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EARNINGS ANALYSIS

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Earnings Analysis

- **In a perfect world**
  - Financial Soundness
    - Balance sheets with cost and market values
  - Financial Performance
    - Accrual income statement

Earnings Analysis

- **In the real world**
  - Financial Soundness
    - Balance Sheets at mixed market/cost values
  - Financial Performance
    - Schedule F tax statement

How can we measure financial performance in the real world?

Earned Net Worth or Earned Equity Analysis

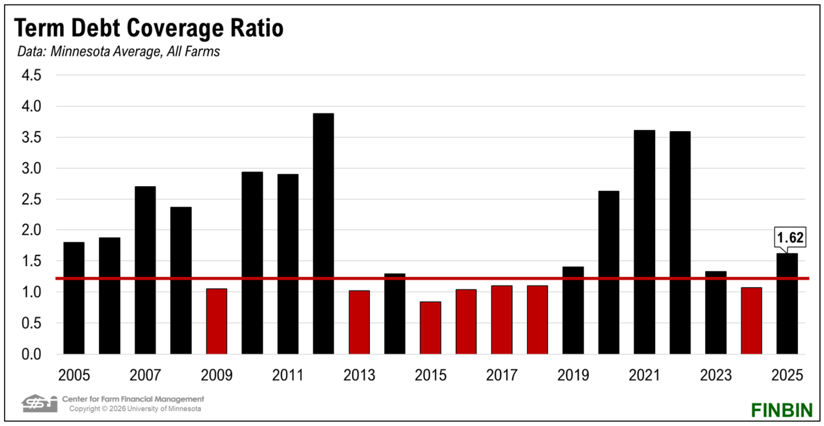
- **Net worth change is often your best indicator of financial performance.**
- **Two components on market value statements:**
  - Asset valuation change
  - Earned net worth change

Earned Net Worth or Earned Equity Analysis

- **If we can identify Earned Net Worth Change:**
  - Can calculate accurate debt coverage measure.
  - Just need two balance sheets.

Earned Net Worth Analysis

- **Measure whether earnings exceeded consumption**
- **Added benefit: calculate debt coverage ratio**



Earned Net Worth Analysis

- **Does Not Require**
  - Fiscal year balance sheets
  - Tax forms
  - Accurate family living information

Financial Statements

- Balance Sheet
- Income Statement
- Statement of Owner's Equity
- Statement of Cash Flows

Earned Net Worth Change – Commercial Businesses

Statement of Owner's Equity
Beginning net worth
+ Net income after taxes (income statement)
- Owner withdrawals
= Ending net worth

Change in retained earnings
= Earned net worth change

Earned Net Worth Change – Farm & Ranch Businesses

Statement of Owner's Equity
Beginning net worth
+ Net farm income
+ Non-farm income
- Family living
- Income taxes
= Ending net worth

Change in retained earnings

= Earned net worth change

Earned Net Worth Change – Farm & Ranch Businesses

Statement of Owner's Equity
Beginning net worth
+ Net farm income
+ Non-farm income
- Family living
- Income taxes
+/- Valuation change
= Ending net worth

Change in retained earnings

= Earned net worth change

Earned Net Worth Change – Using Market Value Statements

Farm Business
Ending net worth
- Beginning net worth
= Net worth change
- Valuation changes
= Earned net worth change

Net farm income
+ Non-farm income
- Owner withdrawals (family living)
- Income taxes

Valuation Changes

- **Identifying valuation change is the tricky part:**
  - Land
  - Machinery & equipment
  - Breeding livestock

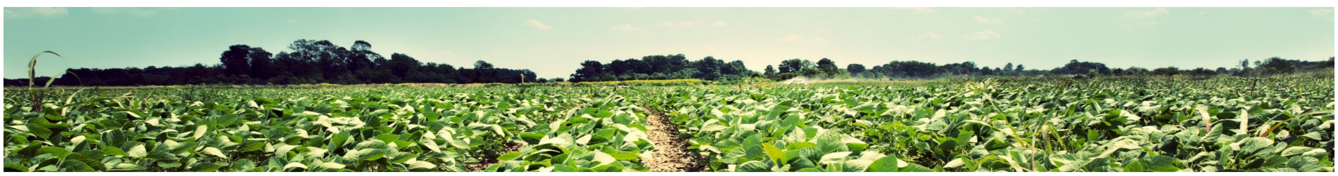
Valuation Changes

- Land

Ending land value

\- Beginning land value

= Change in Market Value



Valuation Changes

- Land

Ending land value

\+ Land sales

\- Land purchases

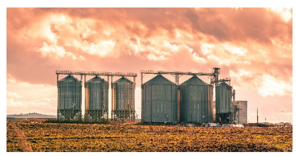
\- Beginning land value

= Change in Market Value

Valuation Changes

- **Machinery and Building Valuation**
  - Depreciable Assets
  - How can we distinguish between depreciation and valuation change?
  - Recommendation:
    - Estimate economic depreciation
    - Any change greater than economic depreciation is a valuation change





