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# Analyzing the financial return on contract production

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# Let's put up a 2400 wean to finish barn

<b>Assumptions</b>	
Number of pig spaces	2400
Turns / year	2.12
Income / head	
Income/space 1st 5 yrs	\$ 41.50
Income/space 2nd 5 yrs	\$ 41.50
Building cost / space	\$225.00
Total building cost	\$540,000
Loan term (yrs)	15

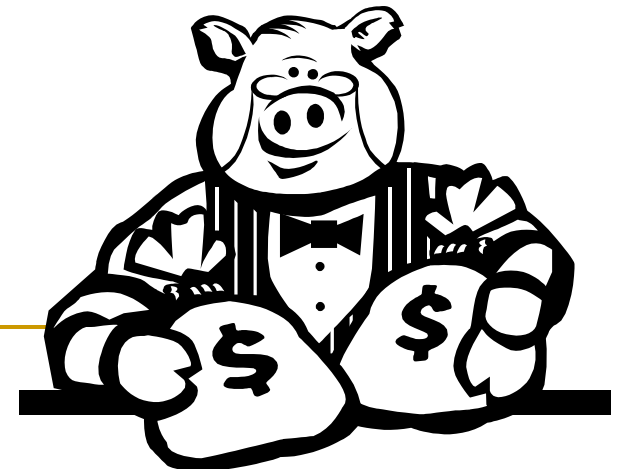
<b>Return on Investment</b>	<b>Without residual</b>		<b>With salvage</b>
Internal rate of return	7.5%		8.2%
Net Present Value	\$91,634		\$125,692

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## Why might one become a contract grower?

- As an investment,
  - To get started in pig production,
  - To have access to the manure for fertilizer,
  - Like to work with pigs,
  - Supplemental income,
  - \_\_\_\_\_.
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Financially, the rate of return you need will vary with your goals.

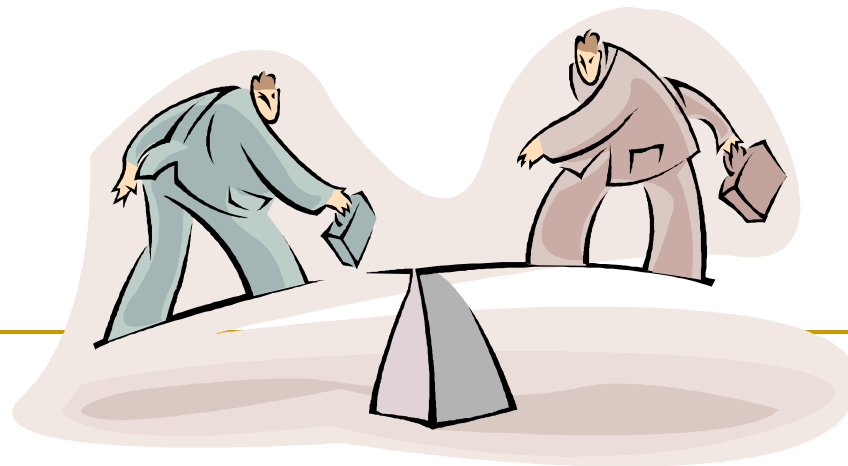


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# The contract must work for both parties.

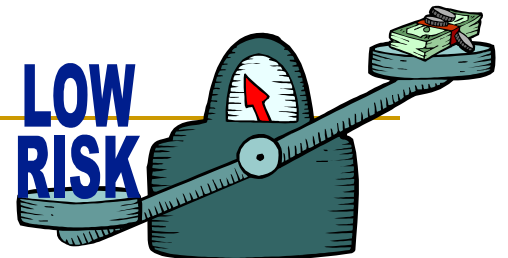
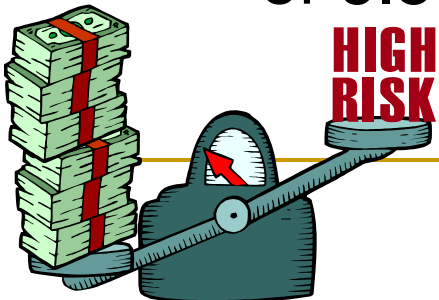
## ■ Win : Win

- ❑ You are given assistance on project planning, facility design & construction,
- ❑ You are provided with a healthy, fast growing pig,
- ❑ You are paid to use your facilities and labor to raise the pig to market weight.



