Situs RERC®

DEBT VALUATION - **LEVERAGED EQUITY CASE STUDY**

Multifamily Aquisition

EVALUATE • OPTIMIZE • MANAGE

DEBT VALUATION – LEVERAGED EQUITY CASE STUDY

ABC ("Fund") is a fund that owns commercial real estate assets in its portfolio. Fund's commercial real estate assets have mortgage debt, and historically the Fund internally fair values using a cash equivalency analysis on a quarterly basis. As a result of the Great Financial Crisis, the Fund experienced significant declines in property values, which in turn created significantly higher leveraged investments and risk. Based purely on the math, the cash equivalency analyses suggested significant value contribution as a result of the mark-to-market of the debt, which was a common occurrence in debt valuation during the Great Financial Crisis. Situs RERC was hired to oversee the valuation process and completed its analyses via the three different methods to determining loan payable value: the Cash Equivalency Method, the Modified Cash Equivalency Method, and the Leveraged Equity Method.

Under normal circumstances, the above methodologies should create a reasonable reconciliation of the debt value, but as will be demonstrated, extreme market conditions can create extreme results in the debt valuation, particularly with respect to the cash equivalency approach.

Through a comparison of the three methodologies on the Funds acquisitions, Situs RERC demonstrated that the fair value marks completed via the cash equivalency method were effectively non-transactable, and further that, in turbulent markets, the leveraged equity method should be utilized to conclude a fair value for loan payable positions.

This is particularly important today (2017), because while many funds have locked in all-time low interest rates, the risk that lies ahead is in connection with a fair value mark that is understated as a result of the cash equivalency method (similar to the Great Financial Crisis, but for very different reasons).

TRANSACTION ILLUSTRATION – *2007 MULTI FAMILY ACQUISITION (12/31/2009)*

Fund acquired a multi-family apartment property in Chicago in April of 2007 on which it has a $75MM loan. Fund has requested that Situs RERC provide fair values for their loan payable position in the fourth quarter of 2009 given the extreme volatility in the markets brought about by the Great Financial Crisis. The details of the investment analysis are outlined below:

LOAN DETAILS:

- *Origination:* 4/21/2007
- *Maturity:* 5/1/2017
- *Prepayment at Par Date:* 2/1/2017
- *Outstanding Loan Balance:* $75,000,000
- *Interest Rate:* 5.75%
- *Interest Rate Type:* Fixed
- *Interest Accrual:* 30/360
- *Amortization:* Interest Only

PROPERTY DETAILS AND RATIOS (*as of June 30, 2007*):

- *"As Is" Fair Value (Property):* $125,000,000
- *Occupancy:* 97%
- *Discount Rate:* 7.00%
- *Terminal Rate:* 6.25%
- *Current LTV:* 60.00%
- *NOI:* $6,909,125
- *Debt Service Coverage Ratio (DSCR):* 1.60

PROPERTY DETAILS AND RATIOS (*December 31, 2009):*

- *"As Is" Fair Value (Property):* $83,000,000
- *Occupancy:* 93%
- *Discount Rate:* 8.75%
- *Terminal Rate:* 7.50%
- *Current LTV:* 90.36%
- *NOI:* $5,617,712
- *Debt Service Coverage Ratio (DSCR):* 1.30

HIGH LEVERAGE RATIO DEBT VALUATION (12/31/2009)

CASH EQUIVALENCY METHOD

Discounts the expected future cash flows of the loan back to present value at a market equivalent rate to conclude a fair value for the debt. While this method is highly prevalent in valuing mortgage payable positions, it is not consistent with the way payable positions transact (it is reflective of how receivable positions transact).

Under the cash equivalency method, the fair value for the loan payable was concluded to be $60,200,000, a 19.7% discount from par. While there were significant declines in property values, the cash equivalency method suggested that there was considerable value contribution from the in-place debt given the contract rate and market equivalent rate.

