Private Placement Real Estate Valuation

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As a result of the Securities and Exchange Commission's relaxation of its prohibition against the marketing of private placements, investors will soon be exposed to a broad array of syndicated commercial real estate investments. Private placement commercial real estate investments are illiquid and so cannot be easily valued by reference to frequent transactions in the same asset in active markets.

We have reviewed over 200 syndicated commercial real estate private placement memorandums and find that virtually all include projected cash flows. This study explains how investors and their advisors can use these projections to develop estimates of investment value. We determine a lower bound for discount rates applicable to the cash flows derived from commercial real estate and apply the methodology to an actual commercial real estate private placement investment. Our findings suggest significant overvaluation by commercial real estate private placement investment sponsors even when using conservative estimates of discount rates.

I. Introduction

Commercial real estate investments can be valued using discounted cash flow models. The primary inputs to these models are the annual cash flows (income) and a discount rate which compensates a potential investor for the time value of money and the risk of the projected cash flows. In this way, the valuation of real estate is similar to the valuation of financial assets. For example, the present value of a bond is the discounted value of future coupon payments and principal repayments. The discount rate for a simple non-callable bond is usually the yield to maturity on the bond.

The future cash flows and discount rates for commercial real estate are not as easily specified as for a simple bond, which makes the valuation process of a commercial property more complex. The cash flows from a commercial property must be estimated

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taking into account such items as rental rates, vacancy rates, annual expenses for property improvement, and projected sales price of the property at a future date. Discount rates which compensate the investor for the riskiness of the cash flows must also be derived.

Although stocks, bonds and cash are often considered the three fundamental asset classes, the total market value of real estate is comparable to that of the stock market. As of year-end 2009, one industry group estimated the total market value of all commercial real estate to be $11.5 trillion.[2] As of mid-2010, the total market capitalization of the Russell 3000 stock market index was $12.6 trillion. Despite the size of the real estate market, both academics and practitioners have traditionally treated real estate as an alternative asset class. However, the data suggest that real estate investments are a large portion of many investors' portfolios.

Our methodology is generally applicable to investments that lay out projections for distributions to investors at the time of the sale of the securities. Delaware Statutory Trusts and Tenancy-in-Common are two types of syndicated investments in real estate properties which can be valued using our methodology. Other direct participation securities such as oil and gas interests, equipment leasing programs, tax credit programs, and other private placement real estate funds can also be valued with our framework or with slight modifications. In addition, it is a matter of time before new types of securities selling partial interests in speculative ventures emerge as a consequence of the Jumpstart Our Business Startups (JOBS) Act of 2012 crowdfunding statute which allows businesses to raise up to $1 million per year from retail investors. Although the Securities and Exchange Commission has yet to issue regulations to put the JOBS Act's crowdfunding provision into effect, it is likely that the equity interests sold under this provision will be marketed with cash flow projections. The valuation of crowdfunded real estate investments would be a direct application of our framework.

Although the methodology we discuss is applicable generally to all types of direct commercial real estate investments, we illustrate the process of commercial real estate valuation by studying an investment known as a syndicated Tenancy-in-Common (TIC) interest. Broadly, a TIC is an undivided real estate investment which is owned jointly by two or more entities. We use a TIC investment as an example for two reasons. First, we have applied and tested our methodology on over 200 TIC private placement memorandums. Second, and more interestingly, it is our experience that TIC offering documents do not perform sound discounted cash flow analyses but rather derive a "cash-on-cash" return which are not investment returns at all. When we apply discounted cash flow analyses we find that TICs are frequently overvalued at the offering by 20% to 30%

[2]See (Florance et. al 2010).

even when using conservative estimates of discount rates. This overvaluation causes sizable investor losses immediately upon the purchase of a TIC property.

In the next section of this paper, we derive estimates of appropriate discount rates for commercial real estate investments using two different methodologies. In section III we provide some background on syndicated TICs and then present a valuation of a specific example. Section IV concludes.