# Above expenses, what is a reasonable rate of return on your investment?

- The marketplace establishes rates of return for given risks.
  - 0 risk - treasury notes earn a fixed rate of interest every six months until maturity. Notes are issued in terms of 2, 3, 5, and 10 years.
    - 10 yr notes recently selling at ~4.5%.
  - Social Security Administration projected that stocks will have long term, annual average return of 6.5% after inflation.



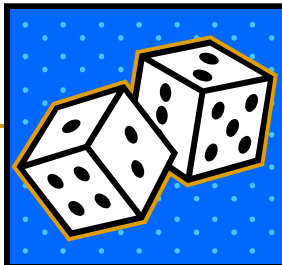
# What risks does the contract grower have vs the contractor?

## ■ Grower

- The contractor cannot make the payments,
- Construction costs are higher than expected,
- Expenses increase above expected,
- The contract is not renewed or is at a substantially lower payment,
- Unexpected environmental issues,

## ■ Contractor

- Sow herd has production problems,
- Market price decreases unexpectedly,
- Feed costs increase unexpectedly,
- Unexpected ongoing health challenges in the pigs,
- Grower has poor husbandry skills and/or low desire,
- \_\_\_\_\_.



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# Assumptions in the financial model

- Analyze the decision first with no debt.
  - Consider the implications of taxes:
    - depreciation,
    - after-tax cost of capital for discount rate,
    - rate of return is after-tax.
  - Incorporate the time value of money.
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## Our 2400 wean to finish site:

<b><i>Increased Income</i></b>		<i>yr 1-5</i>	<i>yr 6-10</i>
Pig space income		\$ 99,600	\$ 99,600
Production bonus / pig (1=yes)	0	\$ -	
Manure value		\$ 4,800	\$ 4,800
Total		\$ 104,400	\$104,400

<b>Increased Expenses</b>				
Depreciation (no yrs.)		15		
Depreciation (straight line = 1)		1		
Depreciation amount			\$ 7.08	\$ 36,000
Repairs / maintenance			\$ 0.59	\$ 3,000
Taxes	<b>Bob Morrison:</b> Insurance rate is approx \$7.00 / \$1000 of facility cost.		\$ 0.74	\$ 3,780
Insurance			\$ 0.74	\$ 3,780
Utilities			\$ 0.71	\$ 3,600
Labor / pig			\$ 1.00	\$ 5,088
Propane	<b>Bob Morrison:</b> estimate 4 gal propane / pig space - year, and propane priced at \$4.00 / gal.		\$ 2.36	\$ 12,000
Health / pig			\$ -	\$ -
Manure removal			\$ -	\$ -
Misc			\$ 0.20	\$ 1,000
Total expenses			\$ 13.41	\$ 68,248
EBITDA (excluding int, taxes, dep)			\$ 13.00	\$ 72,152
<b>EBIT Contribution</b>			\$7.11	\$ 36,152

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Increased inventory				\$ -	
Tax rate	30%	Residual is perpetuity (1=yes)			0
		Salvage is % of initial cost			20%

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# Project the cash flow over time ...

<b>Operating</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	.....
Number of years	0	1	2	3	4	
Incremental EBIT		\$36,152	\$36,152	\$36,152	\$36,152	
After-tax operating income		\$25,306	\$25,306	\$25,306	\$25,306	
Add back depreciation		\$36,000	\$36,000	\$36,000	\$36,000	
Change in invested capital (inv.)	\$ -					
<b>Incremental ATOCF (after tax o</b>	<b>(\$540,000)</b>	<b>\$61,306</b>	<b>\$61,306</b>	<b>\$61,306</b>	<b>\$61,306</b>	.....

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# Calculating the discount rate

Percent borrowed @ % interest	90%	7.00%
Equity valued @	10.0%	
Weighted Cost of Capital	5.11%	

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# Discounting the cash flow to present value

<b>Operating</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
Number of years	0	1	2	3	4
Incremental EBIT		\$36,152	\$36,152	\$36,152	\$36,152
After-tax operating income		\$25,306	\$25,306	\$25,306	\$25,306
Add back depreciation		\$36,000	\$36,000	\$36,000	\$36,000
Change in invested capital (inv.)	\$ -				
<b>Incremental ATOCF (after tax o</b>	(\$540,000)	\$61,306	\$61,306	\$61,306	\$61,306

Present value of cash flows	(\$540,000)	\$58,326	\$55,490	\$52,793	\$50,226
Cumulative PV	(\$540,000)	(\$481,674)	(\$426,184)	(\$373,391)	(\$323,165)

