Does Your Underwriting Adequately Compensate for the Timing of Future Cash Flow?

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As hotel markets start to peak and stabilize, and rates of return remain at their historical low, more and more investors are pursuing property turnarounds and repositionings to generate higher yields. Investors well know that net income generated today is worth more that net income generated down the road – and that anticipated future income must be discounted to reflect its present value.

The question is; are investors and lender adequately considering the increased risk of earning future cash flows?

Let's look at the valuation of a hotel that the hotel is already stabilized and contrast it with the valuation of the same hotel that is projected to undergo a renovation and repositioning. The two projected cash flows, including the reversion from a sale of the asset at the end of year ten, are presented below. Note that the sums of the non-discounted cash flows are the same in each scenario.

Projected Cash Flow

Year	Stabilized NOI	% Chg.	Repositioned NOI	% Chg.
1	$1,279		$120	
2	1,318	3%	648	440%
3	1,358	3%	1,136	75%
4	1,398	3%	1,502	32%
5	1,440	3%	1,547	3%
6	1,483	3%	1,594	3%
7	1,528	3%	1,642	3%
8	1,574	3%	1,691	3%
9	1,621	3%	1,741	3%
10	21,501		22,883	
Total Cash Flow	$34,500		$34,500	

The hotel is valued via a ten year discounted cash flow analysis utilizing an 11% "free and clear" discount rate and a 9% terminal capitalization rate, which are considered appropriate for this investment. Analyzing the debt and equity components of the investment, the 11% discount rate supports a 75% loan-to-value ratio, at a 6.5% interest rate and an equity yield of 20%. Applying these parameters to the projected cash flow, the stabilized hotel is valued at $15,400,000 or $93,000 a room, as indicated in the following chart.

Discounted Cash Flow and Valuation - Stabilized Hotel

Year	Net Income		Discount Factor @ 11.0%	Discounted Cash Flow
2007	1,279,000	x	0.90085	1,152,184
2008	1,318,000	x	0.81153	1,069,591
2009	1,358,000	x	0.73106	992,780
2010	1,398,000	x	0.65857	920,686
2011	1,440,000	x	0.59327	854,315
2012	1,483,000	x	0.53445	792,589
2013	1,528,000	x	0.48146	735,667
2014	1,574,000	x	0.43372	682,674
2015	1,621,000	x	0.39071	633,349
2016	21,298,235	x	0.35197	7,496,435
			Estimated Market Value	15,330,270
			(Say)	15,300,000

Now let's see what happens when we value the same hotel assuming a renovation that will disrupt operations during the first two years, and then generate upside in net income over the remaining holding period. The projected cash flows and reversion, when summed, but NOT discounted, are equal to the cash flows and reversion in the stabilized scenario; the only difference is the timing of the cash flow. If an analyst values the hotel by applying the same 11% free and clear discount rate to the projected cash flows that was utilized in the stabilized scenario the resulting value is $13,500,000 or $82,000 per room. The findings of this exercise, presented in the following chart, illustrate that the present worth of the same cash flow that is received later in time will generate a 6% lower value, given the same free and clear internal rate of return.

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Discounted Cash Flow and Valuation
Repositioned Hotel – 11% Discount Rate

Year	Net Income		Discount Factor @ 11%	Discounted Cash Flow
2007	120,000	x	0.90020	108,024
2008	648,000	x	0.81035	525,109
2009	1,136,000	x	0.72948	828,685
2010	1,502,000	x	0.65667	986,321
2011	1,547,000	x	0.59113	914,483
2012	1,594,000	x	0.53214	848,224
2013	1,642,000	x	0.47903	786,561
2014	1,691,000	x	0.43122	729,189
2015	1,741,000	x	0.38818	675,822
2016	22,882,941 *	x	0.34944	7,996,175
			Estimated Market Value	14,398,591
			(Say)	14,400,000

Given that most hotel investments are leveraged, let's explore the impact on the yield to equity, after debt service is paid. Traditional real estate investment theory would suggest that the later cash flows are received, the greater the risk. Does the concluded value compensate the investor for the greater risk of a renovation and repositioning?