II. Discount Rates for Real Estate Investments

We present and discuss two methods for arriving at proper discount rates for commercial real estate interests. The first is a traditional CAPM model using betas calculated for publicly traded real estate investment trusts (REITs). The second method uses discount rates from survey data.

a. CAPM Method

In business valuations, discount rates can be often estimated using build-up methods that start with a risk-free rate of return and sequentially add risk premiums to compensate for various types of risk. Once all of the risk premiums have been included, the result is the discount rate to apply to future cash flows. One of the cornerstones of these build-up methods is the Capital Asset Pricing Model (CAPM). The CAPM specifies that the expected rate of return for investing in a company is a function of the risk-free rate and a company's systematic risk. Systematic risk is a company's exposure to movements in the broad market. When valuing private companies or businesses, valuators often begin with the CAPM and then add additional premiums to account for company size and company specific risks. The classic CAPM equation for a publicly traded stock is the ordinary least squares estimate of the formula:

$$\left(R_i - R_f\right) = \alpha + \beta * \left(R_m - R_f\right) + \epsilon \qquad \text{Eq. 1}$$

where: R_i=Historical return for publicly traded stock, i

R_f=Risk-free rate

α= Regression constant

β= Estimated beta (also known as levered beta)

R_m=Historical return on market portfolio, m

ϵ= Regression error term

The CAPM equation estimates the i^{th} publicly traded stock's excess return over the risk-free rate as a function of the market portfolio's excess return over the risk-free rate. The market portfolio's excess return over the risk-free rate is also known as the equity risk premium. The α coefficient is an estimate of stock i's excess return when the

equity risk premium is zero. The β coefficient is an estimate of the expected sensitivity of stock i to an excess return in the market portfolio, which is known as systematic risk.

For private companies, there are no historical series of periodic stock returns available to perform the regression analysis. When applying a CAPM model to a private company, the practice is to identify the industry in which the company operates and find publicly traded companies in the same industry. The estimated betas from the publicly traded companies are used as proxies for the beta of the private company. In the case of real estate interests, publicly traded real estate investment trusts (REITs) have easily collectable periodic stock returns.

REITs hold many properties and are categorized by their holdings (office, retail, storage, etc.). REITs can be used for targeted exposure to particular geographic regions or asset classes within the broader real estate market. REITs must comply with a variety of regulatory constraints in order to enjoy beneficial tax treatment. Most of a REIT's assets must be interests in real estate or in other REITs. REITs must earn almost all of their revenues from real estate investments and pay out almost all of their earnings to investors.

Our sample consists of the 133 equity REITs in the FTSE NAREIT Index on December 31, 2012. For each REIT, we gather monthly data on prices, market capitalization and debt-to-equity ratios from January 1, 2003 until December 31, 2012 from Bloomberg, LP.[3] We exclude any REITs with zero or negative total book value of equity, as well as any REITs with missing monthly price data over the period.[4] The remaining sample consists of 80 REITs. We have an additional 20 REITs that began trading between January 1, 2003 and December 31, 2007. We retain these REITs for our subsequent analysis of the more recent five-year period.

Table 1 presents descriptive summary statistics for the 80 REITs for which we have monthly price data from 2003 to 2012. We first average the market capitalization and the debt-to-equity ratio for each REIT over the ten-year time period.[5] Table 1 reports summary statistics for each of the twelve equity REIT market categories as defined by FTSE NAREIT. Table 1 shows the average market capitalization, the simple average debt-to-equity ratio, and the market capitalization-weighted average debt-to-equity ratio. The REITs in our sample have a mean market capitalization of $2.7 billion dollars and approximately twice as much debt as equity.

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[3] Our price data was adjusted to reflect capital changes and all distributions. Hence, we are using total returns as opposed to price returns.

[4] Altering our inclusion criteria to include REITs with at least 30 months of data does not alter our results in any significant way.

[5] We use the market capitalization and debt-to-equity ratio as reported by Bloomberg, LP.

