

TOOLS FOR FINANCIAL DECISION MAKING

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Executive Summary

This session (i) examines methods and tools for assessing the financial conditions and performance of farm operations, and (ii) develops essential capital budgeting tools for use in farm financial decision-making. The session is divided into two parts with the first examining financial records and their use, and the second part examining investment analysis techniques and their relationships to the financial condition of the farm firm. The participants will learn how to compute and evaluate common measures used by lenders and others to assess the farm performance, and will learn how to employ common investment analysis techniques in a farm context. Two software packages that are available at Farm.Doc are used to illustrate the types of investment analysis tools available.

Part I, Farm Financial Analysis, highlights:

- Examine common measures of liquidity, solvency, and profitability of farm firms.
- Provides information about a lender's evaluation of common measures of a farm's condition and performance, and suggests keys for improving important financial ratios.
- Importance of accrual measures of income, and methods for making accounting corrections.
- Compares peer group financial performance measures – let's you see how your operation compares to others in the state using the publication: *Financial Characteristics of Illinois Farms*.

Part II, Investment Analysis, highlights:

- Discusses common approaches for evaluating investment opportunities.
- Time value of money concepts introduced.
- Methods developed to evaluate Farmland Investment decisions.
 - Informational needs, evaluation criteria, sensitivity analysis.
 - Software output demonstration and handouts.
- Methods developed to compare alternative loan options.
 - Different loan alternatives/different terms, refinancing options.
 - Software output demonstration and handouts.
- Summary discussion and audience-directed software demonstration.

Tools for Financial Decision Making

by Paul Ellinger and
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Overview of Presentation

- Financial indicators
 - Defined
 - Examples
- Investment Decisions
 - General guidelines for investment decisions
 - Land investments
 - Loan analysis
 - Others

Farm Financial Analysis

Objectives:

- **Assess farmer's financial condition**
- **Identify strategies for dealing with lenders**
- **Identify opportunities**
- **Work with numbers**

Measures of Financial Condition & Performance

- Liquidity
- Solvency
- Profitability
- Financial Efficiency
- Repayment Capacity



Lender will also look closely at collateral

Liquidity

Why hold liquidity?

Liquidity Measures:

- Current Assets/Current Liabilities (CA/CL)
- Working Capital (CA - CL)
- Working Capital / Value of Farm Production
(gross revenue)

Effect of Current Conditions on Liquidity

- Lower commodity prices $CA/CL \downarrow$
- Lower yields $CA/CL \downarrow$
- Higher gov't. payments $CA/CL \uparrow$
- Unpaid bills $CA/CL \downarrow$
- BIG impact on liquidity measures

Options for Improving Liquidity

- Restructure debt
 - Operating
 - Term debt
- Liquidate capital assets
- Win the Lottery!

Solvency Measures

Debt/Asset ratio **(D/A)**

Debt/Equity ratio **(D/E)**

Ownership equity ratio **(E/A)**



Effect of Current Conditions on Solvency

- **If withdrawals exceed income** $D/A \uparrow$
- **If land values fall** $D/A \uparrow$
- **If you borrow to cover losses** $D/A \uparrow$
- **More modest impact on solvency**

Profitability Measures

- **Net farm income** (NFI)
- **Rate of return on assets** (ROA)
- **Rate of return on equity** (ROE)

Critical Issue

Measure income properly to make correct decisions! Use accrual based measures.

Schedule F (cash basis) is not a reliable indicator of profit.

Schedule F Vs. Accrual Income

Average yearly difference (based on 966 farms)

1995 35%

1996 41%

1997 34%

Average 3-year

difference '95-97 24%

Measures Of Financial Efficiency

- **Operating expenses/value of farm production**
- **Depreciation/value of farm production**
- **Interest/Value of farm production**
- **Net farm income/value of farm production**

Effect of Current Conditions on Financial Efficiency

- All ratios worse because of lower VFP
- Watch interest/VFP closely!
- Key indicator of excess debt



Repayment Capacity

- Measures ability to repay capital loans
- Use varies by lender
- A key indicator of financial viability
- Perform sensitivity analysis

Effect of Current Conditions on Repayment Capacity

Lower Income = Lower Repayment Capacity



Options for Improving Repayment Capacity

- Decrease capital purchases
- Restructure debt over longer period
- Decrease family withdrawals
- Increase non-farm income
- Liquidate assets