Cash Equivalency

Loan Information:		**Market Equivalent Rate:**		**Debt value Conclusion:**	
Date of Value:	12/31/2009	Base Rate (i.e.Treasury):	3.45%	PV to Maturity:	$60,182,164
Origination Date:	4/21/2007	Spread:	6.05%	PV to Prepay at Par:	$60,536,152
Maturity Date:	5/1/2017	Total Rate	9.50%		
Original Loan Balance:	$75,000,000			**Final Value Conclusion:**	**$60,200,000.00**
Outstanding Loan Balance:	$75,000,000				
Amortization:	Interest Only				
Interest Rate (Current Pay):	5.75%				
Interest Accrual:	30/360				

Discount Period	Date	Days/Months	Loan Balance	Monthly Payment	Interest Payment/Extension Fee	Principal Payment	Ending Balance
	4/21/2007						
0.00	12/1/2009	30	$75,000,000.00	$359,375.00	$359,375.00	$0.00	$75,000,000.00
0.03	1/1/2010	31	$75,000,000.00	$359,375.00	$359,375.00	$0.00	$75,000,000.00
1.03	2/1/2010	31	$75,000,000.00	$359,375.00	$359,375.00	$0.00	$75,000,000.00
2.03	3/1/2010	28	$75,000,000.00	$359,375.00	$359,375.00	$0.00	$75,000,000.00
3.03	4/1/2010	31	$75,000,000.00	$359,375.00	$359,375.00	$0.00	$75,000,000.00
4.03	5/1/2010	30	$75,000,000.00	$359,375.00	$359,375.00	$0.00	$75,000,000.00
5.03	6/1/2010	31	$75,000,000.00	$359,375.00	$359,375.00	$0.00	$75,000,000.00
6.03	7/1/2010	30	$75,000,000.00	$359,375.00	$359,375.00	$0.00	$75,000,000.00
7.03	8/1/2010	31	$75,000,000.00	$359,375.00	$359,375.00	$0.00	$75,000,000.00
8.03	9/1/2010	31	$75,000,000.00	$359,375.00	$359,375.00	$0.00	$75,000,000.00
9.03	10/1/2010	30	$75,000,000.00	$359,375.00	$359,375.00	$0.00	$75,000,000.00
10.03	11/1/2010	31	$75,000,000.00	$359,375.00	$359,375.00	$0.00	$75,000,000.00
11.03	12/1/2010	30	$75,000,000.00	$359,375.00	$359,375.00	$0.00	$75,000,000.00
12.03	1/1/2011	31	$75,000,000.00	$359,375.00	$359,375.00	$0.00	$75,000,000.00
13.03	2/1/2011	31	$75,000,000.00	$359,375.00	$359,375.00	$0.00	$75,000,000.00
14.03	3/1/2011	28	$75,000,000.00	$359,375.00	$359,375.00	$0.00	$75,000,000.00
15.03	4/1/2011	31	$75,000,000.00	$359,375.00	$359,375.00	$0.00	$75,000,000.00
16.03	5/1/2011	30	$75,000,000.00	$359,375.00	$359,375.00	$0.00	$75,000,000.00
17.03	6/1/2011	31	$75,000,000.00	$359,375.00	$359,375.00	$0.00	$75,000,000.00
18.03	7/1/2011	30	$75,000,000.00	$359,375.00	$359,375.00	$0.00	$75,000,000.00
19.03	8/1/2011	31	$75,000,000.00	$359,375.00	$359,375.00	$0.00	$75,000,000.00
20.03	9/1/2011	31	$75,000,000.00	$359,375.00	$359,375.00	$0.00	$75,000,000.00
21.03	10/1/2011	30	$75,000,000.00	$359,375.00	$359,375.00	$0.00	$75,000,000.00
22.03	11/1/2011	31	$75,000,000.00	$359,375.00	$359,375.00	$0.00	$75,000,000.00
23.03	12/1/2011	30	$75,000,000.00	$359,375.00	$359,375.00	$0.00	$75,000,000.00
24.03	1/1/2012	31	$75,000,000.00	$359,375.00	$359,375.00	$0.00	$75,000,000.00
25.03	2/1/2012	31	$75,000,000.00	$359,375.00	$359,375.00	$0.00	$75,000,000.00
26.03	3/1/2012	29	$75,000,000.00	$359,375.00	$359,375.00	$0.00	$75,000,000.00
27.03	4/1/2012	31	$75,000,000.00	$359,375.00	$359,375.00	$0.00	$75,000,000.00
28.03	5/1/2012	30	$75,000,000.00	$359,375.00	$359,375.00	$0.00	$75,000,000.00
29.03	6/1/2012	31	$75,000,000.00	$359,375.00	$359,375.00	$0.00	$75,000,000.00
30.03	7/1/2012	30	$75,000,000.00	$359,375.00	$359,375.00	$0.00	$75,000,000.00