# Is this rate of return good?

<b><i>Return on Investment</i></b>	<b><i>Without residual</i></b>		<b><i>With salvage</i></b>	
Internal rate of return	7.5%			8.2%
Net Present Value	\$91,634			\$125,692

<b><i>With perpetuity</i></b>	
10.85%	
\$314,737	

Discounted Payback Period (yrs)	12.0	Payback	8.81
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## We can ask, “What if ...?” :

- What is the impact of % debt on ROE?
  - What is the impact on IRR if:
    - We pay more for construction,
    - We earn less than \$41.50,
    - We receive a productivity bonus,
    - My expenses are variable:
      - Propane,
      - Utilities,
    - My cost of fertilizer increases (value of manure).
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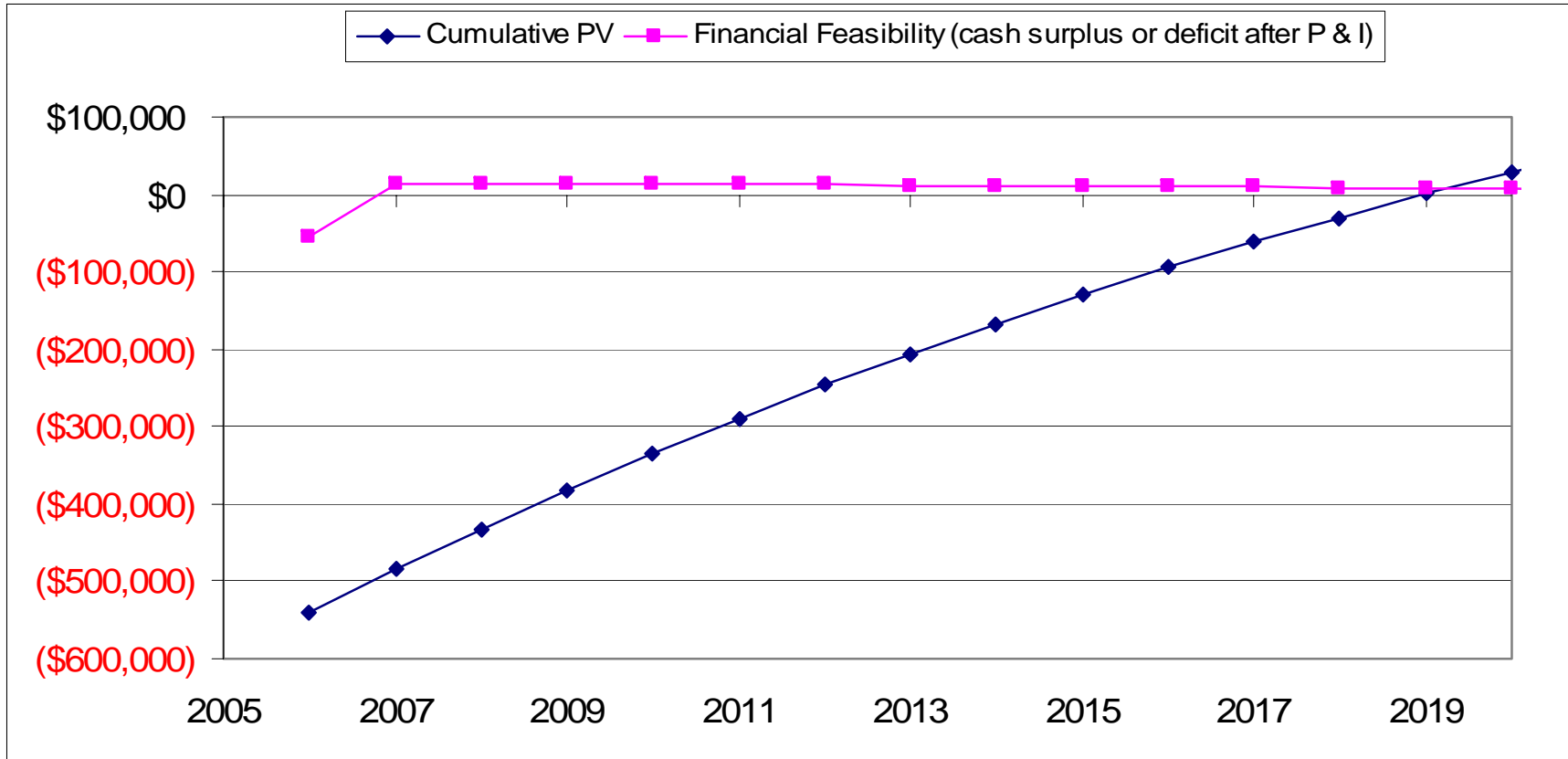
If we like the IRR, then we consider how we might finance it.