When we apply an 11% free and clear discount rate to the projected cash flows, and assume the same 75% loan-to-value ratio at a 6.5% discount rate, the resultant yield to equity is 18%, 200 basis points **lower** than that generated in the stabilized scenario. Thus, even though the value is 6% lower than the stabilized scenario, the equity investor will not earn the required 20% yield. This situation arises because the debt position receives its return each year, while the equity investor must wait for the property's net income to grow. The application of an overall free & clear discount rate in such a valuation can be misleading and may result in a property's overvaluation. Unlike capitalization rates, discount rates cannot be calculated as a simple weighted cost of capital due to the different yield curves of the debt and equity positions.[1] The lender receives its required return each year, while equity must settle for the riskier build-up in net income over time.

[1]This concept is more fully discussed in the following article: Apr 1, 1983 *Simultaneous Valuation: A New Capitalization Technique for Hotel and Other Income Properties*, by Suzanne Mellen Page 165 of the Appraisal Journal, published by the Appraisal Institute - also available on www.hvsinternational.com

Value Differential – Stabilized Hotel versus Repositioned Hotel

	Stabilized Hotel	Repositioned Hotel Same Free & Clear Discount Rate
Loan-to-Value	75%	75%
Amortization	30 yrs.	30 yrs.
Terminal Cap Rate	9%	9%
Interest Rate	6.5%	6.5%
Equity Yield Rate	**20%**	**18%**
Free and Clear Discount Rate	**11.0%**	**11.0%**
Value (PV of Cash Flow & Reversion)	**$15,400,000**	**$14,400,000**
Value Per Rooom	93,000	87,000
% Differential		6%

Using the same investment criteria, i.e. assuming the required 20% equity internal rate of return and same debt parameters, the free & clear discount rate must be increased to 12% for each position to receive its required yield. One could also argue that the equity investor should be compensated at a higher rate for the risk of the repositioning, and that lenders might employ more stringent lending terms. Assuming a an increase in the required equity yield to 21%, and a lower 70% loan to value ratio results in a significantly higher 13.2% free and clear discount rate. The 13.2% higher discount rate results in a 14% decline in value from the scenario where an 11% discount rate is utilized to value the repositioned hotel. The following chart sets forth the resultant values and "free and clear" discount rates that result from assuming a 20% equity yield and a 75%loan-to-value ratio versus a 21% equity yield and 70% loan-to-value.

Value Differential – Same Investment Parameters and Risk Adjusted Investment Parameters

	Repositioned Hotel Equalized Equity Yield	Repositioned Hotel Lower LTV Higher Equity IRR
Loan-to-Value	75%	**70%**
Amortization	30 yrs.	**30%**
Terminal Cap Rate	9%	**9%**
Interest Rate	6.5%	**7%**
Equity Yield Rate	**20%**	**21%**
Free and Clear Discount Rate	**12.0%**	**13.2%**
Value (PV of Cash Flow & Reversion)	**$13,500,000**	**$12,400,000**
Value Per Rooom	82,000	75,000
% Differential from 11% Free & Clear Rate		14%

In today's market place we rarely see discount rates as high as 13% for hotels with good basic attributes and potential for a successful renovation and repositioning. Thus, underwriting a hotel's value at that rate of return today may be inappropriate, though it is worthwhile remembering that in less robust investment markets such an adjustment was more commonplace. The only way to accurately value the property and properly assess the repositioning risk is to perform a mortgage-equity analysis where the impact of the timing of the cash flows on the equity yield can be overtly considered. The application of a free and clear discount rate can be misleading and may result in an over valued hotel. As investors undertake ever riskier deals in pursuit of yield, they may find that the desired IRR is not generated if they do not adequately consider the timing of future cash flows.

About the Author

Suzanne R. Mellen is the Managing Director of the San Francisco office of HVS International. She has been evaluating hotels and associated real estate for 29 years, has authored numerous articles, and is a frequent lecturer and expert witness on the valuation of hotels and related issues. Ms. Mellen has a BS degree in Hotel Administration from Cornell University and holds the following designations: MAI (Appraisal Institute), CRE (Counselor of Real Estate), ISHC (International Society of Hospitality Consultants) and FRICS (Fellow of the Royal Institution of Chartered Surveyors).

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