

JAMNALAL BAJAJ INSTITUTE OF MANAGEMENT STUDIES, MUMBAI

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Methodologies for valuing real estate  
companies

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## **Executive Summary**

Traditionally the Indian real estate market has been disorganized, fragmented and governed by archaic laws; the liberalization of the real estate industry has lagged other sectors. Lack of transparency in land bank titles and absence of proven and established standards for valuation and accounting of land and property have given rise to a number of challenges pertaining especially to valuation of real estate companies and market value of land banks.

This paper investigates the global best practices and methodologies for real estate valuation. This is done primarily by drawing parallels between Real Estate Investment Trust (REIT) valuation methods globally and how these could be used for valuation of Real Estate Operating Companies (REOC's) in India. The paper also identifies techniques suitable to the Indian industry with appropriate modifications. Finally, a valuation of DLF Ltd. is presented using the suggested valuation methods.

Note: The word count of this paper is 2494 words, excluding bibliography and table of contents

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## 1. Introduction

In spite of the emergence of real estate sector in India as an attractive investment opportunity underpinned by a booming and increasingly diversified economy and significant potential for rapid expansion in FDI, the market structure based primarily on opaque valuation methodologies and archaic regulatory framework still acts as a hindrance for realizing its potential to the fullest.

With the recent listing of real-estate companies on the BSE & NSE, claiming huge land banks with enormous market value, it has become necessary for all the stakeholders to ascertain the fair value of the property. Traditionally, real estate valuation in India has been based on comparable transactions in neighborhood areas of the land under consideration. For constructed property, the valuation has been cost-based or replacement value-based.

However, the high market value of the land banks claimed the companies still remains a question. This is because of the following factors:

- **Absence of Formal Land Appraisal Mechanism**

In contrast to the US and other developed countries where presence of housing mortgage companies like Federal National Mortgage Association (commonly known as Fannie Mae) have led to standard processes in land appraisal, the scenario in India is quite different. For example, the value of land appraised by government/government agencies generally differs substantially from the private appraiser's valuation, which is generally used for the transaction.

- **Lack of Data & Documentation**

No clear land titles and lack of documentation leads to opaque valuations methods and illiquidity in the market. This is one of the major factors influencing the values of land banks of the real estate companies.

In this paper, we study few methods which are used in developed markets such as US, Australia, UK for land/real estate appraisal and valuation and suggest a suitable method for Indian scenario.

The data on global real estate used in this dissertation is mostly secondary as a formal mechanism for tracking real estate prices is in place in such countries due to presence of REIT market. For the methods currently used in India, primary sources have been which consist mainly of interviews with real estate developers, real estate advisory agencies, and REIT AMC's in India.

## 2. Applicability of REIT Valuation Methods in Indian Context

A Real Estate Investment Trust (REIT) is a corporation investing in real estate that reduces or eliminates corporate income taxes. In return, REITs are required to distribute 90% of their income, which may be taxable in the hands of the investors. The REIT structure was designed to provide a similar structure for investment in real estate as mutual funds provide for investment in stocks.

Both REITs and REOCs generate revenue from developing and selling land properties, leasing and renting out buildings. Properties may be ranging from malls, residential complexes, office spaces, hotels, etc.

Apart from the requirement to distribute 90% of their income to the investors, REITs have same revenue generation sources as REOCs. A small percentage of REIT income also comes from fees. Investors in REITs look at cash income from their investments while those in REOCs have the goal of capital appreciation. The difference lies primarily in the tax regulations between these two types of companies.

A unique feature that distinguishes REITs from most other non-real estate firms that trade in the stock market is the dual market situation in which two parallel markets exist for trading real estate. The key point to stress here is that the stock market valuation of property (indirect market), and the private market valuation (direct market) are not always the same and in general, the REIT market (indirect market) tends to lead the private market.

When the two markets disagree, REITs can undertake positive NPV investments either by buying or selling in the private market.

These factors make REIT valuation models very relevant for valuation of real estate companies in India.

