Fair valuation of real estate

Elvin Fernandez[1]

1. Introduction

The International Valuation Standards Committee was founded as The International Assets Valuation Standards Committee (TIAVSC) in 1981 with the following objectives:

- To formulate and publish, in the public interest, valuation Standards for property valuation and to promote their worldwide acceptance; and
- To harmonise Standards among the world's States and to identify and make disclosures of differences in statements and/or applications of Standards as they occur.

In 1994 the Committee changed its name to the International Valuation Standards Committee as it had by then shifted considerably from its earlier remit to focus on harmonising standards solely for financial reporting purposes to a much broader spectrum to cover real estate valuations for all purposes.

The scope of the Committee is continuing to widen as seen from the four broad areas that it now seeks to be involved in, namely (a) real property, (b) personal property, (c) businesses and (d) financial interests, although so far the Committee has not ventured deeply in the last of the said areas.

The current set of Standards, in a publication known as IVS 2003, is in fact the sixth edition of the Standards and it can be obtained from the IVSC at a cost of US$ 25. Orders can be made through the website of the IVSC which is www.ivsc.org. The Standards are also freely available on the website of IVSC for all valuers, users of valuations, and the general public who can either peruse it or download it.

IVS 2003 is in fact the final publication that concludes a special IVSC Standards Project that ran from the year 2000 to 2003. In these years, with the objective of preparing a set of comprehensive and robust Standards to facilitate cross-border transactions involving property as well as contribute to domestic and international financial stability, three publications were concluded, in tandem. Although the project itself is completed, work is still in progress on new Standards as well as revision of old Standards.

The IVSC is managed by a Management Board made up of member States and this Board meets in various places around the globe, twice a year. Under the Management Board is a Standards Board that is charged with Standards setting and this Board is also made of member States but allows for outside contributions such as from regional valuation groupings, prominent valuation associations and "expert groups" who are setup on an ad hoc basis to complete specific projects.

Funding is from subscriptions by member States and organisations ranging from regional valuation groupings, valuation firms and the big accounting firms. Support from the Bank of International Settlements and the International Monetary Fund will not only be welcome but would certainly constitute a worthy cause for the two bodies.

2. Market value

Much of the work of an ordinary valuer revolves around carrying out *market value estimates* for various purposes. Such estimates are needed by most *market economies*.

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It has been no surprise then that almost the first task that the International Valuation Standards Committee (IVSC) set for itself, upon its formation in the early 1980s, was to arrive at an *international consensus* as to the definition of market value.

After much debate, which mostly centred on differing cross-border legislative and judicial considerations, a common definition acceptable to all was arrived at. Today this definition is not only the accepted definition by the global valuation fraternity, but it is also accepted by most regulators and users of valuation, including the courts.

The definition reads: "The estimated amount for which a property should exchange on the date of valuation between a willing buyer and willing seller in an arm's-length transaction after proper marketing wherein the parties had each acted knowledgeably, prudently, and without compulsion."

Throughout IVS 2003, and in this paper, the terms real estate and property are used interchangeably.

Each element of the definition has its own conceptual framework:

(i) *"The estimated amount …"* refers to a price expressed in terms of money payable for the Property in an arm's length market transaction. *Market Value* is measured as the most probable price reasonably obtainable in the market on the date of valuation in keeping with the *Market Value* definition. It is the best price reasonably obtainable by the seller and the most advantageous price reasonably obtainable by the buyer. This estimate specifically excludes an estimated price inflated or deflated by special terms or circumstances such as atypical financing, sale and leaseback arrangements, special considerations or concessions granted by anyone associated with the sale, or any element of *Special Value*.

(ii) *"… the Property should exchange …"* refers to the fact that the value of the *Property* is an estimated amount rather than a predetermined amount or actual sale price. It is the price at which the market expects a transaction that meets all other elements of the *Market Value* definition should be completed on the date of valuation.

(iii) *"… on the date of valuation …"* requires that the estimated *Market Value* is time-specific as of a given date. Because markets and market conditions may change, the estimated value may be incorrect or inappropriate at another time. The valuation amount will reflect the actual market state and circumstances as of the effective valuation date, not as of either a past or future date. The definition also assumes simultaneous exchange and completion of the contract for sale without any variation in price that might otherwise be made.

(iv) *"… between a willing buyer …"* refers to one who is motivated, but not compelled to buy. This buyer is neither over-eager nor determined to buy at any price. This buyer is also one who purchases in accordance with the realities of the current market, and with current market expectations, rather than in relation to an imaginary or hypothetical market that cannot be demonstrated or anticipated to exist. The assumed buyer would not pay a higher price that the market requires. The present Estate owner is included among those who constitute "the market". A Valuer must not make unrealistic assumptions about market conditions nor assume a level of market value above that which is reasonably obtainable.

(v) *"… a willing seller …"* is neither an over-eager nor a forced seller, prepared to sell at any price, nor one prepared to hold out for a price not considered reasonable in the current market. The willing seller is motivated to sell the Property at market terms for the best price attainable in the (open) market after proper marketing, whatever that price may be. The factual circumstances of the actual Property owner are not a part of this consideration because the "willing seller" is a hypothetical owner.

(vi) *"… in an arm's-length transaction …"* is one between parties who do not have a particular or special relationship (for example, parent and subsidiary companies, or landlord and tenant) that may make the price level uncharacteristic of the market or inflated because of an element of *Special Value*. *The Market Value* transaction is presumed to be between unrelated parties, each acting independently.

(vii) *"… after proper marketing …"* means that the Property would be exposed to the market in the most appropriate manner to effect its disposal at the best price reasonably obtainable in accordance with the *Market Value* definition. The length of exposure time may vary with market conditions, but must be sufficient to allow the Property to be brought to the attention of an adequate number of potential purchasers. The exposure period occurs prior to the valuation date.

(viii) *"… wherein the parties had each acted knowledgeably and prudently …"* presumes that both the willing buyer and the willing seller are reasonably informed about the nature and characteristics of the Property, its actual and potential uses, and the state of the market as of the date of valuation. Each is further presumed to act for self-interest with that knowledge, and prudently to seek the best price for their respective positions in the transaction. Prudence is assessed by referring to the state of the market at the date of valuation, not with benefit of hindsight at some later date. It is not necessarily imprudent for a seller to sell property in a market with falling prices at a price that is lower than previous market levels. In such cases, as is true for other purchase and sale situations in markets with changing prices, the prudent buyer or seller will act in accordance with the best market information available at the time.

(ix) *"… and without compulsion …"* establishes that each party is motivated to undertake the transaction, but neither is forced or unduly coerced to complete it.

The widespread use of market value in the valuation profession is central and established, and equal in importance to the "fair value" and "mark to market" movements that are now taking place in the accounting and investment circles.

3. Fair value

How then does "market value" differ from "fair value" which is the term used in the title of this paper?

Paragraph 8.1 of the General Valuation Concepts and Principles of IVS 2003 reads:

(i) "The expression ***Market Value*** and the term ***Fair Value*** *as it commonly appears in accounting standards* are generally compatible, if not in every instance exactly equivalent concepts. ***Fair Value***, *an accounting concept*, is defined in International Accounting Standards and other accounting standards as *the amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm's-length transaction*. ***Fair Value*** **is generally used for reporting both *Market* and *Non-Market Values* in financial statements**. Where the *Market Value* of an asset can be established, this value will equate to *Fair Value*. Where the Market Value of an asset cannot be established, its value is arrived at using a surrogate such as Depreciated Replacement Cost (DRC)."

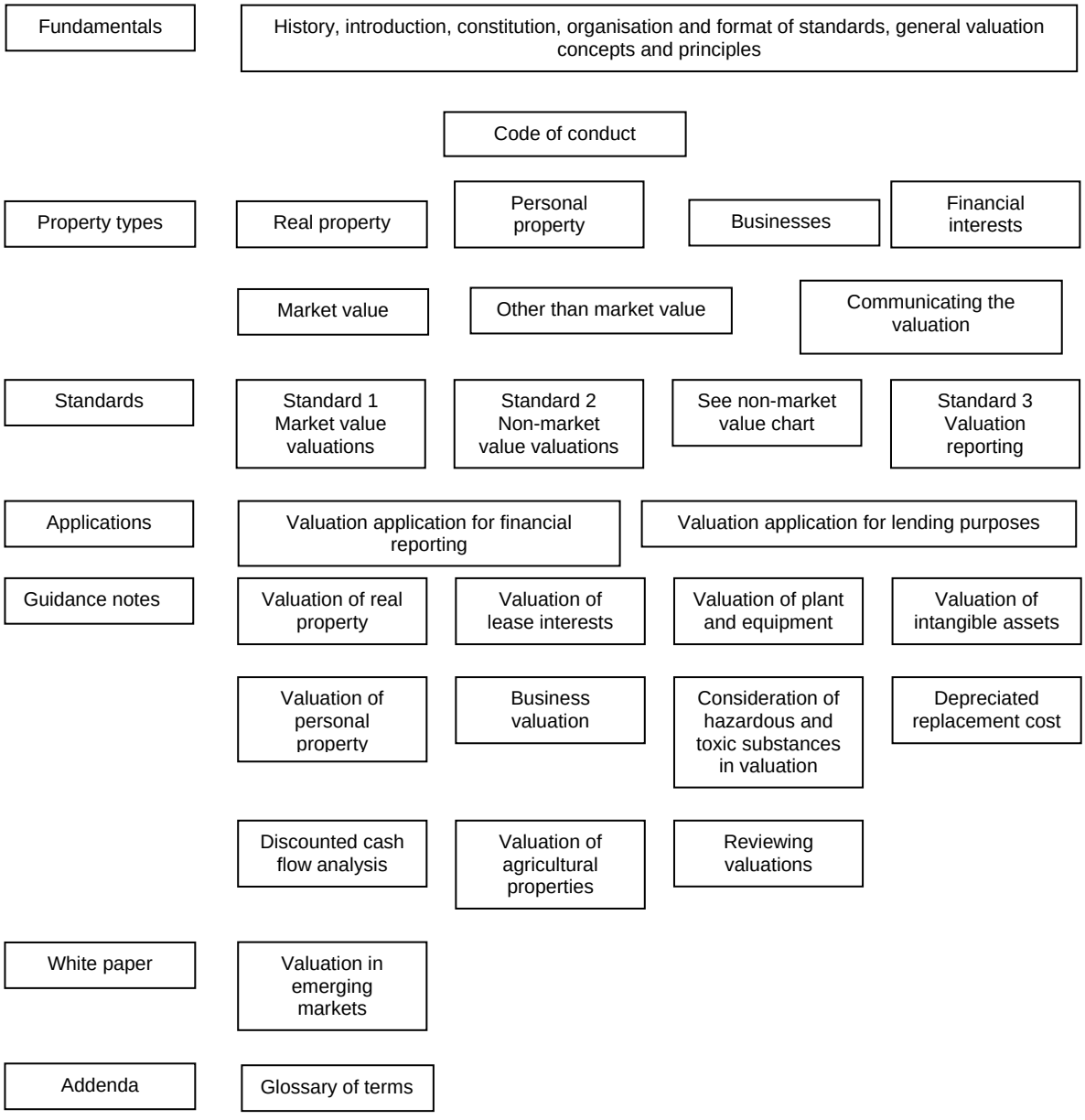
Much of the interplay between the terms "fair value" and "market value" from the standpoint of the IVSC has arisen when valuations for financial reporting are considered. The Standard for Financial Reporting is an Application in IVS 2003's known as International Valuation Application 1 (IVA 1), Valuation for Financial Reporting, the objective of which is to explain the principles that apply to valuations prepared for use in financial statements and related accounts of business entities.

