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Effectiveness of income valuation method as an alternative to depreciated replacement cost method

A THESIS SUBMITTED TO THE SCHOOL OF GRADUATE STUDIESIN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE DEGREE OF MASTER OF ARTS IN URBAN LAND AND PROPERTY VALUATION

BY

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Effectiveness of income valuation method as an alternative to depreciated replacement cost method

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A thesis submitted in partial fulfilment of the requirements for the degree of Master of Art in urban land and property valuation in the chair of urban policy at Addis Ababa University/ Ethiopian Institute of Architecture, Building construction and City development (EiABC)

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Statement of certification

This is to certify that BINIYAM ZENEBE KASSA has carried out his research work on the topic entitled "Effectiveness of income valuation method as an alternative to depreciated replacement cost method". The work is original in nature and is suitable for submission for the reward of the Master`s Degree in Urban land and property valuation.

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Date: _____

I, the undersigned, declare that this thesis is my original work, has not been presented for a degree in any other university and that all sources of materials used for the thesis have been dully acknowledged.

Declared by:

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Acronyms

DRC – Depreciated replacement cost

IVSC – International Valuation Standards Council

IASB – International Accounting Standards Board

CBD – Central Business District

RCN – Replacement Cost New

RCNLD – Replacement Cost New Less Depreciation

IRR – Internal Rate of Return

DCF – Discounted Cash Flow

RO – Overall capitalization Rate

RE – Equity capitalization Rate

NOI – Net Operating Income

CBE – Commercial Bank of Ethiopia

NBE – National Bank of Ethiopia

CWC – Cost of Civil Work

PGI – Potential Gross Income

EGI – Effective Gross Income

OE – Operating Expense

Abstract

For different types of properties varies valuation models were developed. Although, the basis of valuation might be the same, the methodology may sometimes differ to capture certain peculiarities and attributes in respect of a particular property. In an ideal situation, the income valuation method of valuation should be adopted in the valuation of commercial properties. Where this is not attainable, the depreciated replacement cost method is adopted. The aim of the study is to examine the effectiveness of the use of income valuation method as an alternative to depreciated replacement cost method in valuation of commercial properties. The instruments used for data collection are interviews, site inspection, and document review. The study adopts the depreciated replacement cost method and income method of valuation in analyzing the data obtained. Complete theoretical analysis was equally adopted in analyzing the data. The findings reveal that the income valuation method may provide a reliable estimate of value in the where improvements increase in age, but for new buildings the replacement cost method is more reliable. The revealed results confirmed the importance of income method of valuation as the most effective and efficient in the estimation of commercial property. The study recommends the bank to use the income valuation method to check the estimation valued by replacement cost method.

Keywords: Income valuation method, Depreciated replacement cost method, commercial properties

Chapter one

1. Introduction

1.1Background

Banks play an important role in the economic development of every nation and the financial sector's contribution to growth lies in the central role.[1] Maru T. (2015) states, Banks also play intermediation function in that they collect money from those who have excess fund and lend it to others who need it for their investment. The main source of funding for business activities as well as other projects throughout the country can be taken as one means by which banks contribute to the growth of economies (Bercoff, 2002).

It is known that loan is essential to both lenders and borrowers. The lender benefit is from issuing the loan to generate profit in the form of interest income. Borrowers on the other hand, benefits from getting loans in order to expand their investments in business. Different types of loans are provided by those banks to customers. The banks have to value the properties before they are given the loan.

Property valuation is the process of forming an opinion of value-in-exchange under certain assumptions. Supply and demand within the property market as a whole and in specific sub-markets will be changing all the time and therefore a valuation is a snapshot estimate of exchange price at a particular moment.[2] Valuation is also an opinion of value, requires the use of appropriate methodology to arrive at the basis of value sought.

It has been some time since property valuation is practiced in Ethiopia. Properties are valued mainly for compensation during expropriation, during forced sell by court order and for collateral purpose. In most cases different stakeholders have complaint on the value of the properties which are valued by the institutions. In carrying out any valuation assignment for collateral purposes, the valuer is faced with a task of selecting the appropriate method to adopt. The value of a property which is calculated by the bank for the purpose of collateral is debatable. The borrowers have different outlook regarding the value of their property appraised by the bank. They do believe the

[1] (Geda, 2006)
[2] (Wyatt, 2013)

appraisal made by the bank is much less and/or more than the market value of their property. The major causes for undervaluation and overvaluation is the method of valuation that the banks are used.

In all commercial banks in general and commercial bank of Ethiopia in particular, the valuation method which is used for collateral purpose is depreciated replacement cost (DRC) method. Depreciated replacement cost method is the current cost of replacing an asset with its modern equivalent asset less deductions for physical deterioration and all relevant forms of obsolescence and optimization.[3] Therefore, the DRC method will only show the cost of a property and it will not show the market value of a property.

In the emerging country like Ethiopia, when the economy is in boom, the borrowers will have full of expectation to get more benefits from the loan and they will initiate to get a loan. The lenders also wish to increase their lending in order to increase their market share of the banking industry. Those things will force the lenders to have an easy going lending policy. This will open a door for the lenders to give a loan for customers who are far from credit worthy.

Appropriate valuation method plays an important role in minimizing the existence of under and over valuations. In commercial bank of Ethiopia properties to be held as collateral by the bank, is valued using cost replacement method based on the property valuation manual.[4]

Thus, this study attempts to evaluate the effectiveness of the use of income valuation method as an alternative to replacement cost method in valuation of commercial properties. The study also tries to analyze the gaps in the valuation manual of the commercial bank of Ethiopia.

1.2. Statement of the problem

In Ethiopia, due to the rapid growth of the economy investments are expanding. This reality necessitates the investors to borrow money from banks. In order to get a loan, the investors have to collateralize their properties. The banks also have to value the properties before giving the loan. In commercial bank of Ethiopia, income producing properties to be held as collateral by the bank are valued using cost replacement method based on the property valuation manual.

[3] (RICS valuation-professional standard, 2014)
[4] (commercial bank of Ethiopia, 2016)

The cost approach bases on the understanding that market participants relate value to cost. The forces of demand and supply determine the value of a property and not supply only of which cost is associated. Since loan is an investment in the open market, the cost approach will not be appropriate. Where a property has no market demand, it cannot have a mortgage value. The method will not reveal the potential of the collateral in the property market (James B. Effiong 2015).

Previous studies have shown that, one of the major causes of over and under valuation is poor collateral valuation practices. Some properties over valued to be pledged as security for loans and this is mainly caused by valuers considering the cost methods of valuation without making reference to the income approach.[5] The depreciated replacement cost (DRC) method also neglects the difference between cost and value, namely that one property might be cheaper than another but generate a much higher net income.[6]

When the property is in its highest and best use, the value of the property will also be higher. Depending on its level the value of the property will vary, if we value using income valuation method. However, the DRC method will give the same result whether the property is in its highest and best use or not. Because, the depreciated replacement cost method considers the current cost of replacing an asset with its modern equivalent asset less deductions for physical deterioration and all relevant forms of obsolescence and optimization.

The highest and best use of an asset is the use of an asset that maximizes its productivity and that is physically possible, legally permissible and financially feasible.[7] But, a replacement cost valuation is based on an assumption of a continuation of the existing use. This existing use assumption is at odds with the highest and best use concept of market value in the same way that the existing use value basis defined in the Red Book is at odds with the international definition of market value. The replacement cost method does not appear to be compatible with the market value basis.[8]

Some challenges in the application of the cost method of valuation include, unavailability of up-to date data on construction costs and inadequate data for calculation of depreciation. The aforementioned problems have led to numerous assumptions which can render a value opinion

[5] (Kuye, 2003)
[6] (Ekenta, 2014)
[7] (RICS valuation-professional standard, 2014)
[8] (Wyatt, 2013)

inaccurate and unreliable (Onyejiaka, 2015).

It is a well-known fact that both Lender and borrower would concern on the value of the property. The current body of knowledge which advocate the use of depreciated replacement cost method in arriving at the value of properties could equally be challenged as the method may likely not give the true opinion of value. According to RICS 2012, income approach can be used for the valuation of any business or business interest, and the cost approach will not normally apply except where profits and cash flows cannot reliably be determined, for example, in start-up businesses and early stage companies. Therefore, since income valuation is more related with income producing properties commercial properties are selected for the research.

Thus, this study attempts to fill the gap left by examining whether income valuation method can be efficiently used as an alternative in valuation of properties, with particular reference to some income producing properties. The aim of the study was to examine the applicability of income valuation method as an alternative to depreciated replacement cost method with a view to suggest and recommend the best method of valuing commercial properties.

1.3. Research question

The discussion above concerning the gap of property valuation method results the following research questions:

- What are the gaps of property valuation manual, used in commercial bank of Ethiopia?
- How can we value, commercial properties using cost replacement and income valuation method?

1.4. Objectives of the study

The aim of the study is to examine the applicability of the use of income valuation method as an alternative to depreciated replacement cost method and to assess the valuation procedures of the bank with respect to the internationally accepted principles and to identify the gaps while executing collateral valuation with a view to suggest and recommend the best method of valuing commercial properties.

The objectives to be achieved are;

- To look at the gaps of collateral valuation employed in commercial bank of Ethiopia;
- To explore the applicability of income valuation method in providing the true value of properties for bank collateral in Ethiopia.
- To determine the value of commercial properties using the depreciated replacement cost and income valuation methods, through a case study;
- To make useful recommendations.

1.5. Significance of the study

The knowledge generated by this study enables readers to grasp the necessary information on collateral valuation gaps in Ethiopia banks. It can serve as input for banks to analyze their gaps. The research also gives some ideas for future studies are among the importance.

1.6. Scope

Commercial bank of Ethiopia is the study area of the research, by focusing mainly on the methods of collateral valuation for commercial properties. The study is as well limited to application of depreciated replacement cost method and income valuation method in the valuation of commercial properties and thereby comparing the value arrived at. The study also tries to find the gaps in the valuation manual which have been used by the bank for collateral valuation.

1.8. Method and Methodology:

A descriptive research method is used for this research paper and different literatures on the subject matter to give a fundamental introduction to the topic are studied. In order to generate adequate information, case studies are included in the research.

1.8.1 Data Collection

Primary and secondary data sources are used to collect different data related with the research. The primary data are collected using interviews and site inspection. Secondary data are collected from books, annual reports, literatures and internet. These secondary data are used to describe the conceptual framework of collateral valuation. In order to look the method of collateral valuation, cases from commercial bank of Ethiopia are selected and studied. Cases are selected according to

their relevance to the specific subject. The cases are selected through a purposive sampling method and a total of four properties are selected.

a) Interviews

Semi structured interview was held with five valuation experts of the bank, in the department of business and corporate credit on issues related to constructional and legal details. This research also adopts un-structured or open-ended interview to allow respondents to freely discuss on the broad topics of the interview undertaken.

Information obtained through this method includes land and improvements of the subject property. The reason for adopting an interview is to ensure that the data or information retrieved is valid and reliable for generalization.

b) Inspection

An inspection of the subject property was carried out in order to evaluate the physical characteristics of the area, the extent and state of repair of the subject property, land improvements therein and location of the neighborhood, to ascertain the description of the subject property, constructional and details of the properties, the use and availability of utilities, facilities and services present in the subject property.

Furthermore, it helps in making useful recommendations and suggestions on how to overcome the identified problems. The inspection helps to verify the likely difficulties to be encountered in carrying out the exercise.

c) Document Review

Information was extracted from published materials, maps and other relevant reports related to the research. Reports from professional estate valuer were sought. Confidential materials from the bank were also accessed through the director of business and corporate credit. All the reports that were obtained from the commercial bank of Ethiopia bank were strictly used for the purpose of the research and were kept in high confidentiality.

Relevant textbooks related to property valuation were sought and used to identify a research gap. It was also used to have an in depth understanding of the subject matter. Journal articles, conference papers and many more on existing studies on property valuations were also consulted to come up with a more balanced result.

1.8.2 Analysis Method

Qualitative and quantitative research methods are used to analyze the Data's collected through interviews and secondary documents. Discussion and explanations are used in order to analyze data that are not quantifiable using mathematical approach. To analyze the data obtained from commercial bank of Ethiopia, Microsoft XL was used as a tool.

a) Income Method of Valuation

The income approach is commonly used in the valuation of commercial related properties. In this study, the income method is employed to estimate the market value of the properties. The cash flows of the properties were checked and information related to how to carry out the income method of valuation was extracted.

b) Depreciated Replacement Cost Approach

In this study, the cost approach is used to estimate the market value developed by computing the current cost of replacing the properties and subtracting any depreciation resulting from one or more of the following factors: physical deterioration, functional obsolescence, and economic obsolescence. The location values of the properties are then added to the depreciated value of the improvements to produce a total value estimate.

1.9. Limitation of the Study

Undertaking the study was not an easy task. Particularly, it was difficult to get relevant data to be used as input to the study. It was also difficult to find written literatures in related with the practices of valuation in Ethiopian context. Inadequacy of the practicing firms on property valuation, lack of specialized professionals in the particular area to get further interview, lack of worked property valuation results and reports, time constraint in preparing the study are also among the limitations of the study.

Chapter two

Literature review

2.1. Definition and concepts of valuation

Millington (2006), defines the term Valuation as "the art or science of estimating the value for a specific purpose of a particular interest in property at a particular moment in time, taking into account all the features of the property and also considering all the underlying economic factors of the market, including a range of alternative investment. The process of estimating market values is referred to as valuation. [9] Property valuation can also be defined as "a procedure aimed at determining the value of a property".[10] Valuation is the process of estimating the value market, investment, insured, or other properly defined value of a specific parcel or parcels of real estate or of an item or items of personal property as of a given date.[11]Therefore, valuation by itself is a process that goes a certain step to estimate the value of a property.