Table 1: Publicly traded REIT database: (January 2003 to December 2012)

Market	N	Average Market Capitalization	Simple average debt-to-equity ratio	Weighted average debt-to-equity ratio
Office	10	$2,840,044,640	126.3%	202.4%
Industrial	4	$2,025,647,460	126.4%	104.5%
Mixed	3	$2,830,910,487	80.5%	101.9%
Shopping Centers	15	$1,957,806,477	225.4%	191.5%
Regional Malls	6	$6,530,727,803	399.9%	418.4%
Free Standing	4	$1,303,763,516	64.5%	71.0%
Apartments	10	$2,135,210,837	209.5%	196.8%
Manufactured Homes	2	$754,715,024	581.2%	954.1%
Diversified	9	$2,169,364,666	119.3%	123.5%
Lodging/Resorts	6	$2,208,993,547	133.7%	124.9%
Self Storage	1	$13,687,316,532	5.8%	5.8%
Health Care	10	$2,622,709,591	135.1%	225.5%
	80	$2,678,955,998	181.7%	202.4%

We estimate the beta for each of the REITs in our sample with an ordinary least squares regression on monthly return data for the entire ten-year period and for two five-year subsample periods: 2003-2007 and 2008-2012. We run the regression analysis of each REIT's excess returns against the S&P 500's excess returns. We use the returns of the one-month US Treasury bill as the risk-free rate.[6] For the entire ten-year period and for each sub-period, we estimate the betas for all REITs.

The betas estimated by our regressions are levered betas. [7] They reflect the riskiness of the equity of the REITs which is a function of both the underlying REIT investments and the amount of leverage the REIT uses. Higher levels of debt in the capital structure of the REIT lead to higher betas, all else being equal. Since our goal is to apply the betas we find to investments in commercial real estate with varying amounts of leverage, we deleverage the beta using each REIT's average debt-to-equity ratio. We calculate the unlevered (pure equity) betas using the formula:[8]

[6] Our results are qualitatively unchanged if we use 1-month LIBOR or longer term Treasury securities for the risk-free rate.

[7] See (Connors and Jackman 2000) and (Corgel and Djoganopoulos 2000) for other examples of using the CAPM to estimate betas for REITs.

[8] This is the widely used Hamada formula for deleveraging beta, using a 0% tax rate because REITs do not pay entity tax.

$$Unlevered\ beta = Levered\ beta * \frac{1}{1+\frac{Debt}{Equity}} \qquad \text{Eq. 2}$$

Table 2 summarizes our regression results for the equity REIT beta estimation. We show the results for the entire ten-year period and for the two alternative five-year subsamples. We show the simple and weighted averages as well as the median, high, low, and standard deviation for the levered and unlevered betas. We calculate the betas for five REIT indexes and present them in the table as well.

Table 2: Equity REIT beta estimation[9]

	2003 - 2012		2003 - 2007		2008 - 2012	
	Levered Beta	Unlevered Beta	Levered Beta	Unlevered Beta	Levered Beta	Unlevered Beta
Panel A. Individual REITs						
Unweighted Mean	1.40	0.58	1.10	0.46	1.52	0.64
Weighted Mean	1.49	0.59	1.10	0.46	1.54	0.64
Median	1.24	0.57	1.03	0.44	1.37	0.63
High	3.30	1.43	6.53	1.10	3.65	1.64
Low	0.45	0.07	-0.14	-0.08	0.41	0.09
Standard Deviation	0.58	0.25	0.70	0.24	0.68	0.28
N	80	80	78	78	100	100

	Levered Beta	Levered Beta	Levered Beta
Panel B. REIT Indexes			
RMZ Index			1.44
RMS G Index		1.05	1.44
RMS N Index			1.44
REIT Index	1.34	1.05	1.42
FNERTR Index	1.34	1.06	1.43

The simple average levered beta for the entire ten-year period is 1.4. The average levered beta weighted by the market capitalization in the period is slightly higher, which means that REITs with higher market capitalization typically have higher betas. Panel A in Table 2 shows the median, highest and lowest value for beta, as well as the standard deviation and the number of REITs analyzed. Panel B shows the levered beta for several REIT indexes. The average levered beta using data on the individual REITs shown in Panel A is close to the estimated beta using the REIT indexes in Panel B.

REITs focused in different real estate markets may be more or less sensitive to changes in the market portfolio. Table 3 shows the mean and standard deviation of the unlevered betas by real estate market and for each of the time periods considered. For most of the real estate markets, the computed unlevered betas are not statistically different from the average unlevered beta for the entire population of REITs.[10] However,

[9] Our sample size drops from 80 REITs for the 10-year period to 78 REITs in the 2003-2007 sub-period because there is no data on the debt-to-equity ratio for Sabra Healthcare REIT and Prologis Inc. for the earlier time period.