IAS 16 or International Accounting Standards 16 (paragraph 6) as "the amount for which an asset could be exchanged, or a liability settled, between knowledgeable willing parties in an arm's-length transaction".

4. The structure of IVS 2003

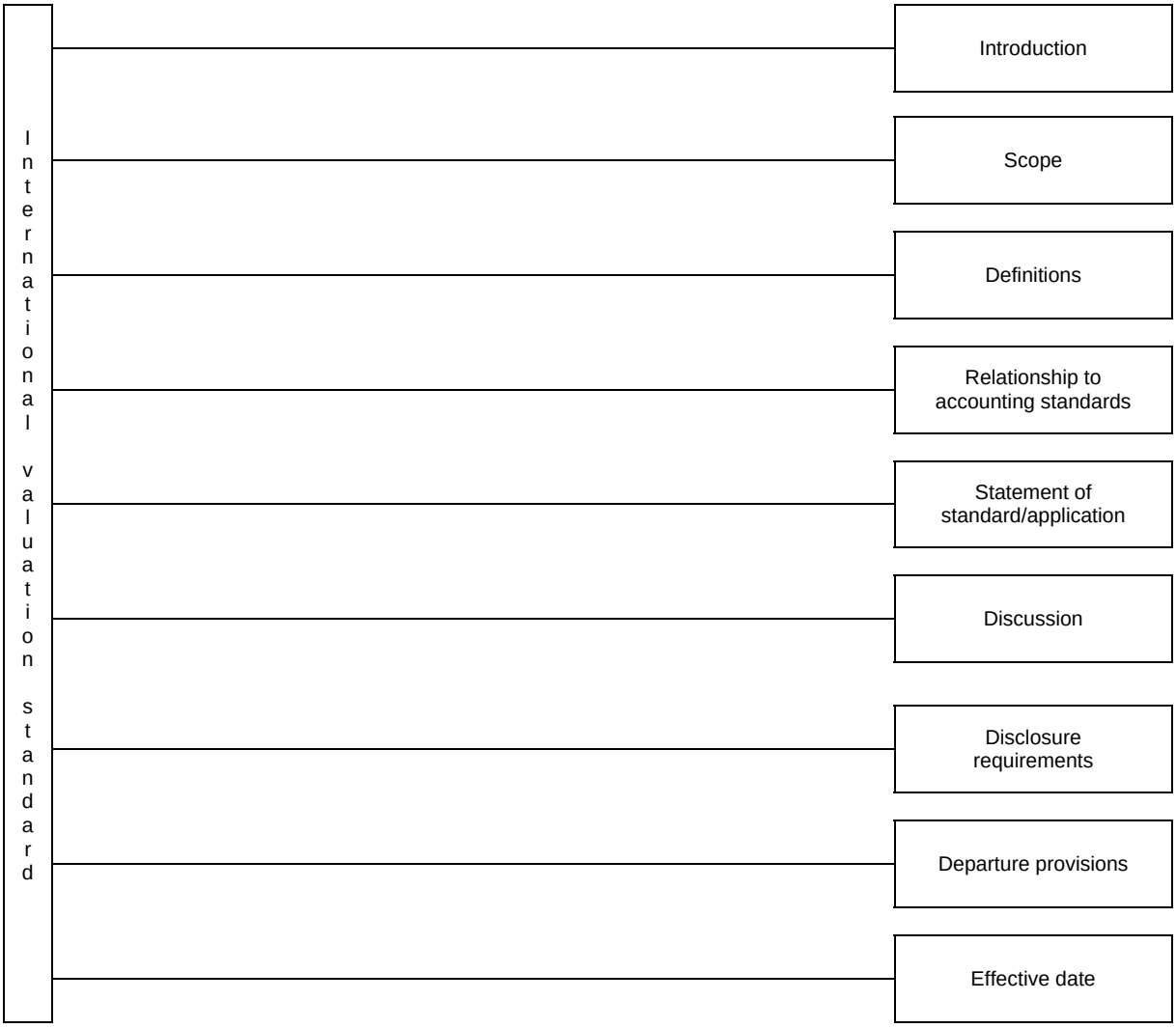
IVS 2003 is structured in the following manner:

Structure of the standards document



5. Format of the standards and applications

Each Standard, Application or Guidance Note in turn is structured as follows:



IVS 2003 begins with some introductory material including the Constitution of the IVSC, followed by two important chapters (General Valuation Concepts and Principles and Code of Conduct) which are of general application and then proceeds to detail out the various Standards, Applications, and Guidance Notes before concluding with a White Paper and a Glossary.

6. General valuation concepts and principles

The first of the important chapters is on General Valuation Concepts and Principles. This chapter defines and distinguishes the concepts of land, real estate, real property and discusses at length some of the important concepts related to valuation such as market value, fair value, highest and best use and other concepts.

7. Code of conduct

The next chapter, the Code of Conduct emphases that valuations should be provided by honest and competent professional Valuers, free of bias and self interest, whose reports are clear, will not mislead and will disclose all matters essential to the proper understanding of the valuation. Valuers are required to always promote and preserve the public trust.

8. Four property types

IVS 2003 identifies four property types, namely, real property, personal property, businesses, and financial interests.

9. The standards

There are three main Standards, the Market Value Basis of Valuation, Valuation Bases Other than Market Value, and Valuation Reporting.

9.1 The market value basis of valuation

The market value basis of valuation is recognised as the most widely required and main basis of valuation for most valuations around the globe. The valuations are required for purposes such as purchasing property, selling property, for accounting purposes (both private and governmental), for securing loans (personal or business), for submission to regulatory authorities and for statutory purposes including taxation.

Market Value is a representation of value in exchange, or the amount a property would bring if offered for sale in the (open) market at the date of valuation under circumstances that meet the requirements of the market value definition.

To determine market value, a Valuer must first determine the highest and best use of the property.

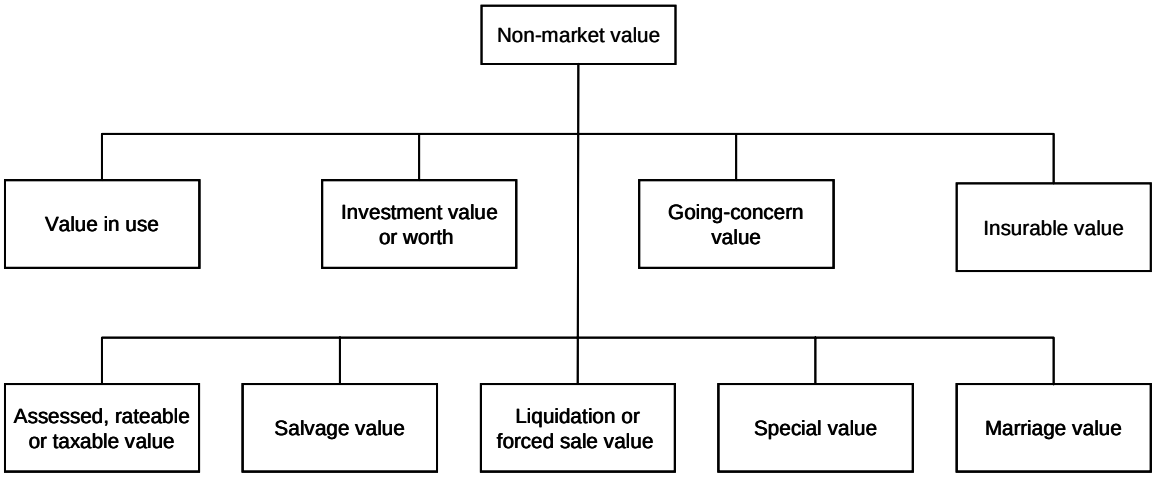
The highest and best use of a property is the most probable use of the property. That use may be for continuation of a property's existing use or for some alternative use.

The most common methods used to estimate market value include the cost approach, sales comparison approach and the income capitalisation approach, including discounted cash flow analysis but fundamental to the determination of market value by these methods is that they are arrived at based on market derived data.

9.2 Valuation bases other than market value

Valuation bases other than market value or non-market based values include non-market based valuations of property use methods that consider the economic utility or function of an asset, other than its ability to be bought and sold by market participants, or the effect of unusual or atypical conditions.