Dealing With Lenders

- Understand your financial position
- Share financial information
- Communicate early
- Explore alternatives
- Listen to lender's advice/counseling
- Ask questions



Current Opportunities

- May be able to negotiate lower rents
- May be able to restructure/refinance loans
- May be able to acquire new/used assets more cheaply due to weak demand
- May be able to diversify investment portfolio
- May be able to strengthen relationships with your lender

Applications

Strengths & Weaknesses Identification

Handouts:

- Cash to Accrual Income Approximation
- Complete basic ratio calculations
- **Red light** – **Yellow light** -- **Green Light**
Ratio Values
- Use *Financial Characteristics of Illinois Farms* to perform peer group comparisons

Investment Analysis

Evaluating and ranking capital expenditures

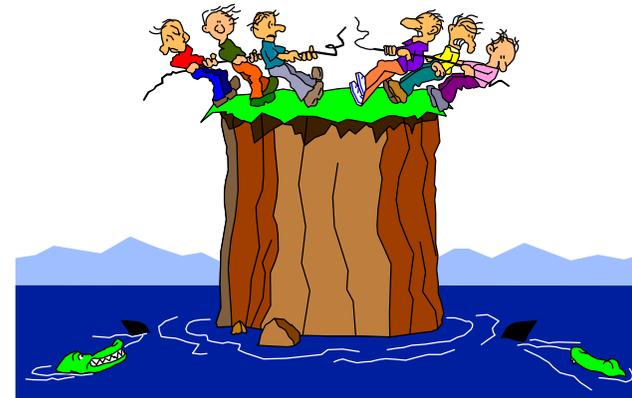
- Alternative methods and criteria
- Demonstrate widely accepted methods
 - Include time value money concepts
 - Ability to rank alternatives
 - Includes all cash flows and related effects
 - Understand the impact of financing alternatives
- Discuss the linkage to financial statements

Time Value of Money

- Reflects differences in value of money at **different** points in time
- Discount rate varies by:
 - Debt costs
 - Liquidity position
 - Investment strategies
 - Growth strategies
 - Consumption and savings preferences

Investment Analysis Tools

- Evaluate **desirability** of alternative investments
- Evaluate **feasibility** of alternative investments



Information Needs

- Cash flows
 - Incremental
 - Growth and stability
 - After tax
- Discount rate and desired return
- Financing terms
- Time horizon (holding period)
- Residual value
- Current financial condition

Sample Applications

- Land investment
- Rank capital purchase alternatives
- Lease vs. purchase
- Grain bin investment
- Compare alternative loans and refinancing
- Solve annuity and savings problems
- Calculate other time of money factors

Land Investment Example

Key Information Needs:

- Discount rate and desired return on investment
- Net after tax cash flows per acre (level and growth)
- Appreciation
- Holding period
- Financing terms
- Transaction costs
- Feasibility (liquidity and solvency)

Example Inputs



Land Purchase Analysis

Used to determine the maximum bid price of a land investment opportunity and sensitivity to terms.

Land Information:		Financing Information:	
Analysis price	\$ 2,600	Down payment (%)	30%
Additional cash flows: Year 0	\$ 175.00	Annual interest rate on loan (%)	7.000%
<i>Optional: Enter cash flows via crop budgets</i>		Length of loan (years)	20
Property taxes per acre: year 1	\$ 24.00		
Annual cash flow growth rate (%)	1.00%	Investor Information:	
Annual appreciation rate of land values (%)	2.50%	Marginal tax rate (%)	28%
Closing fees (% initial purchase)	1.00%	Capital gains tax rate (%)	20%
Selling fees (% end of horizon)	5.00%	Discount rate (%)	7.000%

Example Output I

Results

Net Present Value: Analysis Price

5 year investment horizon	(62.0)
10 year investment horizon	(54.5)
30 year investment horizon	(241.8)

Investment Yield: Analysis Price

5 year investment horizon	5.40%
10 year investment horizon	6.33%
30 year investment horizon	5.99%

Cash Flow Growth Rate Needed to Achieve Yield

5 year investment horizon	7.85%
10 year investment horizon	2.65%
30 year investment horizon	2.41%