Valuation of any type, whether undertaken to estimate market value or a defined non-market value, require that the valuer apply one or more valuation approaches.[12] The term valuation approach refers to generally accepted analytical methodology that are in common use.[13]The appropriate approach, method and technique of real estate valuation are selected by a professional valuer with regard to: purpose of the valuation, type and location of the real estate, intended use of the real estate according to the local area development plan, accessibility of technical infrastructure, stage of development etc., availability of data concerning characteristics, prices and income gained from similar real estates.[14]

There exist different purposes for which appraisals of individual properties are needed: valuation for investment decisions, like buying, selling, building a property, or performance reports; valuation of properties as collateral for lending purposes; valuation of properties for insurance policies and for taxation.[15]Therefore, in estimating the value of a property using the appropriate

[9] (Ekenta, 2014)
[10] (Trojanek, THE APPLICATION OF INCOME APPROACH IN PROPERTY VALUATION IN POLAND, 2010)
[11] (INTERNATIONAL ASSOCIATION ofASSESSING OFFICERS(IAAO), 2013)
[12] (THE INTERNATIONAL VALUATION STANDARDS COMMITTEE, 2003)
[13] ibid
[14] (Sabina Zrobek, 2014)
[15] (politicarum, 2003)

valuation approaches based on the purpose of the valuation and the nature of property is an indispensable activity.

2.2Collateral valuation

2.2.1 Collateral definition

The word "collateral" comes from the Latin collateralize, which means something that is to the side, or not direct. Collateral is an asset pledged by a borrower to a lender until a loan is paid back. If the borrower defaults, then the lender has the right to seize the collateral and sell it to pay off the loan.[16]Wikipedia defines collateral as "collateral is a borrower's pledge of specific property to a lender, to secure repayment of a loan."

There has to be an asset, a marketable property, start-up businesses or rapidly growing businesses may not have such assets, or at least not of sufficient market value; also, there has to be a market for seized assets, whether narrowly defined as physical assets, or more broadly to include also financial assets and even off-balance sheet assets like personal guarantees.[17]

While all forms of collateral are expected to perform these functions, lenders prefer some forms of collateral more than others and these preferences vary from country to country, from bank to bank and over time. Even within one and the same bank, the preference for, say, real estate may give place to another form of collateral, sometimes as a result of the changed procedural dispositions in the execution of mortgages.[18]

2.2.2 Types of collateral:

Many different types of collateral arrangements can be made by companies, whether they are experiencing a financial crunch or making plans for expansion. Common types of collateral include the following:

Mortgage: Mortgage can be described as the process of using a property as security for borrowing so as to purchase or develop a property. It is essentially a transfer of an interest in property as security for the loan. It is a conveyance by a borrower of his legal or equitable interest in property to a lender as security for loan with a provision for redemption upon the payment of the loan[19].The

[16] (ILO Geneva, 1996)
[17] (H.Schutte B. a., 2nd Edition)
[18] (H.Schutte B. a., 2nd Edition)
[19] (Song, 2002)

most common collateral for commercial lending is a mortgage on real estate. It is a form of security for a loan to develop real estate or to purchase real property. However, the collateralized property may end up being an unmarketable property or sales of real estate may be held up for a certain period of time by legal proceedings.[20]

Pledge or lien on Inventory: Inwon song (2002) states; a pledge on claims can be necessary when the bank has accepted inventory as security for the finance of the inventory. As the debater conducts his business, the inventory will gradually be sold, and the goods will be replaced by claims on the purchaser of the inventory. The value of receivables held as collateral should be valued conservatively. In the case of project finance, where the revenue of the project financed by the bank is the prime source of repayment funds, the receivables should be pledged to the bank.[21]

2.3 The concept and method of valuation:

2.3.1 The concept of valuation

Valuation is the heart of all economic activity. Everything we do as individuals or as groups of individuals in business or as members of society is influenced by the concept of value. A sound working knowledge of the principles and procedures of valuation is essential in all sorts of decisions relating to real estate buying, selling, financing, developing, managing, owning, leasing, trading, and in the ever-more-important matters involving income tax considerations[22].

Valuation is a means of providing an assessment of the capital value of, or the income arising from a property investment. The point of investment is that it provides the investor with an income, growth in capital value of the investment, or both. Thus, investment involves an initial payment (a capital outlay) so that an income can be received in the future over a period of time[23].

Property valuations are financial estimates of the future net benefit of purchasing an interest in property, suitably discounted over time to reflect opportunity cost and risk. Consequently, the economic concepts of exchange price and opportunity cost are fundamental to property valuation[24].

[20] (H.Schutte B. &., 2002)
[21] (Song, 2002)
[22] (Pornchokchai, 2006)
[23] (Issac, Property valuation Principles, 2002)
[24] (Wyatt, 2013)

Valuation is also a tool for good governance and transparent business activities which will bring trusts among parties involved. It is crucial for the planning for national economic development as well[25].

2.3.2Bases of value: -

Bases of value are statements of the fundamental measurement assumptions of a valuation. They describe the fundamental assumptions on which the reported values will be based (e.g., the nature of the hypothetical transaction, the relationship and motivation of the parties, the extent to which the asset is exposed to the market, and the unit of account for the valuation). It is critical for any valuation to be performed using the basis of value that is appropriate to the terms and purpose of the valuation assignment, as a basis of value may influence or dictate a valuer selection of methods, inputs and assumptions, and the ultimate opinion of value[26].

The bases of value recognized in the global standards are:

- Market value
- Market rent
- Investment value (worth)
- Fair value

Market value

Market value is the estimated amount for which a property should exchange on the date of valuation between a willing buyer and a willing seller in an arm's length transaction after property marketing wherein the parties had each acted knowledgeably, prudently and without obligation[27]. Therefore, it is the amount for which a property can be sold on a given market.

Market value is measured as the most probable price reasonably obtainable in the market. The estimate must not include any element of special value; for example, price inflated or deflated by special circumstances such as unusual financing arrangements, synergistic value or a relationship between the parties. Special Value might be reported but it must be separate from the Market Value

[25] (Pornchokchai, 2006)
[26] (international valuation standards council, 2011)
[27] (RICS valuation-professional standard, 2014)

estimate. Market Value can include hope value, though, which might arise from expectations of changing circumstances surrounding the property such as development potential (even if there is no planning permission at the time of the valuation)[28].

Market rent

Market rent is the calculated amount for which a property, or space within a property, should lease on the date of valuation between a willing lessor and a willing lessee on appropriate lease terms, in an arm's-length transaction, after proper marketing wherein the parties had each acted knowledgeably, prudently and without pressure. Consequently, market rent is the amount of money a property would rent or lease for if it was available at the time of evaluation.

'Appropriate lease terms' should be submitted in the valuation and usually cover repair liability, rental duration, rent review pattern and incentives.

Investment value

It is the value of an asset to the owner or a prospective owner for individual investment or operational objectives[29]. The value of an asset to the owner may be the same as the amount that could be realized from its sale to another party, this basis of value reflects the benefits received by an entity from holding the asset and, therefore, does not necessarily involve a presumed exchange. Investment Value reflects the circumstances and financial objectives of the entity for which the valuation is being produced. It is often used for measuring investment performance. Differences between the Investment Value of an asset and its Market Value may provide the motivation for buyers or sellers to enter the marketplace[30].

Fair value

There are two recognized definitions of fair value. It is essential that the value makes explicit which definition is being adopted in any given case. The two definitions are:

1. The definition adopted by the International Accounting Standards Board (IASB):
   It is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.

[28] (Wyatt, 2013)
[29] (RICS valuation-professional standard, 2014)
[30] (international valuation standards council, 2011)

2. The definition adopted by the international valuation standards council (IVSC):
   It is the estimated price for the transfer of an asset or liability between identified knowledgeable and willing parties that reflects the respective interests of those parties.

2.3.4. Determinants of valuation

Valuations are required for many purposes relating to the development and subsequent occupation and ownership of property. The purpose for which the valuation is required and the type of property that is to be valued will determine the nature of the valuation instruction, including the techniques employed and the basis on which value is to be estimated [31].

The purpose of an investment valuation is to provide an opinion on the capital value of the right to receive regular streams of income for a definite or indefinite period. Therefore, the valuer should determine the purpose of the valuation as it may affect the result or more particularly the way in which it is reported. It is also necessary to determine what is being valued. Each separate property is unique: even when it is indistinguishable in form from an adjoining property, it occupies a different site, the location of which may be of great importance in the consideration of value[32].

In urban areas, the property values are a function of various physical, environmental and psychological factors. Since, each value of the property is unique; it is often difficult to identify the appropriate variables that will explain property value. Factors which cause changes in the value of property and variations in value between properties can be classified as property-specific factors and factors outside to the property or market related factors. Property-specific factors, which can be divided into sub factors, relate to the property itself and factors outside to the property to both national and international.[33]

Property-specific factor

The value-determining characteristics of a property must be keyed out to enable a valuation to be undertake. Supply and demand are the basic determinants of property values. Recalling that the demand for property is a derived demand and that property is an ingredient of production, the properties that establish a property attractive to an occupier are central to the apprehension of the rental bid level and hence an estimate of value. Hence the demand factor could be tempted by

[31] (Wyatt, 2013)
[32] (Scarrett, 2008)
[33] (Wyatt, 2013)

many reasons; a change in demographic characteristics, paying capacity, social factors are among the reasons. Demand for occupation is fundamental to the supply decisions of developers with regard to new stock and is of paramount importance to investors as it provides the income return. [34]

Traditionally, areas having high infrastructural provision have higher land values. This goes for both the physical and social infrastructure provisions. Physical infrastructure would include power supply and its backup, Water supply, sewerage network, drainage net, Solid waste disposal, traffic and transport factors. The Social infrastructure includes educational facilities, medical installations, commercial facilities and institutional factors. [35]

The valuer will wish to estimate the suitability of the site for the building erected on it. Considerations will include whether it is big enough and caters for any special requirements related with its purpose, and whether it has adequate off-site car parking provision and suitable loading and offloading facilities. The relevance of the location to its use will always be important and, under some circumstances, critical. [36]

Urban areas have primarily three land uses-activity areas, non-activity areas and transportation areas. Activity areas are employment centers where people use the transportation areas to come from non-activity zones. The activity areas are most sought after because they provide opportunity for business. That is why property values are higher as we move towards the CBD (Central Business District) region. Conversely, the areas which are in the vicinity of non-preferable uses like drains, airports, railway lines, slums etc. are not preferred. Higher accessibility to work centers is a big factor affecting land values. [37] Therefore, the location of property is one of the most important factors in determining its value.

If location is a part of market linkages, and so any adjustment in the monetary value or duration of the linkages for a given package will alter its value. Accessibility to main road, Nearness to the bus transit system, Distance to rail transit system and Distance to Airport will definitely alter the value of properties located near these routes. The location of office buildings tends to develop in clusters; one part of a town or one street in a town often gains a reputation as the location for the

[34] (Belachew, 2013)
[35] (Bhargava, 2013)
[36] (Scarrett, 2008)
[37] (Bhargava, 2013)

majority of, for example, law firms or accountants, which will act as a magnet to others in the same or associated professions. Public transport or accessible on-site car parking provision is desirable; failing which convenient public car parking provision should be anticipated. Staff recruitment may be helped by the proximity of shopping, public transport and car parking provision. [38]

Elements which are directly related to property are affecting the cost of a property immediately. Plot size, House size, built up area, household size, Number of living room, Number of bedrooms, Number of bathrooms, Fireplaces, Garages, Age of structure, other facilities available like garden, pool etc. are among the major components. [39]

If the legal involvement is a freehold then it is important to consider any easements or other statutory rights and responsibilities over the ground, the nature and extent of permitted use, potential for change of usage and proposed development plans. If the freehold is held as an investment and let to an occupying tenant then the quality of that tenant is a primary concern, in ordered to have ability to keep paying rent and also in complying with other lease terms such as repairs and maintenance. [40] Planning control probably has a greater effect on property values than any other single factor. The power of the planner and the decision of a planning committee can result in huge increases in value (A.F.Millington, 2000)[41]. It implies legal factors have a significant impact on the values of properties.

For office space, the Demand is derived from the nature of the business, Occupiers will select offices, according to their preferences and these will be reflected in the weight they assign to each attribute. Prestigious and accessible locations might be sought for headquarters, accessible locations for purposes that involve public access and low cost, accessible locations (such as business parks and overseas locations) for 'back office' functions. [42]

Factories need good road access and proximity to a sufficient workforce, although their exact placement is rarely of prime importance. Retail warehouses rely on a prominent main road location

[38] (Scarrett, 2008)
[39] (Wyatt, 2013)
[40] (Belachew, 2013)
[41] (Belachew, 2013)
[42] (Wyatt, 2013)

with secure access and sufficient parking. Retailers and shoppers show a preference for a purpose-built retail park housing a number of suppliers rather than the earlier, single-site development. [43]

Therefore, Property-specific factors that drive alterations in the value of property and variations in value between properties are size, historic period, condition, external appearance, internal specification and configuration. These qualities affect the public presentation of the property to varying degrees depending on the purpose to which it is set. The aspect of a property may be important in respect of the outlook of a property, particularly in residential areas, any property which overlooks a pleasant area is obviously being more attractive and valuable than one which overlooks unattractive surroundings.

Market related factors

The principal macroeconomic influences on property values include national output, rising prices, household disposable income, consumer spending and retail sales, usage, building activity, net household formation, production costs and the cost and availability of finance. [44]

The demand for goods and services as well as the availability and monetary value of the workforce used to produce them can be changed by the variety in size and human ecology of the population. A larger population will require more housing in which to live, more buildings in which to work, and more buildings for leisure-time activities and all the other ancillary activities associated with modern life. [45] Therefore, an increase or decreases in population will obviously affect the demand and the values of properties.