Non-market value components



- Value in Use is a value to a particular user or owner and is not Value in Exchange which is a market value concept.
- Investment Value or Worth is again a value to a particular user using an approach which recognises a specific requirement of the user such as a target discount rate.
- Going-Concern Value is a value ascribed to an established business, not to any of its constituent parts.
- Insurable Value is a value for insurance purposes.
- Assessed, Rateable or Taxable Values are usually values that are determined under specific situations for tax purposes.
- Salvage Value is ordinarily used to express the current price expected for property, that has reached the end of its useful life.
- Liquidation or Forced Sale Value is a value estimated for disposition of property under extraordinary or atypical circumstances.
- Special Value may accrue to a property by reason of a unique location, a temporary situation under exceptional market conditions, or a premium payable by a purchaser having a special interest.
- Marriage Value is additional value created by the possibilities of amalgamating interests or adjoining lands.

The objective of MVS 2, Valuation Bases Other than Market Value, is to identify and explain bases of value other than Market Value and to establish standards for their application and to ***distinguish*** them (bases) from Market Value.

9.3 Valuation reporting

The IVSC considers the reporting of the findings of a Valuer to be of such importance that it has accorded Valuation Reporting a status equal to the two main bases of valuation. An important requirement is the inclusion of a compliance statement that the valuation has been performed in accordance with IVS. Each compliance statement is meant to confirm that:

(i) The statements of fact presented in the report are correct to the best of Valuer's knowledge;

(ii) The analyses and conclusions are limited only by the reported assumptions and conditions;

(iii) The Valuer has no (or if so, a specified) interest in the subject property;

(iv) The Valuer's fee is or is not contingent upon any aspect of the report;

(v) The valuation was performed in accordance with an ethical code and performance standards;

(vi) The Valuer has satisfied professional education requirements;

(vii) The Valuer has experience in the location and category of the property being valued;

(viii) The Valuer has (or has not) made a personal inspection of the property; and

(ix) No one, except those specified, has provided professional assistance in preparing the report.

The importance of the compliance statement to IVS underscores the fact that IVS, unlike national valuation standards, cannot in any way be enforced on Valuers around the globe. Its use is market driven, required ultimately by users who insist on compliance.

10. Applications

The three main Standards are followed by three Applications, for financial reporting, for lending purposes and for public sector financial reporting.

10.1 International Valuation Application 1 (IVA 1) - valuation for financial reporting

The objective of IVA 1, Application for Financial Reporting, is to explain the principles that apply to valuations prepared for use in financial statements and related accounts of business enterprises in both the private and public sectors.

This application addresses the criteria that Valuers must observe in preparing valuations for financial statements and related accounts. It also discusses concepts that must be understood by accountants, regulatory authorities, and other users of valuation services.

IVS 1 is developed with particular regard to the requirements of International Accounting Standards or IAS (now International Financial Reporting Standards or IFRS).

IFAS is one of two main accounting standards in the world today, the other being USGAAP which applies in North America.

At present both IFAS and USGAAP conventions are essentially historic cost conventions in most respects save for the different treatment afforded to assets.

US GAAP (Generally Accepted Accounting Principles) requires that historical cost be the sole basis for the continued recognition of the asset, while IAS allows two options, either historical, known as the benchmark treatment, or revalued amount, known as the allowed alternative treatment.

There is at present a drive towards harmonisation of global accounting standards, the conventions represented by IAS and US GAAP are predominant.

10.2 International Valuation Application 2 (IVA 2) - valuation for lending purposes

(i) IVA 2 deals in performing valuations of property where the results will be used to obtain loans, mortgages, and debentures. Valuers shall normally estimate the Market Value of such assets in accordance with these International Standards.

(ii) Valuers shall have a comprehensive understanding of the requirements of such institutions, and the structure of loan agreement terms and arrangements. Any unusual volatility in the value of the specific property or the market of comparable properties should be mentioned in the valuation report or certificate.

(iii) Related to lending is the Basel Accord, an international agreement on banking solvency. The present solvency ratio is 8% which means, for example, that a bank should allocate US$ 8 of its owned capital to every US$ 100 (on a risk-adjusted basis) it lends.

(iv) The New Bank Accord (due 2005) may give banks greater scope for assessing their risk in their lending.

10.3 International Valuation Application 3 (IVA 3) - valuation of public sector assets for financial reporting

This Application is not incorporated into IVS 2003 as yet as the final draft has only recently been endorsed by the Management Board of IVSC. It will be published shortly as an exposure draft before adoption as an Application.

IVA 3 is about valuation of public sector assets for financial reporting.

Public sector assets are those assets owned by governmental or quasi-governmental entities to provide goods or services to the general public within a given jurisdiction.

The valuation of public sector property may be undertaken for a range of purposes including financial reporting, privatisation planning, loan origination, bond issuance and cost-benefit or economic analyses performed by governments either to determine whether a public sector asset is being used and managed efficiently or to set pricing for monopoly services.

Property in the public sector comprises conventional property types as well as specialised asset types, including heritage and conservation assets, infrastructure assets, public utility plants, recreational assets and public buildings (eg military facilities). As with private sector assets, public sector assts fall into operational and non-operational categories. Non-operational assets include investment and surplus assets.

11. Guidance notes

The valuation Applications are followed by Guidance Notes. However Guidance Notes under the IVS 2003 *are mandatory*, like the main Standards and Application in order for compliance with IVS.

11.1 Guidance note 3 - valuation of plant and equipment

When valued for financial reporting purposes, plant and equipment are valued in the same manner as other assets, applying Market Value and Depreciated Replacement Cost (DRC) concepts in accordance with International Valuation Application 1.

When the purpose of the valuation is other than financial reporting, plant and equipment are valued by applying an appropriate valuation bases and by clearly distinguishing the results from Market Value if a non-Market Value basis is applied.

Non-market valuations include liquidation value, salvage value, insurable value, auction realisable value, reinstatement value and indemnity value.

Plant and equipment may broadly be divided into four categories, namely, machinery and equipment, equipment that includes such items as furniture and fittings, stocks and moulds, factory and industrial buildings that are highly integrated with the enclosed process or equipment they support and structures of a specialised nature and building services that are normally included in valuations of land and building.

11.2 Guidance note 6 - business valuations

Business valuations are commonly sought and performed on the Market Value basis of valuation applying the provisions of International Valuation Standard 1 (IVS 1). Where other bases of valuation are used, with proper explanation and disclosure, the provisions of IVS 2 are applied.

In general the concepts, processes, and methods applied in the valuation of businesses are the same as those for other types of valuations. Certain terms may have different meanings or uses. Those differences become important disclosures wherever they are used.

A description of a business valuation usually includes an identification of the business, business ownership interest, or security to be valued, the effective date of the valuation, the definition of value, the owner of the interest and the purpose and use of the valuation.

11.3 Guidance note no 8 - Depreciated Replacement Cost (DRC)

For purposes of financial reporting, DRC (which is essentially a non-market value) is considered an acceptable method to arrive at a surrogate for the Market Value of *specialised* or *limited market properties* for which the market evidence is unavailable.

DRC is based on an estimate of the Market Value for the Existing Use (MVEU) of the land plus the current gross replacement (or reproduction) costs of improvements less allowances for physical deterioration and all relevant forms of obsolescence (functional or technical and economic or external) and optimisation. DRC may be described either as a valuation methodology or as a basis for value/defined value.

When an asset has been valued by reference to DRC, *adequate profitability* is the test that the directors/manages of the entity should apply to ensure that the entity is able to support the DRC estimate. Where the directors/managers of the entity find the DRC estimate fails to meet the test of *adequate profitability*, the written down estimate represent the asset's *value in use* which then becomes its fair value.

11.4 Guidance notes on discounted cash flow analysis

The Discounted Cash Flow Method of Valuation is an income based method or approach and has a growing following around the world due to its easy use that has come about because of computer spreadsheets and computing power. The method which essentially comprises three major elements, namely the cash inflows, the cash outflows and the discount rate can be applied to most ***complex***, investment properties. Where the Comparison Method falls short in its ability to take into account ***explicitly*** the differences between the comparable sale and the property being valued the discounted cash flow (DCF) triumphs, as it can make explicit in the cash flows, the differences.

Due to the need to address the issues and to ensure the proper use of DCF analyses in valuation, the IVSC set itself the task of coming up with a Standard and setup an Expert Group (a usual approach) to look into the issues and to draw up a Standard.

The Expert Group, in coming up with the Guidance Note that will be in the 6th Edition, made the following distinctions:

- In arriving at *market value*, a DCF valuation must recognise *market derived* inflows, outflows and the discount rate. In practice this will be achieved by a valuer constructing DCF models for known sale comparables and then applying the "market derived" inflows, outflows and discount rate to value the property under consideration. Should the valuer adhere to this he cannot abuse the DCF as the value is based on market derived data. In past valuations there has been some confusion among valuers when they have not been focussed in ensuring that for the estimation of market values, just as in any of the other methods of valuation; they ought to base it on market derived data. In many instances valuers did differ in the construction of inflows and outflows without reference to models of previous known sales and in the determination of discount rates it was not strictly based on market analyses of known sales.
- A DCF valuation to arriving at Market Value on the one hand and a DCF valuation for the determination of a *non-market value* on the other must be distinguished. For example where a valuer is asked to do a valuation based on a certain rate of return specific to the requirements of the client, it is a non-market valuation and he must distinguish this valuation from a market valuation.
- The GN distinguishes between market and non-market valuations done by a valuer and a *value-in-use* (using the DCF) done by Accountants under the International Accounting Standards (IAS). A value-in-use valuation is a non-market estimate based on a strict continuing use of the asset in its existing use whereas a market value estimate (value-in-exchange) done by a valuer will include not only the continued use of the asset in its existing use but its full potential use. Inherent in a market value estimation is the concept of the highest and best use.
- The GN distinguishes between valuations for market and non-market valuations and the use of the DCF for investment analyses purposes where the merits of one property investment or

project with another are assessed. The GN notes that it relates only to *valuation* (market or non-market) and does not relate to *investment analyses*.