### 3. Study of REIT/REOC Valuation methods

Popular asset valuation models have two forms; income-based and transaction-based models.

We take a look at the following methods for REIT valuations:

- NAV-Based Pricing Model
- Funds From Operations (FFO) or Multiple-Based Model
- Discounted Cash Flow(DCF)-Based Model

Real estate valuation models have been transaction-based traditionally, but with the boom of REITs in the 1990s, income-based models also gained importance and have been used widely since.

We take a look at the pros and cons of each valuation method and also suitability in the Indian context in the next section.

#### ***NAV-Based Pricing Model***

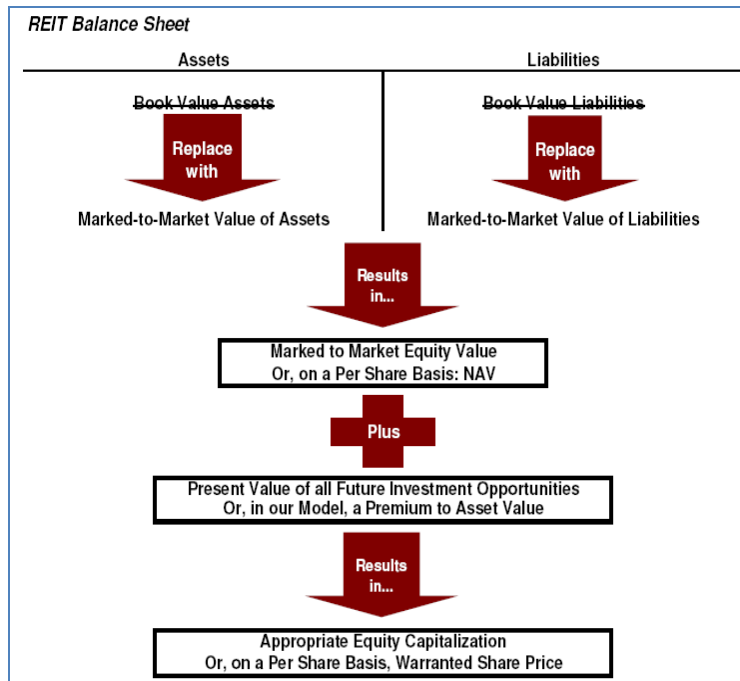
The NAV-Based model is an income-based model is developed for valuing REIT assets. The model outputs are used to test hypotheses about management and firm value. The underlying formula for the NAV-Based model is as follows:

$$NAV = \frac{\text{Market Value of the Properties} + \text{Other Assets} - \text{Total Liabilities}}{\text{Number of Shares Outstanding}}$$

The premium is defined as:

$$\text{Premium} = \frac{(\text{Share Price} - \text{NAV})}{\text{NAV}}$$

A very popular and widely-used valuation method was developed by Green Street Advisors Inc.



Source: Green Street Advisors, Inc.

#### Step I: Calculate Asset Value & NAV

- Derive an estimate of marked-to-market asset value
- Derive an estimate of marked-to-market liabilities
- Compute NAV by subtracting liabilities from assets

#### Step II: Determine the Appropriate Premium/Discount to Asset Value

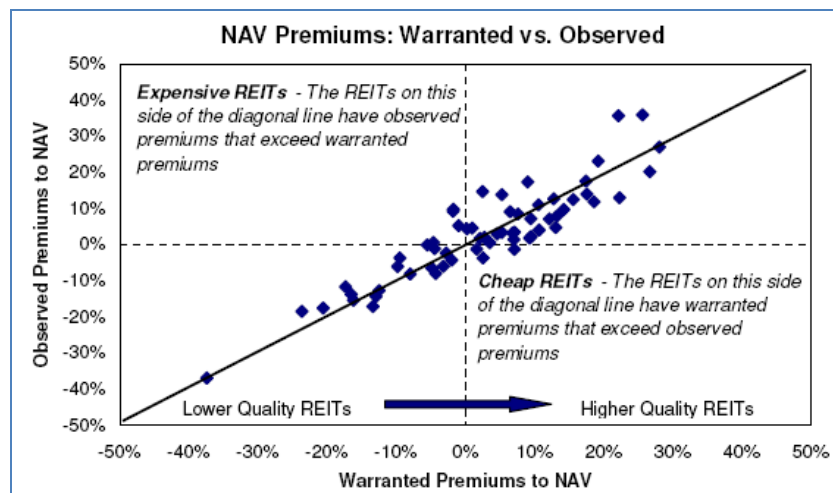
##### A] Observe the magnitude of premiums in the market place