The value of a property can also be affect by a Changes in the age distribution of the population and changes in the income distribution of people may also affect the demand for real property. [46]

The government intervention through land use regulation and development control will have significant impact on the value of properties. Legislation that may protect certain rights of occupiers and regulations that may affect value.[47]

[43] (Scarrett, 2008)
[44] (Wyatt, 2013)
[45] (Belachew, 2013)
[46] (Wyatt, 2013)
[47] (Belachew, 2013)

2.3.5 Valuation methods

In the process of valuation, the valuator's task is to give advice on value in monetary terms for an interest in real estate, having regard to the purpose for which the valuation is required and the factors affecting value. [48]

The most commonly used and internationally recognized methods of valuation are sales comparison, income capitalization and replacement cost.[49] The sales comparison method provides an indication of value by comparing sales information of the subject asset with identical or similar assets for which sales data is available. When applying this approach, the valuer should be careful in the analysis of the appropriate comparable sales data.[50] Income capitalization considers the net income that a property might generate, typically in the form of rent, and this income is capitalized using an appropriate yield or by discounting the projected cash-flow at a suitable target rate of return.[51] The replacement cost method considers the current cost of replacing an asset with its modern equivalent asset less deductions for physical deterioration and all relevant forms of obsolescence and optimization.[52]

The most appropriate valuation approach or method will depend upon consideration of the following[53]:

- The adopted basis of value, ascertained by the function of the valuation,
- The availability of valuation inputs and data,
- The approaches or methods used by participants in the relevant market.

The table below presents the classification of valuation approaches, methods and techniques, along with the type of value being the result of the valuation process.

[48] (Ekenta, 2014)
[49] (RICS valuation-professional standard, 2014)
[50] (Issac, Property valuation Principles, 2002)
[51] (Trojanek, THE APPLICATION OF INCOME APPROACH IN PROPERTY VALUATION IN POLAND, 2010)
[52] (RICS valuation-professional standard, 2014)
[53] (Trojanek, The application of income approach in property valuation in Poland, 2010)

Table 1classification of valuation approaches, methods and technique

Types of property value	Approach	Method	Technique
Market value	Income	Investment	Direct capitalization
			Discounted cash flows
		Profits	Direct capitalization
			Discounted cash flows
	comparative	Comparison of pairs	None
		Average price correction	
		statistical analysis of the market	
	mixed (conditionally)	residual	None
		cost of liquidation	Detailed index
		Estimated land rate	None
Reproduction cost	Cost	Reproduction cost	Detailed joined elements index
		Replacement cost	Detailed joined elements index
Non-Market property value	Approaches, methods and techniques applied in calculating market or reproduction value of properties		

Source: - Maria Trojanek, the application of income approach in property valuation in Poland.

More than one valuation approach or method may be used to arrive at an indication of value, especially where there are insufficient factual or observable inputs for a single method to produce a reliable conclusion. Where more than one approach and method is used, the resulting indications of value should be analyzed and reconciled to reach a valuation conclusion[54]. The choice of method depends on the purpose of the valuation and the type of property that is to be valued.

2.3.5.1Depreciated replacement cost method (DRC)

Depreciated replacement cost method, also called contractors' method or cost approach, is based on the cost of building less obsolescence and depreciation plus the site value. It is an approach that the current cost of replacing an asset with its modern equivalent asset less deductions for physical deterioration and all relevant forms of obsolescence and optimization. [55] If there is no market for the value of the site, then it is the cost of the building that is taken into account. This produces a value for a new building; older building costs will require an adjustment to represent depreciation and obsolescence. [56]

The cost approach estimates value using the principle of substitution, that is, unless undue time, inconvenience, risk or other factors are involved, the price would not be more than the cost to assemble or construct an equivalent asset.[57]

The cost approach provides a reliable estimate of value in case of new commercial properties, but as buildings and other improvements grow older and depreciation in value becomes increasingly difficult to quantify accurately. when the age of the improvement increases it is better use income method of valuation than replacement cost method.[58]

The application of the cost approach to determine market value can be particularly useful in markets with poor data availability, while it is inadequate in markets where data are readily obtainable. [59] Instead, it calculates a replacement cost for the improvements that have been made to the land. The method tries to estimate replacement cost rather than exchange price. It does not

[54] (international valuation standards council, 2011)
[55] (RICS valuation-professional standard, 2014)
[56] (Issac, Property valuation Principles, 2002)
[57] (Wyatt, 2013)
[58] (Aliyu Ahmad Aliyu, 2015)
[59] (Rattermann, 2009)

produce a market valuation (value-in-exchange) as such because cost relates to production rather than exchange (Wyatt, 2013).

Fischer 2002 states, Different steps are carried out in order to complete the process of cost valuation approach analysis. Those steps are:

1. Collection of relevant documents and carrying out property survey.
2. Estimate the replacement cost new (RCN) of all improvements to the land.
3. Estimate the accrued depreciation for each improvement.
4. Calculate replacement cost new less depreciation (RCNLD) by deducting all accrued depreciation from replacement cost new for each improvement. (Subtract step 3 from step 2).
5. Estimate the value of the land rights, using highest and best use.
6. Add all replacement cost new less accrued depreciation to the calculated land value.
7. This step will derive a value which is indicative of the Cost Approach to market value.

Mathematically the method can be stated as follows:

Capital value of building = Cost of new building– depreciation

Value of property = Capital value of building + Value of land

Replacement Cost New

In estimating the cost of reproducing the subject property as if new (or reproducing a new similar property or comparable) entails calculating the gross floor area of the property and then multiplying by the construction cost per square meter (Onyejiaka, 2015).

In estimating the cost new of a property, the Valuer should note the distinction between reproduction cost and replacement cost. Reproduction cost is the cost of creating a replica building or improvement on the basis of current prices using the same or closely similar materials[60]. Replacement cost means the estimated cost to construct at current prices, as of the effective

[60] (onyejiaka, 2015)

appraisal date, a building with utility equivalent to the building being appraised using modern materials and current standards, design and layout. [61]

Depreciation

It is the measure of the cost or revalued amount of the economic benefits of the tangible fixed asset that have been consumed during the period. Consumption includes the wearing out, using up or other reduction in the useful economic life of the tangible fixed asset whether arising from use, effluxion of time or obsolescence through either change in technology or demand for the goods and services produced by the asset. [62]

According to Onyejiaka 2015, depreciation also defined as a loss in value from any cause. This loss in value to real property may be caused by age or physical deterioration, or by functional or economic obsolescence.

a) **Physical Depreciation**

This is characterized by physical wear and tear of the subject property. The Valuer should observe the different components of the subject property, namely roof members, wall, doors, windows, floors etc. to visualize any physical defects in the structure. The defects observed do affect the value of the property. In practice, whatever is visualized should be backed up by photography as evidence for the present time and for posterity.[63] The wear and tear normally associated with age, which will extend to the additional periodic maintenance costs likely to be incurred.[64]

b) **Functional Depreciation**

Functional obsolescence is defined as the inadequacy of the design in terms of its current usage. Unlike physical depreciation, functional depreciation or obsolescence is not easily noticed except through careful observation.[65]Functional depreciation could result from;

- Design fault: ceilings too high or too low; improper location of kitchen, bathrooms, wasted spaces; Old fashioned facilities, etc.

[61] (Fischer, 2002)
[62] (RICS valuation-professional standard, 2014)
[63] (onyejiaka, 2015)
[64] (Scarrett, 2008)
[65] (onyejiaka, 2015)

- Dysfunctional structural facilities: - external walls not water resistant; ceilings and walls not insulated; inadequate electrical wiring, plumbing, etc.
- Dysfunctional water tank and septic tanks.

c. Economic or External Depreciation

Economic obsolescence results from the impact of changing external macro and microeconomic conditions on the property and internal factors which affect the profitability of the occupying business should not include. [66] The physical and functional obsolescence can be solved by carrying out appropriate remedial actions in the property by the lessor that of economic obsolescence is beyond the control of lessor (Onyejiaka, 2006).

Onyejiaka, 2015; states that the cases of economic depreciation include:

- Neighborhood hazards and nuisance; heavy traffic flow; smoke; dust; noise; offensive odors; and so on
- Route re-alignment or indexing which may cut off an area and decrease demand
- Decreasing demand; population shifts; depression or other adverse economic factors such as financial meltdown or cash scarcity.

Value of land (as if vacant)

The value of the land on which the subject property is situated is also important. Land in this case will be considered as though it were vacant because the land is in destructive even if the property disappears tomorrow. The Valuer will need to carry out a survey to keep abreast of current land values within the subject neighborhood. [67]

2.3.5.2Income valuation Approach

The income valuation approach is an appraisal technique used on income producing properties and it is also known as the Capitalization Approach. Income method is usually applied for property that is capable of generating rental income.

The income approach or investment method is a method of estimating the present value of the rights to future benefits to be derived from the ownership of a specific interest in a specific property

[66] (Sayce, 2006)
[67] (onyejiaka, 2015)

under given market conditions. In property valuation, these future rights can be future income (rent) and/or future reversionary capital value (resale rights to future capital benefits)[68].

The income approach to value consists of methods, techniques, and mathematical procedures that a valuer uses to analyze a property's capacity to generate benefits (i.e., usually the monetary benefits of income and reversion) and convert these benefits into an indication of present value (The-Appraisal-Institute, 2001).

In applying the income method, a property valuer assumes that the investor ultimately seeks a total return greater than or equal to the amount invested. Therefore, the investor's expected return consists of two components: full recovery of the amount invested, i.e., the return of capital and a reward for the assumption of risk, i.e., a return on invested capital. Because the returns from real estate may take a variety of forms, many rates, or measures of return, are used in capitalization. All measures of return can be categorized as either income rates, such as an overall capitalization rate (Ro) or equity capitalization rate (RE), or discount rates, such as an effective interest rate (the rate of return on debt capital), yield rate (the rate used to convert future payments in to present value), or internal rate of return (IRR) (The-Appraisal-Institute, 2001).

There are two recognized approaches to valuing a property using the income method: Direct capitalization method and discounted cash-flow (DCF) method. Both calculate the present value of future economic benefits[69].

Direct Capitalization Method

The direct capitalization method is most applicable to the valuation of income-producing properties in a mass appraisal environment. It requires the least amount of data to apply, reflects typical rents and market conditions, and is best suited to the use of statistical analysis[70].

Capitalization is a single period valuation model that converts a benefits stream into value by dividing the benefits stream by a rate of return that is adjusted for growth. Capitalization Rate will be used to convert anticipated economic benefits of a single period into value.[71]

[68] (Andrew Baum, 2011)
[69] (Saskatchewan Assessment Management Agency, 2012)
[70] (Saskatchewan Assessment Management Agency, 2012)
[71] (Scarrett, 2008)

The single period capitalization method can be appropriate, if reference to both historic performance and forecasts are not available. The single period capitalization method approach commonly estimates the value by capitalizing that income. A thorough understanding of accounting and economic profits, their historical record based usually on historic financial statements, and forecasting is necessary in each case.[72.]

Income Capitalization Approach to value consists of methods, techniques, and mathematical procedures that an appraiser uses to analyze a property's capacity to generate benefits [usually monetary benefits of income and reversion] and convert these benefits into an indication of present value.[73]In its most basic form, the direct capitalization method is a mathematical ratio involving the estimation of typical net operating income (NOI) as of the base date, which is then capitalized into value to produce a market value based assessment.

$$\text{Market Value} = \frac{\text{Net Annual Operating Income}}{\text{Capitalization Rate}}$$

$$V = \frac{NOI}{R}$$

The Discounted Cash-Flow Method

Discounted cash flow method is a method within the income approach whereby the present value of future expected net cash flows is calculated using a discount rate. Discount rate means a rate of return used to convert a future monetary sum into present value.

The Discounted Cash-Flow (DCF) method is built on a present value estimation of operating net during a specific calculation period as well as a present value estimation of a residual value at the termination of the calculation period. This method is different from the capitalization method because it has two calculation periods instead of one. It has the eternity capitalization of the operating net, but also a shorter period of normally 5-10 years (Persson, 2006 cited in; Andreasson.etal.2007)[74].

[72] (RICS valuation-professional standard, 2014)
[73] (Swango, 2015)
[74] (Belachew, 2013)

The discounted cash flow (DCF) method measures the value of an asset by the present value of its future economic benefits. These benefits can include earnings, cost savings, tax deductions, and proceeds from its disposal[75].

The DCF is most appropriate for very complex properties such as shopping centers, where there are many variables to be taken into account. Having carried out the DCF, the valuator should check if the resulting initial yield is acceptable and sustainable in market terms. In assessing worth for investment property, the DCF technique is the only acceptable method[76].

The procedure in carrying out the valuation of commercial property using income valuation method as stated by Fischer (2002) is as follows:

a. Estimating the potential gross income for a property (PGI)
b. Estimating vacancies and collection losses.
c. Estimating effective gross income (EGI).
d. Estimating the operating expense rate (OE).
e. Estimating net operating income (NOI), which is a company's effective gross income (EGI) less operating expenses (OE).
f. Capitalize the NOI into an estimate of current value. However, it must be in mind that all elements of outgoings need to be considered before the capitalization.

$V = CF_1 * 1/(1+r) + CF_2 * 1/(1+r)^2 + \ldots\ldots + CF_n * 1/(1+r)^n$

$$V = \sum_{n=1}^{n=\infty} \frac{CFn}{(1+r)^n}$$

Where:

V – Property value,

CF – Cash flow at the end of the year,

r – Discount rate,

[75] (RICS valuation-professional standard, 2014)
[76] (Issac, Property valuation Principles, 2002)

1, 2... n – Consecutive years of the forecast,

RV – residual (i.e. final) value of a property after the forecast period

In practice, valuations make use of cash-flow models with different objectives:

- Assessment of market value (market simulation)
- Consequence analysis of assessed market value
- Assessment of an individual yield rate

To better understand the usefulness of the cash-flow method, it is absolutely necessary to distinguish the objective of the calculation. The only thing that can differ is the size of input variables, such as rent, operational and maintenance costs, discount rate, etc.

The discounted cash flow method is the most used valuation method by valuation practitioners in West Africa, Europe and Australia.

According to Aswegen and Jedlin (2013) the discounted cash flow approach is the dominant methodology used by Australian financial analysts and corporate financiers, with all participants always or sometimes use the DCF approach. The reason for the popularity of the DCF valuation approach is its flexible character.

The DCF valuation method is also popular in Europe. About 80 percent of experts use DCF valuation method (F. Bancel and U. Mittoo, 2014). According to the research conducted by IPD Nordu, KTI Finland and RICS (2012) in Nordic countries, for commercial income generating properties, about 75 percent of the properties are also valued by income valuation approach.

