INTRODUCTION

This article will discuss five calculation issues that have arisen in real estate joint venture transactions in which the author has participated. In each case, the applicable issue came as a surprise to at least one of the parties to the transaction.

WHAT IS THAT RATE OF RETURN?

It is common for a rate of return to be stated as an annual rate compounded over some periodic interval, e.g., a month or a quarter. For example, the rate of return might be 10% per annum, compounded monthly. What does this 10% rate mean? According to most finance textbooks, this is a nominal annual rate, but the author has been involved in a number of transactions where one of the parties thought a similarly stated rate was (or should have been) an effective annual rate.

A nominal annual rate is basically the percentage growth that would occur if a fixed amount remained fully invested for 1 year and the stated annual rate were not compounded. It has been described as a "1-year simple equivalent rate" or a "decompounded 1-year equivalent." An effective annual rate, on the other hand, is the actual percentage growth that would occur if a fixed amount remained fully invested for an entire year, taking into account compounding. Thus, a 10% annual rate, compounded monthly, is sometimes called a 10% nominal annual rate that is compounded monthly and would be equivalent to an effective annual rate of approximately 10.47%. In the context of a U.S. mortgage loan, the annual percentage rate (APR) is a nominal annual rate. More generally, a number of finance textbooks indicate that the convention in real estate finance is to quote nominal annual rates. However, there does not appear to be a consensus regarding how annual internal rates of return (IRRs) are quoted, and this lack of consensus seems to have led to a number of disagreements and misunderstandings over the meaning of a rate of return. For example, many practitioners use the XIRR (a feature of MS Excel), which generates an effective annual rate rather than a nominal annual rate. What happens when the parties say they want to use the XIRR for what they call a 10% IRR hurdle (i.e., the minimum IRR that a real estate financial partner requires before paying a particular "carried interest" or "promote" to its operating partner), but the 10% rate is an annual rate that they also say is compounded monthly? They may be talking apples and oranges. If the XIRR is to be used, it would be clearer if the parties were to specify the effective annual rate. For example, if the parties intend to compound monthly a 10% nominal annual rate and to have an annual yield of approximately 10.47%, then the effective annual rate and the XIRR target would be approximately 10.47%. Another way to avoid confusion would be to state the rate per compounding period. For example, a 10% nominal annual rate, compounded monthly, would have a 5/6% monthly rate, but a 10% effective annual rate would have a monthly rate that is less than 5/6%. 

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Nominal Annual Rate, Compounded Monthly (NAR) | Monthly Rate (NAR/12) | Effective Annual Rate $(1 + [NAR/12])^{12} - 1$
---|---|---
10.0000% | 0.8333% | 10.4713%
9.6690% | 0.7974% | 10.0000%

For further reading, see Carey, *Real Estate Joint Venture Promote Calculations: Rates of Return Part I—The Language of Real Estate Finance*, Real Est Fin J 5 (Spring 2011).

**ARE PROFITS BEING DOUBLE-COUNTED (RECYCLED) IN THE IRR CALCULATION?**

Think of a financial partner’s IRR hurdle as the positive balance, if any, of a hypothetical account that is (1) increased by (a) each capital contribution of the financial partner and (b) interest on the gross amount of each such capital contribution at the stated hurdle rate, and (2) decreased by (a) the amount of each distribution to the financial partner and (b) interest on the gross amount of each distribution to the financial partner at the stated hurdle rate. (Although IRR calculations may vary in many respects, the preceding formulation is equivalent to the manner in which the IRR is calculated in many transactions and is useful for illustration.) If this account is allowed to go negative, the negative balance will offset an equal amount of any future contributions, so that all or a portion of the future contributions may, in effect, be recouped by previous profit distributions. When this happens, it is sometimes called “recycling profits.” Sample distribution provisions that allow for recycling of profits are set forth in the Appendix to this article.

**Example of Recycling**

Assume that the financial partner has a 10% IRR hurdle (based on a 10% annual rate, compounded annually) and the financial partner’s cash flows are as follows: An initial contribution of $100; a $210 distribution on the first anniversary; and a $100 contribution on the second anniversary.

After the $100 additional contribution, the financial partner’s hurdle balance is still not positive. Therefore, if the venture makes a distribution before any further capital calls, the financial partner has still achieved its hurdle for purposes of determining how to share that distribution. In fact, the financial partner’s IRR after the first distribution is 110% per annum and the second contribution merely reduces the IRR to approximately 37% per annum.

