



Investment Appraisal: A Veritable Tool for Decision Making in Real Property Investment in Nigeria

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Abstract: Real Estate Investment is an unpredictable venture that requires adequate precaution initially before capital is sunk into it. An investor of real estate investment, apart from appraising an investment proposal for worthwhileness and suitability is confronted with the problem of how available financial resources should be allocated to the many possible alternative investment projects. This paper examines various investment appraisal techniques vis-à-vis traditional techniques (the pay-back period, return on capital) and modern techniques (Net Present Value [NPV], and Internal Rate of Return [IRR]) adopted by an appraiser while taking investment decision. It also highlights factors affecting the validity and reliability of investment appraisal in Nigeria. It concludes by recommending remedial measures to de-escalate these problems.

Keywords: Investment, appraisal, decision making, real property.

1. Introduction

In making a rational decision considerations are made of some factors which are very crucial for the term survival of the investment type and of course the realization of investment goal(s). A real estate investment is always concerned with the problem of how scarce available financial resources should be allocated to the many possible alternative investment projects (Hemuka, 2011). Real property investment like every other investment option, involves the commitment of resources in property based on capital analysis of expected risks with the expectation of realizing profit either immediately or more often over an extended period (Nwanekezie, 1996). For this reason, an appraisal becomes pertinently necessary in determining the worthwhileness of the proposed investment decision.

Real estate development from an investment notion and according to Kalu (2005) means those real estate developments which are carried out especially for income yielding and or capital appreciation. It is associated with the highest risk, thus requiring the highest skills to provide the highest return in an economic and optimal manner. As an investment project, real estate / property development is described as a risky enterprise associated with risks in terms of development cost over run, delay in development period and non attainment of project specifications (Nworuh, 1997). These risks factors greatly impact negatively on the achievement of investment objectives, thus the non-profitability of the investment decision.

To realize the investment goal and objectives in any development option as guided by an investment decision, there is the need for co-ordinated actions of planning,

monitoring and the control of the project budget schedules and specifications according to plan in the mist of unstable project environment. This perhaps forms the critical aspects of managing the various multi-functional activities of development in the direction of investment profitability and the achievement of the economic needs or returns expected of such an endeavour on the future. Real property investments no doubt are most times subjected to various analyses which provide the simple estimates of construction cost schedule and specification and worthwhileness of such development.

However, this is done with an imperfect knowledge of what the actual would be depending on the various risk factors confronting the investment within an imperfect environment. The emphasis here should be that such analysis no doubt and in every context should provide the basis for reaching sound and prudent investment decision; where such decision is made and it is to be actualized through a development scheme, the investment goal can only be manifested in practical terms if only a well planned and integrated system of actions in planning, execution monitoring and specification are greatly adhered to. This of course forms the critical aspect of managing the various complex multi-functional activities of development towards achieving the envisaged goals of the investment (Wogu, 2000).

2. Real Estate/Property Investment

Real estate has been defined as the earth, the land and all natural and man-made hereditaments found permanently thereto. However, real/property Perce has several connotations and most times, this term is frequency used

with reference to real property. It is common to classify property into two broad terms of realty (Land and building) and chattels. Although, more recently with the dynamics of development and technological advancements further terms of usage have also been developed to include the intellectual property (Kalu, 2001).

Real property as an investment is said to be unique in its form, nature and context specially when compared with other classes of property. Therefore, in a bid to provide a definition for this asset with varied characteristics, professionals have, over the years advanced a variety of concepts reflecting their various perspectives, background and relationship with this asset. However, it has become customary especially in recent times to define real property as land, buildings and other improvement there on and the legal rights relating to the asset and land (Igboko, 2002).

In terms of classifications, it is common to classify real properties according to their forms of ownership, use and physical form. Real property investment which is merely referred to as real estate investment by researchers as analyzed by Kalu (2005) is a universal concept with differentiation often established by the domiciliation and operating environment of the real estate. This fact creates the need to analyze a real property where it is domiciled as each property investment has a different return and perhaps risks.

Real property in any of its investment sectors have their characteristics which are distinguished from financial investments. A typical distinction in terms of factors is made by Kalu (2001) regarding heterogeneity risk, liquidity, indivisibility, high cost of transfer holding cost, income and capital growth, social ownership and imperfect knowledge perpetuity, and leverage or gearing.

Real property investment in Nigeria has in the last two decades developed with property markets evolving along the lines of usage and location in differing parts of the country. The very old and traditional influences and perspectives are beginning to erode as property is today viewed as a veritable investment with high income yielding characteristics. But evident in the market is the fact that investments in real property are dominated with private developers with very few institutional investors as active players (Kalu, 2005).