In West Africa, the most used valuation approaches according to Groenewald et al. (2012) are the income approach (DCF) and the market approach (multiples). The DCF method is the most used and popular method in the Nigerian market, with almost 100% using the DCF method as primary or secondary valuation tool.

Chapter three

The practice of property valuation in banks of Ethiopia

3.1 Banking history of Ethiopia

The history of the use of modern money in Ethiopia can be traced back more than 2000 years (Pankhrust 1968 cited in Gedey 1990). It flourished in what is called the Axumite era which ran from 1000 BC to around AD 975. Modern banking in Ethiopia started in 1905 with the establishment of Abyssinian Bank, which was based on a fifty-year agreement with the Anglo-Egyptian National Bank. In 1908 a new development bank (called Societe Nationale d'Ethiope Pour le Development de l'Agriculture et du Commerce) and two other foreign banks (Banque de l'Indochine and the Compagnie de l'Afrique Orientale) were also established (Pankhrust 1968 cited in Degefe 1995). These banks were criticized for being wholly foreign owned. In 1931, it was liquidated and replaced by the Bank of Ethiopia which was the bank of issue until the Italian invasion of 1936. During the Italian occupation, Bank of Italy banknotes formed the legal tender. Under the subsequent British occupation, Ethiopia was briefly a part of the East Africa Currency Board.

During the five-years of Italian occupation (1936-41) banking activity expanded. The Italian banks were particularly active. After independence from Italy's brief occupation, where the role of Britain was paramount owing to its strategic planning during the Second World War, Barclays Bank was established and it remained in business in Ethiopia between 1941 and 1943 (Gedey 1990; Degefe 1995). Following this, in 1943 the Ethiopian government has established its own bank called State Bank of Ethiopia, which was serving both the commercial bank and central bank activities. Later on, it is further dissolved into today 's National Bank of Ethiopia (NBE) and Commercial Bank of Ethiopia (CBE).

Abreha also states that, before the Derg regime (1974 through1991), there were private and state-owned banks operating in the country such as CBE, Agricultural and Industrial Bank (AIDB), renamed recently as the Development Bank of Ethiopia (DBE), and Housing and Saving Bank (HSB)), renamed recently as the Construction and Business Bank (CBB). By then, all financial institutions including banks were nationalized. Following the regime change in 1991 and the liberalization policy in 1992, these financial institutions were reorganized to work to a market-

oriented policy framework. Moreover, Proclamation No. 84/1994 that allowed the private sector to engage in the banking business marked the beginning of a new era in Ethiopian banking. Following this proclamation Ethiopia witnessed a rise of domestic private banks. According to national bank of Ethiopia, two governments and sixteen privately owned banks are working in the country.

3.2 The practice of property valuation in Ethiopia

Valuation methodologies employed by almost all Banks is similar, except the figurative elements and some minor differences inherent in each. Many of the procedures employ the cost approach one way or the other, though not strictly in the manner prescribed by the Generally Accepted Valuation Procedures.[77]

To come up with the methods used by banks it is stated that rent return and cost method of valuation are used. In actual practice banks prepare valuation in order to ascertain the firm that it may not advance money more than the value of the property. Also, to keep a sufficient margin between the value of the property and the loan so as to cover the loss of value due to depreciation and interest charges on the loan. Hence, banks tend to minimize the level of risk that they are taking. So, they want to value a property by a method that doesn't increase the valuation result. Rent return and cost method of valuation is likely to result lower figure than a profit method. Therefore, rent return and cost methods are to the advantage of the banks, so that they rely using these methods. [78]

According to commercial bank of Ethiopia manual and an interview with collateral valuator (checker) and collateral valuator (maker), due to comparative availability of data, valuation for collateral purpose is done based on the replacement cost method.

[77] (Ethiopian Bankers association, 2014)
[78] (Ethiopian Bankers association, 2014)

3.2.1The practice of collateral valuation in commercial bank of Ethiopia (based on manual of the bank)

As stated above, of the three commonly known valuation methods, the Commercial Bank of Ethiopia (CBE) uses the replacement cost method. In the valuation methods used by many of the Banks, the depreciated (or un-depreciated) replacement cost of development on the premises to be held as collateral are calculated and multiplied with some kind of appreciation factor/s or some sort of location value is added to determine the estimated value of the property. For developments under construction requesting project finance, most of the Banks employ an engineering cost estimation using the specification and bill of quantities method.[79]

The process of completing the cost approach analysis will involve carrying out tasks at various steps. The first step in the cost approach is collecting relevant documents and carrying out property survey. Once relevant documents are collected and physical survey of properties carried out, the Cost Approach to value the subject property will follow the following steps.

Step -1Estimate the replacement cost new (RCN) of all improvements to the land.

Step -2 Estimates the accrued depreciation for each improvement.

Step -3Calculate replacement cost new less depreciation (RCNLD) by deducting all accrued depreciation from replacement cost new for each improvement. (Subtract step 2 from step 1).

Step -4 Estimate the value of the land rights (locational value), using highest and best use.

Step -5Add all replacement cost new less accrued depreciation to the calculated land value.

This step will derive a value which is indicative of the Cost Approach to market value.

Estimation of replacement cost new:

In the estimation of replacement/construction costs of improvements, the following steps will be followed:

- Categorization of improvements
- Building grading
- Determination of superficial/plinth area or volume of the subject property

[79] (Ethiopian Bankers association, 2014)

- Determination of appropriate replacement cost rate
- Determination of costs of other improvements, including: high cost items in/on buildings, site developments and consultancy fees.

In computation of the subject property using the replacement cost approach, bill of quantity and plinth area method the combination of the two methods are applied.

i. Bill of quantity method;

Projects to be appraised for project financing will be estimated by employing the engineering cost estimation method using the detailed bill of quantities method. During estimation, the valuator shall undertake the following tasks:

- Check the quantity against the presented document
- Revise the unit price
- Establish the finished project cost using the plinth area and volume method
- Estimate the expected cost.

ii. Plinth area/volume method

Replacement cost of buildings of completed construction at time of survey shall be calculated based on plinth area/volume method. The procedure involves determination of type and percentage of building components per each building type, reading of corresponding factors from the manual, multiplying percentage of each building component by its corresponding factor, summing up all the building factors and plugging it in to the tabulated empirical formula to reach to the corresponding plinth area rate. This procedure can also be used in project appraisals to check the overall project cost of buildings against the bill of quantities method. It is also very helpful to easily estimate the percentage of completion of buildings under construction

Building condition factor (Depreciation)

The depreciated replacement cost of a structure is found by deducting the costs of wear and tear (depreciation) from the replacement cost new (RCN). The resulting value is called the Depreciated Replacement Cost (DRC). The deduction made for wear and tear, or depreciation, depends on a

number of factors. One is the age of a structure relative to its expected usable life span, or service life. Another is the structure's existing condition.[80]

For different parts of the property, different depreciation multipliers are applied in determination of physical depreciation. These multipliers are applied for buildings worth collateral. The minimum requirement set for a building to be held as collateral is being structurally stable.

For different categories of building different depreciation multiplier factors are used. The deduction factor shall be applied to the building components in the determination of physical observation. Some of the deduction factors based on the type of building are:

Table 2 depreciation multiplier factor

building type	component of the building	type of defect	deduction (%)
multi-purpose halls and factories	foundation	major crack on masonry foundation	7.0%
		part of foundation's stone removed	9.0%
		major crack on flooring	4.0%
		settlement on floor	5.0%
		part of floor finish removed	5.0%
		Total	30.0%
	walling	tilted wall	3.0%
		walling material removed	2.0%
		Total	5.0%
	roofing and ceiling	leakage on roof	5.0%
		ceiling materials missing or damaged	4.0%
		damaged gutter and down pipe	3.0%
		buckling on ceiling	6.5%
		Total	18.5%
	internal and external opening	corrode and/or worn out parts	2.5%
		missing hinges, lockers and handles	2.5%
		missing openings (door and window)	4.0%
		damaged cupboards	3.0%
		broken glazing	2.0%
		Total	14.0%
	wall finish	major cracks exist	1.5%
		part of the wall finish is removed	2.5%
		fade out wall finish	2.0%
		Total	6.0%
	sanitary and electrical fixtures	Un functional fixtures	1.5%
		missing fixtures	2.5%
		Total	4.0%

[80] (Ethiopian Bankers association, 2014)

	super structure	major cracks on structures	1.5%
		deflection on beam	1.8%
		buckling on column	1.8%
		reinforcement bars visible	1.0%
		Total	6.0%

Source: Manual of commercial bank of Ethiopia

Locational value

According to Article 40(3) of the Federal Democratic Republic of Ethiopia Constitution (FDRE Constitution), all urban and rural lands are the property of the state and the Ethiopian people. Accordingly, the sale, exchange and mortgage of land are also prohibited. However, article 18 sub-article 1 of proclamation 721/2011 states that: a lessee may transfer his leasehold right or use it as collateral or capital contribution to the extent of the lease amount already paid.

The locational value of the subject property can be assessed based on the manual of the bank. The steps in calculating the locational value are:

- Determine the area of the property.
- Determine the grade of the plot (plot grading). The grades are divided into four; grades are given based on the properties distance from the nearest main road.
- Determine the road width criterion: if the width of the feeder root is less than 6 meter or internal roads of width less than 4 meter, a five percent locational value deduction factor will be considered.
- Looking for the quality factor: based on site accessibility condition (stable asphalt road, worn asphalt road, coble stone etc...), percentage factor will be applied on the locational value.

Based on the plot area of the property and cost of the civil work, the value of the location will be limited. The limit can be calculated as:

- For a plot area up to 2,000m^2 the location value limit will be:

  = 3*CWC

- For a plot area between 2,001m^2 and 10,000m^2 the location value limit will be:

= 3.5 * CWC – CWC*PA*4000

- For a plot area above 10,000m^2 the location value limit will be:

  = CWC

  Where CWC: cost of civil work before depreciation

  PA: plot area

The location value of a lease land is determined by deducting the unpaid lease amount from the locational value calculated by parameters stated in the manual. The paid lease amount will be taken, if the agreed lease value exceeds from the location value.

3.3 commercial property valuation

Commercial property is defined as income producing property developed and owned for the purpose of leasing to a third party, for possible future occupation by the owner, or for future development to earn rental income or profit upon resale. [81]

Commercial property can be classified as office buildings, restaurants, shopping centers, hotels, industrial parks, warehouses, factories and residential property. Property used for residential purposes, such as multi-household dwellings, is labelled as commercial property when it is owned or developed for commercial purposes, for example by a professional property company or an institutional investor.[82]

According to commercial bank of Ethiopia manual, commercial properties are classified as

a. Lower villa

It is defined as a single story low quality residential, utility or small commercial houses made of wooden fillet and “chiqa” plastered walls. The method of estimation is based on the plinth area method.

b. Higher villa

[81] (Ethiopian Bankers association, 2014)
[82] (European central bank, 2008)

Such type's properties are single story modern standard residential, utility or commercial houses made of "chiqa", stone, brick or concrete block walls, with partition walls and alternative construction materials based on the checklist. The method of estimation is based on the plinth area method.

c. Multi- Story buildings

Multi – story residential, utility or commercial buildings made of reinforced concrete structures, masonry or concrete block walls are under multi – story building. The method of cost estimation should be the relevant equations based on the plinth area.

d. Multi-purpose halls (warehouses)

Multi – purpose halls shall include stores, factory buildings, showrooms, halls, studio type rooms, etc. It can be made of "chiqa" masonry or concrete block walls. The method used to estimate the property is based on plinth area or volumetric method.

e. Factory building

Such type of buildings includes all buildings that function as factories. The estimation method used for factory buildings are same as for multi-purpose halls. However, supplementary structures, such as machine foundations, corbels, etc., shall be measured separately using the bill of quantity method.

Chapter four

Research findings and discussions

4.1 Introduction

This chapter will focus on the validity of income valuation method in lending of commercial properties. To examine this, a selection has been made of commercial properties. This is done to establish their market values at the respective transaction dates using income valuation method and replacement cost valuation method. These calculations are made based on detailed statutory provisions of the country and are based on the respective market conditions. After the determination of the values, the outcome is compared each other. A total of four commercial properties had been selected. Given the fact that, this study aims at properties that produce an income.

The following properties were selected:

Table 3 properties selected for a case study

Building	City	Location	Area (m^2)
Property A	Addis Ababa	Around Bole Bulbula	2,080.00
Property B	Addis Ababa	Around Piassa	3,785.00
Property C	Addis Ababa	Around megenagna	1,461.00
property D	Addis Ababa	Around lebu	1,665.00

Source: Commercial bank of Ethiopia

4.2 Location and Description of Property A

The subject fixed asset is located in Addis Ababa, which is the capital city of Ethiopia. The fixed asset of the Company is a commercial building. The subject property A is located at the Bole sub - city around bole-bulbula; a few distances from the airport and the main ring road of the city.

The subject property of property A consists of an approximately 2, 080 m^2 square meter land parcel which is improved by commercial building. The land holding of the company is held under a leasehold interest. The neighborhood of the subject property is characterized by mixed residence land use. Notable landmarks in the vicinity of the subject property include: a private School, an Ethiopian orthodox church. Public mains electricity and pipe-borne water are available in the subject property and in the neighborhood as well.

A break down and details of development on site include the following:

- A basement with an area of 1,832m^2
- A basement with an area of 1,860m^2
- Ground floor area = 1,801m^2
- Area from 1st to 3rd floor = 4,656m^2
- Area from 4th and 5th floor = 1,538m^2
- Area from 6th to 9th floor = 6,272m^2

Total floor area = 1,832 + 1,860 + 1,801 + 4,656 + 1,538 + 6,272 = 17,959 m^2

4.2.1 Methods of valuation adopted

The study employed two methods of valuation, that is depreciated replacement cost method and income method of valuation with a view to determine when and which of the two methods is the best for valuation of the subject property.