- The GN distinguishes between the use of DCF valuations for real property and businesses.
- Perhaps most important of all it requires all data used in the method to be adequately substantiated.

In arriving at its recommendations the Expert Group took particular pains to steer away from being prescriptive, which is an underlying principle upon which the other Standards in IVS have been constructed. This will allow valuers to employ the latest techniques in computing cash flows including the use of various probability techniques, such as the Monte Carlo Simulation technique to establish more accurately the certainty of cash inflows.

In emerging markets, the use of the DCF for valuation is perhaps even more popular and this is because there is usually a lack of sale comparables in sufficient numbers to undertake accurate valuations based on the Comparison Method. With the limited sale comparables however models can be constructed from the limited known sales for application in various similar situations.

The IVSC is acutely aware that for specialised properties such as forests and mineral rights, valuers around the world find that the use of the DCF is the principal means to the determination of value.

Like in the case of all other approaches, more day-to-day use of the DCF method or approach to valuation will usually lead to higher levels of proficiency. Lastly, it is not the method itself that provides an accurate answer; rather it is the knowledge and skill of the person using it that is more important to the level of accuracy desired.

11.5 Guidance notes note no 10 - valuation of agricultural properties

Agricultural properties are valued similarly as other properties with market value being the main basis of valuation.

For Financial Reporting under International Accounting Standards IAS 16 (Property, Plant and Equipment), IAS 40 (Investment Property), and 41 (Agriculture) apply to the valuation of agricultural property. An entity follows IAS 16 or IAS 40, depending on which standard is appropriate in the circumstances. IAS 16 requires that land be measured either at its cost less any accumulated depreciation and accumulated impairment losses or at a revalued amount. IAS 40 requires land that is investment property to be measured at its fair value, or cost less any accumulated depreciation and accumulated impairment losses. IAS 41, which requires that biological assets physically attached to land (eg trees in a plantation forest) be measured at their fair value less estimated point-of-sale costs, separately from the land.

12. Intangible assets (related to business valuations)

Intangible assets are assets that manifest themselves by their economic properties. They do not have physical substance; they grant rights and privileges to their owner and usually generate income for their owner. Intangible assets can be categorised as arising from Rights (supply contracts, distribution contracts, licensing permits), Relationships (assembled workforce, customer relationship, supplier relationship), Grouped intangibles (goodwill), and Intellectual property (brand names, trademarks, copyrights, patents).

The basis is usually market value by the Cost, Income and/or Sale comparison approach. IAS 38 prescribes the accounting treatment.

13. White paper on emerging markets

As an addition to the Standards, Applications and Guidance Notes there is a White Paper in IVS 2003 Commentary. This has come about because one of the three objectives that the IVSC has set for itself

is “to provide Standards of valuation that meet the needs of emerging and newly industrialized countries”.

The White Paper on Valuation is twofold:

(i) provide specific guidance to Valuers in emerging markets; and

(ii) contribute to the efforts of international, regional and national development banks and institutions in restructuring and/or strengthening financial systems in emerging markets.

The special economic, legal and institutional characteristics of emerging markets pose particular problems for Valuers working in these markets. Some of these characteristics may also be evident more developed markets, but would tend to be more prevalent in emerging markets and include:

- A poor or inadequate legal framework that does not allow for the efficient functioning of the property market.
- The lack of published information or difficulty in obtaining information regarding transactional as well as other data requisite for proper valuations.
- Greater volatility of property markets.
- Lack of adequately trained professional Valuers.
- Outdated National Valuation Standards.
- External pressure.
- Excessive or insufficient government intervention.
- Growing importance of intangible property.

Broadly, the White paper requires that Valuers carrying out valuations in emerging markets adhere to all the principles and practices that are required for compliance with IVS 2003. Where this is not possible, Valuers should do “the next best thing”.

There is an advisory to bank and other lenders to recognise the characteristics that exist in emerging market and to seek to promote efficient property markets in these States by way of their policy advisories.

14. Conclusions

In very simple terms, IVS 2003 says:

(i) The main basis of valuation of real estate or interests in real estate is market value which also fair value.

(ii) Where not market based, the valuation must be clearly stated and distinguished as a non-market valuation.

(iii) Market value can be arrived at by various “methods” but the inputs must be market derived.

(iv) The Depreciated Replacement Cost when applied to specialised properties or properties with limited markets is a surrogate for market value for financial reporting purposes.

(v) The different types of real properties or interests in real estate may warrant differing emphases and treatment.

(vi) Valuers are required to ensure a high degree of disclosure in their valuation reports.

(vii) The Valuer must be competent and have integrity.

(viii) The valuation report must communicate all facts and the findings in a comprehensive manner. It must not mislead the reader in any way.

Valuation Standards help to promote efficient property markets and property markets underpin market economies around the world. Seen in this context Valuation Standards are important for financial stability.

CMBS loan losses: property type highlights and trends

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FitchRatings

Summary

Fitch Ratings recently published the results of its annual default and loss studies (see Fitch Research on "2003 Conduit Loan Default Study", dated 27 May 2003, and "2003 Loan Loss Study", dated 5 August 2003, available on Fitch's website at www.fitchratings.com). The data reported in those studies have been further refined to provide an analysis of defaults and losses within the major property types.

The property type sector analysis highlights how certain default resolution characteristics and outcomes differ by property type and addresses differences in disposition modes, as well as in the timing, frequency, and size of losses experienced within particular property sectors. The analysis also contrasts the disproportionate representation each property type has in the universe of defaults and losses, measured against its contribution to the overall commercial mortgage-backed securities (CMBS) universe, and further examines loss severities based on property type.

The largest loss severity, 46.6%, is occurring in the retail sector, which contributes almost 29% of all CMBS collateral on a dollar basis. Retail loan losses represented 48% of the almost $306 million in total losses. Hotel loans, which account for less than 10% of CMBS collateral on a dollar basis, represented 29% of experienced losses.

Approximately one half the dispositions that had losses, 77 of 144 loans, were liquidations of real estate-owned properties (REO), which, on average sustained the highest loss severities. Another 40% of the loans with losses were disposed of by discounted payoffs (DPOs), resulting in much lower average loss severities.

At the start of 2003, 400 unresolved CMBS loans were in special servicing with an aggregate balance of $2.7 billion. Fitch anticipates approximately $2.87 billion in new defaults in 2003 and another $400 million in losses.

Methodology

The pool of loans used to track defaults and losses in Fitch's studies includes only fixed-rate conduit, large loan, and fusion CMBS transactions rated by Fitch from 1993 to 2002. It includes 29,542 loans in 200 multiborrower transactions, representing approximately 72% of the market share of similar transactions during that period. The defaulted loan population includes only those loans in default 60 days or more. In the presentation of defaults and losses by property type, multifamily and manufactured housing loans are combined.

Summary of defaults, resolutions, and losses

During calendar year 2002, 228 defaulted loans, totalling $1.15 billion, were resolved. By count, 55% of the loans either paid off in full or were sold without experiencing a loss. By dollar balance, those 125 loans accounted for 48% of the dollar balance of those resolutions. Total realised losses on the other 103 loans were $241.5 million, or 21% of the dollar balance of all 2002 resolved loans.

REO dispositions experienced the highest loss severity at 64.3%, followed by foreclosure sales with losses of 41.2%. It should be noted that of the pool of 144 loans with losses, only three were foreclosure sales. Note sales had an average severity of 39%, while negotiated DPOs had the lowest loss severity at 28.9%. As was cited in the aforementioned 2003 default study, the average loss

severity for loans held in special servicing for 24 months or more was 62%, up from 42.4% in the previous Fitch study.

Cumulatively, of the almost 30,000 loans in the conduit universe in this study, 807 experienced at least one period of default. Those loans represent a 2.66% default rate by dollar balance and a 2.73% default rate by loan count. Cumulative losses totalling $305.9 million were realised in 144 of the total 416 resolutions of defaulted loans, representing 0.17% of the $177.2 billion of original loan balances in the CMBS transactions in this study and 14.9% of the original loan balance of the 416 resolved defaulted loans.

On a cumulative basis, REO dispositions experienced an average 51.6% loss severity, foreclosure sale losses 41.2%, losses on note sales 39%, and DPO resolutions 27.1%. As noted in Fitch's previous 2003 loss study, although it appears DPO dispositions result in lower losses than REO dispositions, loans resolved through DPOs likely reflect higher quality assets with upside potential.

Resolutions and dispositions by property type

Multifamily resolutions

In the multifamily sector, 112 loans totalling $366.2 million were resolved, with 70% of the loans either becoming current or paying off in full. On average, multifamily loans were resolved in 19.1 months, the longest period of the four core property types. Of the multifamily loans resolved, 29, or 26.8% on a dollar basis, had realised losses averaging 30.6%. On a dollar basis, 68.8% of the multifamily loans were REO liquidations that experienced an average loss of 33.8%. DPO resolutions experienced an average loss of 23.2%. Losses on note sales, accounting for 17.6% of the multifamily resolution dollar amount, averaged 24.2%.

Retail resolutions

While the number of retail loan resolutions was only slightly more than in the multifamily cohort, 119 versus 112, the dollar balance of retail resolutions far exceeded the balance of each of the other property types ($683 million). On average, retail loans were resolved in 15.7 months.

On a dollar basis, 48.4% of retail resolutions experienced losses averaging 46.6%, the highest loss severity of any property type. By dollar amount, DPO resolutions accounted for 60.9% of retail resolutions and experienced an average loss of 33.5%. REO liquidations, making up almost 36% of retail dispositions, experienced an average loss of 64.7%. The highest losses, at 82.4%, occurred among note sale dispositions, representing only 3.2% of retail dispositions.

Office resolutions

While office loans represent almost 21% of the dollar balance of CMBS collateral in this study, the third largest share behind retail and multifamily, this property type has experienced the fewest defaults and the lowest loss severity to date. The 22 resolved office loans represented just 3.9% on a dollar basis of all 416 default resolutions. Almost 73% of defaulted office loans became current. Six loans, representing almost 41% of the office loan defaults on a dollar basis, experienced losses averaging 22%. Office resolutions were the speediest of any property type, averaging 15 months. Three loans resolved by note sales experienced an average loss of 23.3%, while DPO liquidations realised average losses of 14.4% and REO resolutions 29.4%.

