Real Estate Market Development in Ghana: a quantitative approach

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Key words: real estate investment, hedonic models, performance indicators, Ghana

SUMMARY

Real estate markets in Africa are products of different economic regimes with incongruent characteristics that determine their attractiveness to local and international investors. Each market is as a result unique in terms of development and maturity, and rather finds itself in a regional and global competition. This paper seeks to use results from hedonic models for the residential market in Ghana to examine its attractiveness as an investment vehicle. Further analysis using primary macroeconomic factors have also been undertaken to demonstrate its contribution towards national development. Overall, residential total returns measured in local currency (Cedis) from 1992 to 2007 have run at annualised rate of 37.2% per annum; made up of a relatively stable income return averaging 4.6% per annum and highly volatile capital growth at an annualised rate of 32.4% per annum. Measured in US$, annualised total returns have been 14.6% per annum, with capital growth of 7.7% annually and average income return of 6.7% per annum.

GDP growth and interest rates show a positive and negative correlation respectively with total returns. Linkages between the economic variables and nominal rental value growth, however, remain weak. More surprisingly, the expected relationships with economic growth and interest rates appear much stronger, with increased correlation coefficients and stronger statistical significance, if the dollar denominated performance measures are deflated by Ghanaian price inflation.

The results suggest the drivers of dollar denominated residential prices are a complex process in an economy that has been exposed to high domestic inflation and large movements in exchange rates. There is clearly a scope for further research into the market dynamics of residential prices under these conditions. The basis for this research can be improved to determine the balance of domestic versus overseas and expatriate investors in the market.
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1.0 Introduction

The focus of this current research is on the development of formal real estate markets in emerging economies through a detailed case study of Ghana. Formal real estate market refers to residential assets transacted on well-defined contracts that are registered with the state land registration systems. This paper, primarily seeks to achieve three objectives. First, to demonstrate the feasibility of applying quantitative techniques to residential indices to generate investment returns in an emerging real estate market. Second, to show the potential applications of the investment returns to explain performance of residential markets in the country. Third, to analyse the residential market dynamics and show their relationship with key macroeconomic drivers in Ghana.

Ghana is an English speaking country situated on the western coast of Africa, bounded by the Gulf of Guinea to the south, Cote d'Ivoire to the west, Burkina Faso to the north, and Togo to the east. Its population is estimated at 24 million (Ghana Statistical Service, 2010). Urban population accounts for 52% of this figure. Historically, Ghana was the first Sub-Saharan colony to gain independence from Britain on 6 March 1957. The period from 1966 to 1991 saw the country going through political and economic instability; disrupted by a series of military coups. Constitutional reforms in 1992 have however been followed by a period of stable multi-party democratic governance, and sustained economic growth.

On the World Bank’s World Development Indicators, Ghana’s gross national income per capita in 2010 was US$ 1,325 representing a significant 22% significant increase from US$1,085 in 2007. The economy has seen a fairly steady progress in the ten years to 2011. A sustained Gross Domestic Product (GDP) growth has been achieved at an average rate of 6.5% per annum between 2007 and 2010; rising from 6% to 8% per annum. This research is motivated by the view that real estate plays an important role in the development process for countries such as Ghana, and one that has received little attention in the literature on development economics, emerging market finance, or international real estate investment markets. Indeed, real estate markets contribute to economic development in several ways. For instance, the total revenue from stamp duty in Ghana increased by 822% from US$1,321,642 in 2002 to US$12,179,219 in 2011. Indeed, an annual average of US$4,826,312 in stamp duty revenue was generated over the ten-year period (Land Valuation Division, 2012). And as exemplified by the Asian crisis in the late 1990s, incorrectly priced and unstable real estate markets are major risk components for the banking and financial systems (Mera and Renaud, 2000).
Real estate is a source of wealth accumulation as well as a primary factor in national development. A country with a higher saving rate is expected to experience faster growth rate. Singapore, for example, had a 40% saving rate in the period 1960 to 1996 and annual Gross Domestic Product (GDP) growth of between 5% and 6%; compared with Kenya in the same period which had a 15% saving rate and annual GDP growth of just 1% (World Bank, 2008).

Few previous studies have quantitatively analysed real estate performance in Ghana. For example, Antwi (1995 and 2002), Antwi and Omirin (2006), Asabre (1981, 2004 and 2007), Hammond (2006), Anim-Odame et. al. (2009) and Anim-Odame et. al. (2010a and 2010b) have to a limited extent examined the real estate market in the country to establish key market drivers as well as differentiated informal market from formal market.