MODIFIED CASH EQUIVALENCY METHOD

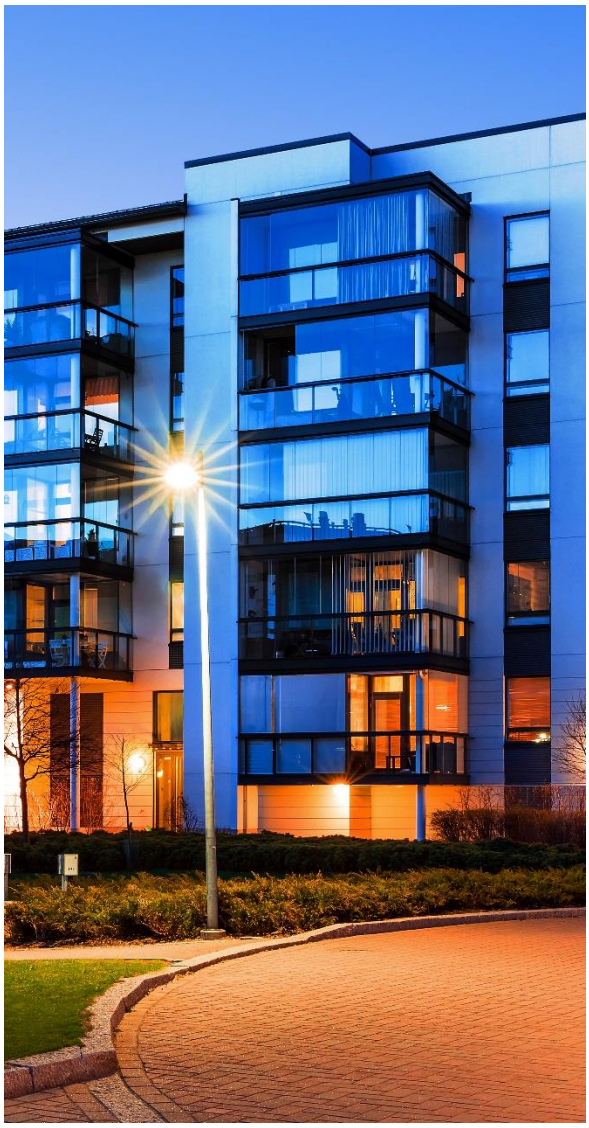
The modified cash equivalency method follows the same procedures as the cash equivalency method previously noted, but instead discounts the variance between the payments at the "Contract Rate" and "Market Rate" at the calculated investment's leveraged equity rate of return, with the present value of the variance added to the par value of the loan in order to reach a fair value of the loan. The modified cash equivalency approach is only applicable to valuing the loan payable position (borrower), and takes into consideration that the borrower's targeted rate of return (yield-to-maturity) is not the market equivalent interest rate (debt financing rate), but instead a return on equity.

The modified cash equivalency method indicated a fair value conclusion for the in-place debt of $63,900,000, a 14.8% discount from par. The higher fair value, relative to the fair value concluded using the cash equivalency method, is entirely attributable to the variance between the loan's cash flows at the contract rate and market equivalent rate being discounted back at a higher rate – the borrower's equity (target) rate of return – versus the market equivalent rate. While the modified cash equivalency method's fair value conclusion is not as discounted as the fair value conclusion based on the cash equivalency method, it still shows a deep discount to par ($11.1 million, or 14.8%).

Modified Cash Equivalency

Equity Rate of Return:	19.08%
Modified Cash Equivalency Conclusion:	$63,934,085
Rounded Value:	$63,900,000

Payment at Market Rate	Variance	PV at Eq Return
$593,750.00	-$234,375.00	
$593,750.00	-$234,375.00	-$234,255.80
$593,750.00	-$234,375.00	-$230,590.37
$593,750.00	-$234,375.00	-$226,982.30
$593,750.00	-$234,375.00	-$223,430.68
$593,750.00	-$234,375.00	-$219,934.64
$593,750.00	-$234,375.00	-$216,493.29
$593,750.00	-$234,375.00	-$213,105.80
$593,750.00	-$234,375.00	-$209,771.31
$593,750.00	-$234,375.00	-$206,489.00
$593,750.00	-$234,375.00	-$203,258.04
$593,750.00	-$234,375.00	-$200,077.64
$593,750.00	-$234,375.00	-$196,947.00
$593,750.00	-$234,375.00	-$193,865.35
$593,750.00	-$234,375.00	-$190,831.92
$593,750.00	-$234,375.00	-$187,845.95
$593,750.00	-$234,375.00	-$184,906.70
$593,750.00	-$234,375.00	-$182,013.45
$593,750.00	-$234,375.00	-$179,165.46
$593,750.00	-$234,375.00	-$176,362.04