Shortcut to Economic Depreciation

Beginning value
+ Capital purchases
- Capital sales
- xx % depreciation
= Ending value

Ex: Machinery Valuation Change

Beginning value	$230,017
Capital purchases	+ 68,579
Capital sales	- 7,365
Ending market value	= $284,340

Ex: Machinery Valuation Change

Beginning value	$230,017
Capital purchases	+ 68,579
Capital sales	- 7,365
Total to depreciate	= 291,231
Ending market value	= $284,340
Depreciation reflected	($6,891)

Ex: Machinery Valuation Change

Beginning value	$230,017
Capital purchases	+ 68,579
Capital sales	- 7,365
Total to depreciate	= 291,231
Depreciation (10%)	(29,123)
Depreciated ending value	=$262,108

Ex: Machinery Valuation Change

Beginning value	$230,017
Capital purchases	+ 68,579
Capital sales	- 7,365
Total to depreciate	= 291,231
Depreciation (10%)	(29,123)
Depreciated ending value	=$262,108
Reported ending value	$284,340
Change in market valuation	+$22,232

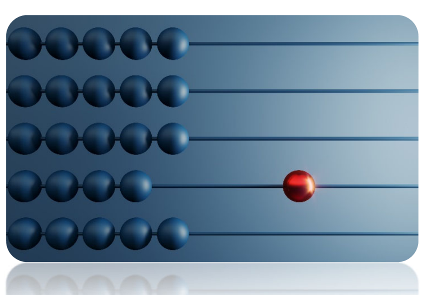
Backed out of Net Worth Change to arrive at Earned Net Worth Change

Valuation Changes

- **Identifying valuation change is the tricky part:**
  - Land
    - Back out any land value change
  - Machinery & equipment
    - Depreciate and back out any difference between depreciation and total change
  - Breeding livestock
    - Back out any change related to value per head

Earned Net Worth Change – Using Market Value Statements

- **OK, we've calculated Earned Net Worth Change, now what?**
  - Benchmark – percent of beginning net worth
  - Calculate debt coverage



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Earned Net Worth Change – FINBIN, 2013-2019

- Average Earned Net Worth Change $42,143
- Average Non-Farm Income $32,606

Earned Net Worth Change – FINBIN, 2019-2023

- Average Earned Net Worth Change $181,566
- Average Non-Farm Income $41,302

Calculating Debt Coverage

Term Debt Coverage Ratio
Net farm income (accrual)
+ Non-farm income
- Owner withdrawal (family living)
- Income taxes
+ Depreciation
+ Interest on term debt
= Capital debt repayment capacity
÷ Scheduled term debt payments

= Earned net worth change

Term Debt Coverage Ratio
Earned Net Worth Change
+ Depreciation
+ Interest on term debt
= Capital debt repayment capacity
÷ Scheduled term debt payments

Case Farm:
Earned Net Worth Analysis Exercise

Step 1.

Calculate any Change in Market Valuation.

Change in Market Valuation/Depreciation Worksheet

			Machinery	Buildings	Land	Total
	Beginning balance sheet value		910,176			
	Purchases	+	349,869	22,500	0	
	Sales	-	44,481	0	0	
C.	Total value to depreciate	=	1,215,564			
	Depreciation rate	*	10%	5%	0%	
D.	Depreciation	=	121,556			
E.	Ending depreciated value (C - D)		1,094,008			
F.	Ending balance sheet value		1,143,884			
G.	Change in market valuation (F - E)		49,876			

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Step 2.

Calculate Earned Net Worth Change.

Earned Net Worth Analysis

	Ending net worth (mkt)		
	Beginning net worth (mkt)	-	
	Change in net worth (mkt)	=	
	Change in market valuation (G)	-	
	Inheritance, gifts, capital contributions	-	0
	Gifts given	+	0
A.	**Change in earned net worth**	=	
	Change in earned net worth (A)		
	Family living / owner withdrawals	+	67,633
	income and social security taxes	+	1,227
	Personal income	-	24,606
	Personal asset depreciation	+	(7,350)
	Change in personal accounts payable	+	204
B.	**Net Farm Income**	=	

Bonus!