It is possible to assess real estate performance in relation to other investment vehicles such as equities and Treasury Bills or bonds. The Ghana Stock Exchange (GSE) though characterized as thin and illiquid has been examined quantitatively. Yartey and Adjasi (2007) in appraising the economic importance of stock markets in Africa address the low liquidity of the stock market in Ghana. Broadly, the study suggests African stock exchanges face the challenge of integration and need better technical and institutional development. It finds the GSE in the same position as most stock markets in Africa. The market is small with few listed companies, characterised by low market capitalisation. The base of only 32 listed companies in Ghana contrasts with much higher figures in other African markets in countries such as Egypt (792), Nigeria (207), South Africa (403) and Zimbabwe (79). Nonetheless, market capitalisation in Ghana amounts to 31% of GDP, above the average (27%) for the continent, excluding South Africa and Zimbabwe, though lower than in other emerging economies such as Malaysia where the capitalisation ratio is 161%. Consistent with Yartey (2006), the study also reveals that the stock market in Ghana is a significant source of company capital, financing 12% of total asset growth of listed companies between 1995 and 2002.

In a recent policy-oriented study on African stock markets, Senbet and Otchere (2008) also describe the markets in Africa as thin and illiquid with the exception of South Africa and a few countries in North Africa. The study provides performance measures in local currency to show that the mean annual stock return in Ghana between 1990 and 2006 was 44%, higher than the average (38%) for African stocks. The GSE has also outperformed stock markets in emerging economies outside Africa such as Mexico in Latin America and Malaysia in Asia. The study has the advantage of generating, for the first time, trends of the real estate performance – capital growth, income returns and total returns – and relating these drivers to macroeconomic indicators. It therefore provides a contribution to knowledge on the real estate market development in Ghana. It further offers an understanding of real estate investment in an emerging economy; a clear gap in the literature.
The remainder of this paper is structured as follows. Section 2 discusses the methodology and datasets in details. The results and their analysis are reported and fully discussed in Section 3. The paper ends with a brief concluding remark.

2.0 Methodology and datasets

This paper explores practical applications of the recently created residential performance indices for the real estate market in Ghana (see Anim-Odame et al. 2010b). It also examines the differentials in price determination and performance across the main submarkets of the Accra-Tema conurbation and the dynamics of change in market prices over time against economic and financial indicators. As the national capital, Accra is only 14 kilometres to the west of Tema. Accra is the national capital, whilst Tema is the country’s largest sea port and industrial city.

The hedonically adjusted prices and rents resulting from Anim-Odame et al. (2010b) are combined, with appropriate adjustments for costs, depreciation and the structures of leases to represent the net income yields, capital appreciation and total returns which would be achieved by investors holding a portfolio of rented residential units with evenly distributed start and end dates of the underlying leases. These combinations and adjustments have been done in two steps.

First, spot measures of yields for the aggregate market are constructed for each year by dividing the total money of values of hedonically adjusted rent by hedonically adjusted price across all transactions. A measure of prevailing average market rental values divided by prevailing average prices or capital values estimates the gross reversionary yield. The gross yield is reduced to a net yield by adjusting downward the market rental value for an estimate of landlords’ revenue expenditures. Residential leases in Ghana put the responsibility for routine maintenance and all utilities costs on tenants. This leaves landlords’ outgoings limited to management costs estimated at 7% of annual rental income, property rates which vary with location at up to 1.4% of annual rent, and ground rents at up to 0.3% of annual rent. Total deductions from gross rents have therefore been estimated at 8.7%. No information is available on the prevalence or costs of real estate insurance, which would fall upon landlords. But anecdotal evidence suggests that it is not a common practice for landlords to insure residential units.

The second step is to estimate a typical landlord’s net income stream from the transactions based rental value data. Typical residential leases in Ghana are characterized by three years rent renewal clauses. Tenants have an automatic option to renew lease term on expiration, though at a new level of market rent. An overall market average income return – the income return to a landlord holding an average portfolio – is therefore represented by a notional portfolio of three average units with evenly spread lease start dates. The net income (adjusted for landlords’ costs as explained above) on the portfolio is represented by the evolution of overall market rental value growth and the realization of rental uplifts on each unit at three
years from the start of the lease. Given the very strong demand for housing in Ghana, it is assumed that any voids arising from lease ends or tenant defaults would be immediately filled by a new letting. Dividing the total estimate of net income by the hedonically adjusted price, or market capital value, for each year provides an estimate of the net income component of total returns on residential investments.