4.2.1.1 Depreciated Replacement Cost Method

The depreciated replacement cost method is adopted when market activity is insufficient to provide meaningful comparable or where the uniqueness of the assets or their special nature afford little or no dependable comparable evidence.

This method is the summation of the cost of improvement adjusted to reflect physical condition, age and obsolescence. As pointed by Kuye (2000), the method tries to equate depreciated cost to market value.

The breakdown on how the capital value of the subject property was arrived at is as explained below:

A. Location value:

The location value of property A is:

57 years are the remaining lease period from the Total lease period of 60 years

The total lease paid was,

1^{st} lease + 2^{nd} lease + 3^{rd} lease + 4^{th} lease= 2,053,529.00Birr + 526,000.00Birr +1,216,299.00Birr

=3,795,828.00 Birr

Location value for property A = 3,795,828.00 Birr * (57/60) * 0.9

= 3,245,432.94 Birr

B. Improvements:

The current replacement cost of the improvement is assessed based on current building/construction cost indices of the bank. From this, unit construction cost is derived and further refined to reflect material differences in quality and materials of construction and finishes as well as details of accommodation.

The derived and adjusted unit cost is applied to the gross floor area of the building. Computed replacement cost or present value factor is applied to the reproduction cost new to obtain the current replacement/capital value.

To calculate the value of property A, we have to add the total area of each item.

Table 4 floor areas of property A

Description of item	Area (m2)
basement 1	1,832
basement 2	1,860
ground floor	1,801
1st - 3rd floor	4,656
4th & 5th floor	1,538
6th - 9th floor	6,272

Source: Commercial bank of Ethiopia

Total area = 1,832 + 1,860 + 1, 801 + 4,656 + 1,538 + 6,272

= 17,959 m^2

Therefore, the value of the improvement will be the product of total area and unit rate;

Total cost = 17,959 m^2 * 12,084.93 Birr/ m^2

= 213,787,784.38 Birr

C. Value

The study is of the considered professional opinion that the asset of property A, appraised and valued is in the sum of 217, 033,217.32 (Two Hundred Seventeen Million, thirty-three Thousand two hundred seventeen Birr only). This is made up as follows:

- Improvements on Land: 213,787,785 Birr (Two Hundred Thirteen Million, seven hundred eighty-seven Thousand seven hundred eighty-five Birr Only).
- Location value: 3,245,435 Birr (Three Million, two Hundred Forty-Five Thousand four hundred thirty-five Birr only).

4.2.1.2 Income Method of Valuation

The procedure adopted in carrying out valuation of commercial property (A) using income valuation method as stated by Fischer (2002) is as follows:

g. Estimating the potential gross income for a property (PGI)

h. Estimating vacancies and bad debt.

i. Estimating effective gross income (EGI), which is company's potential gross income (PGI) less vacancies and bad debt.

j. Estimating the operating expense rate (OE).

k. Estimating net operating income (NOI), which is a company's effective gross income (EGI) less operating expenses (OE).

l. Capitalize the NOI into an estimate of current value. However, it must be in mind that all elements of outgoings need to be considered before the capitalization.

Discounted cash flows technique is used for estimating value of properties, whose real income is bound to change in the predictable future. The income change may be caused by:

- gradual completion of the expected level (or possibility of rendering particular services) by a property or its components,
- Changes in economic situation,
- Change in income generated by a property, due to its development.

$V = CF_1 * 1/(1+r) + CF_2 * 1/(1+r)^2 + \ldots\ldots + CF_n * 1/(1+r)^n$

$$V = \sum_{n=1}^{n=\infty} \frac{CFn}{(1+r)^n}$$

Where:

V – Property value,

CF – Cash flow at the end of the year,

r – Discount rate,

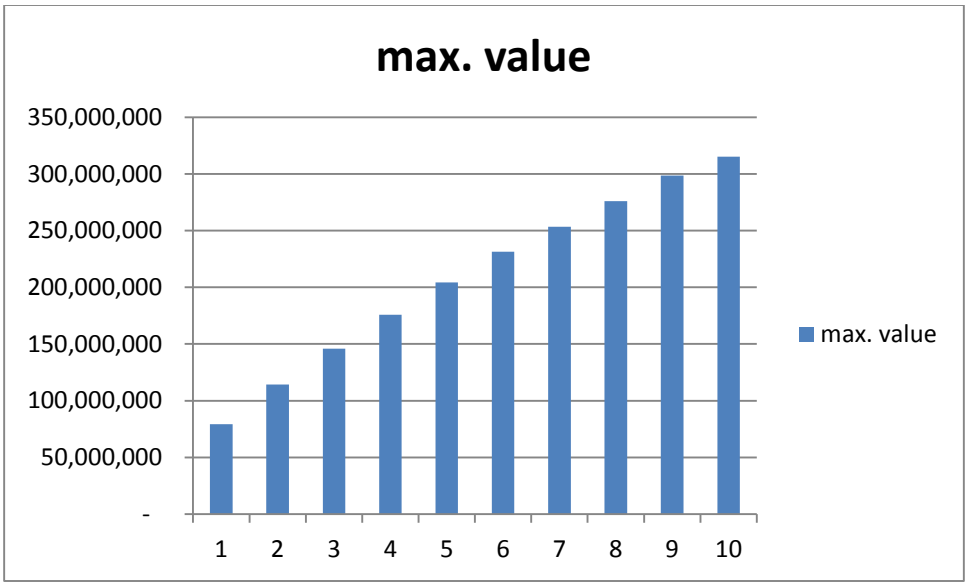
1, 2... n – Consecutive years of the forecast,

RV – residual (i.e. final) value of a property after the forecast period

The property (A have an equity value of 84,544,585 Birr from the total investment cost of 272,558,434 Birr. It produces an effective gross income of 41,368,730Birr with a net present value 29,412,278Birr in the first year. The value of property A from the DCF model is 106,506,571 Birr at the first year of operation and the value of the property increases with the time.

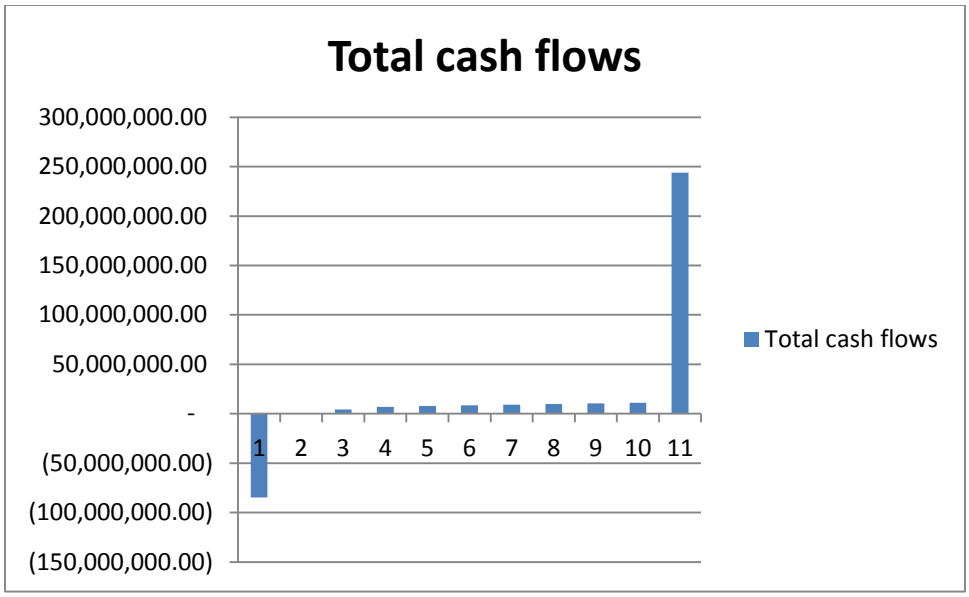
The adopted capitalization rate was 12%; and it was taken from the valuation expert of the Bank. According to Commercial bank of Ethiopia's valuation expert, different banks use different capitalization rate, their lending interest rate might reach up to 15%.

Chart1. value of property A



The results from the DCF model can be relatively subjective, because the DCF model is largely dependent on the analyst's belief about the future direction of the company, the results should therefore be interpreted with caution.

Chart 1 equity and total cash flows of property A.



At the beginning, the chart shows the initial investment of the property and it was 85,000,000 Birr. From the first year to the ninth year the before tax cash flow (BTCF) of the investment and at the tenth year the chart shows the hypothetical resale value of the property which is 249,000,000 Birr.

4.3 Location and Description of Property B

The subject fixed asset is located in Addis Ababa, which is the capital city of Ethiopia. The fixed asset of the subject property is a commercial building. The subject property B is located at the Arada sub city around the main road of Tewodros square.

The subject property consists of an approximately 3,785 m^2 area with improved commercial building. The land holding of the company is held under a leasehold interest. The neighborhood of the subject property is characterized by mixed residence land use. Notable landmarks in the vicinity of the subject properties are different commercial buildings. Electricity and pipe water is available in the subject property and in the neighborhood as well.

4.3.1 Methods of Valuation Adopted

The study employed two methods of valuation. That is depreciated replacement cost method and income method of valuation with a view to determine which of the two methods is the best for valuation of the subject property.

4.3.1.1 Depreciated Replacement Cost Method

A. Locational value:

The location value of property B of block 1 is:

From the Total lease period of 50 years, it has 40 years of remaining lease period. The locational value of the subject property B of block 1 is 7,478,735.94 Birr.

The location value of property B of block 2 is: It has 46 years of remaining lease period, from the Total lease period of 50 years. The locational value of the subject property B of block 2 is 1,626,753.76 Birr.

Total location value of the two blocks of property B is:

= location value of block1 + location value of block 2

= 7,478,735.94 + 1,626,753.76 Birr

= 9,105,489.7 Birr

B. Improvements:

The current replacement cost of the improvement is assessed based on current building/construction cost indices. From this, unit construction cost is derived and further refined to reflect material differences in quality and materials of construction and finishes as well as details of accommodation.

The derived and adjusted unit cost is applied to the gross floor area of each building. Computed replacement cost or present value factor is applied to the reproduction cost new to obtain the current replacement/capital value.

To calculate the value of property B of block 1:

Total floor area of the improvement = 11,418.77m^2

Cost per unit area = 14,460.25Birr/m^2

Therefore, the value the improvement = total floor area * cost per unit area

= 11,418.77 m2 * 14,460.25 Birr/m^2

= 165,118,205.43Birr

To calculate the value of property B of block 2:

Total floor area of the improvement = 11,764.21m^2

Cost per unit area = 9,722.02Birr/m^2

Therefore, the value the improvement = total floor area * cost per unit area

= 11,764.21 m^2 * 9,722.02Birr/m^2

= 114,371,835.49Birr

Therefore, the value of the improvement will be the sum of the two;

Total cost = 165,118,205.43Birr + 114,371,835.49Birr

= 279,490,040.92 Birr

C. Estimation

The study is of the considered professional opinion that the asset of property B, appraised and valued is in the sum of 288,595,530 (Two Hundred Eighty-Eight Million, five hundred ninety-five Thousand and five hundred thirty Birr only). This is made up as follows:

- Improvements on Land: 279,490,040 Birr (Two Hundred
- Seventy-Nine Million, four hundred ninety Thousand Forty Birr Only).
- Location value: 9,105,489.7 Birr (nine Million, one Hundred Five Thousand four hundred eighty-nine Birr only).

4.3.1.2 Income Method of Valuation

The property B has an equity value of 213,297,669 Birr from the total investment cost of 284,546,189 Birr. It produces an effective gross income of 41,368,730Birr with a net operating income of 35,247,067Birr in the first year. The value of property (A) from the DCF model is 220,755,196 Birr at the first year of operation and the value of the property increases with the time.

Chart 2 value of property B

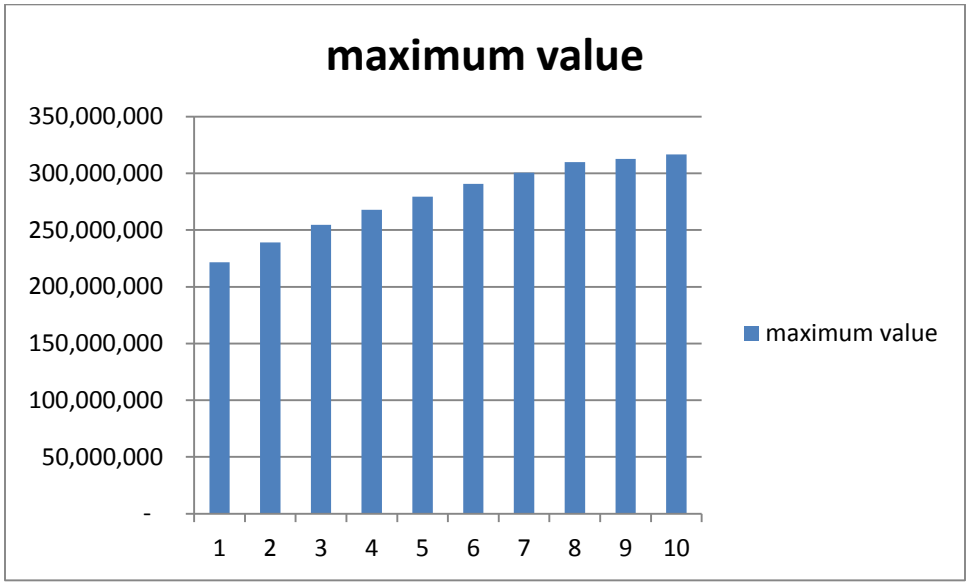
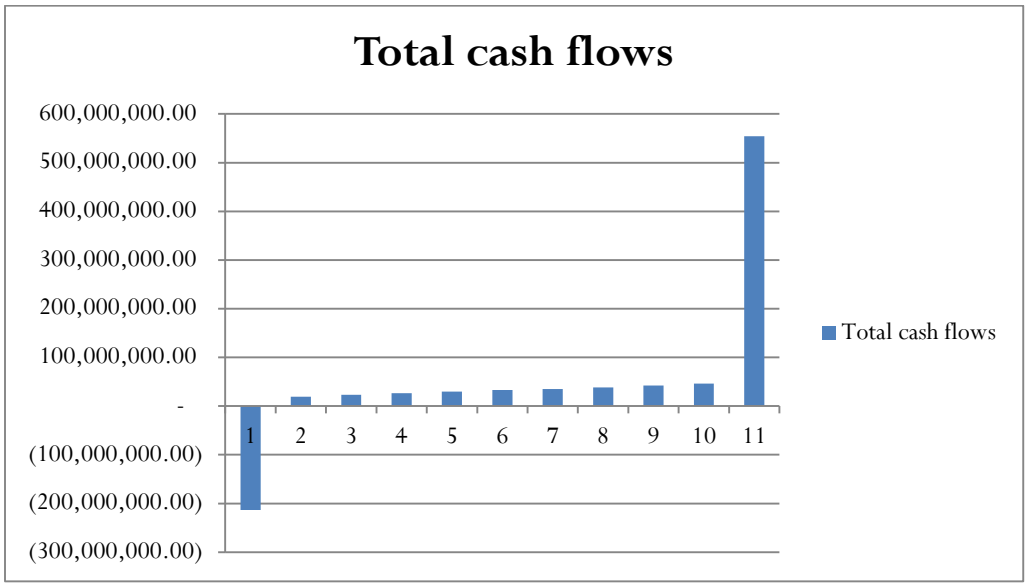


Chart 3 equity and total cash flows of property B



The chart shows the property has an initial investment 214,000,000 Birr and at the end of tenth year it has a hypothetical resale value of 556,000,000 Birr.