- Observe current share pricing of all REITs
- Back into observed premiums to asset value for each REIT
- Company-specific observations are aggregated to derive average observed premium for each property sector, as well as the dispersion of premiums around that average. A basic assumption of the model is that these aggregated premiums are appropriate at any given point in time, thus making the model both, REIT-market neutral and sector-neutral.
- Use observed distribution (i.e. standard deviation) of premiums to ascribe REIT-specific warranted premiums in B.

## B] Derive Company Specific Warranted Premiums to Asset Value

- Rank each company relative to peers with regard to variables that impact premiums to asset value. These variables include Franchise Value, Corporate Governance, Share Liquidity, Overhead and Leverage. Rankings are scored on a 100-point scale.
- Translate company-specific scores into warranted % premiums to asset value. High-scoring REITs are ascribed premiums approximating the largest observed premiums, while the inverse is true for low scoring REITs.
- Convert warranted % premium to asset value into a \$-based Premium, and add to marked-to-market equity valuation. Convert to warranted share-price equity valuation. Convert to warranted share price.

## Step III: Compare Warranted Share Prices with Observed Share Prices



Source: Green Street Advisors, Inc.

All inputs to the NAV model come from publicly available sources except the market value of the properties. The market value of properties can be ascertained by two methods:

- Replacement cost basis – Here, the replacement cost of the property is calculated based on historical data.
- Future Cash Flows – In this method, the net operating income (NOI) is divided by “economic cap-rates”. These rates are discount rates that ‘equate to the unleveraged yield on a property after deducting a normalized reserve for reoccurring, capitalized leasing and maintenance costs (“cap-ex”) from real estate’. The cap rates must take into account

all economic and real estate risks, including risk-free interest rates, property type, location, quality and age, expected demand growth, supply outlook and the like.

### **Issues in Deriving NAV**

The success of an NAV-based valuation approach is contingent on the quality of the estimate of the value of the real estate portfolio. The right estimate of the value of the portfolio is heavily dependent on the cap-rates.

Critics deride NAV as a static, even backward-looking perspective that doesn't fully take into account the value-creating power that management provides.

### ***Funds from Operations (FFO) or Multiple – Based Model***

A popular way to measure REITs against each other is to assign a multiple to a company's projected funds from operations (FFO). This method draws its roots from the EV/EBITDA multiple in general business valuation.

“Funds from Operations (FFO)” is a measure of cash generated by a real estate investment trust (REIT). It is important to note that FFO is not the same as Cash from Operations, which is a key component of the indirect-method cash flow statement.

The formula for FFO is:

Funds from Operations = Net Income + Depreciation + Amortization - Gains on Sales of Property

FFO must be reported, and it is widely used, but it contains a weakness: it does not deduct for capital expenditures required to maintain the existing portfolio of properties.

In estimating the value of a REIT, professional analysts therefore use a measure called "adjusted funds from operations" (AFFO). Although FFO is commonly used, professionals tend to focus on AFFO for two reasons. One, it is a more precise measure of residual cash flow available to shareholders and therefore a better "base number" for estimating value (for example, applying a multiple or discounting a future stream of AFFO). Two, because it is true residual cash flow, it is

a better predictor of the REIT's future capacity to pay dividends. AFFO does not have a uniform definition. However, the most important adjustment made to calculate it is the subtraction of capital expenditures, as mentioned above.