- Assuming 10% equity (\$55,400), we can look at the ROE.

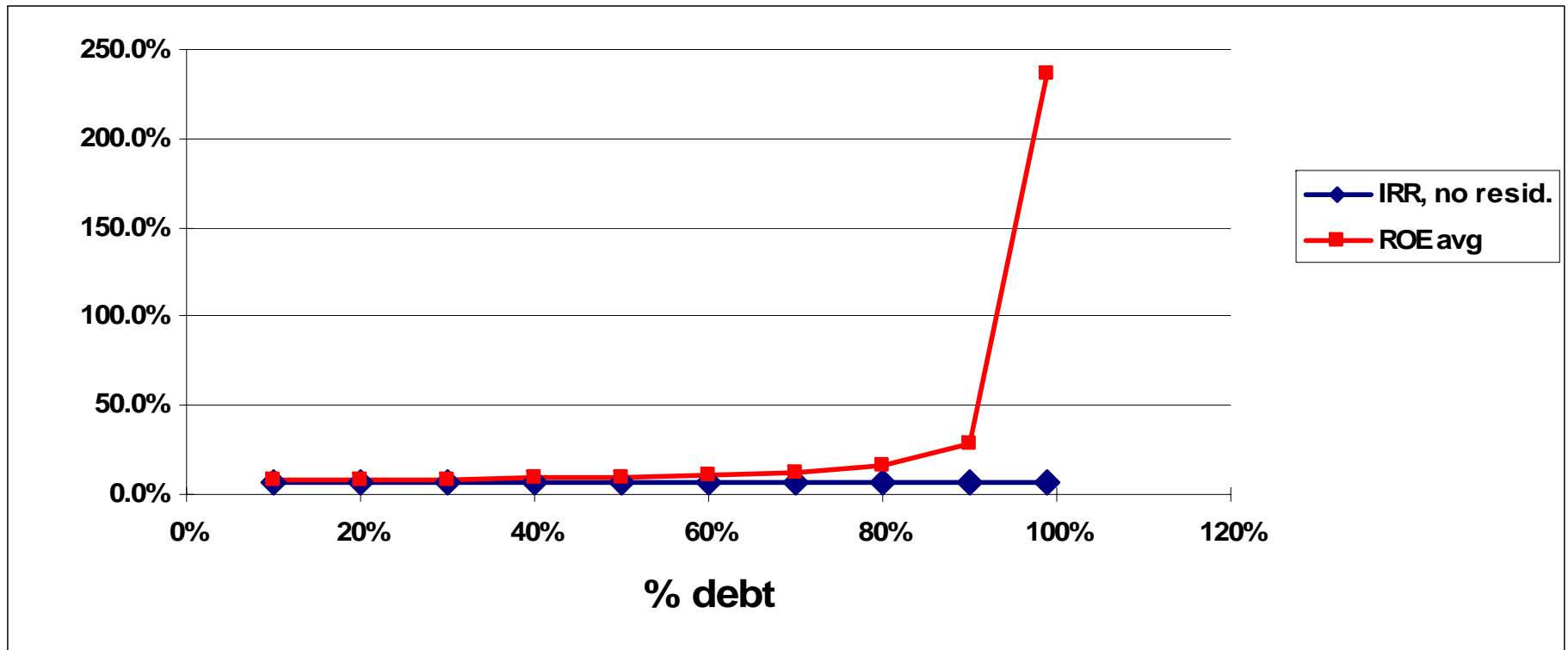


ROE (method 2)

