

The *NICE-R* Model version 3.0

An Updated, Excel-Based Model of the NICE Method

Foreword

If you're reading this manual, chances are you're a valuation practitioner and you just want to get down to business. But before we do, I think you might want to know a few things.

The NICE Method was inspired by what I considered deficiencies in the traditional approach to valuing family limited partnerships, deficiencies made apparent by my experience in the *McCord* US Tax Court case.¹ The case and the debate following the court's decision made it abundantly clear that valuing a fractional interest in such an entity by traditional means—applying minority interest and lack of marketability discounts—left a lot to be desired. In *McCord*, errors were made all around: by the Tax Court, the IRS, the IRS expert, and the taxpayer's expert (me). Why? Because by focusing on restricted stock studies for the discount for lack of marketability, we were all trying to explain market behavior of a family limited partnership with a data set designed for small, publicly traded operating companies.

A family holding entity such as an FLP is nothing more than a portfolio of investments. Why use an indirect discounting mechanism to try to value an interest in the portfolio, when there already exists an extensive, decades-old body of knowledge that does just that? If an FLP is a portfolio, it belongs in the world of Modern Portfolio Theory. First introduced in 1952 by Harry Moskowitz (later to win a Nobel Prize), MPT is a theory on how risk-averse investors can construct portfolios to maximize expected return based on a given level of market risk. Just as MPT is all about rates of return, so is NICE.

The *traditional* method of FLP valuation still has its place. It is a battle-tested technique for establishing the *general* magnitude of the cost of illiquidity. However, it's imprecise. It also requires a significant amount of subjective interpretation. *NICE* is highly responsive to the make-up of the assets in the portfolio, the distribution policy of management, and the probability and timing of liquidation. To use an orthopedic medical analogy, the traditional method is like an X-ray while the NICE Method is an MRI. Of course, I am biased.

The *NICE-R* Model was prepared for experienced appraisers or those working under the supervision of an experienced appraiser. The “R” stands for “revised,” but “updated” is, perhaps, a better description. There's nothing wrong with the older versions of NICE; *NICE-R* was just designed to be more user-friendly. None of the cells in the model are protected or locked. You're free to modify or adapt as you see fit. That said,

¹ *McCord v. Commissioner*. 120 T.C. 358 (2003)

be careful about the changes you make. Many cell references thread throughout the model, so it's easy to break the thread by cutting and deleting. If you see the dreaded "#REF!" message, it's a tipoff you have done just that.

I hope you find the model and accompanying material in this manual useful. Improving your valuation skills is certainly a NICE thing.

Version 3.0

There are two major enhancements with this version. First, two recently discovered academic research papers have provided a better understanding of the mechanics of treasury and corporate bond illiquidity. This also affects expected future equity IROM. Second, the underpinnings of the real estate and private equity modules have been greatly enhanced. This makes the NICE Method a viable methodology for valuing limited partnership interests in FLPs holding real estate and private equity. In this regard, you can now add in real estate outside of the major commercial classifications. In particular, this functionality allows the inclusion for real estate such as ranches or undeveloped property. Finally, a way to rationalize the variance between current bond yields and long term expected yields has been added by allowing you to cause current yields to revert to historical yields over the time parameter you set.

There were various bug fixes in this version. Despite, what I intended with the first version, using a holding period other than the minimum 11 year and maximum 50 year parameters did not function properly. Also, using a volatility figure other than the default in the original model was not possible. A user with just average modelling skills could have fixed these but, now, that is not necessary. Finally, for all asset categories, you can now override the volatility figures I have suggested and manually insert your own. Volatility is the chief driver of the IROM figure.

Will Frazier, ASA
February 5, 2022
Dallas, Texas

The NICE-R Model: Step-by-Step Instructions

Each step in the following instructions corresponds to the worksheets built into the NICE-R Model spreadsheet. If you're using NICE for FLPs with other asset compositions, follow the same steps.

1. Intro

Read the **Intro** worksheet. It contains a color-coded key for the spreadsheet's cells.

2. Set Up

In the **Set Up** worksheet, fill in the following information:

- Client's name
- Valuation date
- Percent interest being valued

Next, fill in the year you expect liquidation to occur.