4.4 Location and Description of Property C

The subject fixed asset is located in Addis Ababa, which is the capital city of Ethiopia. The fixed asset of the subject property is a commercial building and it is located at the Bole sub - city around the main road of Megenagna.

The subject property consists of an approximately 1,461 m^2 area with improved commercial building. The land holding of the property is leasehold system. The neighborhood of the subject property is characterized by mixed residence land use. Notable landmarks in the vicinity of the subject properties are different hotels, malls, government office buildings etc. Electricity and pipe water is available in the subject property and in the neighborhood as well.

4.4.1 Methods of Valuation Adopted

The study employed two methods of valuation, that is depreciated replacement cost method and income method of valuation with a view to determine which of the two methods is the best for valuation of the subject property.

4.4.1.1 Depreciated Replacement Cost Method

A. Locational value:

The location value of property C is:

From the Total lease period of 50 years, it has 42 years of remaining lease period. The locational value of the subject property is 8,129,829 Birr.

B. Improvements:

The current replacement cost of the improvement is assessed based on current building/construction cost indices of the banks' manual. From this, unit construction cost is derived and further refined to reflect material differences in quality and materials of construction and finishes as well as details of accommodation.

The derived and adjusted unit cost is applied to the gross floor area of each building. Computed replacement cost or present value factor is applied to the reproduction cost new to obtain the current replacement/capital value.

To calculate the value of property c:

Total floor area of the improvement = 7,520 m^2

Based on the plinth area method:

Cost per unit area = 9,955.21Birr/m^2

Therefore, the value the improvement = total floor area * cost per unit area

= 7,520 m^2* 9,955.21Birr/m^2

= 75,000,000Birr

C. Estimation

The asset of property c, appraised and valued is in the sum of 83,200,000 (three hundred seventy million, two hundred thousand birrs only). This is made up as follows:

- Improvements on land: 75,000,000 birrs (seventy-five million birrs only).
- Location value: 8,200,000 Birr (Eight million and two hundred thousand birrs only).

4.4.1.2 Income Method of Valuation

The property B has an equity value of 60,000,000 Birr from the total investment cost of 80,000,000 Birr. It produces an effective gross income of 19,500,000Birr with a net operating income of 9,600,000Birr in the first year. The value of property (A) from the DCF model is 220,755,196 Birr at the first year of operation and the value of the property increases with the time. According to the commercial bank of Ethiopia the adopted capitalization rate is 12%.

Chart 4 estimation of the value of property C.

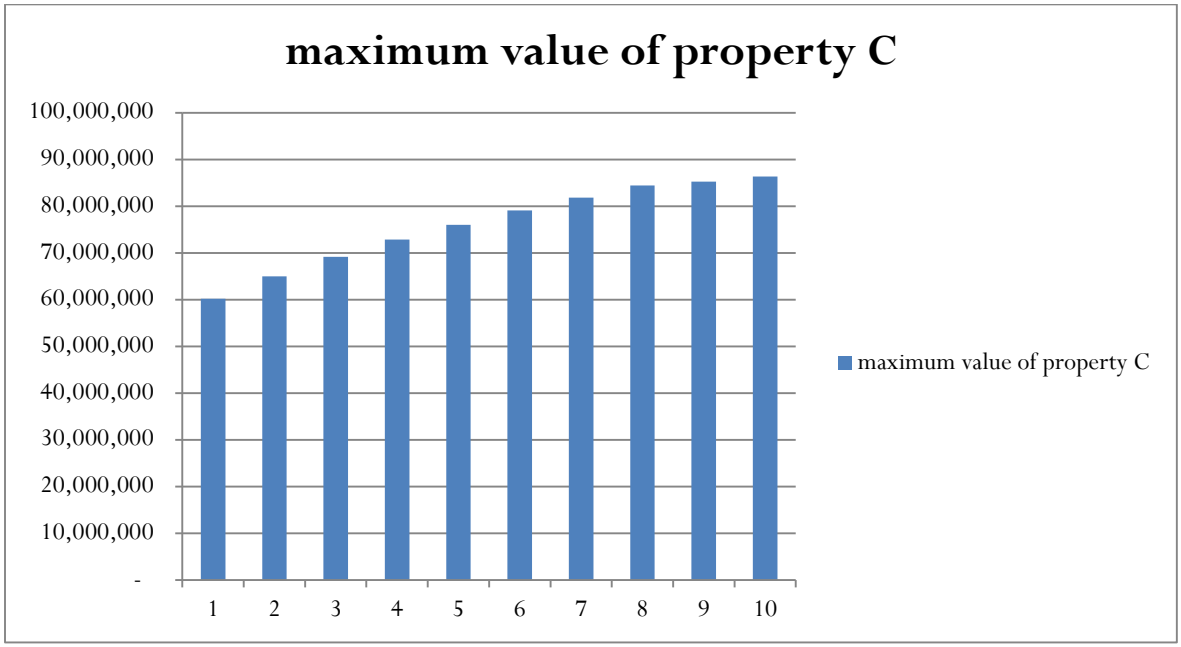
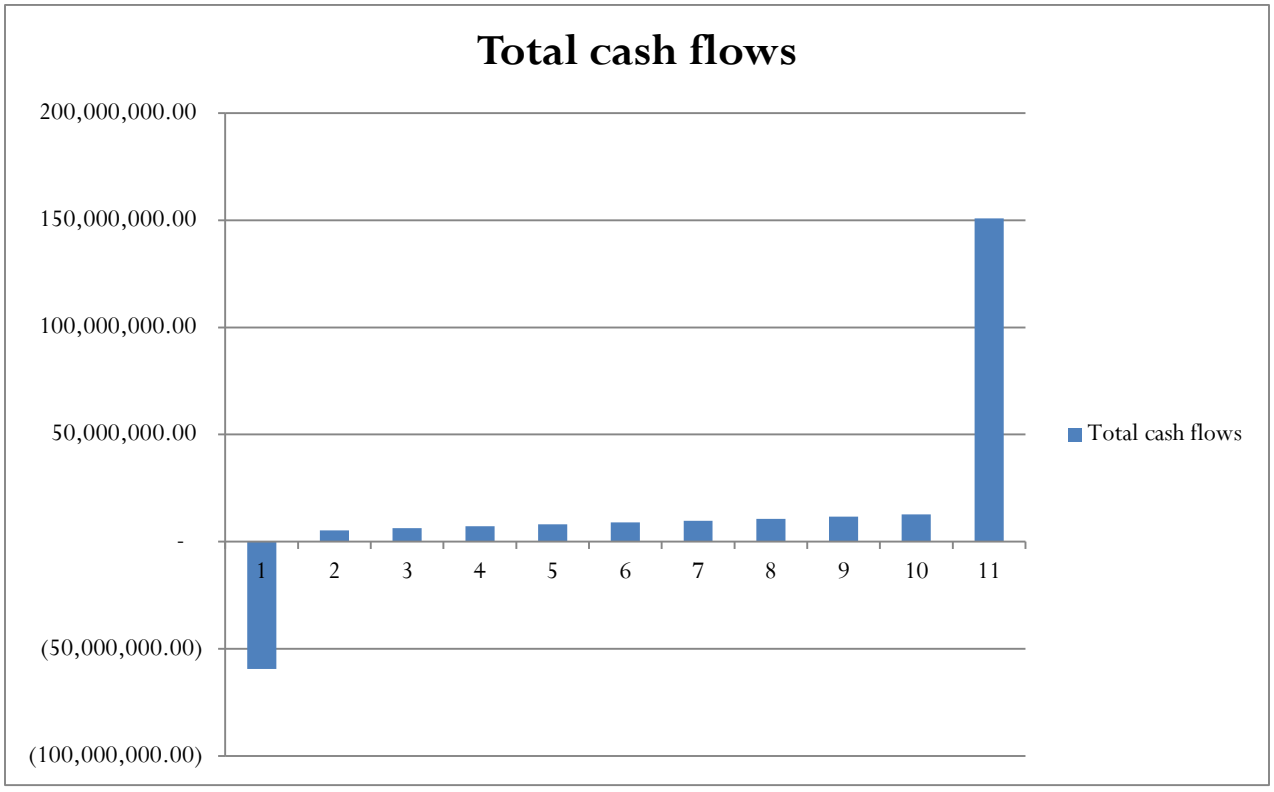


Chart 5 the value of equity and total cash flows of the property C.



The cash flow of property C shows, the improvement has an initial investment of 60,000,000 Birr and it has a hypothetical resale value of 556,000,000 Birr at the tenth year.

4.5 Location and description of property D

The subject property is located in Addis Ababa around the main ring road "lebu mebrat hail" The fixed asset of the subject property is a commercial building. It consists of an approximately 1,665 m^2 area with improved commercial building. The land holding of the company is held under a leasehold interest. The neighborhood of the subject property is characterized by mixed residence land use. Notable landmarks in the vicinity of the subject properties are different commercial buildings, three-star hotel and warehouse. Electricity and pipe water is available in the subject property and in the neighborhood as well.

4.3.1 Methods of Valuation Adopted

The study employed two methods of valuation, that is depreciated replacement cost method and income method of valuation with a view to determine which of the two methods is the best for valuation of the subject property.

4.3.1.1 Depreciated Replacement Cost Method

A. Locational value:

The location value of property D is:

54 years are the remaining lease period from the Total lease period of 60 years

The total lease paid was,

=3,100,000 Birr

Location value for property A = 3,100,000 Birr * (54/60) * 0.9

= 2,800,000 Birr

B. Improvements:

The current replacement cost of the improvement is assessed based on current building/construction cost indices. From this, unit construction cost is derived and further refined to reflect material differences in quality and materials of construction and finishes as well as details of accommodation.

The derived and adjusted unit cost is applied to the gross floor area of each building. Computed replacement cost or present value factor is applied to the reproduction cost new to obtain the current replacement/capital value.

Total floor area of the improvement = 13,365.77m^2

Cost per unit area = 12,689.25Birr/m^2

Therefore, the value the improvement = total floor area * cost per unit area

= 1113,365.77m^2 * 12,689.25Birr/m^2

= 170,000,000 Birr

C. Estimation

The study is of the considered professional opinion that the asset of the property, appraised and valued is in the sum of 172,800,000 Birr (one hundred seventy-two million, eight hundred thousand Birr only). This is made up as follows:

- Improvements on Land: 170,000,000 Birr (one hundred seventy million Birr Only).
- Location value: 2,800,000 Birr (two million, eight hundred thousand Birr only).

4.3.1.2 Income Method of Valuation

The property has an equity value of 67,650,000 Birr from the total investment cost of 219,000,000 Birr. It produces an effective gross income of 25,500,000 Birr with a net operating income of 24,400,000 Birr in the first year.