<table>
<thead>
<tr>
<th>Time</th>
<th>Hurdle Balance</th>
<th>Approximate (Positive) IRR</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 (before C)</td>
<td>0</td>
<td>None</td>
</tr>
<tr>
<td>(after C)</td>
<td>100</td>
<td>None</td>
</tr>
<tr>
<td>1 (before D)</td>
<td>110</td>
<td>None</td>
</tr>
<tr>
<td>(after D)</td>
<td>(100)</td>
<td>110%</td>
</tr>
<tr>
<td>2 (before C)</td>
<td>(110)</td>
<td>110%</td>
</tr>
<tr>
<td>(after C)</td>
<td>(10)</td>
<td>37%</td>
</tr>
</tbody>
</table>

C = contribution; D = distribution

**Double-Counting Problem; Expanded Example of Recycling**

Recycling of profits may change the contemplated sharing of profit distributions.

Assume the same facts as above. Also assume that the financial partner had formed a partnership with an operating partner and agreed to contribute 100% of the capital and give the operating partner a 50% profit distribution (a so-called “promote” distribution) after the financial partner’s 10% IRR hurdle. To keep the same financial partner cash flows as provided above, assume the contributions and distributions for the partnership were as follows: $100 initial contribution by the financial partner; $310 distribution to the partners ($110 to the hurdle and $200 split 50-50) on the first anniversary; and $100 contribution by the financial partner on the second anniversary. Suppose that the parties intended a 50-50 sharing of all non-hurdle distributions (i.e., all distributions that are not applied to the hurdle).

The $100 distribution to the financial partner at the 50-50 level has in effect been double-counted, first as a non-hurdle distribution and subsequently as a hurdle distribution. In effect, it loses its character as a non-hurdle distribution when the additional contribution is made, at which point the financial partner has 0% of the non-hurdle distributions.

To avoid recycling profits, the hurdle balance should not be allowed to go negative. In other words, in the above example, the 50-50 distributions should not be counted in the hurdle calculation. (Note that it is not necessarily wrong to recycle profits, but if the parties do not intend to recycle profits, the documents should reflect that intent.)

For further reading, see Carey, *Real Estate JV Promote Calculations: Recycling Profits*, Real Est Fin J 5 (Summer 2006).
ARE THE IRR HURDLES OUT OF ORDER?

A common criticism of the internal rate of return is that the same set of cash flows can generate more than one positive IRR. For example, a set of cash flows can result in both a 10% and 20% IRR at the same time. It is therefore possible, in the context of a joint venture, to have two hurdles (e.g., a 10% hurdle and a 20% hurdle) achieved at the same time, although this is very unlikely. This problem is symptomatic of a larger problem with IRR hurdles: When the hurdle balances go negative, the order of the balances can shift.

Example of Order Reversal With Multiple Hurdles

Assume there are 10% and 20% IRR hurdles (based on annual rates, compounded annually) and an initial $10 million investment followed by a $30 million distribution 1 year later and a $21 million contribution 2 years later. Note that after 1 year, the hurdle balances are $11 million and $12 million, respectively, before the distribution, and that immediately after the distribution, the hurdle balances are -$19 million and -$18 million, respectively. At this point in time, the 10% hurdle balance is still less than the 20% hurdle balance: -19 < -18. But after another year, the order of the balances will have switched, as indicated in the following chart:

<table>
<thead>
<tr>
<th>Time</th>
<th>Investor’s Cash Flows</th>
<th>Hurdle Balance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>10% hurdle</td>
</tr>
<tr>
<td>0</td>
<td>10 contribution</td>
<td>0 = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(immediately before contribution)</td>
</tr>
<tr>
<td>1</td>
<td>30 distribution</td>
<td>11 &lt; 12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(immediately before distribution)</td>
</tr>
<tr>
<td>2</td>
<td>21 contribution</td>
<td>(20.9) &gt; (21.6)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(immediately before contribution)</td>
</tr>
</tbody>
</table>

After the $21 million contribution, there is a positive 10% hurdle balance and a negative 20% hurdle balance. If the only other cash flow were a liquidating distribution, some or all of it would be required to satisfy the 10% hurdle before distributing promote, but the 20% hurdle would already be satisfied. By not recycling profits, this reversal does not occur.