To arrive at the capital appreciation component of total returns, it is necessary to adjust the path of market prices calculated for the impacts of depreciation on values. No direct evidence on typical landlords’ capital expenditures on residential investment property in Ghana is available. A number of studies across different countries have estimated depreciation rates for residential real estate in the range of 0.4% to 1.36% per annum (see Leigh, 1980; Malpezzi et al., 1987; Shilling et al., 1991; and Weiss, 1994). To allow for the impact of depreciation a round number in the mid-range of these estimates at 1% is applied. The final total returns on residential investment are therefore calculated as the net rates of income return on capital as described above plus the hedonically adjusted price growth each year less an assumed depreciation rate (or capital injections at a rate necessary to offset depreciation) of 1% per annum.

Time series produced from these models, running from 1992 to 2007, document for the first time trends in capital values, rental values and investment returns for a substantial part of the residential investment market in Ghana.

3.0 Results and analysis
Figure 1 illustrates annual levels of residential investment returns in Ghana for the period 1992 to 2007 achieved in US dollars. Total returns, as expected, are a composition of income return and capital growth. Relatively high total returns were realized in 1996 as well as the three years leading to 2007.

Figure 1: Residential real estate investment returns in US$: 1993 - 2007
Measured in US$, annualised total returns have been 14.6% per annum, with capital growth of 7.7% annually and average income return of 6.7% per annum. Residential income returns in US dollars were indeed fairly stable, with cyclical total returns typical of real estate markets. Volatile and substantial capital growth was largely driven by rental value growth at 9% per annum. Residential investment market in the country recorded significant positive total returns during a greater part of the period studied. Negative returns were however, recorded only in three out of the 15 years period.

Figure 2 demonstrates levels of total returns disaggregated into income returns and capital growth expressed in the local currency (Cedis) for the residential real estate market in Ghana. Returns in local currency were achieved by US dollar conversion of transactions using annual averages of monthly exchange rates from the Bank of Ghana. Similar stable income returns were delivered with substantial and positive total returns over the period. Overall, residential total returns measured in Cedis from 1992 to 2007 have run at annualised rate of 37.2% per annum; made up of a relatively stable income return averaging 4.6% per annum and highly volatile capital growth at an annualised rate of 32.4% per annum.

Figure 2: Residential real estate investment returns in Cedis: 1993 - 2007

In real terms, Cedi denominated returns adjusted for inflation have run at an annualised rate of 11.3% per annum, with capital growth at 7.4% per annum. Across sub-markets, in US$ denomination, annualised returns have been at 14.5% for Upmarket neighbourhoods, 14.3% for Middle Income neighbourhoods and 16.7% in Gated communities. The Emerging Upmarket neighbourhoods have achieved a much higher annual rate of return at 20.6%, while Tema shows a much lower return of 9.7% per annum.
Also, across the sub-markets, differences in long-run returns have been in large part driven by variation in rates of rental value growth. Because yields and income returns have been fairly stable over time, year on year variations in capital growth and total returns in each sub-market have been almost wholly the product of annual variation in rental value growth.

Key economic measures are analysed in local currency (Cedis) to evaluate the overall performance of the residential investment market, and also show variation in that performance across sub-markets, from the perspective of local occupiers and investors. The conversion to Cedis affects only slightly the relative performance across sub-markets.

**Table 1: Investment performance by aggregate and disaggregate markets 1992-2007, Cedis % pa**

<table>
<thead>
<tr>
<th></th>
<th>Aggregate Market</th>
<th>Upmarket</th>
<th>Gated</th>
<th>Emerging upmarket</th>
<th>Middle Income</th>
<th>Tema</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Average Yield %</strong></td>
<td>7.9</td>
<td>8.7</td>
<td>8.9</td>
<td>9.2</td>
<td>5.8</td>
<td>5.5</td>
</tr>
<tr>
<td><strong>Annualised % per year</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rental Growth</td>
<td>33.8</td>
<td>30.5</td>
<td>30.5</td>
<td>36.8</td>
<td>39.0</td>
<td>28.5</td>
</tr>
<tr>
<td>Price Growth</td>
<td>33.4</td>
<td>31.6</td>
<td>31.3</td>
<td>39.4</td>
<td>35.2</td>
<td>29.5</td>
</tr>
<tr>
<td>Income Return</td>
<td>4.6</td>
<td>5.4</td>
<td>5.4</td>
<td>3.3</td>
<td>3.4</td>
<td></td>
</tr>
<tr>
<td>Capital Growth</td>
<td>32.4</td>
<td>30.5</td>
<td>30.3</td>
<td>38.4</td>
<td>34.2</td>
<td>28.5</td>
</tr>
<tr>
<td>Total Return</td>
<td>37.2</td>
<td>36.5</td>
<td>35.9</td>
<td>44.6</td>
<td>37.6</td>
<td>32.2</td>
</tr>
<tr>
<td><strong>Risk</strong></td>
<td>22.9</td>
<td>31.7</td>
<td>27.6</td>
<td>56.2</td>
<td>22.3</td>
<td>35.9</td>
</tr>
</tbody>
</table>