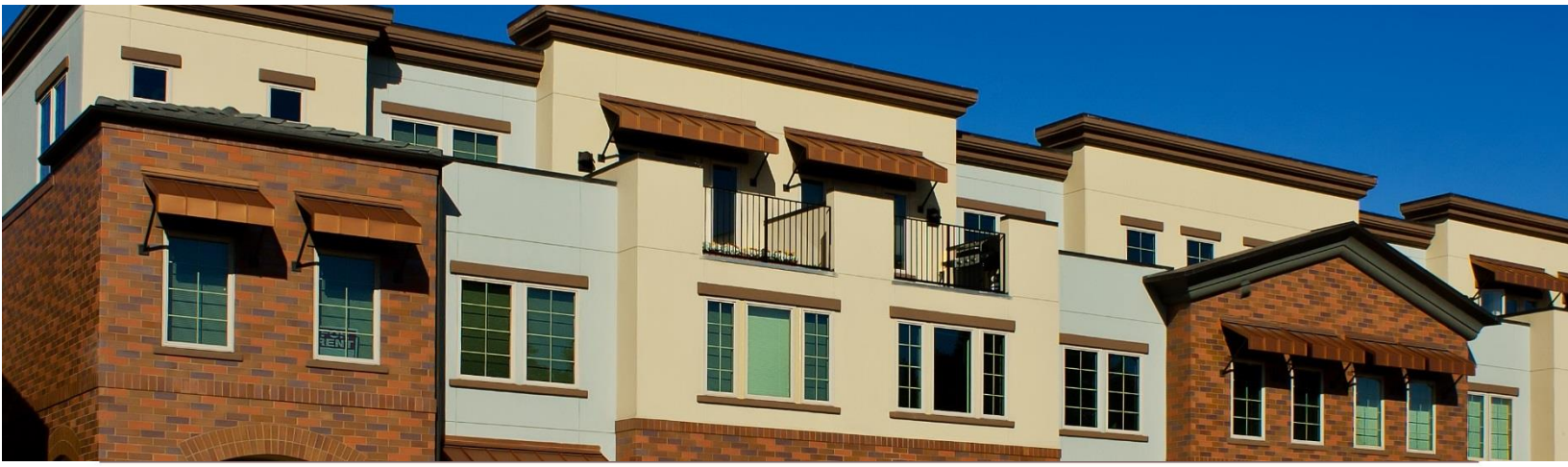
LEVERAGED EQUITY METHOD

Discounts the after debt service cash flows of the asset at a leveraged equity rate of return, and the difference between the unleveraged (asset) value and the leveraged equity value is the fair value of the debt. While this is not highly prevalent in valuing mortgage payable positions, this is consistent with how the payable position would transact (with consideration to the asset cash flows, under the consideration that the loan is assumable).

The leveraged equity method concluded to a fair value of $70,600,000, a 5.9% discount from par. The leveraged equity method conclusion is $10,400,000 higher, than the fair value conclusion under the cash equivalency method; additionally, the leveraged equity method's fair value conclusion is $6,700,000 higher than the fair value conclusion under the modified cash equivalency method.

Leveraged Equity:			
Holding Period:	10 Years	Unleveraged Value:	$82,999,997
Discount Rate:	8.75%	Value Rounded:	$83,000,000
Terminal Rate:	7.50%	Loan-to-Value:	90.36%
Cost of Sale:	4.00%	Leveraged Value:	$12,423,363
Leveraged Risk Multiple:	2.18	Implied Debt Value:	$70,576,634
Equity Rate of Return:	19.08%	**Rounded Value:**	$70,600,000

Years	NOI	Cash Flow + Resale	Discounted CF	Debt Payment	Equity
1	$5,617,712	$5,617,712	$5,617,712	$4,312,500	$1,305,212
4	$5,966,832	$5,966,832	$5,966,832	$4,312,500	$1,654,332
5	$6,145,837	$6,145,837	$6,145,837	$4,312,500	$1,833,337
6	$6,330,212	$6,330,212	$6,330,212	$4,312,500	$2,017,712
7	$6,520,118	$6,520,118	$6,520,118	$4,312,500	$2,207,618
8	$6,715,722	$6,715,722	$103,242,548	$76,796,875	$26,445,673
9	$6,917,194	$6,917,194			
10	$7,124,709	$106,635,606			
11	$7,338,451				
Re-sale:	$97,846,010				



As shown in the table below, the three different approaches to valuing loan payables yield very different fair value conclusions and have a material impact on the final fair value of equity reported. In conclusion, the fair value conclusion under the cash equivalency method resulted in 65% of the total equity being attributable to the mark-to-market of debt component, which is not deemed reasonable from the mortgage payable position. It is important to note that the cash equivalency conclusion would be reasonably supported from the mortgage receivable position (lender) to sell the loan in the current investment environment (Global Financial Crisis), but the above-referenced analysis clearly demonstrates the disconnect that can exist between the valuation methodology most closely aligned with the mortgage receivable position (cash equivalency) applied to the mortgage payable position.