Real or property investment according to Enever (1984) can be classified into direct and indirect investments. Direct investments in real property will involve the direct acquisition of property which may be by auction, tender or private treaty or take-over. Further forms of direct investment in real property are the sale and lease-back and property development. Indirect investments in real property could manifest as a loan secured on a property by a mortgage, through property bonds and shares in property companies.

Development is an important aspect of the various investment in Nigeria even as we lack verifiable statistics on this (Kalu, 2005). Also very little work has been done in areas of its quantity or stock, returns and risks, though it is the opinion of Igboko (1992) that returns from the low and medium income dwelling categories of residential properties in our urban centers are very low when compared with returns from the major investment options. Further, he posits that the rentals of this category of residential property investment are not very elastic. Apart from this, it is the

opinion Igboko (1992) that the other categories which are held as investments provide good returns to investors in Nigeria.

3. Methods of Investment Appraisal

In order to achieve the investment objective the available resources must be utilized efficiently, and this can be achieved only if at the project conception, optimal investment decisions are taken on rational and logical basis (Zakariyyah, 2002). In order to aid the investment decision maker to choose between alternative competing projects and realizing the worthwhileness of a proposed project. It is necessary to adopt the suitable technique.

There are two methods of investment appraisal namely:

- i. Traditional methods
- ii. Modern methods.

3.1 Traditional Methods of Investment Appraisal

There are five major traditional methods of appraisal, viz:-

- a The pay-back period (PBP).
- b The rate of return on capital (RRC).
- bi Optimum or peak profit method (OPP).
- bii First year's return criteria (FRC).
- biii The average profit method (APM).

The Pay-Back Period:

Pay back period simply measures the number of years the original cost of investment is expected to be re-couped. According to Hemuka (2012), Aniagolu (1987), it refers to how quickly the incremental benefit accrued to a company from an investment "payback" the initial capital invested in terms of after tax flows. If an investment is expected to produce a stream of cash proceeds that is constant from year to year, then the PBP can be determined by dividing the total original cash outlay by the annual cash proceeds expected. But if the stream of expected proceeds is not constant from year to year, then the PBP must be determined by adding up the proceeds expected in successive years until the total is equal to the original outlay. The PBP methods looks at the length of the time required for the stream of cash proceeds (cash flow) produced by an investment will equal the original cash outlay spent on the project.

Thus.

$$PBP = \frac{\text{Net cash outlay}}{\text{Annual net cash flow.}}$$

This technique helps to isolate for selection projects whose returns are large to repay the amount of capital invested over a shorter period of time.

Advantages of the PBP include.

- i. It is easy to determine.
- ii. It has a built-in safeguard against risk.
- iii. Length of time capital is tied up is easily judged.
- iv. In period of cash scarcity the PBP is used to isolate projects with short pay-back.

The Disadvantages

The disadvantages according to Hemuka (2012), Adi (1983) and Aniagolu (1987) include:

- i. It fails to consider income generated after the payback.
- ii. It totally ignores the rate at which income is earned.
- iii. No allowance is made for taxation or capital allowance.
- iv. Though it claims to reduce risk, it may end up worsening the project it is designed to protect.
- v. It is bound to lead to serious under-investment as it is more interested in the period capital outlay is paid-back.

Here criteria to rank investment is to select or choose those having shorter than those with longer PBP. To illustrate the above method, further, let us use the table bellows.

Table 1: Cash flows for projects A, B, and C.

Year	Project A	Project B	Project C
0	- 30,000	- 30,000	- 30,000
1	4000	2000	8000
2	6000	6000	4000
3	6000	2000	6000
4	7000	8000	4000
5	4000	10,000	10,000
6	6000	8000	9000

By ordinarily summation of the stream of cash flows, the projects have the following profile.

- A = N35,000.
- B = N41,000.
- C = N41,000.

Results.

- A = 6th year with a surplus of N3000
- B = 5th year with a surplus of N11, 000
- C = 8th year with a surplus of N11, 000.

Ranking: The ranking will be (CBA) or (BCA). In other words, projects B and C are more viable than project A.

The rate of returns on capital looks at the yield in form of the rate at which profit is being made on capital tied down. This method is expressed in three ways on which calculation are made:

- i. Optimum Criteria (Peak Profit)
- ii. First Year’s Return
- iii. Average Profit Method

Optimum Criteria: This method considers the highest annual income as a basis for computing the rate of return and also for ranking the projects. Simply stated, the method is looking for that rate of return that will be made from the highest (optimum) from any of the projects.