**Risk (Standard deviation of return)**

Table 1 provides a framework to compare residential sub-markets performance in Ghana in comparison with the aggregate market. Measured in Cedis, returns across sub-markets have a rather flatter profile than measured in US$. All sub-markets except Emerging Upmarket fall into a range of returns from 32.2% per annum (Tema) to 37.6% per annum (Middle Income), while the Emerging Upmarket neighbourhoods still show distinctively higher returns (44.6%). The rank ordering of submarkets is also slightly changed, with Middle Income neighbourhoods rising from 4th ranked measured in US$ to 2nd measured in Cedis, changing positions with the Gated neighbourhoods. The conversion to Cedis also narrows the range in returns across locations with widely varying risk, but leaves the Emerging Upmarket showing distinctly higher levels of both return and risk.

Beyond the Ghanaian market, this current research suggests the application of real estate indices constructed from data held by state land registration and taxation institution is
important for the development of real estate markets in Africa. It is therefore possible to replicate this process in other African countries to generate other performance benchmarks where there are similar systems of land administration and management. The success of this process is however, subject to the accessibility of credible transaction data than can be collated and verified.

A preliminary investigation of linkages between aggregate performance and key economic variables has been undertaken. When analysed in Cedis, these linkages at first sight appear perverse, showing negative correlations with growth in GDP and positive correlations with rates of interest. In case of Ghana, the expected relationship is clearly complicated by the standard practice of quoting real estate investment prices and rents in US$, payable in Cedis. Both rental value growth and total return, measured in nominal or real Cedis, show a high and statistically significant negative correlation with the rate of depreciation in the Cedi:US$ exchange rate. Residential market returns expressed in US$, therefore, show the expected positive relationship with GDP growth and negative relationship with interest rates, though the effects are much weaker and statistically insignificant on rental values.

GDP growth and interest rates show a positive and negative correlation respectively with total returns. Linkages between the economic variables and nominal rental value growth, however, remain weak. More surprisingly, the expected relationships with economic growth and interest rates appear much stronger, with increased correlation coefficients and stronger statistical significance, if the dollar denominated performance measures are deflated by Ghanaian price inflation.

The results suggest the drivers of dollar denominated residential prices are a complex process in an economy that has been exposed to high domestic inflation and large movements in exchange rates. There is clearly a scope for further research into the market dynamics of residential prices under these conditions. The basis for this research can be improved to determine the balance of domestic versus overseas and expatriate investors in the market. Figure 3 below presents yields for residential real estate, equities and Treasury Bills as well as residential income returns from 1992 to 2007. Treasury Bills or T Bills are promissory notes issued by the Bank of Ghana on short term basis, usually 91 days. Treasury Bills returns are the redemption yields on these instruments averaged over four quarters each year, as published by the Bank of Ghana.
Stock market dividend yields were high from 1992 to 1997, when yields ran at up to 13%. From 1998 to 2002, with a decline in the rate of inflation, yields settled at lower, more stable, rates between 6% and 7%. The last four years have seen a sharp dip in dividend yields, falling to 2% by the end of 2007. Over the period 1992 to 2007 dividend yields averaged at 6%.

Yields on Ghanaian Treasury Bills have also reflected the downtrend in the rate of inflation, falling from a peak of 43% in 1997 to 10% in 2006 and 2007. At these levels, T Bills yields are in line with prevailing rates of inflation.

Residential yields show a different trend over time from those on other assets, remaining relatively flat despite the change in the rate of inflation. The reversionary residential yields were close to or below equities dividend yields up to 1997, but have run well above equities yields for the last five years. Residential yield measure is elevated by the high level of reversions produced by high rates of nominal rental value growth, especially in the 1990s. Residential income returns therefore provide a more appropriate comparison with equity dividend and T Bills yields. Rates of income return were well below equity dividend yields up to 2002, but by end-2007 had risen to 3.8% points above equities, the largest margin in the history of the series.
The differentials in yield suggest that residential real estate is perceived by investors as a hedge against inflation. Thus, under high rates of inflation in the early 1990s residential real estate income return ran below T Bills yields on the assumption that rental uplifts accrued from previous rental growth (as indicated by the reversionary yield) would be realized and rental values would rise with future inflation. While this would reflect perceptions of residential values relative to inflation common in many countries, it is more surprising that the yield comparison suggests residential real estate is seen as offering better inflation protection than Ghanaian equities.