Cash Equivalency Analysis:		
Asset Value:	$83,000,000	
Loan Balance:	$75,000,000	
Equity Contribution:	**$8,000,000**	**(35%)**
Loan Balance:	$75,000,000	
Debt Value:	$60,200,000	
MTM Equity Contribution:	**$14,800,000**	**(65%)**
Total Equity:	**$22,800,000**	**(100%)**
Modified Cash Equivalency Analysis:		
Asset Value:	$83,000,000	
Loan Balance:	$75,000,000	
Equity Contribution:	**$8,000,000**	**(42%)**
Loan Balance:	$75,000,000	
Debt Value:	$63,900,000	
MTM Equity Contribution:	**$11,100,000**	**(58%)**
Total Equity:	**$19,100,000**	**(100%)**
Leveraged Equity Analysis:		
Asset Value:	$83,000,000	
Loan Balance:	$75,000,000	
Equity Contribution:	**$8,000,000**	**(65%)**
Loan Balance:	$75,000,000	
Debt Value:	$70,600,000	
MTM Equity Contribution:	**$4,400,000**	**(35%)**
Total Equity:	**$12,400,000**	**(100%)**

CONCLUSIONS

While there may not be a right answer when it comes to debt valuation, there are certainly wrong answers. The two tables below show the implied leveraged IRRs using the fair value conclusions calculated using the cash equivalency and modified cash equivalency methods, respectively. As reflected, the leveraged IRR in the cash equivalency method is below the unleveraged rate of return of 8.75% and is deemed unreasonable, because no prudent investor would accept a lower rate of return for more risk.

Implied Leveraged IRR:					
Years	NOI	Cash Flow + Resale	Discounted CF	Debt Payment	Equity
					($23,000,000)
1	$5,617,712	$5,617,712	$5,617,712	$4,312,500	$1,305,212
2	$5,673,889	$5,673,889	$5,673,889	$4,312,500	$1,361,389
3	$5,793,041	$5,793,041	$5,793,041	$4,312,500	$1,480,541
4	$5,966,832	$5,966,832	$5,966,832	$4,312,500	$1,654,332
5	$6,145,837	$6,145,837	$6,145,837	$4,312,500	$1,833,337
6	$6,330,212	$6,330,212	$6,330,212	$4,312,500	$2,017,712
7	$6,520,118	$6,520,118	$6,520,118	$4,312,500	$2,207,618
8	$6,715,722	$6,715,722	$103,242,548	$76,796,875	$26,445,673
9	$6,917,194	$6,917,194			
10	$7,124,709	$106,635,606			
				Leveraged IRR	7.90%

Implied Leveraged IRR:					
Years	NOI	Cash Flow + Resale	Discounted CF	Debt Payment	Equity
					($19,000,000)
1	$5,617,712	$5,617,712	$5,617,712	$4,312,500	$1,305,212
2	$5,673,889	$5,673,889	$5,673,889	$4,312,500	$1,361,389
3	$5,793,041	$5,793,041	$5,793,041	$4,312,500	$1,480,541
4	$5,966,832	$5,966,832	$5,966,832	$4,312,500	$1,654,332
5	$6,145,837	$6,145,837	$6,145,837	$4,312,500	$1,833,337
6	$6,330,212	$6,330,212	$6,330,212	$4,312,500	$2,017,712
7	$6,520,118	$6,520,118	$6,520,118	$4,312,500	$2,207,618
8	$6,715,722	$6,715,722	$103,242,548	$76,796,875	$26,445,673
9	$6,917,194	$6,917,194			
10	$7,124,709	$106,635,606			
				Leveraged IRR	11.14%

In times of market stability, the fair value conclusions using the three methods to value a loan payable position often are reconcilable to a reasonable debt value conclusion. However, in times of market uncertainty, the fair value conclusions via the cash equivalency and modified cash equivalency methods become increasingly volatile and even unreliable; in such turbulent markets, the leveraged equity method should be utilized to conclude a fair value for loan payable positions.