From table 1, the calculation will be made thus:

- Project A = N7,000.00
- Project B = N10,000.00
- Project C = N10,000.00

Returns:

$$A = \frac{7,000}{30,000} \times \frac{100}{1} = 23.33\%$$

$$B = \frac{10,000}{30,000} \times \frac{100}{1} = 33.33\%$$

$$C = \frac{10,000}{30,000} \times \frac{100}{1} = 33.33\%$$

Ranking: Projects B & C are equally ranked with 33.33% each over project A which makes a return of 23.33%. Therefore, ranking will be BCA OR CBA Both Project B and C are more viable and an investor can invest either of the two considering other factors like environmental challenges.

First Year’s Return: This method considers only first year as a parameter for ranking projects of varying cash flows. From table 1, FYR can be computed much.

$$\begin{aligned} \text{Project A} &= \text{N4,000 (1st year income)} \\ \text{Project B} &= \text{N2,000 (1st year income)} \\ \text{Project C} &= \text{N8,000 (1st year income)} \end{aligned}$$

$$\begin{aligned} \text{Project A} &= \frac{4,000}{30,000} \times \frac{100}{1} = 13.33\% \\ \text{Project B} &= \frac{2,000}{30,000} \times \frac{100}{1} = 6.7\% \\ \text{Project A} &= \frac{8,000}{30,000} \times \frac{100}{1} = 26.7\% \end{aligned}$$

Ranking (CAB)

Here, C is most viable followed by Project A.

Average Profit Method

APM considers the average of all cash flows and compares this with capital outlay as a basis for ranking, using also table I, to illustrate computation. Hence

Total Income for project

$$\begin{aligned} A &= \text{N33,000} \\ B &= \text{N41,000} \\ C &= \text{N41,000} \end{aligned}$$

Average

$$\begin{aligned} \text{Project A} &= \frac{33,000}{6} = 5,500 \\ \text{Project B} &= \frac{41,000}{6} = 6,833 \\ \text{Project C} &= \frac{41,000}{6} = 5,500 \end{aligned}$$

Returns:

$$\begin{aligned} \text{Project A} &= \frac{5,500}{30,000} \times \frac{100}{1} = 18.3\% \\ \text{Project B} &= \frac{6833.3}{30,000} \times \frac{100}{1} = 22.8\% \\ \text{Project C} &= \frac{6833.3}{30,000} \times \frac{100}{1} = 22.8\% \end{aligned}$$

The return shows that projects B and C are ranked equally with returns of 22.8% each and above project A with a return of 18.30 that is (CBA) or (BCA). This also implies that project B and C are more viable.

Like pay-back method, the Rate of Returns on Capital or Accounting Rate of Return has the following disadvantages as recorded by Dixon (1988):

- i. There is no authoritative method of calculating capital employed or defining profit.
- ii. It does not differentiate between large and small investment decision, the flow or profit or the length of the investment
- iii. The results obtained from the approach are subject to misinterpretations.

- iv. It does not recognize time value of money (Okoh, 2008).

3.1 Traditional Methods of Investment Appraisal

The modern methods include the discounted and the compounded cash flow methods. The two discounted cash flow (DCF) method widely used in practice are the Net Present Value (NPV) and the internal Rate of Return (IRR). Other methods which this paper may not delve into which are worthy to mention are the discounted profitability Index (DPI), the Discounted Payback Method (DPM) and the Net Terminal Value (NTV).

Net Present Value (NPV)

This is a method of appraisal by which an investment is judged according to whether or not the income from it balances or outweighs the capital outlay. If it balances (ie NPV = 0 or positive), the investment is acceptable and if it does not balance (ie NPV is negative) the investment is rejected, it is worthwhile to undertake an investment if the cash realized is at least equal to if not greater than the cash put into it (Ajayi, 1998). It assesses the profitability of a project on the basis of the value arrived at when the present value of all cash outflow as at the time they occur are subtracted from the present value of all cash inflows as at when they occur employing a target rate an opportunity cost rate, which could be earned if the fund is invested in next best alternative (Bellow, 2001). By this method due consideration is given to the tuning of cash flow and each considered in term of present value discounted for the necessary period of time at the rate of return required by the investor. When used to rank investment the one with the highest NPV at the target return is preferred. According to Umeh (1977), the greatest problem of the NPV lies in the choice of appropriate rate of return applicable to a particular project. This is noticeable in the case of public investment project on what form such a rate of return takes and the problem posed by imperfection in the capital market. For private projects, a suitable rate from the private sector is adopted, while in public projects, no government or public authority which is acting prudently can afford to use a discounted rate below its own borrowing rate as such an action may distort the picture of viability. The criteria are:

- i. Accept all investments where NPV is positive (+)
- ii. Where NPV is equal to, or greater than zero (NPV = 0)
- iii. Reject all investments where NPV is negative (-) or where NPV < 0

As an illustration let us look at tables 2 and 3 respectively

Table 2: Analysis of NPV of Project X

Year	Net cash flow	Discount factor at 8%	Discounted cash flow
0	-28,000	1.00	-28,000.00
1	4,000	0.93	3,720.00
2	4,000	0.86	3,440.00
3	4,000	0.79	3,160.00
4	3,000	0.74	3,220.00
5	5,000	0.68	3,400.00
6	6,500	0.63	3,780.00
7	6,000	0.58	3,480.00
8	5,500	0.54	2,970.00
9	5,000	0.50	2,500.00
10	4,000	0.46	1,840.00

			30,510.00
			28,000.00
			NPV = +2,510.00

Table 3: Analysis of NPV of Project Y

Year	Net cash flow	Discount factor at 8%	Discounted cash flow
0	-28,000	1.00	-28,000.00
1	6,000	0.87	5,220.00
2	6,000	0.76	4,560.00
3	4,000	0.66	2,640.00
4	3,000	0.57	1,710.00
5	2,000	0.50	1,000.00
6	4,000	0.43	1,720.00
7	4,000	0.38	1,520.00
8	3,500	0.33	1,155.00
9	5,000	0.28	1,400.00
10	5,000	0.25	1,250.00
			22,175.00
			28,000.00
			NPV = - 5,825.00

From the analysis of the two projects, it can be found that NPV of project X is + 2,510 and that of Y is - 5825. Therefore project X is more viable than investment project B and is the one to be recommended by the appraiser.

Internal Rate of Return (IRR)

In internal Rate of return sometimes called investor's yield is the rate of return which when applied to the discounting cash outflows and inflows equates their present values, thus showing a net present value of zero (Umeh, 1977). It is the actual return based on the cash flow inherent in the individual property as distinct from the external market rate of return. In a comparative analysis, a project with higher IRR would be favoured or preferred, in a situation of equal risks, an investor will select a project where IRR would be equal to or more than IRR of alternative investment (Ogbuefi, 2002). He further stated that where an investor is expecting or has a particular discount factor in mind, he may be in position to know whether the discount factor obtained from the analysis is more or less than the particular discount factor. The IRR is often obtained either by iteration or linear interpolatier between two rates of interest using the formula.

$$IRR = R_1 + \left[\frac{NPVR_1}{NPVR_2 - NPVR_1} \right] \times [R_2 - R_1]$$

Where: R₁ = Lower Trial Rate

R₂ = Higher Trial Rate

For instance tables 4 and 5 show analysis for the computation of NPV and IRR

Table 4: Analysis of Cash Flow for obtaining NPV (NPV₁)

Year	Capital outlay	Cash flow	DCF factor	Present value
0	-15,000	-	1,000	-N15,000
1		5000	0.090	4,545
2		5000	0.826	4,130
3		5000	0.751	3,755
4		5000	0.686	3,415
5		6500	0.621	4,036
6		4000	0.564	3,256
7		6500	0.513	3,335
8		6500	0.467	3,036
9		6500	0.424	2,756
10		8000	0.386	3,088

				+ 34,352
				- 15,000
				NPV = + 19,352

Table 5: Analysis for obtaining NPV₂

Year	Capital Outlay	Cash Flow	Dcf Factor	Present Value	Dcf 28%	Present Values
0	-15	-	1.000	15,000	1000	-15,000
1		5,000	0.090	4,545	0.781	3,905
2		5,000	0.826	4,130	0.610	3,050
3		5,000	0.751	3,755	0.477	2,385
4		5,000	0.683	3,415	0.373	1,865
5		6,500	0.621	4,036	0.291	1,892
6		4,000	0.564	2,256	0.227	908
7		6,500	0.513	3,335	0.178	1,157
8		6,500	0.467	3,036	0.139	904
9		6,500	0.424	2,756	0.108	702
10		8,500	0.386	3,088	0.085	680
				34,352		+17,448
				15,000		- 15,000
		NPV =		+19,325		+2,448