Fitch has a guarded outlook on office loans for the near future. Both the number of office loan defaults and the size of the losses taken by resolved office loans are expected to increase.

Cumulative resolutions by property type

As of 31 December 2002

	Multifamily	Retail	Office	Industrial	Hotel	Health care	Other[1]
Resolved loans							
Number of loans	112	119	22	28	97	19	19
Original loan balance ($)	366.2	683.0	79.6	109.8	430.7	285.5	91.6
Average months to disposition	19.1	15.7	15.0	17.9	16.7	33.6	15.1
Loans with losses							
Number of loans	29	42	6	7	49	7	4
Loss balance ($)	30.1	148.0	7.1	8.6	89.5	18.8	3.6
Property type with losses (%)	26.8	46.5	40.7	18.4	20.8	10.3	3.8
Property type average loss (%)	30.6	46.6	22.0	36.2	46.0	40.8	10.6

[1] Includes various nontraditional property types.

Industrial resolutions

On a dollar basis, industrial loans make up only 6.8% of all CMBS collateral and 6.7% of defaults resolved in this study. As of year-end 2002, 28 defaulted industrial loans, totalling $109.8 million, had been resolved with seven loans experiencing losses averaging 36.2%. Those seven loans represent only 18.4% on a dollar basis of the resolved industrial loans, almost 82% of which became current or paid off without losses. By balance, 37.7% of the loans with losses were resolved through REO dispositions, experiencing a loss severity of 52.1%. The remaining loans were resolved by DPOs, experiencing an average loss of 25.3%. Fitch's outlook for industrial loans is similar to that for office loans; however, because industrial loans make up a relatively small portion of CMBS collateral, the anticipated rise in defaults and losses is expected to have less of an impact on total CMBS losses.

Hotel resolutions

A total of 97 defaulted hotel loans, with a collateral balance of $430.7 million, had been resolved by year-end 2002, the second largest group on a dollar basis behind retail. Of the total defaulted loans, 42.4% were resolved by either becoming current or paid in full. The 49 loans with losses, which on a dollar basis represented 20.8% of the resolved hotel loans, experienced average losses of 46% and took 16.7 months to resolve. REO liquidations accounted for 39.6% of the dispositions by dollar balance and experienced losses averaging 76.2%. Loans resolved by DPOs, roughly half the dispositions, experienced average losses of 24.1%. Hotel loans account for less than 9% of the collateral in this study. Because Fitch often does not rate hotel-only transactions, the relatively small hotel collateral contribution in this pool may understate the impact of hotel losses on the larger CMBS conduit universe. Hotel properties continue to be the most vulnerable to market changes.

Health care resolutions

In the health care sector, 19 defaulted loans totalling $285.5 million were resolved, with 57.9% becoming current. Seven loans, which only represented 10.3% of the dollar balance of resolved health care loans, experienced average losses of 40.8%. Health care loans took an average of 33.6 months to resolve, more than twice the time of most other property types. No health care loans were resolved through DPOs. By loan balance, 84% were resolved by REO liquidations, experiencing an average loss of 41.5%. The loss for health care loans disposed of through note sales was 73.6% and through foreclosure, 20.5%. Health care loans make up only 2.54% of CMBS collateral and, as such, are overrepresented in the group of loans with losses representing more than 6% of the total balance of losses. Nonetheless, the current decline in health care loan contributions to CMBS is expected to continue, minimising the impact this property type will have on CMBS performance in the long term.

Cumulative dispositions by property type - disposition method

As of 31 December 2002

	Multi-family	Retail	Office	Industrial	Hotel	Health care	Other	Total no of loans	% of dispositions
No of liquidated REO assets	20	16	1	4	23	5	2	71	49.31
% of original PT balance	68.8	35.9	37.2	37.3	39.6	84.0	50.0	–	–
WA loss on original balance (%)	33.8	64.7	29.4	52.1	76.2	41.5	37.5	–	–
No of discounted payoffs	5	25	2	3	20	0	2	57	39.58
% of original PT balance	13.5	60.9	39.5	62.7	50.5	0.0	50.0	–	–
WA loss on original balance (%)	23.2	33.5	14.4	25.3	24.1	0.0	20.5	–	–
No of foreclosures	0	0	0	0	2	1	0	3	2.08
% of original PT balance	0.0	0.0	0.0	0.0	3.3	10.4	0.0	–	–
WA loss on original balance (%)	0.0	0.0	0.0	0.0	58.6	20.5	0.0	–	–
No of note sales	4	1	3	0	4	1	0	13	9.03
% of original PT balance	17.6	3.2	23.3	0.0	6.6	5.6	0.0	–	–
WA loss on original balance (%)	24.2	82.4	23.3	0.0	32.8	73.6	0.0	–	–

REO - real estate owned; PT - property type; WA - weighted average.

Proportional property type contributions

With a combined contribution of 76%, the CMBS universe is dominated with collateral from the retail, multifamily (including manufactured housing), and office sectors. The retail sector, which makes up almost 29% of the CMBS universe, maintains an almost proportionate share of the default universe. However, in the loss universe, retail loans account for more than 48% of CMBS realised losses and have the highest property type weighted average loss, 46.6%.

Hotel loans, which make up 8.8% of CMBS collateral, account for more than 29% of the defaulted loan balance and represent roughly the same disproportionate share of the loss universe. Hotel loans are experiencing, on average, realised losses of 46%. On the other hand, multifamily loans, while

accounting for more than 26% of all CMBS collateral, are significantly underrepresented in the default and loss universes.

The under representation of the office and industrial sectors in the default and loss universes is expected to change over the next 18-24 months, as both sectors continue to demonstrate increased defaults and losses. The health care sector, with disproportionately high defaults and losses, will likely remain a small contributor to CMBS collateral, but Fitch expects that it will continue to be overrepresented in both the default and loss universes for some time. Health care facilities, as is the case with hotels, are operating business subject to acute vulnerability to market events.

Proportional property type contributions

%, As of 31 December 2002

Property type	Balance of CMBS universe	Defaults in total default universe	Losses in total loss universe	WA loss severity by property type
Multifamily	26.38	13.97	9.84	30.61
Retail	28.98	28.01	48.37	46.60
Office	20.62	6.66	2.33	21.98
Industrial	6.80	4.45	2.82	36.18
Hotel	8.82	29.41	29.26	45.98
Health care	2.54	13.73	6.15	40.82
Other	5.87	3.76	1.23	10.75
Average loss severity - core property types[1]	–	–	–	33.84
Average loss severity - all property types	–	–	–	33.27

CMBS - commercial mortgage-backed securities; WA - weighted average.

[1] Include multifamily, retail, office and industrial properties.

The table above presents a summary of how each property type has performed in CMBS compared with other property types. It summarises default and loss history within each property type, as well as each property type's weighted average loss severity.

Defaults and losses in each property type universe

On a dollar basis, more than 14% of all health care collateral has experienced defaults. Total experienced losses in that sector represent 0.42% of all health care collateral. In the hotel sector, 8.9% of collateral has defaulted, but 0.57% has taken losses, the highest percentage of any property type sector. Retail loans, which account for such a disproportionate portion of the loss universe, have experienced defaults in 2.57% of collateral and losses of 0.29%. The remaining property types have all experienced less than a 0.1% loss in their total collateral. Overall, of the $177.2 billion in CMBS loans in this study, loans totalling $4.7 billion have defaulted at least once (2.66% of the collateral), with only 0.17% ($305.9 million) in realised losses. The 144 loans that experienced losses had original loan balances totalling $748 million. Almost 41% of that original loan balance, $306 million, was lost in the resolution of those defaulted loans.

The weighted average loss severity for all property types is 33.3%. For core properties, including multifamily, retail, office, and industrial loans, the weighted average loss is 33.8%.

Defaults and losses by property type

As of 31 December 2002

Property type	Balance of CMBS universe ($ bn)	No of loan defaults	Default balance ($ m)	% of defaults by property type	No of loans with losses	Original balance loans with losses ($ m)	Balance of losses ($ m)	Loss as % property type universe	Property type contribution to loss universe (%)
Multifamily	46.7	185	658.8	1.41	29	98.4	30.1	0.06	9.84
Retail	51.3	210	1,320.7	2.57	42	317.6	148.0	0.29	48.37
Office	36.5	58	314.2	0.86	6	32.4	7.1	0.02	2.33
Industrial	12.1	53	209.9	1.74	7	23.8	8.6	0.07	2.82
Hotel	15.6	207	1,386.5	8.87	49	194.8	89.5	0.57	29.26
Health care	4.5	61	647.5	14.41	7	46.1	18.8	0.42	6.15
Other[1]	10.4	33	177.4	1.71	4	34.9	3.8	0.04	1.23
Total	**177.2**	**807**	**4,715.1**	**–**	**144**	**748.0**	**306.0**	**0.17**	**–**
Defaults as % of originations			2.66						
Losses as % of original loan balances			0.17						

Note: Numbers may not add due to rounding.

[1] Includes various nontraditional property types.

The table on page 5 summarises, by dollar balance and number of loans, the default and loss experience of each property type in the CMBS universe.

Problem loan pipeline

At the close of 2002, 400 unresolved CMBS loans were in special servicing - 261 delinquent loans, 42 loans with pending foreclosures, and 97 loans that were already REO properties. The total balance of those loans was $2.7 billion, 60% of which consists of hotel ($950.7 million) and retail ($682.6 million) loans. Also included in that pool were 52 loans that, at that time, had been in special servicing for longer than 24 months.

In the second quarter of this year, the Fitch Loan Delinquency Index grew to 1.62%, a 23 basis point (bp) increase over first-quarter 2003. Based on ongoing performance analytic efforts, Fitch expects to see similar increases in the loan delinquency index in the third and fourth quarters of 2003, with an overall CMBS delinquency of 2% by year-end. In all, Fitch anticipates an additional $2.87 billion of loan defaults for the year. Furthermore, a preliminary evaluation of completed 2003 resolutions indicates that losses have increased by almost $300 million thus far, almost doubling the amount of losses on the books when the year started.

