

How To Run Fair Market Value Calculations

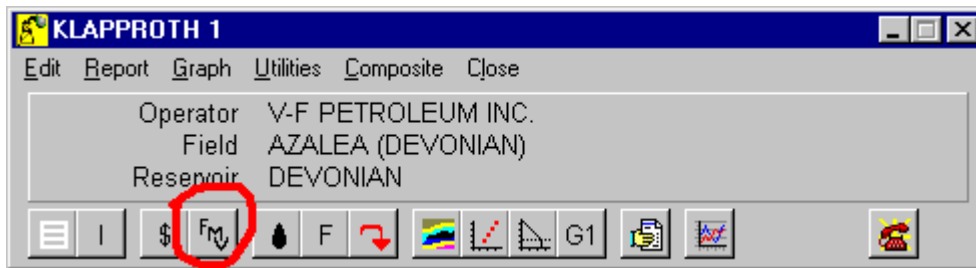
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MICA has the capability to determine what the fair market value of a property should be based upon five commonly used economic yardsticks. You specify the value of the yardstick and MICA will calculate the purchase investment required to obtain that value. This paper describes how to perform the fair market value calculation.

Step 1 – Prepare and run economics for the property. You should set up a production forecast, price forecast, expense forecast, tax rates, investments, and other economic input data required to run economics for this property and then run the economics. This will establish a cash flow projection for this well. How to set up and run economic calculations in MICA is discussed elsewhere.

Note: Do not enter any estimates of what you would pay for the property. If you do, then that would become part of the cash flow used to calculate the fair market value below.

Step 2 – Open the Fair Market Value Form. From the lease form select the Edit/Fair Market Value menu item or click the FMV button as shown below:



When you do this the Fair Market Value form will appear as shown below:

	Minimum	Maximum	Favored	Weight	FMV [\$]
IRR [%]					
Cost [\$/Eqv. BBL]					
Profit/Investment					
Discounted P/I					
Payout [Yrs]					

0% Run FMV Close Average

Step 3 – Enter the desired economic parameters. These parameters include:

Parameter	Explanation
IRR [%]	Internal Rate of Return
Cost [\$/Eqv. BBL]	Cost of reserves in the ground in equivalent bbls
Profit/Investment	Profit to investment ratio – the future cash flow divided by the purchase investment
Discounted P/I	Same as above only with a discounted cash flow
Payout [Yrs]	Time required to payback the all investments including the purchase.

You can enter three values for each parameter, a minimum, a maximum and a favored. MICA will calculate the purchase investment for each value entered. For example, suppose you wanted to know what purchase investment would be required to receive a 25% IRR for this property. To do this enter the data as shown below:

	Minimum	Maximum	Favored	Weight	FMV [\$]
IRR [%]			25	1.00	
Cost [\$/Eqv. BBL]				1.00	
Profit/Investment				1.00	
Discounted P/I				1.00	
Payout [Yrs]				1.00	

0% Run FMV Average

Step 4 – Click the “Run FMV” button. Now click the “Run FMV” button. When you do this, the purchase investment required to produce a 25% IRR will be displayed in the FMV [\$] column as shown below:

	Minimum	Maximum	Favored	Weight	FMV [\$]
IRR [%]			25.00	1.00	87664.00
Cost [\$/Eqv. BBL]				1.00	0.00
Profit/Investment				1.00	0.00
Discounted P/I				1.00	0.00
Payout [Yrs]				1.00	0.00

100% Run FMV Average

You can see that for this particular example the fair market value as determined by a 25% IRR is \$87,664. If you were to go back to the Economic Input form of MICA and enter this value into the Investments schedule and run the economics, the IRR would calculate to be 25%.

Often times you have more than one criteria to determine what you would expect the property to be worth. For example, suppose you wanted to receive a 20% IRR, a payout of 2.5 years, and pay \$4.50 per barrel of oil equivalent in the ground. And suppose that the payout of 2.5 years had a higher priority than the other two parameters, say it was 3 times as important. You will complete the Fair Market Value form as shown below and click the “Run FMV” button:

	Minimum	Maximum	Favored	Weight	FMV [\$]
IRR [%]			20.00	1.00	102030.00
Cost [\$/Eqv. BBL]			4.50	1.00	110579.00
Profit/Investment				0.00	0.00
Discounted P/I				0.00	0.00
Payout [Yrs]			2.50	3.00	57022.00
Average					76735.00

Notice the weight column on the form. Both the IRR and Cost are set to one, while the Payout is set to three. Also note that the two parameters not used are set to zero. The Weight column affects the “Average” at the bottom of the FMV [\$] column. In our example, the number found for a payout of 2.5 years, \$57,022, will have three times the weight from the numbers for the IRR and Cost when calculating the Average. The IRR and Cost will be weighted with a factor of one. The calculation for the Average goes like this:

$$[(1 * \text{IRR}) + (1 * \text{Cost}) + (3 * \text{Payout})] / (1 + 1 + 3) = \$76,735$$

You can enter values for each parameter in the “Minimum” and “Maximum” columns also. MICA will calculate values for those parameters. However, the results of those calculations are not displayed on the Fair Market Value form, but they are displayed on the Fair Market Value report template.