[10] We use the standard z-score test to assess statistical significance. The test statistic is $z = \frac{\bar{X}-\mu}{\sigma/\sqrt{n}}$, where $\bar{X}$ and n are the simple average unlevered beta and sample size for the market sample, and μ and σ are the mean and standard deviation for the population of publicly traded REITs.

REITs in the "Manufactured Homes" and in the "Lodging/Resorts" categories have an average unlevered beta that is statistically different from the all markets average for the 2003-2012 period. While the "Manufactured Homes" REITs are less sensitive than average to excess returns in the market portfolio, the "Lodging/Resorts" REITs are more sensitive than average to excess returns in the market portfolio.

Table 3: Unlevered betas by market

	2003 - 2012		2003 - 2007		2008 - 2012	
Market	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Office	0.67	0.20	0.48	0.09	0.73	0.22
Industrial	0.62	0.32	0.31	0.15	0.70	0.34
Mixed	0.73	0.13	0.63	0.31	0.61	0.22
Shopping Center	0.50	0.23	0.34*	0.18	0.58	0.25
Regional Malls	0.54	0.22	0.32	0.08	0.55	0.26
Free Standing	0.59	0.15	0.68	0.23	0.57	0.15
Apartments	0.44	0.17	0.37	0.09	0.49	0.21
Manufactured Homes	0.23*	0.23	0.16	0.13	0.25	0.23
Diversified	0.60	0.23	0.42	0.23	0.59	0.25
Lodging/Resorts	0.93*	0.32	0.52	0.20	1.01*	0.34
Self Storage	0.84	N/A	0.91	N/A	0.75	0.15
Health Care	0.55	0.18	0.75*	0.31	0.56	0.17
All Markets Average	0.58	0.25	0.46	0.24	0.64	0.28

Notes: An asterisk indicates that the mean for the market is statistically different from the All Markets Average at the 5% level.
There was only one REIT in the Self-Storage category during 2003-2007 (no standard deviation for the subperiod and the ten-year period).

To calculate the discount rate for a commercial real estate investment we can use the average unlevered beta for publicly traded REITs and the debt-to-equity ratio of our targeted real estate investment to find its levered beta using the formula:

$$Levered\ beta = Unlevered\ beta * \left(1 + \frac{debt}{equity}\right) \qquad \text{Eq. 3}$$

The target real estate investment's levered beta can then be used as an input for the investment's cost of equity which is the risk-free interest rate plus the levered beta multiplied by the equity risk premium:

$$Cost\ of\ Equity = Risk\ free\ Rate + Levered\ Beta * Equity\ Risk\ Premium^{11} \qquad \text{Eq. 4}$$

[11] This formula is generally applicable to discounting any investment's future cash flows and can be found in most introductory corporate finance or investments textbook. See (Pratt and Grabowski 2010). The formula is also applicable to discounting cash flows from real estate investments (Corgel and Djoganopoulos 2000; Damodaran 2002; Gyourko and Nelling 1996).

To illustrate our application of real estate discount rates to projected cash flows, we can take a brief look ahead at the syndicated TIC that we present in section III of the paper. The commercial real estate consists of two office buildings located in downtown Boston purchased by a trust in early 2007 for $29.6 million. The trust then sold equity interests to investors.[12] Upfront fees and reserves held back by the sponsor brought the property's fully loaded price to $34.4 million. The real estate was financed with a $23.1 million 8-year interest-only mortgage and an equity offering of $11.4 million. Hence, the debt-to-equity ratio of the syndicated real estate was 203%.[13] Since the unlevered beta for the "Office" market is not statistically different from the all markets average we use the average unlevered beta for the 2003-2007 time period (0.46). Substituting the average unlevered beta and the target debt-to-equity ratio in Eq. 3, we obtain a levered beta of 1.39 for this investment. We use a 4.66% risk-free rate from the 2007 total return on US Treasury Bills and a 6% equity premium.[14] Substituting into Eq. 4 we arrive at a cost of equity or discount rate of 13.02% for our example real estate investment.

b. Discount Rates from Survey Data

Discount rates can also be obtained from survey data. Integra Realty Resources (IRR) produces periodic reports on real estate trends. Their annual and quarterly *Viewpoint* reports include average discount rates for Class A real estate properties obtained from over 40,000 appraisals each year.[15] The discount rates are provided for several market types and over fifty metropolitan areas across the United States.