Forecast

Using the various property-specific default and loss rates that have been generated by the loss study, as well as the data gathered from ongoing performance analytics, Fitch estimates that final losses for 2003 will total around $400 million. Within the various property sectors, Fitch expects defaults in the multifamily, office, and industrial sectors to continue rising and that losses, on a percentage basis, will

remain proportionally higher in the hotel and retail sectors, particularly within the 2003 pool of resolutions.

Despite weakened real estate fundamentals and a frustratingly slow economic recovery, CMBS investments remain a bright spot in the structured finance world. When analysing losses, it is easy to overlook how startlingly small these losses have been over the course the 10-year history of CMBS. Actual default and loss experience in CMBS is considerably lower than earlier expectations when CMBS was a fledgling investment vehicle.

While forecasting increases in defaults and losses as the universe of transactions expands and matures and acknowledging that net operating income in most property types has been declining over the past 18-24 months, Fitch believes investment-grade CMBS will continue to be well protected. The diversity of collateral in conduit transactions, along with higher levels of technology in the servicing sector and lower interest rates, has helped CMBS performance outpace that of other structured finance investments.

The characteristics of defaults and losses, when evaluated by property type, will continue to illuminate differences and inherent risks in each property type sector and allow investors and rating agencies to further hone their risk analysis.

US commercial real estate indices: the NCREIF property index

Jeffrey D Fisher

Overview of NCREIF

NCREIF is a Not-for-Profit Industry Association that was founded in 1982. Its members include investment managers,[1] pension fund plan sponsors, professionals (eg, real estate appraisers and accountants), and academics. Those members of NCREIF who have qualifying data[2] on properties under management contribute their data each quarter to the NCREIF Property Index (NPI). NCREIF aggregates the confidential individual property data provided by members and provides indices based on aggregate data for use by its members and the real estate industry.

The mission of NCREIF is as follows:

- Collect and validate real estate performance data
- Calculate and publish performance measures
- Promote and publish Real Estate Information Standards
- Foster and support independent research
- Provide education; field of performance measurement

NCREIF property index

The NCREIF Property Index (NPI) provides returns for institutional grade real estate held in a fiduciary environment in the United States. Properties are managed by investment fiduciaries on behalf of tax-exempt pension funds. As of the second quarter of 2003 the index contains 3,967 properties with an aggregate market value of $127 billion.

Figure 1 shows the breakdown of the index by property type. Office is the dominant property type at 40% of the market value of the index with apartment, retail and industrial properties being about 20% each.

Figure 2 shows the percentage of properties in each region of the country. The western region has the greatest proportion of properties (34%) followed by the East (29%), South (22%) and Midwest (15%).

[1] Also referred to as investment advisers. These include insurance companies and other organisations that specialise in acquisition, management and disposition of real estate income properties purchased in a fiduciary capacity for investors such as pension funds and wealthy investors.

[2] Managers must have at least $100 million of properties under management that are at least partially held in tax exempt accounts such as open end funds, closed end funds or separate accounts.

Figure 1

Allocation of NPI by property type

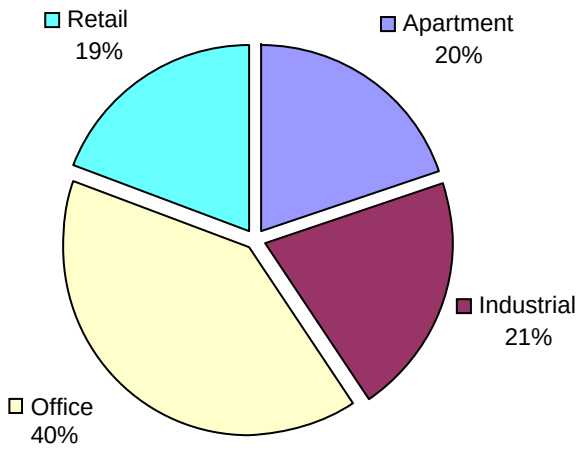
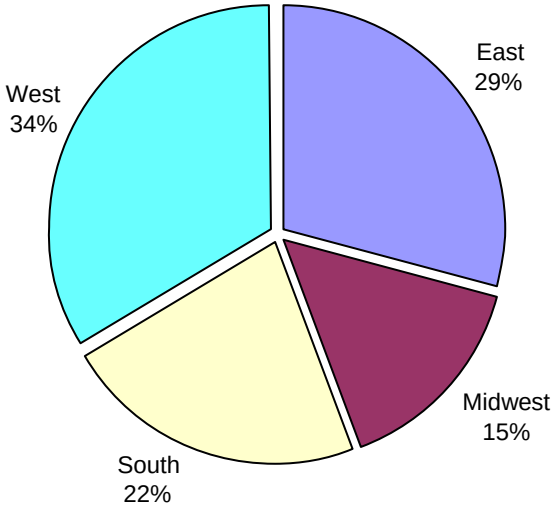


Figure 2

Allocation of NPI by region



Why was the NCREIF index created?

The NCREIF index was the first available index to measure the performance of income producing real estate and is still the primary index that institutional investors rely on for benchmarking the performance of real estate. It was created to understand how the performance of real estate compares with other asset classes such as stocks and bonds and also to provide a better understanding of the risk and return for commercial real estate.

The index is often used as a basis for developing diversification strategies such as the percentage allocation to real estate to minimise risk for a target portfolio return. Also, sub-indices such as for office, retail, industrial and apartment properties are used to determine how to diversify by property type. Similarly, sub-indices by regions of the country are used for geographic diversification.

Investment managers also use the index as a "benchmark" to evaluate the performance of their portfolio against index. Incentive fees paid by clients to investment managers might be based on out-performing the NCREIF index.

Calculation of index

In simple terms, the index measures the return each quarter "as if" the property was purchased at the beginning of the quarter at the beginning of quarter appraised value and sold at the end of the quarter at the ending appraised value. The return is the change in value plus the cash flow received for the quarter. Cash flow is net operating income (NOI) less any capital expenditures (Capex).[3] The index is calculated on an "unleveraged" basis, ie, as if the property did not have any debt financing.[4] It is also calculated on a before tax basis. In fact, because the properties in the NPI are held in tax-exempt accounts, federal income taxes would be irrelevant. Returns are calculated for each individual property and then value weighted to produce the index.[5]

Marked-to-market valuation

Members of NCREIF revalue their properties every quarter because ERISA[6] required pension funds to report the value of investments in retirement plans. As pension funds started adding real estate to their portfolios in the 1970s their real estate investment managers faced the problem that public market pricing wasn't available for the real estate holdings as was the case for other assets like stocks and bonds. Hence the investment managers used appraisals to mark their properties to market each quarter.

The financial statements that include marked-to-market valuation are in accordance with generally accepted accounting principles (GAAP) except for the valuation of real estate being based on appraisals instead of historical cost less depreciation. However, GAAP allows for use of "prevailing industry practice" in the absence of other guidance. Fair market value accounting for real estate held by pension funds was incorporated into the Real Estate Information Standards (REIS) developed by NCREIF and other organisations.

Appraisal process for NCREIF

Appraisals are based on "market value"[7] for client reporting. Investment value, which is the value to the particular investment manager, might also be estimated for buy-hold analyses but financial reporting (and the NCREIF index) is based on market value. There is usually an external appraisal at least once per year, which means that an independent appraiser, usually with an MAI designation,[8] does the appraisal. Internal appraisals are usually done the other quarters. The emphasis is on the income approach and use of discounted cash flow analysis (DCF) when doing appraisals for NCREIF

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[3] Capital expenditures are for items like roof replacement, leasing commissions, tenant improvements, etc that are "capitalised" rather than "expensed" and included in NOI.

[4] Some properties are purchased with loans but the index is calculated as if there was no loan.

[5] Value weighting produces a return for all the properties in the database as if they were a portfolio.

[6] Employee's Retirement Income Securities Act.

[7] Market value can be thought of as the most probable selling price for the property. In the United States, market value assumes that the property has already been exposed to the market for a reasonable period of time and there is no discounting for time on the market.

[8] The MAI designation means "Member of the Appraisal Institute" and is awarded appraisers after completion of experience, coursework and a demonstration appraisal. See www.AppraisalInstitute.org.

members. The analysis is often done using lease-by-lease financial software such as ARGUS or Dyna[9] that is designed for real estate income property investments with a variety of leases such as office, retail and industrial properties.

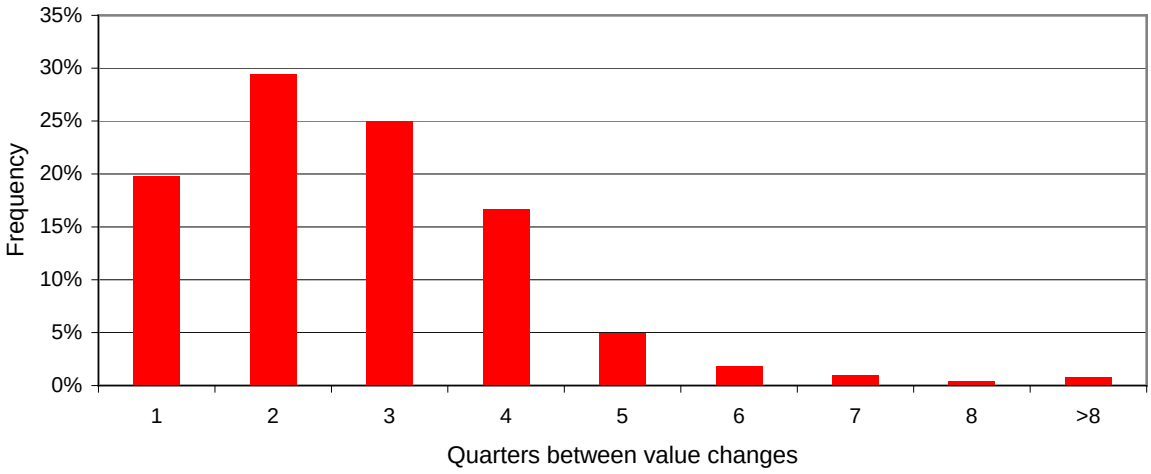
Appraisal issues

As noted earlier, the beginning and ending values used to calculate the NCREIF index are based on appraisals. This is because the real estate in general, and properties in the index do not transact on a regular basis. Thus, appraisals rather than transaction prices are used to calculate the index.