For example, entering parameter data as shown below:

	Minimum	Maximum	Favored	Weight	FMV [\$]
IRR (%)	15.00	30.00	20.00	1.00	102030.00
Cost [\$/Eqv. BBL]	3.00	6.00	4.50	1.00	110579.00
Profit/Investment				0.00	0.00
Discounted P/I				0.00	0.00
Payout [Yrs]	2.00	4.00	2.50	3.00	57022.00
100%					76735.00

Run FMV

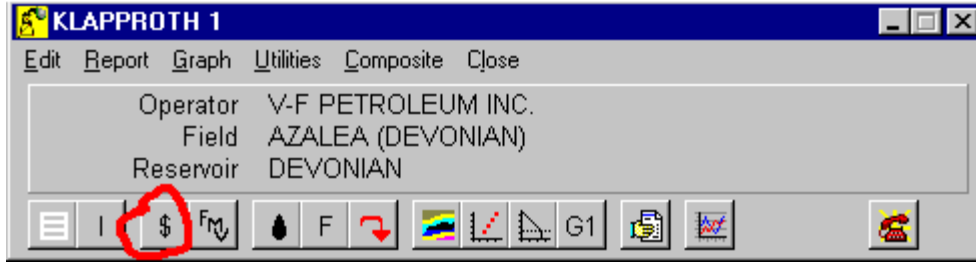
Would result in a report similar to the one shown below:

Report - KLAPPROTH 1						
Template Report Close						
Refresh		Set Data				
100%		C:\Mica32\REPORTS\Economics\Fair Market Value.TMP				
Template Report						
	A	B	C	D	E	F
1	Fair Market Value					
2						
3	Lease:	KLAPPROTH 1				
4	Operator:	V-F PETROLEUM INC.				
5	Field:	AZALEA (DEVONIAN)				
6	County:	MIDLAND				
7	State:	TX				
8						
9	Guideline	Minimum	Maximum	Favored	Weight	
10	Pre-tax IRR [%]	15	30	20	1	
11	Cost Per BBL [\$/BOE]	3	6	4.5	1	
12	Profit/Investment				0	
13	Discounted Profit/Investment				0	
14	Payout [Years]	2	4	2.5	3	
15						
16		FMV [\$]	FMV [\$]	FMV [\$]		
17	Guideline	Minimum	Maximum	Favored		
18	Pre-tax IRR [%]	122832	77188	102030		
19	Cost Per BBL [\$/BOE]	73720	147439	110579		
20	Profit/Investment	0	0	0		
21	Discounted Profit/Investment	0	0	0		
22	Payout [Years]	46247	87561	57022		
23						
24			Average:	53926		
25			Weighted Average:	76735		
26						
27	Discount Rate [%]:	20				
28						