Don't know the FLP's life expectancy?

If you have no reason to believe the FLP *won't* exist for a very long period of time, I recommend assuming there will be no possibility of liquidation for 10 years. Accordingly, enter "11" for "Year of First Possible Liquidation."

I also recommend setting the "End of the Term of the Partnership" to 50 years, as I view that as a practical limit. You are free to set whatever range you believe is appropriate, however. The model will work automatically with any range you select, as long as the maximum life is not greater than 50 years (e.g., 5-30, 7-40).

If you're valuing an FLP that has existed for a number of years, the range will be your judgment call based on the facts and circumstances of the situation. You can create a 100-year maximum life if you so choose. Be forewarned, though. This will require a lot of work because all of the valuation parameters are

set to a maximum life of no more than 50 years. For Excel experts, however, recalibrating the maximum life is certainly doable.

Probability of Liquidation Distribution

The *NICE-R* Model assumes a flat or equal-weighted liquidation probability for the liquidation range, beginning *X* years after the valuation date (your decision) and lasting until the final year of the model. The model will calculate the annual liquidation probability for you based on the range you give. There is a chart provided for the graph of the cumulative probability of distribution.

You can certainly choose to use a liquidation probability scenario other than equal weighted. You can use whatever probability scenario makes sense for your situation: front-end loaded, back-end loaded, etc. However, you'll have to calculate these values yourself and insert them into the *NICE-R* Model worksheet in appropriate cells of the "Liquidation Probability" row of the NICE Method worksheet.

The place to set these parameters is in [Set UP](#).

Optional Rebalancing Question

Most portfolios are rebalanced periodically, often at the end of the year. This keeps asset class allocations in line with the goals set out when the portfolio was set up. Thus, the *NICE-R* Model automatically rebalances at the end of the year. (The model doesn't record any taxable gains that might occur in this process.)

If you choose to use a "no balancing" policy for the portfolio, type "1" into the box provided, and the model will not rebalance.

3. [NAV](#)

This is the most crucial input worksheet. Here, you will enter the beginning dollar amounts of the assets in the portfolio.

The *NICE-R* Model works with four asset classes: common equity, fixed income, real estate, and private equity. At the top of the worksheet, enter the total amount of each asset class in one of the four boxes.

Below that, enter the percent of each asset class into the provided subcategories.

Next to each asset sub-class, accept the default or enter your own:

- The expected rate of return earned by the FLP for each asset sub-class
- The annual expected current yield (except for bonds)
- For bonds, in the additional column, enter the recent yield to maturity (YTM) or Yield to Worst (YTW) and the
 - Long term average expected the YTM
 - Period of time (yrs.) over which the current YTM reverts to the average YTM

The above factors will vary from year to year, of course, so these are average expectations. If you want to put in specific values for each year of the model, you can do this manually.

4. NICE Equity Input, NICE Fixed Income Input, NICE Real Estate Input, and NICE Private Equity Input

In these worksheets, you enter tax rates for dividends, realized capital gains and interest income applicable to the asset class. The NICE Method does not tax affect, so the *NICER-R* Model does not, either. The tax requirements are used for purposes of estimating distributions for those FLPs whose policy is to distribute enough to cover the tax obligations generated by the FLP.

(Note: Obviously, municipal bonds are a fixed income type. Remember to adjust the tax rates for these bonds.)

FLPs typically—but not always!—have three distribution policy options:

- Distributions are geared to taxes, usually 100% thereof.
- Distributions are some percent of net income.
- No distributions are made at all.

If distributions will be made, and if they are geared to taxes or income, insert a “1” into the corresponding box. In the adjacent box, insert the correct percentage amount. (The default percent is 100%, but you can

enter whatever percent is appropriate.) The “100%” figure next to the blank shaded box is inoperative, so don’t worry about it.

If you have a distribution metric not geared to income or taxes, insert a “1” into the third shaded box. This will disable the automatic features. You will have to insert the distributions manually in the “Distributions” row of the **NICE Method** worksheet. Ordinarily, this will not disrupt the operation of the model.