Appraisal based indices such as the NPI tend to have less volatility and lag changes in the market for two reasons: First, all properties are not actually revalued each quarter. Although investment managers report a value every quarter, managers don't always spend the time and money to do a complete revaluation of the property. They may just adjust the value for any additional capital expenditures and have a policy of only revaluing the property if they believe there has been a significant change in value. Figure 3 shows on average how many properties in the NPI are revalued each quarter.

Figure 3

Average time between revaluations of properties in NPI

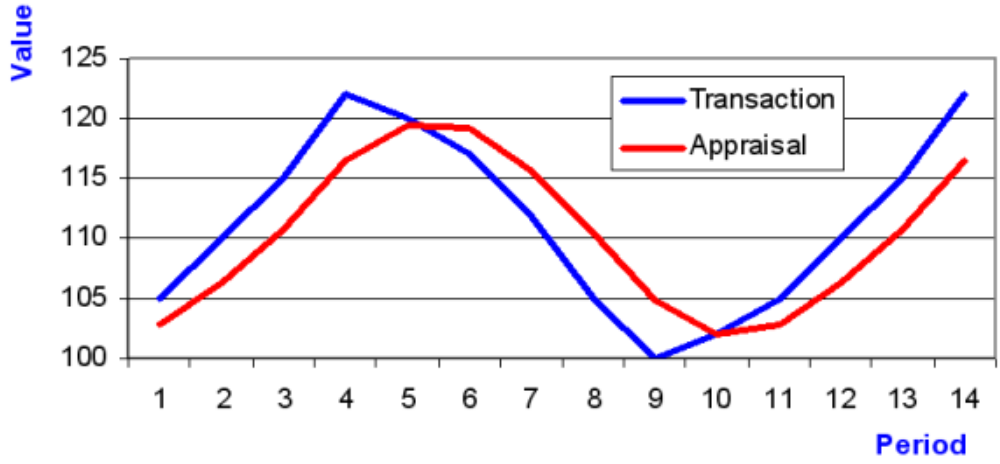


Second, appraisals themselves tend to lag transaction price due to the nature of the appraisal process. Information on transactions is often sparse and by nature historical - especially by the time the data is collected and verified. Market conditions often change more rapidly than can be reflected in data available to appraisers. This causes appraised values to be less then transaction prices in an up market and vice versa. This is illustrated using hypothetical data in Figure 4.

[9] Both ARGUS and Dyna are available from the Realm (www.Realm.com).

Figure 4

Appraised values vs transaction prices



It should be noted that this does not mean the appraiser is not doing the best job possible to estimate value. But the appraiser can not rely just on the most recent comparable sale (comp) because there may be something unusual about that sale that causes it to not be representative of the value of the subject property being appraised. The appraiser needs to receive sufficient evidence that there has been a shift in market prices.

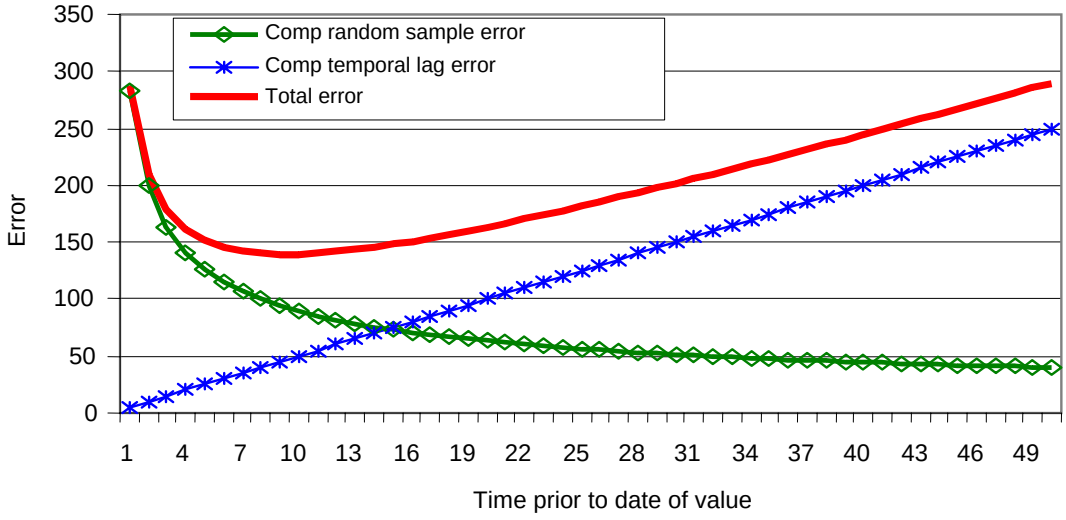
There are two kinds of error in the appraisal of individual properties:

- **Comp sample error.** The comp sample error is due to random differences between the comparable sale (comp) and the subject property.
- **Comp lag error.** This is due to the time that has elapsed since the comparable property (comp) sold and the date of value for the subject property.

There is a trade-off between the reduction in random comp error versus reduction in comp temporal lag error in property value estimation. The appraiser in a sense tries to minimise the sum of the two errors. This is illustrated in Figure 5.[10]

Figure 5

Appraisal error

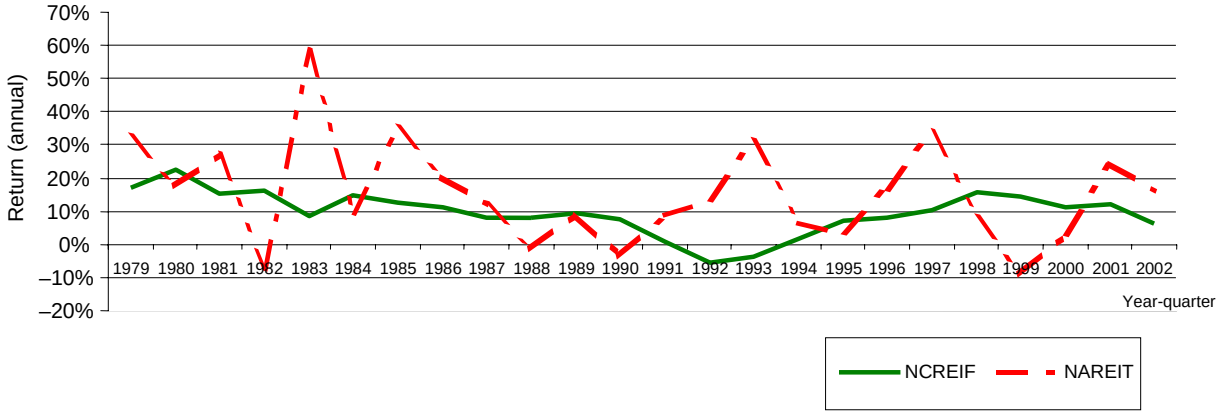


[10] From Fisher and Ong, "The tradeoff between comp sample error and comp lag error", presented at AREUEA, January 2001.

Figure 6 shows returns for the appraisal based NCREIF Property Index (NPI) versus an index of publicly traded REITs (NAREIT Index) that is based on stock transaction prices. Note the greater volatility of the NAREIT index. Part of the reason for this could be due to REITs being traded in the public market, which has more volatility due to the nature of the market. But the NCREIF index is also smoother due to the use of appraised values.

Figure 6

Returns for NCREIF property index vs NAREIT REIT index



Correcting for appraisal lag

Several approaches have been suggested in the literature to "correct" or adjust for the lag inherent in appraisal based indices.[11] The first is to "un-smooth" the index. This approach involves modelling appraisal behaviour and then in effect "reverse engineering" the appraisal process in order to get an unsmoothed index.[12] Appraisal behaviour is modelled as a moving average of the value indicated by current and prior comparable sales (comps) for the reasons discussed earlier. We have

$V_t^* = \alpha V_t + \alpha(1 - \alpha)V_{t-1} + \alpha(1 - \alpha)^2 V_{t-2}$ … (moving average)

where

V_t^* is the optimal appraised value in period t

V_t is the value from comps in period t

This reduces to $V_t^* = \alpha V_t + (1 - \alpha)V^*_{t-1}$

We can now solve for the "true" value as follows:

$V_t = V_t^*/\alpha - (1 - \alpha)/\alpha V^*_{t-1}$

Empirical evidence suggests an α of 0.4 for the NCREIF Property Index (NPI) when estimating annual returns. Thus we can develop a simple unsmoothing model as follows:

$V_t = V_t^*/0.4 - (1 - 0.4)/0.4V^*_{t-1}$

$V_t = 2.5V_t^* - 1.5V^*_{t-1}$

This adjusts for stale appraisals and lag in the appraisal process. Figure 7 compares the regular NPI with the "unsmoothed" version using the above methodology.