For further reading, see Carey, Real Estate JV Promote Calculations: Multiple IRRs, Real Est Fin J 5 (Spring 2012).

BUY-SELL, DRAG-ALONG, AND TAG-ALONG CONUNDRUMS

Imagine a two-partner partnership in which one partner is entitled to the first $1 million of distributable net sale proceeds and the other partner is entitled to the next $1 million of distributable net sale proceeds.

First, assume that a sale of the property at its then current value would generate roughly $1.5 million of distributable net sale proceeds. If the subordinated partner names a buy-sell project price that would generate $2 million of distributable net sale proceeds, the preferred partner may have a Hobson’s choice: either sell for $1 million or overpay ($1 million for a $0.5 million interest). Similarly, if the preferred partner names a buy-sell project price that would generate $1 million of distributable net sale proceeds, the subordinated partner may have a Hobson’s choice: either buy for $1 million or sell (a $0.5 million interest) for nothing.

Second, assume that a sale of the property at its then current value would generate less than $1 million of distributable net sale proceeds. If the preferred partner names a buy-sell project price that would generate $1 million of distributable net sale proceeds, the subordinated partner may have a Hobson’s choice: either sell for nothing or buy for more than the preferred partner’s interest is worth. If a partner were allowed to name any buy-sell price under these facts, the preferred partner might be tempted to try to force out the subordinated partner for nothing at a time when the subordinated partner’s interest is valueless. If the property were generating sufficient cash flow to pay debt service, this could be particularly painful because the subordinated partner could be deprived of any chance to share in a future recovery.

Notice that, in the first example above, the preferred partner gets the same $1 million for all project values generating distributable net sale proceeds between $1 million and $2 million while the subordinated partner may get anywhere from $0 to $1 million. What happens if the preferred partner receives a $1 million offer and wants to exercise a drag-along right or the subordinated partner wants to exercise a tag-along right? Similarly, in the second example above, the subordinated partner gets the same zero amount for all project values generating distributable
net sale proceeds of not more than $1 million while the preferred partner may get anywhere from $0 to $1 million. What happens if the subordinated partner receives an offer of zero and wants to exercise its drag-along right?

For further reading, see Carey, Buy/Sell Provisions in Real Estate Joint Venture Agreements, 39 Real Prop, Probate & Trust J 651 (Winter 2005).

SQUEEZE-DOWN FORMULA SURPRISES

Most squeeze-down formulas are capital-based (admittedly for good reason, i.e., to keep things simple and expedient), but the partners’ shares of capital (whether gross or net) may not track the values of their interests. In fact, there may be a substantial discrepancy, and when there is, squeeze-down formula results can be surprising (whether or not there is a penalty factor). Such discrepancies may easily arise from an increase or decline in value (i.e., appreciation or loss). (Discrepancies may also arise in other ways, e.g., (1) a distribution that reduces equity value but not the capital taken into account in the squeeze-down formula, (2) a contribution to pay operating deficits that increases capital but not value, or (3) a bargain purchase price, which reflects built-in appreciation over cost so that the venture starts with an imbalance.)

Value Exceeds Capital: Appreciation

Assume that there has been appreciation so that each $1 of capital represents more than $1 of equity value. If additional capital is invested when there is more equity value than capital, each $1 of capital will still represent more than $1 of equity value (although the surplus value over capital cost will be somewhat diluted on a dollar-to-dollar basis). A prorata squeeze-down gives the contributing member a greater share of the capital and a greater share of the excess value over the amount of capital.

Capital Exceeds Value: Loss

Similarly, assume that there has been a loss so that each $1 of capital represents less than $1 of equity value. If additional capital is invested when there is less equity value than capital, then each $1 of capital will still represent less than $1 of equity value (although the deficiency will be somewhat diluted on a dollar-to-dollar basis). A prorata squeeze-down gives the contributing member a greater share of the capital and a greater share of that loss.

Example of Formula Being Under-Effective

Assume for simplicity that dilution is pro rata with no additional penalty so that partnership interests are always proportionate to gross capital contributions. Also assume that the deal is 50-50; that there is a total $20 million capital requirement for two $10 million investments; and that each partner funds its $5 million share of the first investment, which is a success and sold all cash for a large profit before the second investment is made. What happens if one of the partners refuses to fund its share of the second investment? Surely it was not intended that the defaulting partner could get 25% of the second investment without spending a dime for it?