Once you enter all of the necessary inputs, the model will run automatically...almost.

Running the NICE-R Model

Go to the **NICE Method** tab.

The top of the worksheet displays the beginning value, cash flows, distributions, and the final value of the portfolio at the end of the year. Next you will find the **Liquidation Probability** outputs. A graph of this result is seen in the **Cmtv Liq Probability** worksheet.

Below, in the middle of the **NICE Method** worksheet, the model calculates an IRR based on interim distributions and the final value. The result should be close to the Average ROR found after the last column of the “Partnership ROR” row, found in the **ROR** worksheet.

The IRR is calculated for each year of the projection model. The investment amount begins with a guess, but Excel’s Solver function allows you to quickly find the most optimum value. (More on this below.) A probability of liquidation factor is assigned to each year. The probability is zero for the years below the beginning of the operative range.

The final section of the **NICE Method** worksheet is **Fair Market Value - Price Optimization**. Fair market value is the one price that provides the optimum solution for the negotiation between the buyer and seller. This value represents the price that creates the least variance between the FLP’s expected IRR, the MIN-ROR, and the MAX IRR over the operative liquidation range. The FLP’s IRR is a function of whatever investment amount (the price) is used.

Manually, this would take many iterations to resolve, but Excel's Solver function makes quick work of this:

1. At the bottom of the tab, to the right of "Minimize→", click on the purple shaded cell.
2. Now click on "Data" tab in the Excel ribbon.
3. Click "Solver." (If you don't see it, make sure you've loaded the Solver Add-in. In the "Tools" tab in the Excel ribbon, click Excel Add-ins, and select Solver Add-in.)
4. A pop-up titled "Solver Parameters" will appear. The values have been pre-set for you, so don't mess with them. Just click "Solve."
5. You should see this message: "Solver found a solution. All constraints and optimality conditions are satisfied."
6. Click "OK." The box will disappear.

Problem solved!

In the blue-shaded box, you'll find the fair market value of the Subject Interest, the NAV allocable to the Subject Interest's percent of the FLP, and the indicated discount from NAV. NICE does not use discounts in its operations, but everyone seems to want to know this, so we provide it for you.

Bonus Material: Traditional Method Worksheets

In my practice, I use both the NICE Method and the traditional Market Approach. Often, I will assign more weight to the NICE Method, though. Accordingly, I provided additional worksheets so you can also use the traditional approach. Minority interest discount and the discount for lack of marketability worksheets are rolled into one final worksheet, which will allow you to show the summarized results of both the Income Approach and Market Approach, the weighting and the final result.

Valuation Example of a 1% Limited Partnership Interest in ABC Partners, LP

The accompanying NICE-R Model Excel spreadsheet is set up to follow this example.

A family set up a family limited partnership, ABC Partners, LP, on December 31, 2020. The founders contributed \$40 million in a very broadly diversified portfolio of assets as shown below. We are valuing a 1% limited partnership interest (the “Subject Interest”) in the Partnership. We have a dollar entry for each asset class and subclass and have equal weighted the portfolio.

Net Asset Value

The table below, found in the “NAV” worksheet, describes the asset classes and sub-classes as well as the corresponding expected rates of return at the Partnership level. Also provided is the expected current yield and volatility. This data is also shown on a weighted average basis, as it’s used elsewhere in the model.

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Revised and Simplified Version of the NICE Method

Set Up

ABC Partners, LP			
December 31, 2021			
<u>Net Asset Value</u>			<u>%</u>
Common Equity	\$10,000,000		25.0%
Fixed Income	\$10,000,000		25.0%
Real Estate	\$10,000,000		25.0%
Private Equity	\$10,000,000		25.0%
	Partnership NAV	\$40,000,000	
	NAV of 1% LP Interest (the “Subject Interest”)	\$400,000	