Chart 6 value of property D

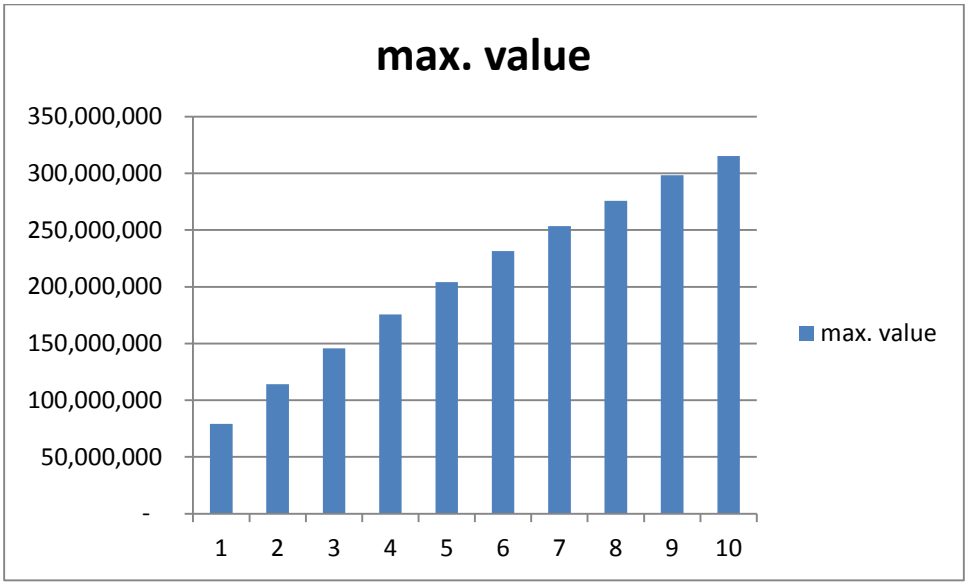
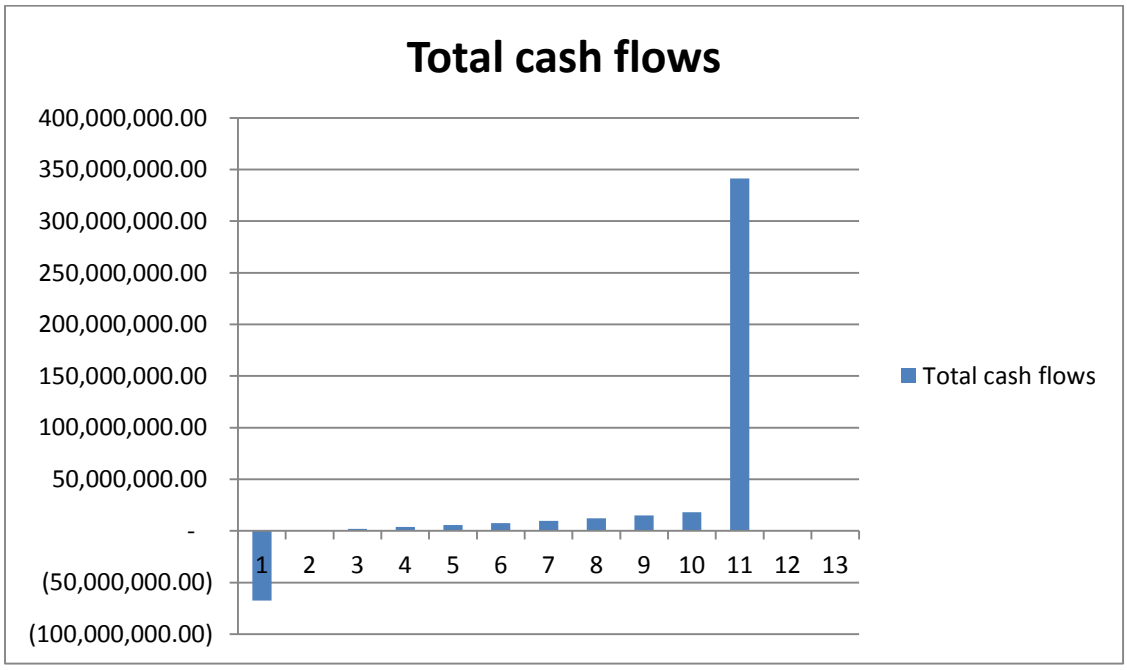


Chart 7 equity and total cash flows of property D



From the above chart, the cash flow of property D shows, the improvement has an initial investment of 68,000,000 Birr and it has a hypothetical resale value of 345,000,000 Birr at the tenth year.

4.5 Discussion on the results

In this section, the major findings of the present study are discussed according to the research questions. In addition, the results of the present study are discussed in relation to the results of previous studies reviewed in the literature review section. In other words, this section is devoted to discussing the connection of the results of this study to the results and findings of previous studies. This section includes a discussion of the results that are found by using the income valuation method and the Depreciated replacement cost DRC method.

From the calculation above it could be seen that the income valuation method could not yield positive result when valuing both properties for the first three consecutive years. However, the values of the properties increase in value and get positive from the beginning of the fourth year.

The value of property A, from the DCF model is 97,667,813 Birr, 135,755,736Birr and 162,688,793Birr for the first three consecutive years. Using the DRC method, the values for the first three consecutive years are 208,114,826 Birr, 198,212,867 Birr and 188,247,196 Birr respectively. However, when the time increases the value from the income approach will be higher than the value of replacement cost method.

Table 5 the values of property A.

year	DRC valuation method	Income valuation method
1	208,114,826	99,092,996
2	198,212,867	142,834,353
3	188,247,196	182,316,678
4	178,219,517	219,639,515
5	168,131,539	255,199,946
6	157,984,967	289,326,324
7	147,781,509	316,886,492

8	137,527,262	344,802,637
9	127,215,061	373,013,843
10	116,851,093	393,976,497

Source: commercial bank of Ethiopia

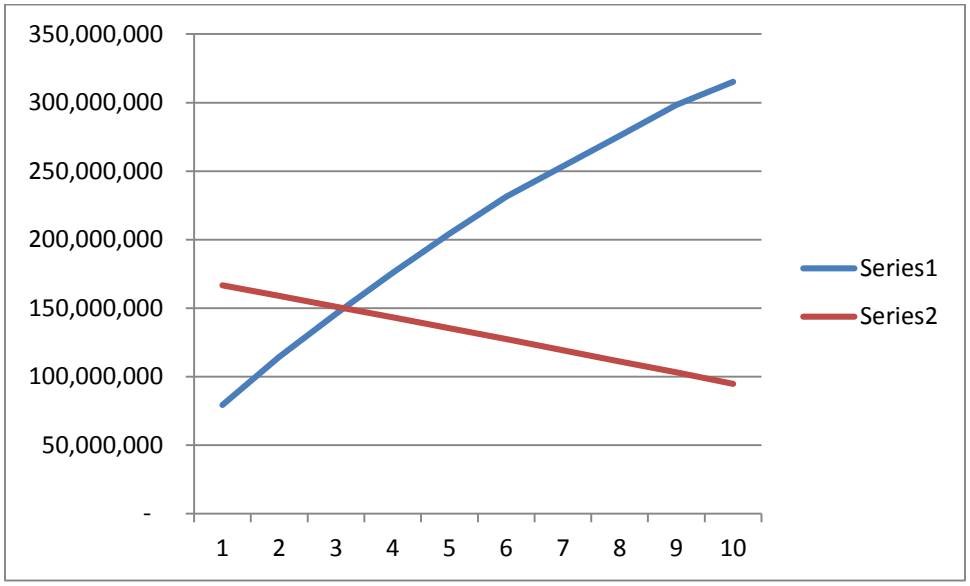


Chart 8 equilibrium of property A

The graph demonstrates that in the replacement cost valuation method, the value of the property is falling with time. However, the value by the income approach is increased with time.

The value of property B from the DCF model similarly has 221,492,803 Birr, 239,186,894 Birr and 254,524,392 Birr for the first three consecutive years. Using the DRC method, the values for the first three consecutive years are 271,066,709 Birr, 262,972,598 Birr and 254,814,775 Birr respectively. Similar to property A, the value of the income approach is higher than the value of replacement cost method, when the improvement increases in age.

Table 6 the values of property B.

year	DRC valuation method	Income valuation method
1	271,784,962	221,492,803
2	263,883,287	239,186,894
3	255,318,485	254,524,392
4	246,069,471	268,005,039
5	236,114,117	279,598,876
6	227,003,673	290,682,105
7	217,603,477	300,576,080
8	208,152,491	310,010,558
9	198,643,551	312,801,462
10	189,082,844	316,840,836

Source: commercial bank of Ethiopia

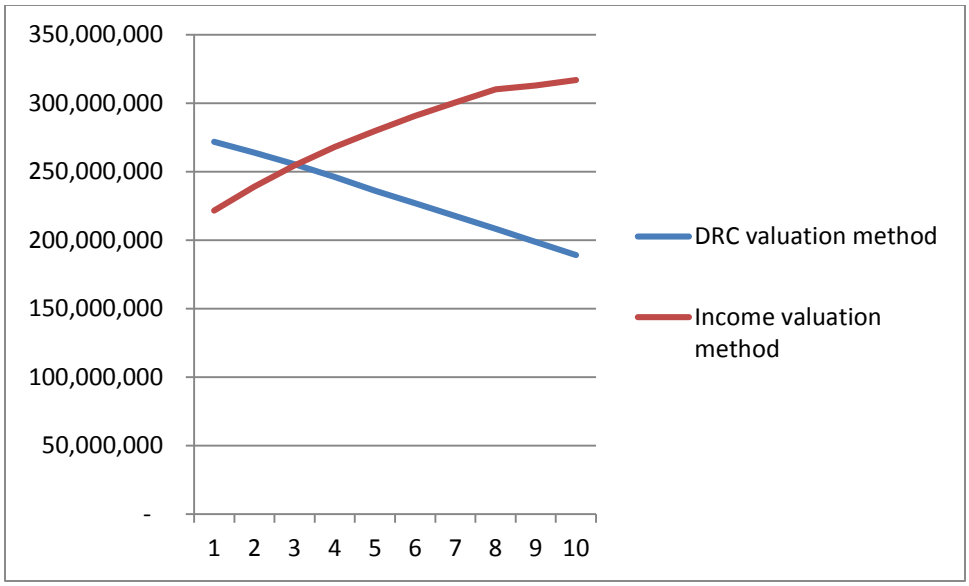


Chart 9 equilibrium of property B

Similar to property A, the graph above demonstrates that in the replacement cost valuation method, the value of the property is falling with time. However, the value by the income approach is increased with time.

The values of property C from the DCF model are 60,201,785 Birr, 65,021,954 Birr and 69,199,900 Birr for the first three consecutive years. Using the DRC method, the values for the first three consecutive years are 76,994,641Birr, 73,144,909Birr and 69,487,664Birr respectively. Similar to property A and property B the value from the income approach increases with time.

Table 7 the values of property c.

year	DRC valuation method	Income valuation method
1	76,994,641	60,201,785
2	73,144,909	65,021,954
3	69,487,664	69,199,900
4	66,013,280	72,871,758

5	62,712,616	76,029,551
6	59,576,986	79,107,640
7	56,598,136	81,851,677
8	53,768,229	84,461,918
9	51,079,818	85,257,764
10	48,525,827	86,387,073

Source: commercial bank of Ethiopia

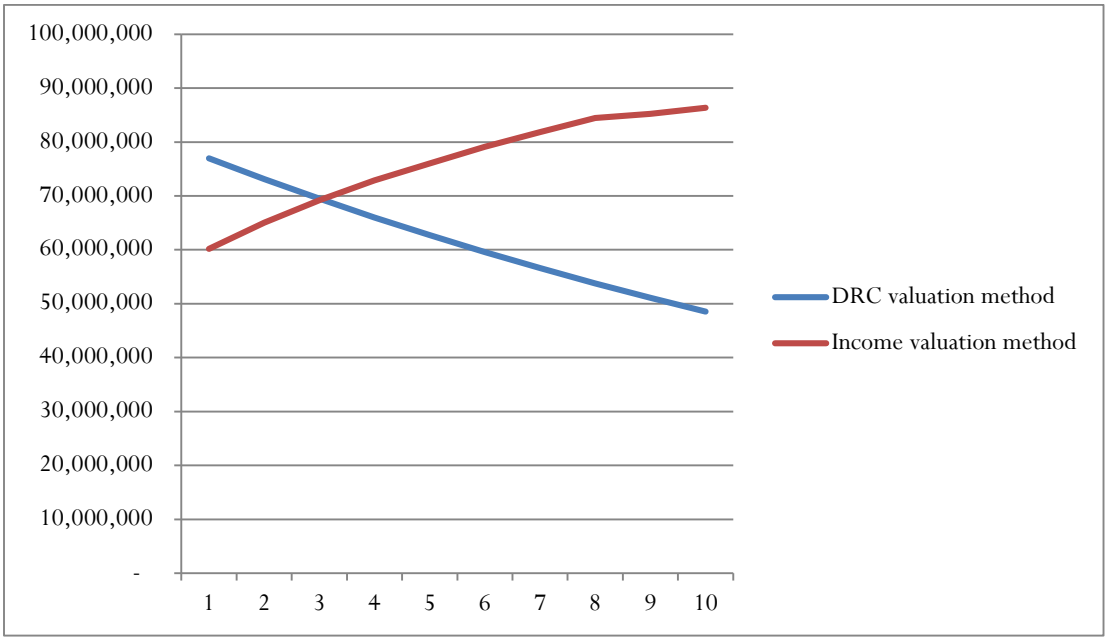


Chart 10 equilibrium of property C

Similar to the above properties, the above graph demonstrates that in the replacement cost valuation method, the value of the property is falling with time. However, the value by the income approach is increased with time.

The values of property D from the DCF model has 79,300,000 Birr, 114,300,000 Birr and 145,600,000 Birr for the first three consecutive years. Using the DRC method, the values for the

first three consecutive years are 167,000,000 Birr, 159,000,000 Birr and 152,000,000Birr respectively. Similar to the above properties the value from the income approach is higher than the value of replacement cost method when the age of the improvement increases.

Table 8 the values of property D.

year	DRC valuation method	Income valuation method
1	166,683,000	79,274,397
2	158,939,488	114,267,482
3	151,132,263	145,853,343
4	143,263,031	175,711,612
5	135,333,499	204,159,957
6	127,345,374	231,461,059
7	119,300,364	253,509,193
8	111,204,564	275,842,110
9	103,050,809	298,411,074
10	94,845,288	315,181,198

Source: commercial bank of Ethiopia

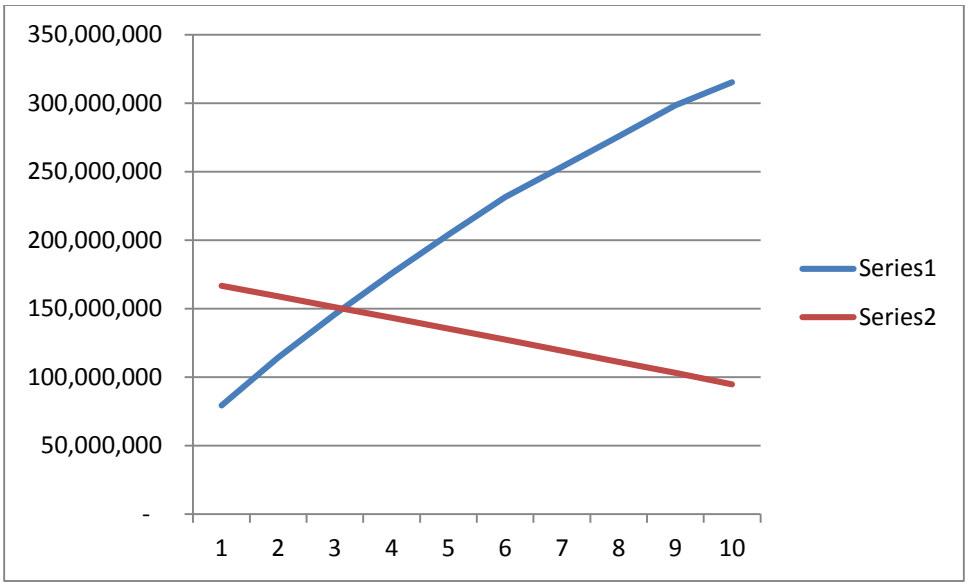


Chart 11 equilibrium of property D

Similar to the above properties, the above graph demonstrates that in the replacement cost valuation method, the value of the property is falling with time. However, the value by the income approach is increased with time.