Major influences on the overall investment performance will, therefore, work primarily through impacts on rental value growth which is the primary driver of total returns. Table 2 below, accordingly, shows contemporaneous correlations between annual rates of rental growth and total returns, in both real and nominal terms, and a basic set of economic indicators.

Again, the results are at first sight counter-intuitive. Both rental value growth and total returns show negative correlations with GDP growth and growth in GDP per capita, in both nominal and real terms. All coefficients except that between GDP growth rates and real returns are significant at the 10% level or better. Both measures of real estate performance show a positive correlation with interest rates indicated by the rate of interest on construction loans or the yield on Treasury Bills, though only the relationships with nominal rental value growth are strongly significant. Standard residential price models would normally show positive relationships with real incomes (proxied in this case by the GDP variables) and a negative relationship with interest rates (Pasha and Butts, 1996).

<table>
<thead>
<tr>
<th>Correlation with Rental Value Growth</th>
<th>P Values of Correlation Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nominal</td>
</tr>
<tr>
<td>Real GDP Growth % pa</td>
<td>0.11</td>
</tr>
<tr>
<td>Real GDP per Capita Growth % pa</td>
<td>0.09</td>
</tr>
<tr>
<td>Inflation Rate % pa</td>
<td>-0.10</td>
</tr>
<tr>
<td>Interest Rate for Construction (%)</td>
<td>0.03</td>
</tr>
<tr>
<td>Yield on Treasury Bills (%)</td>
<td>0.12</td>
</tr>
<tr>
<td>Cedi:US$ Depreciation %</td>
<td>0.39</td>
</tr>
</tbody>
</table>

Correlation with Total Return

<table>
<thead>
<tr>
<th>P Values of Correlation Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal</td>
</tr>
<tr>
<td>Real GDP Growth % pa</td>
</tr>
<tr>
<td>Real GDP per Capita Growth % pa</td>
</tr>
<tr>
<td>Inflation Rate % pa</td>
</tr>
<tr>
<td>Interest Rate for Construction (%)</td>
</tr>
<tr>
<td>Yield on 91-Day Treasury Bills (%)</td>
</tr>
<tr>
<td>Cedi:US$ Depreciation %</td>
</tr>
</tbody>
</table>

The rate of inflation is positively correlated with nominal rental value growth and total return, but weakly correlated with real rental value growth and total return. This would be consistent with residential investment acting as a weak inflation hedge in the short term – protecting returns against only part of any rise in short-term inflation – but none of the coefficients are statistically significant.

By far the strongest linkage demonstrated in Table 2 is large negative correlations between residential performance and movements in the Cedi:US$ exchange rate, which take broadly comparable values and are strongly statistically significant for rental values and total returns in both nominal and real terms. In other words, depreciation in the value of the Cedi tends to be associated with rises in rental values and returns. The linkage was strongly evident in
2000, when the Cedi depreciated by 106% against the dollar (its heaviest fall in the fifteen years) and the rate of inflation doubled.

4.0 Conclusion

The composition of residential total returns measured in local currency is characterized by a relatively stable income return and highly volatile capital growth. Measured in US$, annualised total returns have achieved a capital growth of 1% premium over the 6.7% per annum income return. The standard practice of quoting real estate investment prices and rents in US$ but payable in Cedis clearly complicates the market performance analysis.

The results on the whole imply that the residential investment market in the country is dominated by both occupiers and investors who generally price the market in terms of dollars in a country where goods and services are generally paid for in Cedis.

Drivers of dollar denominated residential prices are a multifaceted process in an economy that is exposed to a high domestic inflation coupled with large movements in exchange rates. Given these conditions, the paper argues there is clearly a scope for further research into the residential investment market dynamics in Ghana. An improvement of the basis for this research may possibly offer the opportunity to determine the balance of domestic versus overseas and expatriate investors in the market.

References


BIOGRAPHICAL NOTES

Dr Wilfred K. Anim-Odame, the Acting Chief Executive Officer of the Lands Commission, Ghana is a Fellow of the Ghana Institution of Surveyors. He is the immediate past Director of the Land Valuation Division, Ghana and a scholar of the prestigious Cass Business School, City University, London. Dr Anim-Odame is also a Fellow of the Commonwealth Secretariat. His research areas include emerging real estate markets analysis, real estate performance measurements, investment analysis and real estate valuation.

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