Asset sub-class allocations		Market Data					ABC Partners, LP		
							Weighted Averages		
Common Equity	10,000,000	Rate of Return	Current Yield		Volatility	Rate of Return	Current Yield	Volatility	
<u>Sub Classes</u>	%				Default				
					Manual (a)				
Mega Cap	16.67%	1,666,667	9.00%	3.00%	12.00%	1.50%	0.50%	2.00%	
Large Cap	16.67%	1,666,667	10.70%	2.00%	15.00%	1.78%	0.33%	2.50%	
Mid Cap	16.67%	1,666,667	11.50%	1.00%	17.50%	1.92%	0.17%	2.92%	
Small Cap	16.67%	1,666,667	12.00%	0.50%	20.00%	2.00%	0.08%	3.33%	
Micro Cap	16.67%	1,666,667	14.00%	0.00%	25.00%	2.33%	0.00%	4.17%	
Nano Cap	16.67%	1,666,667	17.00%	0.00%	30.00%	2.83%	0.00%	5.00%	
Total	100.00%	\$ 10,000,000				12.37%	1.08%	19.92%	
Fixed Income	10,000,000	Yield				Current Yield			
<u>Sub Classes</u>	%		Recent YTW	LT Average	Manual (a)	Recent	LT Average		
Treasuries	14.29%	1,428,571	4.00%	1.83%	4.00%	0.57%	0.26%	2.14%	
AAA	14.29%	1,428,571	5.70%	3.09%	5.70%	0.81%	0.44%	2.50%	
HQ (AAA-A)	14.29%	1,428,571	5.60%	3.28%	5.60%	0.80%	0.47%	2.86%	
BBB/Baa	14.29%	1,428,571	6.90%	3.75%	6.90%	0.99%	0.54%	3.29%	
BB/Ba	14.29%	1,428,571	8.40%	5.58%	8.40%	1.20%	0.80%	3.57%	
B	14.29%	1,428,571	10.40%	8.84%	10.40%	1.49%	1.26%	4.00%	
CCC	14.29%	1,428,571	17.60%	11.50%	17.60%	2.51%	1.64%	5.00%	
Total	100.00%	10,000,000				8.37%	5.41%	23.36%	
Real Estate	10,000,000								
<u>Sub Classes</u>	%				Manual (a)				
Super Core	16.67%	1,666,667	7.50%	5.00%	10.00%	1.25%	0.83%	1.67%	
Core	16.67%	1,666,667	9.00%	6.00%	12.75%	1.50%	1.00%	2.13%	
Core*	16.67%	1,666,667	12.00%	7.00%	16.00%	2.00%	1.17%	2.67%	
Value-Added	16.67%	1,666,667	14.00%	9.00%	18.00%	2.33%	1.50%	3.00%	
Opportunistic	16.67%	1,666,667	16.00%	0.00%	25.00%	2.67%	0.00%	4.17%	
Other*	16.67%	1,666,667	6.00%	0.00%	12.75%	1.00%	0.00%	2.13%	
Total	100.00%	10,000,000				10.75%	4.50%	15.75%	
Private Equity	10,000,000								
<u>Equity Sub Class Proxies</u>	%				Manual (a)				
Mid Cap	33.33%	3,333,333	14.00%	3.00%	17.50%	4.67%	1.00%	5.83%	
Small Cap	33.33%	3,333,333	16.00%	2.00%	20.00%	5.33%	0.67%	6.67%	
Micro Cap	33.33%	3,333,333	20.00%	1.00%	25.00%	6.67%	0.33%	8.33%	
Total	100.00%	10,000,000				16.67%	2.00%	20.83%	

(a) If you enter a value in this column it will override the default.

Other Data Inputs

The Partnership was expected to have a very long life spanning at least three generations. A 50- year maximum life was used. No expectation of a liquidation in the first 10 years of the Partnership’s life was deemed reasonable. These parameters were inserted in the “Set Up” worksheet.

In the “NICE Equities Input” worksheet, the appropriate tax rates and distribution policy designations were made. There are similar input sheets for all asset classes.

IROC

The expected internal rate of return (“IRR”) for the Partnership’s assets is 11.83%. The volatility (standard deviation) is 19.41%. MIN-IROC and MAX-IROC are shown below. This is IROC for year one. IROC decreases annually as it reverts to the mean. This can be seen in the “ROR” worksheet.