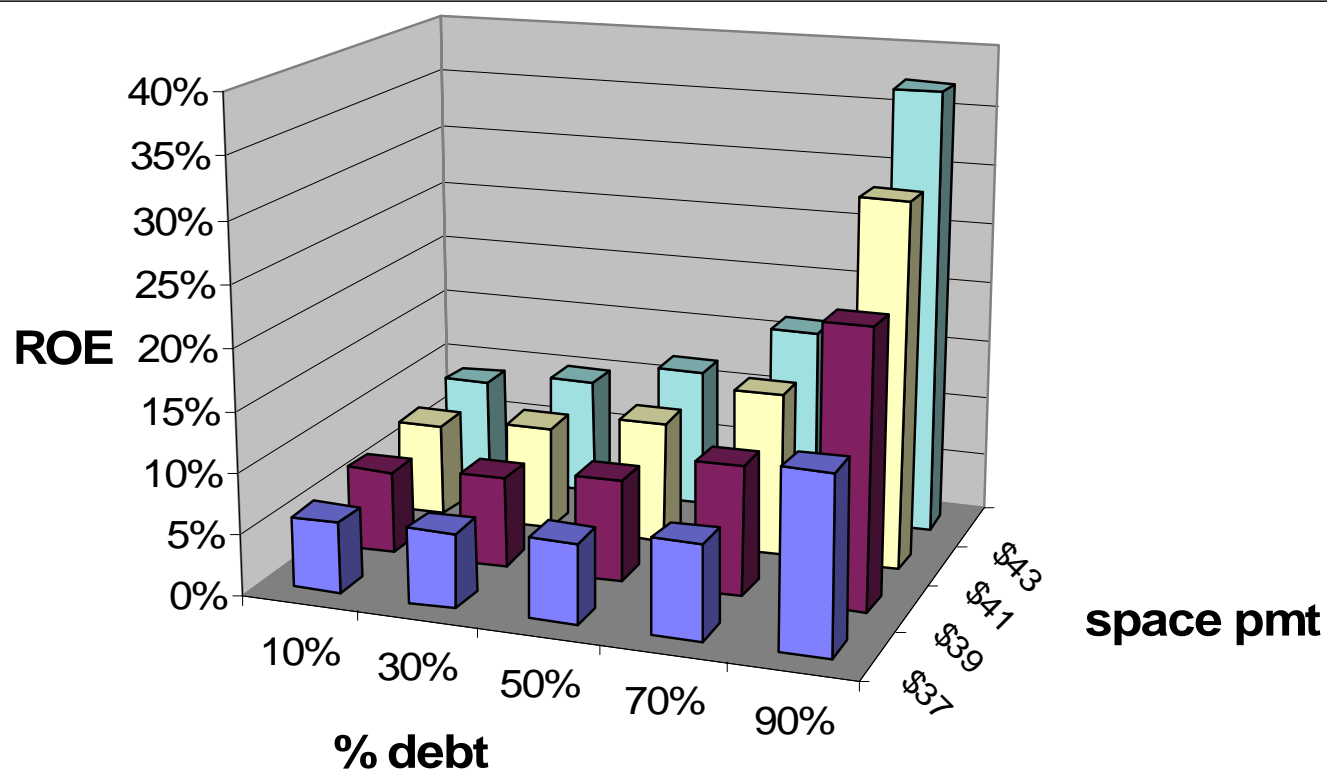
22.9%



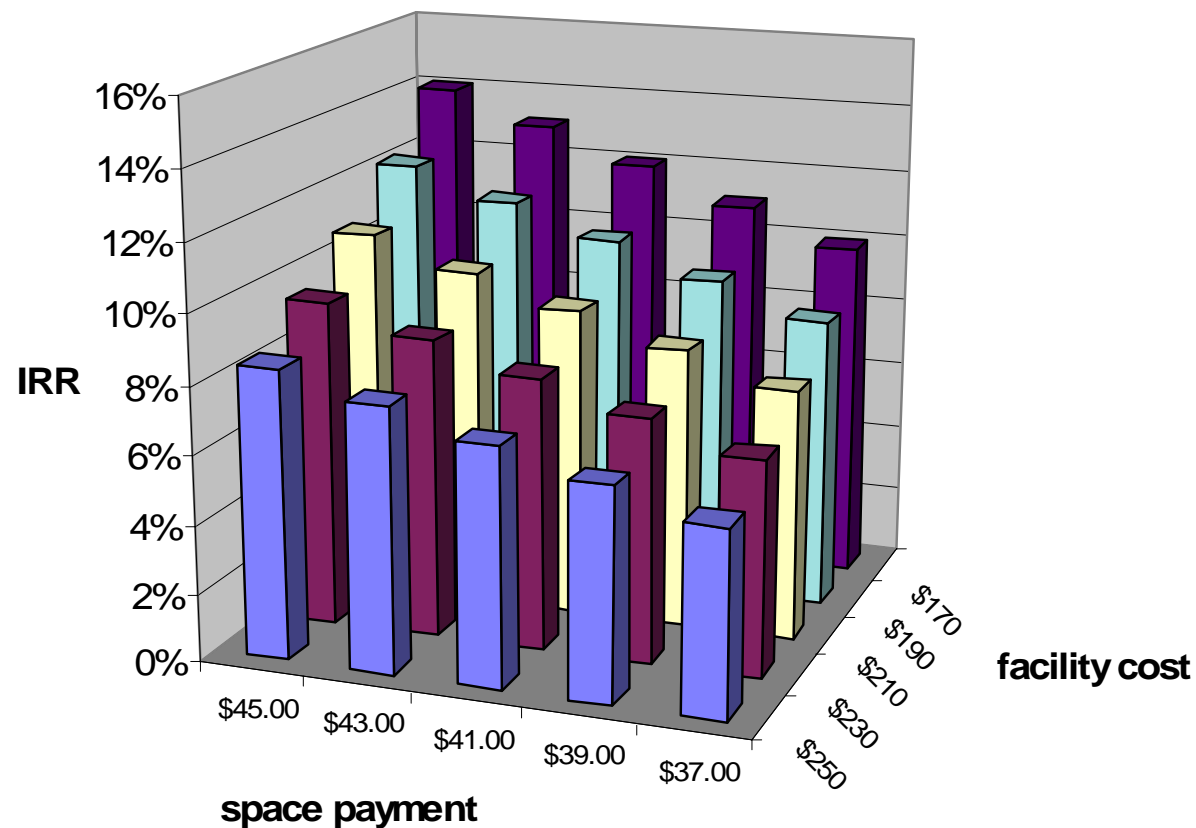
As % equity decreases, ROE could increase dramatically – but so will risk and therefore interest rate.



ROE increases as long as ROA remains more than after-tax cost of debt



# Effect of facility cost & space payment on IRR assuming 20% salvage value



# A 600 wean to finish barn:

Number of pig spaces	600
Turns / year	2.00
Income / head	
Income/space 1st 5 yrs	\$ 37.00
Income/space 2nd 5 yrs	\$ 37.00
Building cost / space	\$230.00
Total building cost	\$138,000
Loan term (yrs)	15

<b>Expenses</b>			
Depreciation (no yrs.)	15		
Depreciation (straight line = 1)	1		
Depreciation amount		\$ 7.67	\$ 9,200
Repairs / maintenance		\$ 0.75	\$ 900
Taxes		\$ 0.50	\$ 600
Insurance		\$ 1.00	\$ 1,200
Utilities		\$ 1.00	\$ 1,200
Labor / pig		\$ 2.00	\$ 2,400
Propane		\$ 1.00	\$ 1,200
Health / pig		\$ -	\$ -
Manure removal		\$ -	\$ -
Misc		\$ 0.40	\$ 480
Total expenses		\$ 14.32	\$ 17,180
EBITDA (excluding int, taxes, dep)		\$ 11.85	\$ 15,120
<b>EBIT Contribution</b>		\$4.93	\$ 5,920