Step 3: Calculate Debt Coverage Ratio

Repayment Capacity: Term Debt Coverage Ratio			
Earned net worth change (A)			
Depreciation expense (D)	+		
Interest on term debt	+	51,594	
Capital debt repayment capacity	=		
Scheduled payments on term debt	÷	121,865	
Term debt coverage ratio	=		----- 1.25 --------------- 1.75 -----

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Case Farm:
Earned Net Worth Analysis Review

Change in Market Valuation/Depreciation Worksheet

			Machinery	Buildings	Land	Total
	Beginning balance sheet value		910,176	167,550	3,433,824	
	Purchases	+	349,869	22,500	0	
	Sales	-	44,481	0	0	
C.	Total value to depreciate	=	1,215,564	190,050	3,433,824	
	Depreciation rate	*	10%	5%	0%	
D.	Depreciation	=	121,556	9,503	0	131,059
E.	Ending depreciated value (C - D)		1,094,008	180,548	3,433,824	
F.	Ending balance sheet value		1,143,884	187,899	3,433,824	
G.	Change in market valuation (F - E)		49,876	7,352	0	57,228

Earned Net Worth Analysis

	Ending net worth (mkt)		4,352,390
	Beginning net worth (mkt)	-	4,292,450
	Change in net worth (mkt)	=	59,940
	Change in market valuation (G)	-	57,228
	Inheritance, gifts, capital contributions	-	0
	Gifts given	+	0
A.	**Change in earned net worth**	=	2,712
	Change in earned net worth (A)		2,712
	Family living / owner withdrawals	+	67,633
	income and social security taxes	+	1,227
	Personal income	-	24,606
	Personal asset depreciation	+	(7,350)
	Change in personal accounts payable	+	204
B.	**Net Farm Income**	=	39,820

Repayment Capacity: Term Debt Coverage Ratio

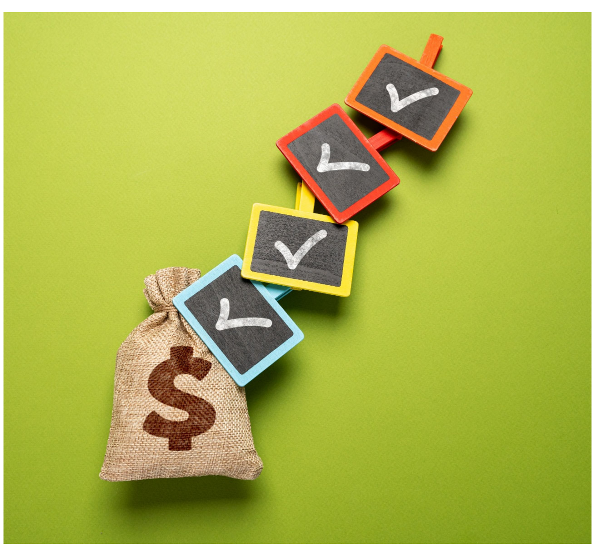
Earned net worth change (A)		2,712	
Depreciation expense (D)	+	131,059	
Interest on term debt	+	51,594	
Capital debt repayment capacity	=	185,365	
Scheduled payments on term debt	÷	121,865	
Term debt coverage ratio	=	1.52	----- 1.25 --------------- 1.75 -----

Earned Net Worth Analysis Spreadsheet

Download at z.umn.edu/EarnedNetWorth

- This link will automatically download the spreadsheet.
- Also available at www.cffm.umn.edu/farm-management-publications

To review…what do you need for this analysis?



- **Two balance sheets** (about a year apart)
- **Capital purchases and sales** (for the analysis period)

Advanced Topics

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Burn Rate / Debt Service Payment

Current assets	$1,000,000
Current liabilities	$ 500,000
Net working capital	$ 500,000
Total revenue	$2,000,000
Net income	$ 200,000
Net working capital	$ 500,000 =
Annual debt service payments	$ 100,000
	5 year burn rate

Deferred Liabilities

- **What are they?**
  - If the business is liquidated
    - Taxes due on current inventories and capital gains
  - Calculation:
    - Balance sheet value – tax basis x tax rate.
- **Discussion:**
  - What is the deferred liability on farmland in this example?

Other Advanced Topics

- **Estimating family living expenses**
- **Leases**

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