15		85,655.26	4,659,931.54	1,553,310.51	469,601.18	237,931,265.95	29,219,629.15	22,451,130.67	3,529,751.76
16		97,646.99	5,172,524.00	1,724,174.67	535,345.35	271,241,643.18	33,310,377.23	25,780,686.22	3,582,895.56
17		111,317.57	5,741,501.64	1,913,833.88	610,293.70	309,215,473.22	37,973,830.05	29,596,883.25	3,635,962.41
18		126,902.03	6,373,066.83	2,124,355.61	695,734.81	352,505,639.48	43,290,166.25	33,970,106.97	3,688,960.88
19		144,668.31	7,074,104.18	2,358,034.73	793,137.69	401,856,429.00	49,350,789.53	38,980,844.62	3,741,899.42
20		164,921.88	7,852,255.64	2,617,418.55	904,176.97	458,116,329.06	56,259,900.06	44,721,127.04	3,794,786.39
21		188,010.94	8,716,003.76	2,905,334.59	1,030,761.74	522,252,615.13	64,136,286.07	51,296,175.05	3,847,630.04
22		214,332.47	9,674,764.17	3,224,921.39	1,175,068.38	595,367,981.25	73,115,366.12	58,826,279.70	3,900,438.53
23		244,339.02	10,738,988.23	3,579,662.74	1,339,577.96	678,719,498.62	83,351,517.37	67,448,949.43	3,953,219.90
24		278,546.48	11,920,276.93	3,973,425.64	1,527,118.87	773,740,228.43	95,020,729.81	77,321,361.88	4,005,982.13
25		317,542.99	13,231,507.39	4,410,502.46	1,740,915.51	882,063,860.41	108,323,631.98	88,623,163.62	4,058,733.09
26		361,999.01	14,686,973.21	4,895,657.74	1,984,643.69	1,005,552,800.87	123,488,940.46	101,559,666.82	4,111,480.55
27		412,678.87	16,302,540.26	5,434,180.09	2,262,493.80	1,146,330,192.99	140,777,392.12	116,365,499.10	4,164,232.21
28		470,453.91	18,095,819.69	6,031,939.90	2,579,242.93	1,306,816,420.01	160,486,227.02	133,308,770.59	4,216,995.67
29		536,317.46	20,086,359.86	6,695,453.29	2,940,336.95	1,489,770,718.81	182,954,298.80	152,695,831.26	4,269,778.46
30		611,401.90	22,295,859.44	7,431,953.15	3,351,984.12	1,698,338,619.44	208,567,900.63	174,876,702.03	4,322,588.03
	Present Value of Buy								**141,824,721.30**

Table 5: The net advantage to leasing (NAL) results

DECISION RULE	
Net Present Value (Buy)	141,824,721.30
Net Present Value (Rent)	147,108,908.82
NAL	**-5,284,187.52**