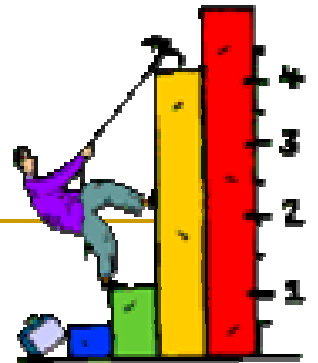
# Is this rate of return good enough?

<b><i>Return on Investment</i></b>	<b><i>Without residual</i></b>		<b><i>With salvage</i></b>	
Internal rate of return	5.1%			5.9%
Net Present Value	(\$518)			\$8,186
ROE (method 1)	6.4%	(assumes %equity stays same as at time 0 & no		
ROE (method 2)	7.0%	(examines annual income - P&I and then IRR ov		
Discounted Payback Period (yrs)	15.1		Payback	10.34

(ROE assumes 10% equity  
& 7% interest)

# It really depends on:

- Your goals for this barn:
  - As an investment,
  - To get started in pig production,
  - To have access to the manure for fertilizer,
  - You want to work with pigs,
  - Supplemental income,
  - \_\_\_\_\_.



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## And the risks involved:

- Your contractor cannot make the payments,
- Your construction costs are higher than expected,
- Your expenses increase above expected,
- Your contract is not renewed or is at a substantially lower payment,
- You have unexpected environmental issues,
- \_\_\_\_\_.