Based on the findings of the study, the cost approach may provide a reliable estimate of value in the case of new commercial properties, but as buildings and other improvements grow older and begin to deteriorate, the resultant loss in value becomes increasingly difficult to quantify accurately. Because the cost approach does not reflect these income-related considerations and requires a number of highly subjective damage estimates, this approach is given minimal weight in the commercial properties valuation process.

It is useful in establishing a benchmark for buy versus build decisions and for relative pricing on lending over time. The results revealed in this study related to the effects of the replacement cost method are not in agreement with the results of previous findings because they confirmed the importance of the replacement cost method of valuation as the most effective and efficient method of valuing commercial properties.

Most studies in the field of property valuation use the income valuation method to value commercial properties. Such studies showed that the income valuation method is useful and effective in determining the value of a commercial property. Similarly, the current study revealed that the income valuation method is also an effective and valid approach to be used.

On the other hand, when the replacement cost method is applied, the factor multiplier related with depreciation will make a significant value difference. Different studies have shown that depreciation is a loss in value to real property which may be caused by age or physical deterioration, or by functional or economic obsolescence. However, the valuation manual of commercial bank of Ethiopia shown that, depreciation will not be deducted unless there are any physically observed defects. This can result up to 30% growth in value between two to three years after first the valuation takes place, which contradict with the concept and the studies of replacement cost method of valuation.

Chapter five

Conclusion and Recommendations

This study examined income valuation method can be used as an option to the replacement cost method of valuation for commercial properties. The study also indicates that the income and the replacement cost approach are both suitable in estimation of the value of commercial properties.

Based on the findings of the study, the cost approach may provide a reliable estimate of value in the case of new commercial properties, but as buildings and other improvements grow older and begin to deteriorate, the resultant loss in value becomes increasingly difficult to quantify accurately. In valuation of commercial properties, the Most knowledgeable valuers, base their decisions on economic factors such as projected net income and return on investment. Since the depreciated cost approach does not reflect these income-related considerations, the income valuation method is more advisable to use in the commercial valuation process.

In choosing the best method of valuation, the owners of commercial properties and the banks should pay attention on the condition of the improvements such as: the constructional details, utilities, facilities and services, occupancy of the property and improvements has great role. In valuing of commercial properties, the valuers should take this into considerations in order to reach at the most reliable value.

Studies on techniques and approaches to commercial property valuation are still very few. Based on the findings of the current study, the research proposed the following suggestions in order to arrive at the most reliable value when valuing commercial properties.

i. In the depreciated replacement cost method, depreciation is the major ingredient of value. However, practically and also in the manual of the bank there is a big gap in considering and valuing of depreciation. For example, for a property that has a differential settlement defect on footing will be collateralize if the property is structurally stable. The study recommends the bank to look and revise things related to building condition factors.

ii. For newly constructed properties, the replacement cost valuation method gives a reliable estimation. The study suggests the bank to apply the income valuation method to determine the estimated, valued by the replacement cost method.

iii. The replacement cost valuation method will not consider any income related values. Nevertheless, when the age of the improvement increases and began to depreciate, the value of the property will decrease directly and the appraisal will not establish the market value of the property. Therefore, the study suggests the use of income valuation method when the ages of the properties increase.

iv. Even though, there is a limitation on data, the study suggests the use of a variety of methods in valuation of commercial properties. This will help the market participants to select the most appropriate models for their own use.

v. Finally, future studies can focus on a larger sample size and covering different cities to strengthen generalizability of findings about the adoption of income valuation approach as an alternative to replacement cost method in valuation of commercial properties.

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ANNEXES

Annex 1Questionnaire used in the interview

1) What can you say about the manual of the bank? Is that practicable?
2) Does the bank update the manual?
3) What are the methods that the bank uses?
4) According to Ethiopian constitution, lands are the property of the state and the Ethiopian people. How they estimate the value of land?
5) What is the method of depreciation the bank use?

Annex 2 Income valuation for Property A

	1	2	3	4	5
year of operation	2017	2018	2019	2020	2021
hypothetical resale value	280,779,923.07	299,962,816.89	299,352,059.81	298,741,302.73	298,130,545.64
osb in t	162,632,059.16	151,270,548.50	138,630,867.90	124,569,223.23	108,925,643.54

	1	2	3	4	5	6
years of operation	2017	2018	2019	2020	2021	2022
potential gross income	43,546,032.00	45,723,333.60	47,900,635.20	50,077,936.80	52,255,238.40	54,432,540.00
vacancies and bad debts	12,667,936.58	8,729,000.05	6,531,904.80	6,828,809.56	7,125,714.33	7,422,619.09
effective gross income	30,878,095.42	36,994,333.55	41,368,730.40	43,249,127.24	45,129,524.07	47,009,920.91
operating expenses	1,465,817.00	1,539,107.85	1,612,398.70	1,685,689.55	1,758,980.40	1,832,271.25
net operating income	29,412,278.42	35,455,225.70	39,756,331.70	41,563,437.69	43,370,543.67	45,177,649.66
computation of operation taxation (the 'tax route')						
interest	21,151,558.01	19,976,813.68	18,669,910.62	17,215,980.96	15,598,484.21	
depreciation	10,735,296.65	10,735,296.65	10,735,296.65	10,735,296.65	10,735,296.65	
taxable income	(2,474,576.24)	4,743,115.37	10,351,124.43	13,612,160.08	17,036,762.81	
taxes on operation	(742,372.87)	1,422,934.61	3,105,337.33	4,083,648.02	5,111,028.84	
computation of operation cash flows (the 'cash flow route')						
net operating income	29,412,278.42	35,455,225.70	39,756,331.70	41,563,437.69	43,370,543.67	
pmt	29,657,617.31	29,657,617.31	29,657,617.31	29,657,617.31	29,657,617.31	
before tax cash flows	(245,338.89)	5,797,608.39	10,098,714.39	11,905,820.38	13,712,926.37	
taxes on operation	(742,372.87)	1,422,934.61	3,105,337.33	4,083,648.02	5,111,028.84	
after tax cash flows	497,033.98	4,374,673.78	6,993,377.06	7,822,172.36	8,601,897.52	

general information for property A		
acquisition date	acqu	2017
disposition date	disp	2027
building component	Build	214,705,933
pre-operating expenditure & working capital	furn	38,887,477
lease value	veh	18,965,024
land component	Land	3,795,828
bank loan	b. loan	172,844,653
land lease loan	L.loan	15,169,196
applicable depreciation rate on building	deprate	5.00%
applicable depreciation rate on furniture	depratef	20.00%
applicable depreciation rate on vehicle	deprateveh	20.00%

total acquisition price	Value	272,558,434
operations	t	10.00
years of operation (max. of 10 years)		
initial potential gross income	PGI	43,546,032.00
initial potential gross income services	PGIS	
growth rate for the pgi (in %)	gpgi	5.00%
growth rate for the pgi service (in %)	gpgis	0.00%
vacancy rate (in %)	vac	10.00%
total cost of sales	costs	150,000.00
rate of growth of total cost of sales (%)	gcosts	3.00%
initial operation expenses	OE	1,465,817.00
rate of growth of operation expenses (%)	goe	5.00%
taxation information		
marginal tax rate (%)	mtr	30.00%
disposal information		

mortgage 1		
debt to value ratio	D_V	63.42%
nominal rate (%)	i	11.25%
number of compounding periods per year	c	1
number of payments per year	v	1
periodic rate	pm	11.25%
loan value ($)	P	172,844,653.00
loan establishment	fees1	0
amortisation (in years)?	n	10.00
lease in year	Ln	20.00
term (in years)?	tm	10
pmt	pmt	29,657,617
osb in t	osb in t	-
equity	equity	84,544,585
debt coverage ratio	dcr	2

disposition	
disposition at the end of year	2026
total gross disposition price	391,539,630
expenses related to disposition	58,730,944
net disposal price total	332,808,685
initial cost	0
capital gain	15%
(minus) outstanding debt	91,522,161
(minus) prepayment penalty	0
before tax equity at disposition	241,286,524
(minus) taxes on disposal	9,037,537
after tax equity at disposition	232,248,986

Annex 3. Income valuation for property B

	1	2	3	4	5	6
years of operation	2016	2017	2018	2019	2020	2021
potential gross income	140,002,065	140,002,065	140,002,065	140,002,065	140,002,065	140,002,065
vacancies and bad debts	68,601,011	63,000,929	56,000,826.	49,000,722	42,000,619	35,000,516
effective gross income	71,401,053	77,001,135	84,001,239	91,001,342	98,001,445	105,001,548
operating expenses	36,153,985	35,292,503	37,532,594	39,641,987	41,635,094	43,710,651
net operating income	35,247,067	41,708,632	46,468,644	51,359,354	56,366,351	61,290,897
computation of operation taxation (the 'tax route')						
interest	8,150,622	4,988,746.09	4,354,837.96	3,658,529.01	2,893,676.61	1,246,655.35
depreciation	11,874,644.75	11,874,644.75	11,874,644.75	11,874,644.75	11,874,644.75	9,682,953.50

taxable income	15,221,801.03	24,845,241.49	30,239,161.87	35,826,180.56	41,598,029.88	
taxes on operation	4,566,540.31	7,453,572.45	9,071,748.56	10,747,854.17	12,479,408.96	

	1	2	3	4	5
year of operation	2016	2017	2018	2019	2020
hypothetical resale value	347,571,936	387,238,704	427,994,619	469,719,593	510,757,479
osb in t	60,913,454.54	56,658,027.50	51,923,864.91	46,657,109.03	40,797,843.12

Annex 4. Income valuation for property C

	1	2	3	4	5	6
years of operation	2016	2017	2018	2019	2020	2021
potential gross income	38,080,561.68	38,080,561.68	38,080,561.68	38,080,561.68	38,080,561.68	38,080,561.68
vacancies and bad debts	18,659,475.22	17,136,252.76	15,232,224.67	13,328,196.59	11,424,168.50	9,520,140.42
effective gross income	19,421,086.46	20,944,308.92	22,848,337.01	24,752,365.09	26,656,393.18	28,560,421.26
operating expenses	9,833,883.97	9,599,560.93	10,208,865.68	10,782,620.72	11,324,745.64	11,889,297.13
net operating income	9,587,202.48	11,344,747.99	12,639,471.33	13,969,744.38	15,331,647.54	16,671,124.13
computation of operation taxation (the 'tax route')						
interest	2,216,969.23	1,356,938.94	1,184,515.93	995,119.89	787,080.04	
depreciation	3,229,903.37	3,229,903.37	3,229,903.37	3,229,903.37	3,229,903.37	
taxable income	4,140,329.88	6,757,905.69	8,225,052.03	9,744,721.11	11,314,664.13	
taxes on operation	1,242,098.96	2,027,371.71	2,467,515.61	2,923,416.33	3,394,399.24	

	1	2	3	4	5
year of operation	2016	2017	2018	2019	2020
hypothetical resale value	94,539,566.62	105,328,927.72	116,414,536.46	127,763,729.47	138,926,034.40
osb in t	16,568,459.63	15,410,983.48	14,123,291.26	12,690,733.66	11,097,013.33

Annex 5. Income valuation for property D

	1	2	3	4	5	6
years of operation	2017	2018	2019	2020	2021	2022
potential gross income	34,836,825.60	36,578,666.88	38,320,508.16	40,062,349.44	41,804,190.72	43,546,032.00
vacancies and bad debts	10,134,349.27	6,983,200.04	5,225,523.84	5,463,047.65	5,700,571.46	5,938,095.27
effective gross income	25,524,192.80	28,476,323.20	31,638,533.60	34,802,387.20	38,282,625.60	42,110,888.80
operating expenses	1,172,653.60	1,231,286.28	1,289,918.96	1,348,551.64	1,407,184.32	1,465,817.00
net operating income	24,351,539.20	27,245,036.92	30,348,614.64	33,453,835.56	36,875,441.28	40,645,071.80
computation of operation taxation (the 'tax route')						
interest	13,741,057.60	12,850,235.20	11,874,706.40	10,806,135.20	9,635,362.40	
loan establishment fees						
depreciation	8,588,237.32	8,588,237.32	8,588,237.32	8,588,237.32	8,588,237.32	
taxable income	2,022,244.28	5,806,564.40	9,885,670.92	14,059,463.04	18,651,841.56	
taxes on operation	606,673.28	1,741,969.32	2,965,701.28	4,217,838.91	5,595,552.47	
computation of operation cash flows (the 'cash flow route')						
net operating income	24,351,539.20	27,245,036.92	30,348,614.64	33,453,835.56	36,875,441.28	
pmt	23,726,093.85	23,726,093.85	23,726,093.85	23,726,093.85	23,726,093.85	
before tax cash flows	625,445.35	3,518,943.07	6,622,520.79	9,727,741.71	13,149,347.43	
taxes on operation	606,673.28	1,741,969.32	2,965,701.28	4,217,838.91	5,595,552.47	
after tax cash flows	18,772.07	1,776,973.75	3,656,819.52	5,509,902.80	7,553,794.97	

	1	2	3	4	5
year of operation	2017	2018	2019	2020	2021
hypothetical resale value	227,041,974.33	252,905,122.00	278,781,963.00	307,295,344.00	338,708,931.67
osb in t	130,105,647.32	121,016,438.80	110,904,694.32	99,655,378.59	87,140,514.83