The discount rates in the IRR publications are unlevered cost of equity rates. The unlevered cost of equity is:

$$Unlevered\ Cost\ of\ Equity = Risk\ free\ Rate + Unlevered\ Beta * Equity\ Risk\ Premium \quad \text{Eq. 5}$$

The unlevered cost of equity rates in the IRR publications need to be re-levered to obtain the appropriate rate at which to discount the equity investors' future cash flows. Using the risk-free rate and the equity risk premium discussed above, and using the

[12] We have roughly based our example on a real-life TIC deal but have slightly changed some of the details to make our illustration clearer.

[13] Because this property was purchased with an interest-only mortgage, the leverage in the deal is constant throughout the holding period. A standard mortgage with periodic principal payments would gradually reduce the leverage in the deal, affecting the annual cash flows' discount rate.

[14] The risk-free rate is from (Ibbotson 2011, 203; Pratt and Grabowski 2010, 135-142), the equity risk premium is from (Pratt and Grabowski 2010, 148-151).

[15] See Integra Realty Resources publications available at http://www.irr.com/Publication-PublicationList/Index.htm.

unlevered cost of equity from the IRR publications, the unlevered beta can be calculated from Eq. 5. Then, we can compute the levered beta using Eq. 3. Finally, we can use Eq. 4 to compute the (levered) cost of equity.

Returning to our example real estate investment, the unlevered discount rate for office buildings located in Boston's central business district was 7.5% according to the 2007 *Viewpoint*. Obtaining the implied unlevered beta as explained above and re-leveraging with the target TIC's debt-to-equity ratio we arrive at a cost of equity of 13.26%.

III. Valuation Methodology Applied to a TIC

a. What are Syndicated TICs?

A TIC is a real estate investment which is owned jointly by two or more entities. The real estate is undivided, meaning that no particular tract of the land or building on the land can be identified as belonging to a particular entity. Historically, TIC interests were generated primarily through family gifting or estate planning where the real estate in question was inherited by multiple family members or family trusts. TIC interests can lead to significant control issues since decisions on the use of the real estate typically must be agreed to by each of the co-owners. These control issues can in turn lead to investment illiquidity if one of the co-owners wishes to sell his or her interest.[16]

Syndicated (or pooled private) TICs are private placement real estate investments that are specifically packaged and sold by sponsors as undivided real estate interests. These syndicated TICs are almost invariably purchased for the purpose of a 1031 exchange.[17] Tax code rule 1031 allows investors to defer taxes on a realized gain from the sale of a property if it is exchanged for a like-kind property within a short time period. TIC sponsors allow investors to match the value of a sold property with a replacement property by selling undivided interests in a larger property which can be purchased individually or in combination. TIC issuance increased dramatically after 2002, when the IRS adopted Rev. Proc. 2002-22 "clarifying when acquisition of a tenant-in-common interest in real estate qualifies as replacement real estate under Section 1031." The total amount of equity invested in TICs increased from $167 million in 2001 to $3.7 billion in 2006. After 2007, many TICs stopped paying distributions to equity investors. It was not uncommon for non-performing TICs to undergo loan refinancing, effectively wiping out the value of the equity interests. What is perhaps most puzzling about the TIC industry is

[16] For more on TICs see (Borden 2009, Borden and Wyatt 2004, Cuff 2002, Lopez 2007, Pederson 2005, Rich 2010, Updike 2007, and Whitman 2007).
[17] For a discussion of the economics of tax deferred real estate exchanges see (Ling and Petrova 2008).

that in our experience a basic discounted cash flow valuation could have shown that investors were frequently losing 20 to 30% of their investment at the time of sale, even under the cash flow assumptions developed by the TIC sponsors.