In the example above, all capital had been recouped immediately before the additional contribution. Would the problem be solved by using a dilution formula based on unrecouped (i.e., net) capital?

Example of Formula Being Over-Effective

Assume that the dilution formula provides that partnership interests are always proportionate to net (i.e., unrecouped) capital contributions; that the deal is 50-50; and that all capital is refinanced out, but each partner still has millions of dollars of equity. What happens if, due to liquidity and timing issues, a partner fails to contribute its share of a $5000 amount? Surely it was not intended that the defaulting partner could lose millions of dollars for failing to contribute a few thousand dollars?

In both examples above, immediately before the additional contribution, the partners had no capital left in the transaction, but in the first case the fair market value was zero while the partners were credited with millions of gross capital, and in the second case, the fair market value was equal to millions while the partners were credited with zero net capital.

For further reading, see Carey, Squeeze-down Formulas: Do They Work the Way You Think They Do?, Real Est Fin J 43 (Fall 1997).
Appendix

SAMPLE PROVISIONS

This Appendix sets forth sample (rather than model) alternative distribution provisions using a preferred return (and return of capital) hurdle or an IRR hurdle that either (a) allow for recycling of profits or (b) do not allow for recycling of profits.

Assumed Facts

Assume the following facts: (1) Investor and Operator form a joint venture; (2) Investor agrees to provide 100% of the capital; and (3) each distribution is to be made in accordance with the following provisions:

Section 5. Distributions. Each distribution of Distributable Cash will be made as follows:

5.1. First, 100% to Investor until Investor has received all its money back and a 10% annual return compounded annually; and

5.2. Second, 50% to Investor and 50% to Operator.

PREFERRED RETURN FORMULATIONS

Sample provisions using a preferred return (PR) (and return of capital) formulation are set forth below:

PR Example: Not Recycling Profits

The first distribution level may be worded as follows:

5.1. First, Investor receives 100% until it has received the amount, if any, of distributions under this subsection 5.1 then required to achieve at least a 10% annual IRR. An “IRR” as of a particular time is defined to be an annual rate that makes (x), the present value of all contributions made by Investor to the Venture at or before such time, equal (y), the present value of all distributions under this subsection 5.1 received by Investor at or before such time.

PR Example: Recycling Profits

The first distribution level may be worded as follows:

5.1. First, Investor receives 100% until it has received the then IRR Hurdle Deficiency.

IRR FORMULATIONS: FIRST VERSION

Sample provisions using an IRR formulation are set forth below.

IRR Example: Not Recycling Profits

The first distribution level may be worded as follows:

5.1. First, Investor receives 100% until it has received the amount, if any, of distributions under this subsection 5.1 then required to achieve at least a 10% annual IRR. An “IRR” as of a particular time is defined to be an annual rate that makes (x), the present value of all contributions made by Investor to the Venture at or before such time, equal (y), the present value of all distributions under this subsection 5.1 received by Investor at or before such time.

IRR Example: Recycling Profits

The first distribution level may be worded as follows:

5.1. First, Investor receives 100% until it has received the then IRR Hurdle Deficiency.

IRR FORMULATIONS: SECOND VERSION

Sample provisions using an IRR formulation are set forth below. In both cases, the first distribution level is worded as follows:

5.1. First, Investor receives 100% until it has received the then IRR Hurdle Deficiency.
IRR Example: Recycling Profits

The following definitions might be used for an IRR hurdle when profits are intended to be recycled.

"IRR Contributions" means all contributions made by Investor to the Venture.

"IRR Distributions" means all distributions made by the Venture to Investor.

"IRR Hurdle Deficiency" as of any particular time means the amount by which (1) the future value (as of such time) at the IRR Rate of all IRR Contributions made at or before such time exceeds (2) the future value (as of such time) at the IRR Rate of all IRR Distributions made before such time.

IRR Example: Not Recycling Profits

The only change required to avoid recycling in the above example is to the definition of IRR Distributions (the underscoring indicates additional language):

"IRR Distributions" means all distributions made by the Venture to Investor under subsection 5.1.

If there are multiple IRR hurdles, the definitions require more changes.