$$IRR = R_1 + \left[\frac{NPVR_1}{NPVR_2 - NPVR_1} \right] \times [R_2 - R_1]$$

Where: R₁ = Lower Rate 10%
 R₂ = Higher Rate 28%
 NPVR₁ = 19,352
 NPVR₂ = 2,448

$$IRR = 10 + (28 - 10) \left[\frac{19352}{19352 - 2448} \right]$$

$$IRR = 10 + (18) \times \frac{19352}{21880}$$

$$10 + (18 \times 0.8843)$$

$$10 + 15.9203$$

$$IRR = 25.92\%$$

The criterion normally used with this method in practice is that a project should be accepted if it shows an IRR greater than some required minimum (usually the cost of capital) or if it is necessary to choose between alternative projects (mutually exclusive projects) for example, the project having the highest rate of return (IRR) greater than the cost of capital is usually selected. But like the NPV, the project with a lower IRR may be chosen by investor for reasons personal to him other than absolute profitability or viability. It must also be noted that a project is viable if the IRR equals or greater than 1. Also if NPV of a project is positive (tve), it must have an IRR.

4. Factors Affecting the Reliability of Investment Appraisal in Nigeria

Reliability of investment appraisals according to Zakariyyah (2012) is affected by the following factors:

- i. Unstable And Volatile Economy: Real property investment appraisal hinges on predictions and assumption which is a product of market information. Due to economic turbulent an appraiser's predictions may have a wider variance than those which are based on similar information.

This is one of the reasons while some appraisal reports may not be reliable.

- ii. Constant Truncation Of Government: Frequency of changes in the nation's leadership may bring about drastic and radical changes in economic policies and programmes which affect real property market. This may bring about unreliability of investment decision.
- iii. Inadequate Market Survey: A lot of information is needed to be able to carry out valid and reliable investment appraisal. Where market survey is not adequate, investment appraisal may be adversely affected.
- iv. Poor Production of Development Variables: Vital variables are utilized which guide the appraiser. If such variables assumed abinitio to be true are faulty, appraisal may be affected.
- v. Appraisal's Experiences: If the appraiser is inexperienced, he may not be able to analyze vital element identified fully well. this opinion may be unreliable.
- vi. Lack of Sufficient Data: Data must be sought on social, economic legal and physical (climate conditions, locations, site suitability and accessibility) factors as to have valid and reliable investment appraisal. In a situation where this is not possible. There is bound to be a problem, hence unreliable reports are produced.

5. Conclusion and Recommendations

Real property investment is capital intensive as it requires a huge amount of capital and equity to invest in. A rational and potential investor must take adequate precautions at the preliminary stages as to be able to comprehensively examine and articulate the worthwhileness and suitability of the proposed venture. Besides, most of the risks associated with real property investment would have been drastically reduced when rational decisions are taken from the onset of the investment by the investor.

In summary, if all the steps recommended here are adhered to by prospective investors, real property investment is second to none compared with other lines of investments not minding the fact of its associated risks. Investment appraisal is therefore a veritable tool for decision making in real property investment in Nigeria. Therefore, it is advocated that investors of real property investments should endeavour to carry out feasibility and viability appraisal before committing his scarce funds into it. By so-doing, the need whether to invest or not will be understood.

Real property investment is a risky investment venture compared with other investment media due to its nature. Again there is the need also to pre-determine the worthwhileness (feasibility of viability) and suitability of the proposed investment as to ensure that capital to be sunk into the business is not lost. The following recommendations are made in order to optimize expected returns from the investment:

- i. Preliminary Investment Appraisal: A potential investor should consult a professional appraiser to carry out feasibility and viability appraisal to

- ascertain the worthwhileness and suitability of the proposed investment before committing his
- ii. Comprehensive Real Estate Investment Appraisal: This appraisal needs to be holistically examined to take care of core business oriented elements such as locational, environmental, socio-political and economical factors.
- iii. Adoption of Mult-Criteria Analysis: Appraiser should adopt multi-criteria analysis that treats all criteria on the same basis without selecting a single criterion as bench mark with the current price index, the prevailing rate of return, inflation, interest rate and tax incorporated in the investment analysis.
- iv. Improvement of Appraisal Techniques: More research should be carried out on the existing techniques with view to improving and adapting them to the peculiarities of the Nigeria economy.
- v. Data Bank: Data bank where information can easily be assessed to solve the problem of unavailability of adequate and reliable information on real estate investment should be provided by the Nigeria Institution of Estate Surveyors and Values (NIESV) and the Estate Surveyors and Valuers Registration Board of Nigeria (ESVARBON) with regular exchange of information among the professionals in the built environment encouraged.
- vi. Stability of Political Climate: The government should ensure the stability of the political climate and the economic through the stability of exchange rate, interest rate and effecting checks on inflation to make projections authentic and reliable.

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