IROC				
ABC Partners, LP				
December 31, 2021				
	<u>ROR</u>	<u>Std. Dev.</u>	<u>Factor</u>	<u>IROC</u>
MIN-IROC	11.83%	19.41%	150.00%	3.44%
MAX-IROC	11.83%	19.41%	200.00%	4.59%

<u>Asset</u>	<u>Volatility</u>	<u>Weight</u>
Common Equity	19.92%	25.00%
Fixed Income	21.14%	25.00%
Real Estate	15.75%	25.00%
Private Equity	20.83%	25.00%
Weighted Average Volatility	19.41%	

IROM

Based on the data found in the “NAV” worksheet (which you will need to input in a real project), IROM is pulled directly from the appropriate grey-colored “IROM” worksheet (e.g., “Equity IROM”). These factors are transferred to the yellow “IROM” worksheet, again, automatically.

Partnership Returns

The table below (from the “ROR Summary” worksheet) provides a summary of the Partnership return, IROC, IROM, and the total required rates of return from the standpoint of the hypothetical willing seller (MIN-RROR) and hypothetical willing buyer (Max-RROR).

ABC Partners, LP							
December 31, 2021							
Year Ended Year	Required Rate of Return Components Over Holding Period						
	12/31/2022	12/31/2031	12/31/2041	12/31/2046	12/31/2051	12/31/2061	12/31/2071
	<u>1</u>	<u>10</u>	<u>20</u>	<u>25</u>	<u>30</u>	<u>40</u>	<u>50</u>
Partnership RORwa*	12.04%	12.04%	12.04%	12.04%	12.04%	12.04%	12.04%
MIN-IROC	3.44%	1.08%	0.19%	0.06%	0.02%	0.00%	0.00%
MIN-IROM	1.14%	1.86%	2.30%	2.37%	2.44%	2.56%	2.64%
MIN-RROR	16.62%	14.98%	14.52%	14.47%	14.50%	14.60%	14.68%
Partnership RORwa	12.04%	12.04%	12.04%	12.04%	12.04%	12.04%	12.04%
MAX-IROC	4.59%	1.59%	0.32%	0.11%	0.03%	0.00%	0.00%
MAX-IROM	2.17%	2.85%	3.31%	3.39%	3.46%	3.58%	3.66%
MAX-RROR	18.80%	16.49%	15.67%	15.54%	15.53%	15.62%	15.70%
Avg Partnership ROR wa	17.71%	15.74%	15.10%	15.01%	15.01%	15.11%	15.19%
Overall Average	15.13%						
* weighted average	<i>Outside of Expected Liq. Pd.</i>						

Fair Market Value by the Income Approach

Fair market value is the one price that provides the optimum solution of the negotiation between the buyer and seller. Fair market value represents the price that creates the least variance between the FLP's expected IRR, the MIN-ROR, and the MAX ROR over the operative liquidation range. This is found in the NICE Method worksheet.

Following the steps described in the instructions, fair market value is seen below. The Subject Interest's fair market value represents an amount that is a 46.5% discount from NAV.

Minimize-->	0.0%
Aggregate (100%) FMV-NICE	\$ (21,381,808)
Subject Interest FMV	\$ 214,000
NAV of Subject Interest	\$ 400,000
Discount-NICE Method	46.50%

Note: If you think this discount sounds high, consider the fact that we have equal weighted all possible asset classes and sub-classes. This includes a large dose of risky assets which might not ordinarily be in an FLP. Fair market value (and its relationship to NAV) is always related to what assets are in the partnership. For example, if the partnership held all cash (the equivalent of Treasury Bills), the discount would be about 19%. If it held all Micro Cap stocks, the discount would be about 67%, etc.

The NICE Method: An Illustrative Chart

The chart below describes graphically the primary components of the NICE Method. This is found in the “Rates of Return” worksheet. The weighted average IRR is found in the IRR section of the NICE Method worksheet. Weighted average IRR, weighted average life, and “Zero Probability of Liquidation Range” are inserted manually. You will need to adjust these accordingly if you want to portray them. Those with advanced graphics abilities can certainly improve upon this chart.