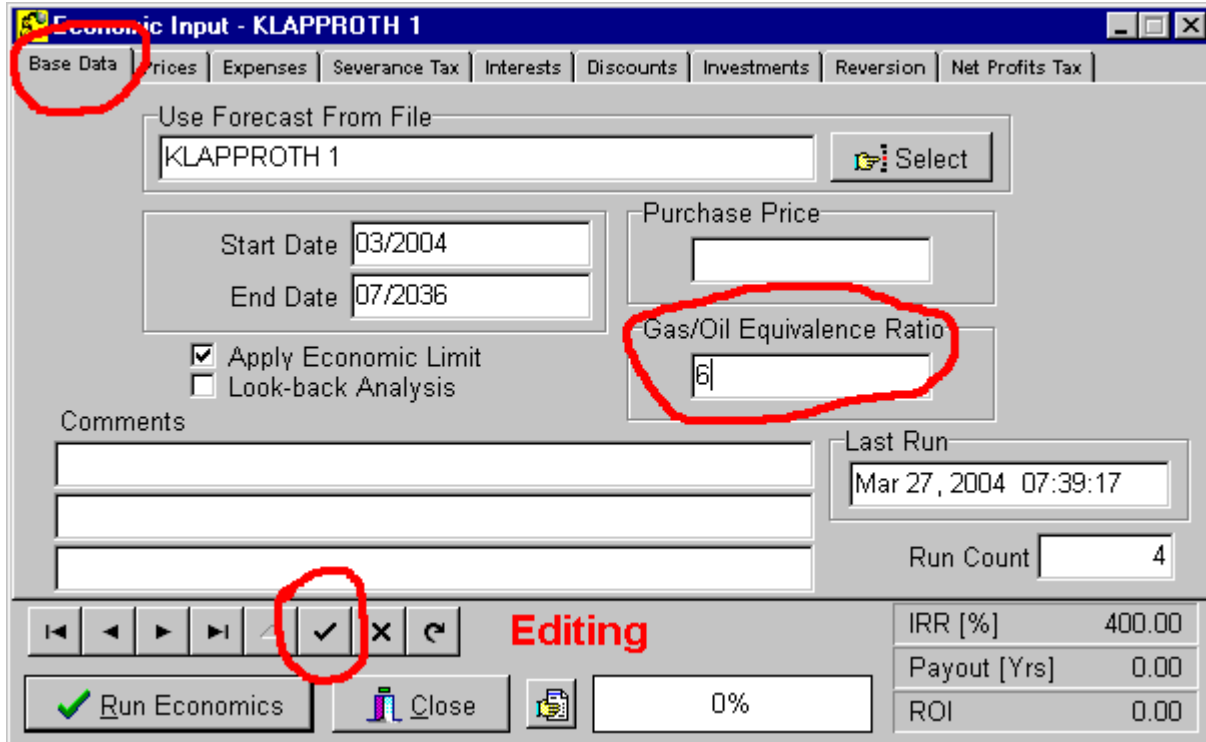
Comments:

Equivalency Ratio: In the Cost [\$/Eqv. BBL] parameter, the equivalency factor used to convert gas to oil equivalent is the price equivalence calculated for each month unless you have entered an equivalence ratio on the Base Data tab of the Economic Input form. For example if you had specified an oil price of \$33/bbl and a gas price of \$4.5/mcf, then the gas to oil equivalency ratio would be 7.33 mcf/bbl of oil.

To enter a specific equivalency ratio and not use a price equivalence in this calculation, open the Economic Input form by selecting the Edit/Economic Input menu item from the well form, or click the "\$" button as shown below:



When you do this the Economic Input form will appear similar to the one shown below:



Make sure the “Base Data” tab is selected as shown on the upper left corner of the form. Enter the ratio you want in the “Gas/Oil Equivalence Ratio” field, click the check mark on the navigator bar at the bottom of the form and then click the “Run Economics” button. After you have done that, click the “Run FMV” button on the Fair Market Value form. This will display the Cost [\$/Eqv. BBL] using the ratio you have specified. As shown below, you can see that this had a significant effect on the FMV value for the Cost parameter.

	Minimum	Maximum	Favored	Weight	FMV [\$]
IRR [%]	15.00	30.00	20.00	1.00	102030.00
Cost [\$/Eqv. BBL]	3.00	6.00	4.50	1.00	232699.00
Profit/Investment				0.00	0.00
Discounted P/I				0.00	0.00
Payout [Yrs]	2.00	4.00	2.50	3.00	57022.00
Average					101159.00

100% Run FMV

Discounted P/I: The discounted Profit To Investment ratio is the same as the undiscounted profit to investment ratio except that the cash flow is discounted as a user specified rate. The discount rate is set on the Economic Input form under the “Discounts” tab as shown on the form below:

Base Data | Prices | Expenses | Severance Tax | Interests | **Discounts** | Investments | Reversion | Net Profits Tax

Discount Rates [%]

20.0	12.0	22.0	32.0	42.0
4.0	14.0	24.0	34.0	44.0
6.0	16.0	26.0	36.0	46.0
8.0	18.0	28.0	38.0	48.0
10.0	20.0	30.0	40.0	50.0

IRR [%] 400.00
Payout [Yrs] 0.00
ROI 0.00

Run Economics

The discount rate used in the Fair Market Value calculation for the Discounted P/I ratio is simply the number set in the upper left hand corner. 20% is the value shown above. After you enter a number for the discount rate, click the check mark on the navigator bar.

Step Review:

Step 1 – Prepare and run economics for the property.

Step 2 – Open the Fair Market Value Form.

Step 3 – Enter the desired economic parameters.

Step 4 – Click the “Run FMV” button.