Sponsors who offer TIC investments develop complex projections of future cash flows available from a purchase of a TIC investment. These projections are contained in the private placement memorandums that are circulated to potential investors. These documents are not typically publicly available, but represent the primary means by which to judge whether a particular TIC investment is fairly valued. In addition to whether the price of the TIC interest is supported by future cash flow projections, investors also must weigh the tax benefit from a 1031 exchange against the expenses charged by the sponsor in the sales and marketing process.

Investors may use the projected cash flows in a TIC's offering documents to obtain a first estimate of the discounted value (or present value) of the TIC interest. Investors should note that the projected cash flows in the offering documents are based on a myriad of speculative assumptions about the profitability of the property and investors should be wary of the agency problems inherent in sponsor projections of property cash flows. Sponsors earn fees off the syndication of the property which may induce optimistic or unrealistic forecasts of property profitability. However, for the purposes of our illustration, we take at face value the financial projections in the offering documents of the syndicated real estate investment.

b. Base Case Projections and Valuation

Table 4 in the appendix presents the projected cash flows from our example.[18] Table 4's Panel A lists the features and assumptions that are typically included in a TIC's private placement memorandum. In our example, the property has $2.3 million in base rent in the first year, increasing by 5% every year.[19] The vacancy rate is 5%. The first year expenses are $345,000 and expenses grow at a rate of 4% per year.[20] The interest rate on the mortgage is 6%. The sale of the property is assumed to occur in eight years at a capitalization ('cap') rate of 8% and will incur 5% in broker fees.

Expenses are subtracted from gross revenue to yield net operating income (NOI). Expenses include ongoing costs related to the property, such as landscaping, lighting and heating, and may be reimbursed to some degree by tenants. Principal and interest payments on the mortgage are subtracted from NOI and any transfers from the reserve accounts are added to determine the cash distributions to investors. Cash distributions to investors are divided by the total amount of investors' contributed capital to determine "cash-on-cash" returns, a term that is widely used in the offering documents.[21]

Syndicated real estate sponsors typically project the sale price for the property held in the TIC based on a cap rate (8% in our example) and the NOI of the following year after the end of the holding period ($2.8 million in our example), and calculate the resulting cash flows to investors at that time ($34.4 million in our example). The sum of annual cash flows plus the final net proceeds from the property sale equal the total cash flows to investors ($17.4 million in our example). Subtracting the investor's contributed capital ($11.4 million in our example) from the total cash flows to investors, we arrive at the equity interest's undiscounted net value ($6.0 million).

Using a discount rate of 13.02% obtained from the CAPM method explained above and discounting the projected annual cash flows and the property sale proceeds, we

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[18] For an expanded discussion of data analysis and techniques for real estate investments see (Brown 2012).
[19] This is a simplifying assumption. Annual market rent increases are not typically reflected immediately in rental revenues, as they can only be realized when current lease contracts expire. Sponsors calculate base rental income from current lease terms and expirations by making assumptions about when current leases will expire and require re-leasing. Some sponsors calculate this turnover vacancy explicitly and subtract it from base rental income to calculate gross revenue. Another approach, sometimes used in addition to turnover vacancy, is to assume a general vacancy as a fixed percentage of rental income.
[20] Expenses as modeled here are different than the explicit modeling of operating expenses that sometime appear in sponsor's projections. Our expenses are effectively operating, leasing, or tenant improvement costs that are net of tenant reimbursements but are eligible to be paid by drawing from reserves.
[21] "Cash-on-cash" returns are not really investment returns since these distributions typically include a return of the investors' capital in the form of reserve releases, at least in the early ears of the cash flow projections.

arrive at a discounted value of $8.3 million.[22] Subtracting the investor's contributed capital ($11.4 million in our example) from the discounted value of the cash flows to investors we arrive at a net present value (or present value) of -$3.1 million.[23]

c. Sensitivity to Assumptions

Assumed vacancy rates, rent growth rates, expense growth rates, and cap rates critically determine the projected cash flows to investors. Assumed vacancy and rent growth rates determine gross revenue projections. In turn, gross revenue and assumed expenses determine the NOI projections. Sponsors calculate an expected sale price by projecting NOI the year after the sale and then assuming that the market value of the property will equal 1 divided by an assumed cap rate multiplied by the projected NOI:

$$Sale\ price = \frac{1}{cap\ rate} \times NOI \qquad \text{Eq. 6}$$

The vacancy, the rent growth rate and the expenses affect the annual distributions to investors as well as the anticipated sales price of the property at maturity, since they affect the NOI projected for the year after the sale. The assumed cap rate affects the cash flows to investors through its effect on the projected sales price of the property. If the assumed vacancy rate, the cap rate, or expense growth rate are too low or the rent growth rate is too high, the projections will overstate the present value of the real estate interest. In fact, small changes to the parameters may sometimes result in large changes in the valuation.