Example Output II

Maximum Bid Price	
5 year investment horizon	\$2,288
10 year investment horizon	\$2,433
30 year investment horizon	\$2,237
Cash Flow Needed to Achieve Desired Yield	
5 year investment horizon	\$195.6
10 year investment horizon	\$185.4
30 year investment horizon	\$199.5
Appreciation Rate Needed to Achieve Desired Yield	
5 year investment horizon	3.28%
10 year investment horizon	2.93%
30 year investment horizon	3.76%

Loans Comparison Example

Key Information Needs:

- Annual interest rates
- Term of loan
- Payments per year
- Upfront costs and fees
 - Tax considerations
 - New lender considerations
- Time horizon
- Marginal tax rate
- Fixed vs. variable rate of interest

Example Inputs



Input Summary Comparison

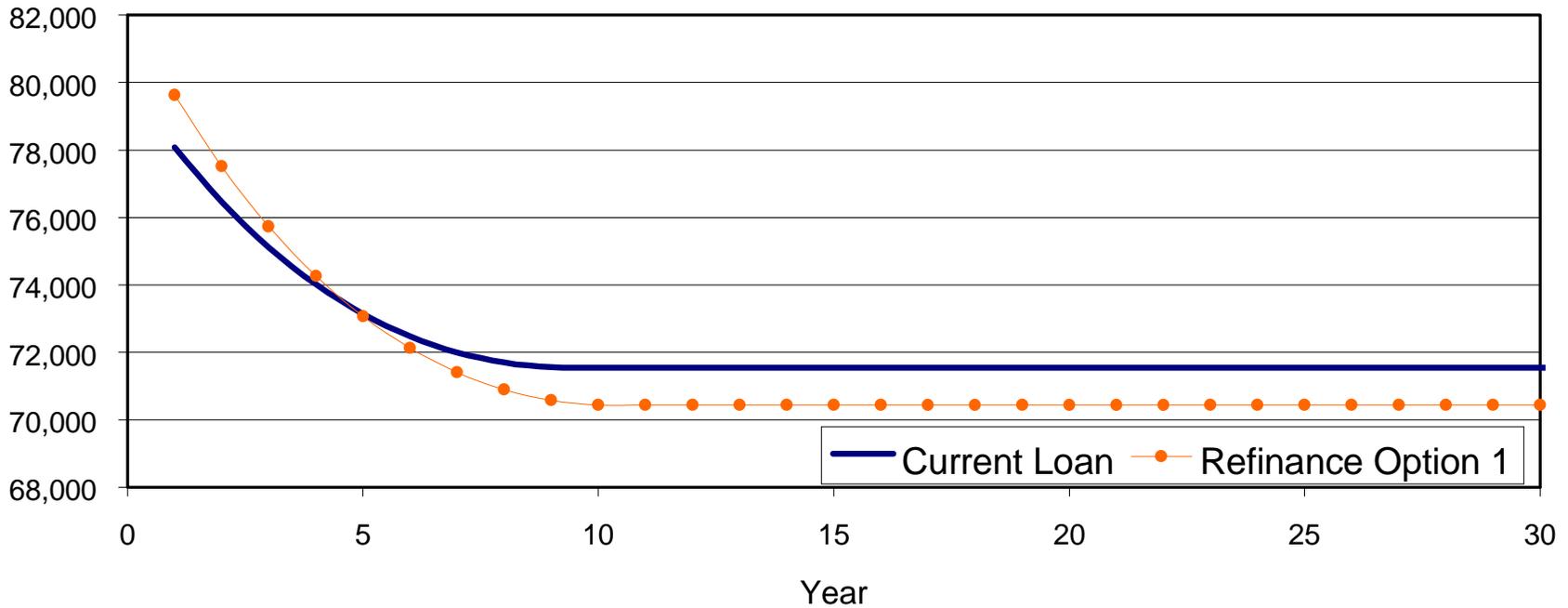
Loan principal
 Annual interest rate
 Payments per year
 Years to maturity
 Marginal tax rate
 Annual discount rate
 Evaluation horizon (years)
Deductible Loan Fees
 First year
 Amortized
 Nondeductible fees
 Fixed/Variable

Current Loan	Refinance Option 1
80000	80000
9.00%	8.00%
2	2
9.168	10
	0.31
	0.09
	14
0	0
0	1600
0	500
Fixed	Fixed