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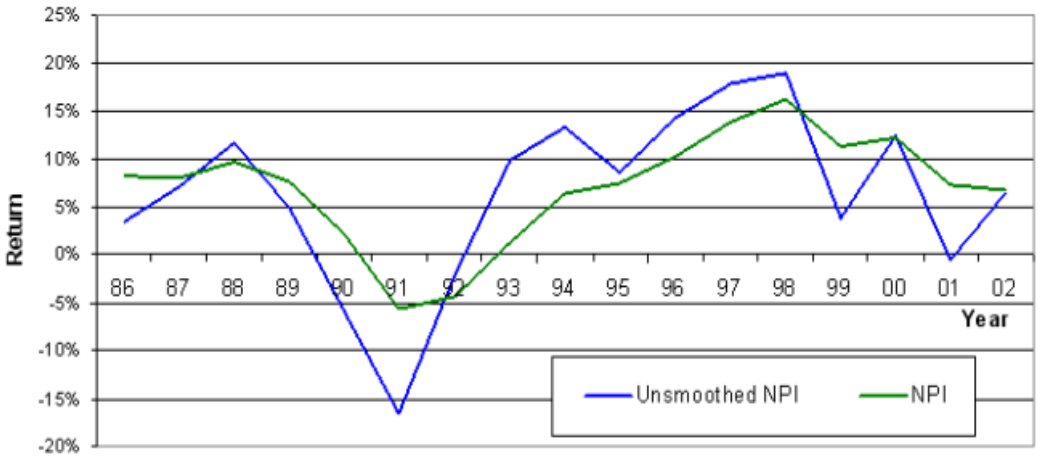
[11] See Quan and Quigley, "Price formation and the appraisal function in real estate markets", *Journal of Real Estate Finance and Economics*, 1991.

[12] See Geltner and Miller, *Commercial Real Estate Analysis and Investments*, p 684.

Figure 7

"Unsmoothed" NPI



Repeat appraisal methodology

Another approach is to use only the reported appraised values that reflect attempts to revalue the property. That is, instead of using appraised values every quarter, only use quarters that are believed to involve a serious attempt to revalue the property. This is analogous to "repeat sales" indices but uses "repeat appraisals". The problem with this approach is that it is still based on appraised values. So the problem of "stale" appraisals is eliminated, but not the lag due to the appraisal process discussed above. This involves use of an econometric technique (repeated measures regression) to estimate the index because revaluations do not occur every quarter. Figure 8 illustrates this approach with a simplified example. Year zero is the dependent variable in the regressions (even for properties purchased later) and the coefficients of the cash flow estimates for each year provide index levels.

Figure 8

Repeat appraisal methodology

Property	Year 0	Year 1	Year 2	Year 3	Year 4
1	–100	10	125		
2	–150	15	18	180	
3	0	–125	15	28	132
4			–130	17	150

Properties 1 and 2 purchased in Year 0, Property 3 purchased in Year 1 and Property 4 purchased in Year 2

$100 = a_1 10 + a_2 125$
$150 = a_1 15 + a_2 18 + a_3 180$
$0 = a_1 (-125) + a_2 15 + a_3 28 + a_4 132$
$0 = + a_2 (-130) + a_3 17 + a_4 150$

$a_1 = 1/(1 + R_1)$ where R_1 is the return for year 1
$a_2 = 1/[(1 + R_1) \times (1 + R_2)]$ where R_2 is the return for year 2
etc.

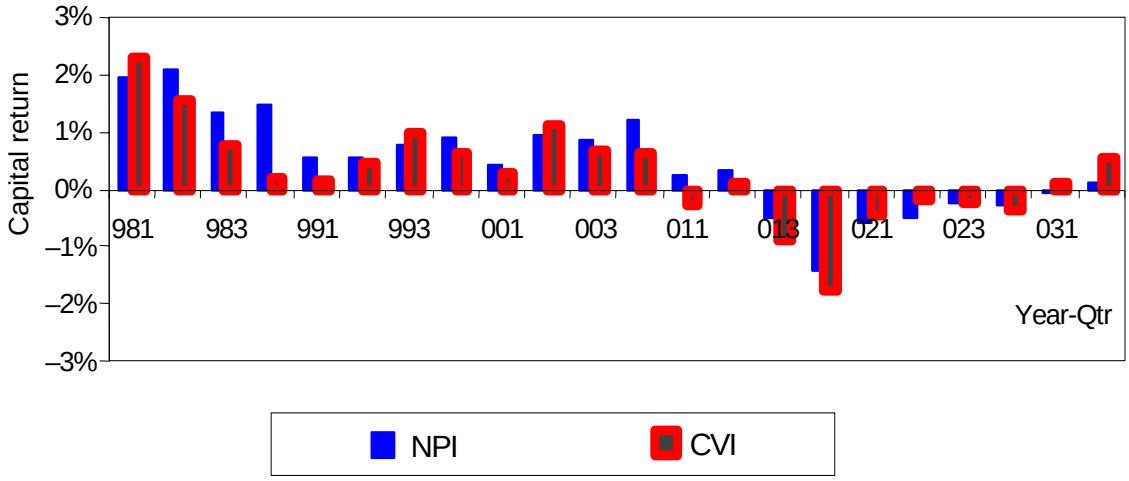
$1/a_1 = (1 + R_1)$ index level in year 1
$1/a_2 = (1 + R_1) \times (1 + R_2)$ index level in year 2
etc.

Figure 9 shows the difference in the capital return (change in value component of the NPI return) using the above methodology versus the capital return for the NPI using the regular quarterly appraised values. NCREIF refers to the index using the repeat valuations methodology as the "Current Value Index" or CVI.

Figure 9

NCREIF current value index (CVI)
based on repeat appraisals

CVI capital return vs NPI capital return



Transactions indices

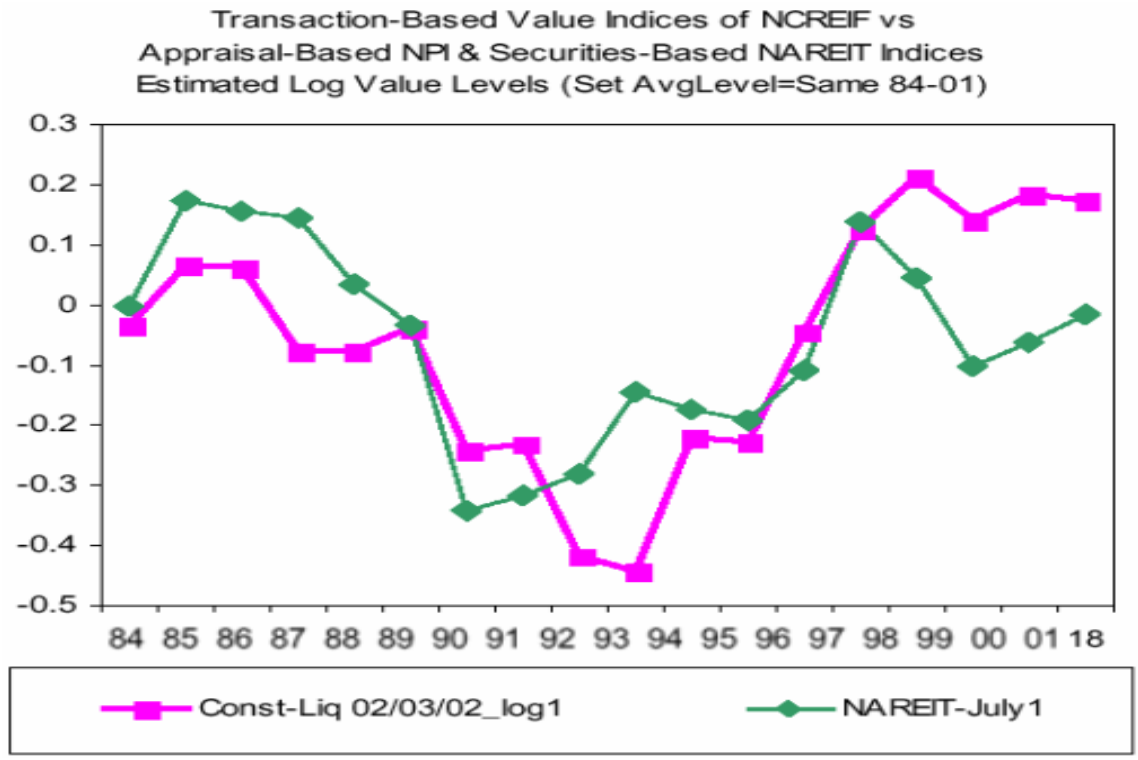
A third approach to dealing with the appraisal lag issue is to actually use transaction prices to develop the index instead of appraisals. The disadvantage of this, as noted earlier, is the lack of transactions for the same property. However, if there are a sufficient number of transactions of properties, econometric techniques can be used to estimate an index based on the available transactions. Often this involves the use of "repeat sales" where you have more than one sale of the same property even though there is a significant amount of time between sales. This approach is often used for housing indices where there is a lot of transaction data but is difficult to apply to commercial real estate with less frequent transactions. Another method is to develop "hedonic price indices" that model transaction prices as a function of characteristics of the property such as its size, age, location, quality of construction, etc. This does not require repeat sales of the same property. The date of the transaction is included as a "dummy variable" in the model and the coefficient of this variable is used to develop a price index.

Fisher, Geltner, Gatzlaff and Haurin (FGGH)[13] developed an extension of the hedonic approach that involves (1) controlling for selectivity bias (properties that sell can differ from those that do not sell and we want an index representative of all properties) and (2) adjusting for variations in liquidity over the real estate cycle (properties are more likely to sell and markets are more liquid in an up-market versus a down-market). Details of this methodology are beyond the scope of this paper. Figure 10 compares the FGGH constant liquidity index with the NAREIT index mentioned previously. Note that the constant liquidity index has more volatility and a greater correlation with REITs than suggested by Figure 6 discussed previously.

[13] Jeffrey Fisher, Dean Gatzlaff, David Geltner and Donald Haurin, "Controlling for the impact of variable liquidity in commercial real estate price indices", *Real Estate Economics*, vol 31, no 2, Summer 2003.

Figure 10

Comparison of constant liquidity index with NAREIT index



Conclusion

The NCREIF Property Index (NPI) is the primary index used by institutional investors in the United States to analyse the performance of commercial real estate and use as a benchmark for actively managed real estate portfolios. But the use of quarterly appraised values does result in some "smoothing" and lagging of the returns compared to indices based on actual transactions. Several approaches have been used in the literature to deal with the appraisal issues. The most promising is a new methodology that uses sales of properties to develop transaction-based indices for private commercial real estate. As data on transactions becomes more available these indices will become more reliable and allow for better evaluation of the performance of commercial real estate.