Survey data may be used to evaluate whether the assumptions in offering documents are appropriate. The IRR *Viewpoint* publications mentioned earlier, for example, contain average vacancy rates, rent growth rates, expense growth rates, and cap rates used in real estate appraisals by market type and metropolitan area. The details of the specific real estate property in the deal can also be informative of the validity of the assumptions. Assumed vacancy rates for a deal with a single, creditworthy tenant who has a ten-year lease may be below the average vacancy rate for similar properties in the region, for example.

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[22] We use mid-year discounting for the annual cash flows and end-of-year discounting for the property sale proceeds.

[23] In our experience, it is not uncommon to find present values of syndicated real estate interests that are below the investors' purchase price (negative net cash flows to investors), given appropriate risk-adjusted discount rates.

d. Valuation Discounts

The fair market value of a syndicated real estate interest may be subject to discounts that are not controlled for in the discount rates derived in Section II. Because these investments are not publicly traded, it may be appropriate to apply an illiquidity discount (also called a discount for lack of marketability or DLOM) when determining their fair market value. Additionally, a discount for lack of control (DLOC) may also be appropriate since the investor does not have individual control over the property. For example, the Financial Industry Regulatory Authority (formerly NASD) warns brokers:

> "TIC interests are illiquid securities. NASD is not aware of any secondary market for TIC interests. Moreover, the tenant-in-common form of ownership may require unanimous consent to sell a TIC interest. The subsequent sale of TIC interests may only be possible at a significant discount to the net asset value of the undivided interest in the real estate."[24]

The quantification of the DLOC and DLOM is beyond the scope of this paper.[25] However, there are characteristics of syndicated real estate investments that would influence DLOC and DLOM discounts. For example, while many privately held enterprises require only a majority vote to make decisions about the sale, financing or transfer of the property, most TICs require unanimous approval of all interest holders. Hence, the existence of a single difficult or dissenting TIC interest holder could have a large impact on control issues and, all other things being equal, increase the discount for lack of control. As a second example of the unique features of a TIC, consider that syndicated TICs are often marketed as 1031 exchange vehicles. Thus, the prevalence of potential purchasers of a TIC interest may be a function of recent changes in property values. For example, in a declining property value environment, capital gain tax consequences for property sellers will also decline. The decline in adverse tax consequences decreases the relative attractiveness of a 1031 exchange and could decrease demand for syndicated TIC investments. This decreased demand for 1031 exchanges would be reflected in a greater discount for lack of marketability of a TIC interest.

Finally, other discounts aside from the DLOC and DLOM may apply. For example, the idiosyncratic risks of a given real estate syndication can play an important role in the valuation. Not all investors have a well-diversified portfolio. Some investors are individuals or trusts with a relatively modest net worth.[26] These investors may not be

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[24] (NASD, Notice to Members 05-18).
[25] Both the DLOM and the DLOC are discussed in detail in (Pratt 2009).
[26] Private placement investors need to be "Accredited Investors" as defined by Rule 501 of Regulation D of the Securities Act of 1933. An individual investor must have an individual income in excess of $200,000 or

allocated across the relevant asset classes and a considerable fraction of their net worth may be tied to their real estate investment. Such investors should require an added return for bearing a given real estate investment's idiosyncratic risks.[27]

IV. Conclusion

Investors and their advisors will soon be exposed to a broad array of private placements commercial real estate investments. In this paper, we have illustrated the process of valuing an illiquid syndicated commercial real estate investment.