Following is the AFFO calculation for a REIT named “ABC Residential”:

ABC Residential	2003	2002
Net Income	5,43,847	4,21,313
Add: Depreciation	4,44,339	4,19,039
Gain on (depreciable) property sales	(3,00,426)	(1,02,614)
Other Misc. Depreciation Items & Gains	69,838	1,00,651
<b>Funds From Operations (FFO)</b>	<b><u>7,57,598</u></b>	<b><u>8,38,389</u></b>
<i>Adjusted Funds from Operations (AFFO)</i>		
Less: Capital Expenditure	(1,81,948)	(1,56,776)
Less: Amortization	NA	NA
<b>Adjusted Funds from Operations (AFFO)</b>	<b><u>5,75,650</u></b>	<b><u>6,81,613</u></b>
<b>Source: Green Street Advisors, Inc.</b>		

The next step involves applying a multiple to the AFFO value which can be broken into two components: growth in AFFO and expansion in price-to-AFFO multiple.

### ***Discounted Cash Flow (DCF) – Based Model***

This model treats REITs as normal corporations and is based on the premise that it is necessary to look at the future value creating ability of the REIT and is based on future cash flows.

The DCF model, which is widely used to value companies in industries across the economy, can also be broken into two main tasks. The first tries to accurately project a company's cash flow growth in perpetuity. The second applies a discount rate to those earnings that captures what the investor could expect from a risk-free investment, plus risks inherent in the enterprise — managers' skill, property type, market characteristics and the like.

This model discounts future earnings of the business to today's value.

## 4. Real Estate Valuation in Indian Scenario: Applying Global Learnings

### *Using the Right Valuation Methodology*

Based on the land banks, realty companies broadly have two business models. The first is to develop and sell, where a plot of land is developed as an office complex or residential apartments and then sold. In the second, the company develops the property but rents or leases it out to clients instead of selling.

Secondly, capital required and cash flows from the property depend on the type of land ownership. Type of land owned by real estate companies in India is classified into three groups: presumptive ownership (where lands are shown under sole development rights), absolute ownership (where the company owns the land) and vested ownership (there is no land bank, only a letter from a government agency). It is unfortunate that the same risk premium is attached to all the three types of lands owned. It should change as the capital requirements and cash flows arising out of the projects vary.

In the Indian scenario, a “**sum of the parts**” method should be used as there is large diversity in types of land holdings and type of development rights.

For valuation of the “develop and sell” model, DCF method should be used as it captures the true earnings capability of the property. The NAV model is suitable for the rented out or leased part of the land as well as for the undeveloped land bank. This ensures that marketable value of the leased out and undeveloped land.

$$\text{Value of the REOC} = \left[ \begin{array}{l} \text{NPV of the develop and sell portion} \\ \text{Land bank} \\ \text{calculated using DCF Method} \end{array} \right] + \left[ \begin{array}{l} \text{NAV of the undeveloped \&} \\ \text{Leased/Rented out} \end{array} \right]$$

### *Risk Premiums*

While using the DCF/NAV methods for REOC land bank valuation, it is necessary to use different risk premiums for different titles of land as stated earlier. Especially, in the NAV method, this results into having different cap rates for different type of lands to estimate the market value. Also, other factors such as sector specific risk, market position of the developer,

management quality, project composition, project quality, past projects track record, legal compliance and documentation, should also be considered.

## 5. A look at Accounting Issues

Revenue recognition by developers is one major area where varied practices exist in the industry. Under the first method, purchase of land amounts to construction activity actual land cost is included as a part of estimated cost and actual cost. Revenue is recognized for both 'Sale of Land' and 'Construction Activity'. In the second method, 'Agreement for sale of land' is treated as a standalone agreement and actual cost is not included as a part of actual cost and revenue is recognized on this basis.

These methods result into revenue recognition without taking cognizance of the risk and rewards linked to construction contract.

Instead of these methods, a hybrid method should be used wherein the risk and rewards of 'Agreement for construction' and 'Agreement for sale' are interlinked, in view of which the revenue and cost recognition are done in combination. Here the following issues are taken care of:

- Risk and rewards of the contracts are interlinked in substance;
- Purchase of land itself may not be a construction activity and should not be included as part of actual/estimated cost for computation of percentage of completion; and
- The total pricing of a constructed property allocated between the two contracts may not be at fair value and accounting of revenue for sale of undivided land on a standalone basis may not reflect the substance of the transaction.