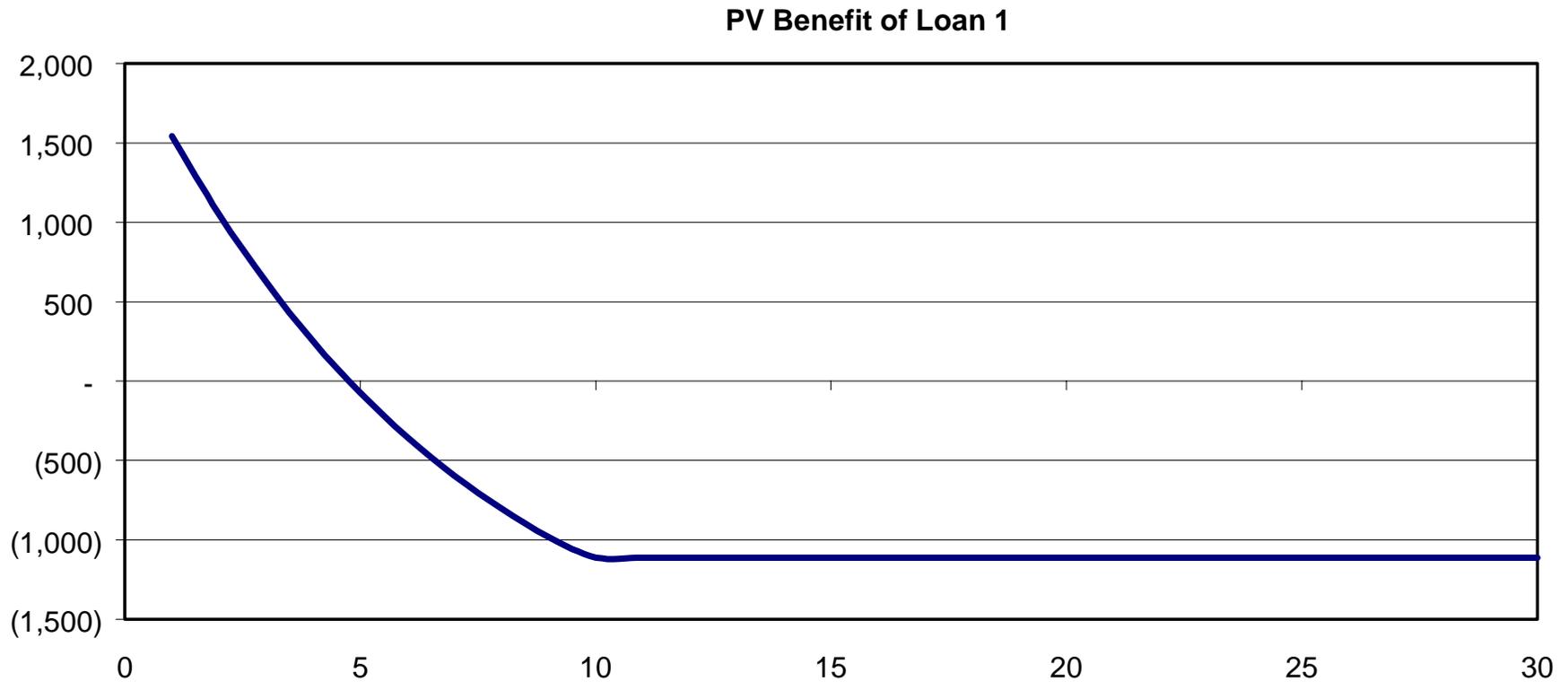
Example Output I

The preferred loan for the 14 year evaluation horizon is Refinance Option 1. The difference in net present values between the loans over the horizon is \$1,109.79.

PV Outflows: (Higher is more costly)



Example Output II



Example Output III

Output Summary Comparison

Net present value outflows
Difference
Before Tax Effective Rate
After Tax Effective Rate

Current Loan	Refinance Option 1
71,548	70,438
	1,110
9.20%	8.79%
6.31%	6.07%

Summary

- Discussion of handouts
- Review other investment analysis programs
 - General capital budgeting
 - Time Value of Money factors
 - Grain bin
 - Machinery Lease vs. Purchase
 - Machinery rollovers
- **Real Time Demonstration** with participant supplied inputs

.....Thanks!