We use data on monthly returns for publicly traded REITs to derive discount rates for commercial real estate. In addition, we use survey data on unlevered cost of equity to obtain a second measure of the discount rate. We use the computed discount rates to calculate the present value of a syndicated real estate investment. We caution that the valuation of any real estate investment will be sensitive to the assumptions underlying the cash flow projections. Furthermore, we argue that our estimates of present value are likely to be an upper bound for the true present value of such an investment given that our model does not include any discount for lack of liquidity or lack of control. These two factors, among others, may increase the risk-adjusted discount rate of direct commercial real estate investment relative to that of publicly traded REITs.

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a joint income with that person's spouse of over $300,000 in each of the two most recent years and a reasonable expectation of reaching that level of income in the present year or a net worth of over $1,000,000 at the time of the purchase.

[27] See (Pratt and Grabowski 2010) and (Damodaran 2002) for a discussion. Damodaran suggests dividing the beta of the illiquid real estate investment by the correlation coefficient of the investor's portfolio with the market portfolio.

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Appendix

Table 4: The Valuation of a Syndicated Commercial Real Estate Investment

Panel A: Features and Assumptions Presented to Investors in Private Placement Memorandum

Property Purchase		**Rent and Expenses**		**Capital Sources**		**Property Sale**	
Purchase price	$29,554,000	Year 1 Base rent	$2,300,000	Equity	$11,369,000	Years to sale	8
Upfront fees	$3,865,000	Rent growth	5.0%	Mortgage	$23,050,000	Cap rate at sale	8.0%
Reserves	$1,000,000	Vacancy rate	5.0%	Interest rate	6.0%	Fees on sale	5%
Fully loaded price	$34,419,000	Year 1 Expense	$345,000			Year 9 NOI	$2,756,084
		Expense growth	4.0%			Sale price	$34,451,048

Projections

Year	1	2	3	4	5	6	7	8
Base rent	$2,300,000	$2,415,000	$2,535,750	$2,662,538	$2,795,664	$2,935,448	$3,082,220	$3,236,331
Vacancy	$115,000	$120,750	$126,788	$133,127	$139,783	$146,772	$154,111	$161,817
Gross revenue	$2,185,000	$2,294,250	$2,408,963	$2,529,411	$2,655,881	$2,788,675	$2,928,109	$3,074,514
Expenses	$345,000	$358,800	$373,152	$388,078	$403,601	$419,745	$436,535	$453,996
Net operating income	$1,840,000	$1,935,450	$2,035,811	$2,141,333	$2,252,280	$2,368,930	$2,491,574	$2,620,518
Debt Service	$1,383,000	$1,383,000	$1,383,000	$1,383,000	$1,383,000	$1,383,000	$1,383,000	$1,383,000
Payments from reserves	$300,000	$150,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000
Cash distributions to investors	$757,000	$702,450	$752,811	$858,333	$969,280	$1,085,930	$1,208,574	$1,337,518
Cash-on-cash returns	6.7%	6.2%	6.6%	7.5%	8.5%	9.6%	10.6%	11.8%
Reserve balance (beginning of year)*	$1,000,000	$721,000	$588,130	$502,774	$414,857	$324,303	$231,032	$134,963

Panel B: Analysis Required to Find Present Value of TIC Cash Flows

Discount Rate		**Proceeds from Property Sale**		**Return on Capital**		
Debt	67%	Sale price	$34,451,048		Undiscounted	Discounted
Equity	33%	Fees on sale	$1,722,552	Sum of projected cash flows	$7,671,895	$4,603,275
Risk-free rate	4.66%	Reserve balance	$34,963	Net proceeds from property sale	$9,713,458	$3,649,743
Risk premium	6.00%	Mortgage balance	$23,050,000	Gross cash flows to investors	$17,385,353	**$8,253,018**
Unlevered beta	0.46	Net proceeds	$9,713,458	Investor's contributed capital	-$11,369,000	-$11,369,000
Levered beta	1.39	Discounted		Net cash flows to investors	$6,016,353	**-$3,115,982**
Discount rate	13.02%	proceeds	$3,649,743			

Year	1	2	3	4	5	6	7	8
Present value of cash flows	$712,076	$584,665	$554,419	$559,331	$558,887	$554,036	$545,595	$534,266

*The reserve account is credited with 3% annually.