## 6. Case Study: Valuation of DLF Ltd.'s Land bank using suggested method\*

Valuation of Residential Land bank using DCF										
Item	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Size of Land bank	41	41	41	41	41	41	41	41	41	41
Average Sales Price/sq ft (over next 10 years)	4100	4100	4100	4100	4100	4100	4100	4100	4100	4100
Average CoC/sq. ft (over next 10 years)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Sales	167280	167280	167280	167280	167280	167280	167280	167280	167280	167280
Cost of Construction	40800	40800	40800	40800	40800	40800	40800	40800	40800	40800
SG&A	4202	4202	4202	4202	4202	4202	4202	4202	4202	4202
PBT	122278	122278	122278	122278	122278	122278	122278	122278	122278	122278
Tax (Effective Tax rate @ 30%)	36683	36683	36683	36683	36683	36683	36683	36683	36683	36683
PAT	85595	85595	85595	85595	85595	85595	85595	85595	85595	85595
Discount Factor 12.8%	1.00	1.13	1.27	1.44	1.62	1.83	2.06	2.32	2.62	2.96
Present Values	85595	75882	67271	59637	52870	46871	41552	36837	32657	28951
PV of land bank	528122									
NPV/Share	309.7489373									

Similarly, Valuation Commercial Properties using NAV										
	mn sq ft	Rental	Cap Rate	Capitalized Value	CoC	SG&A	PBT	Tax	PAT	NPV (DF=3 yrs)
Sale	101	51	1700							
Lease	31	63	1720							
Total	133	60	9	1,059,417	1705	17322	815904	244771	571133	398714
<b>Retail</b>										
Sale	22	75	2750							
Lease	52	91	2400							
Total	74	90	9	881,444	2504	5444	691725	207517	484207	338031

Total Value of Land Bank = Rs. 1106 Bn<sup>123</sup>

Per share value of Land bank = Rs. 649

\* This does not contain the valuation of the SEZ & Hotel Business

## 7. Bibliography

### Books:

1. Real Estate Market Valuation & Analysis, Joshua Kahr, Michael Thomsett, Wiley, 2005
2. Real Estate Valuation Theory, Ko Wang, Wolverton, Marvin L. Springer, 202
3. Investing in REITS, Ralph L. Block, Bloomberg Press, 2006
4. REITs : Structure, Performance & Investment Opportunities, Su Han Chan, John Erickson, Ko Wang, Oxford University Press, 2003

### Journals & Papers:

1. Valuation in the US Commercial Real Estate, E. Ghysels, A. Plazzi, R. Valkanov, EFMA Madrid, 2006
2. Property-by-Property Valuation of Publicly Traded Real Estate Firms, John B. Corgel, Journal of Real Estate Research, 1997
3. The Globalization of Real Estate Valuation, John Edge, IVSC, 2002
4. Real Estate Valuation According To Standardized Methods: An Empirical Analysis, R. Schulz, CASE, University of Berlin, 2002
5. White Paper on Funds From Operations, 2002
6. Journal of Real Estate Research

### Industry Sources:

1. Green Street Advisors Inc. [www.greenstreetadvisors.com](http://www.greenstreetadvisors.com)
2. International Valuation Standards Committee, [www.ivsc.org](http://www.ivsc.org)
3. National Association of Real Estate Investment Trusts, [www.nareit.org](http://www.nareit.org)
4. Edelweiss Capital, [www.edelcap.com](http://www.edelcap.com)
5. Institute of Chartered Accountants of India, [www.icaai.org](http://www.icaai.org)
6. DLF Ltd. [www.dlf.com](http://www.dlf.com)
7. Mint, [www.livemint.com](http://www.livemint.com)
8. Macquarie Bank, [www.macquarie.com.au/research/](http://www.macquarie.com.au/research/)