

Shortcuts to Accrual



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Tools for Credit Analysis

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

Tools for Credit Analysis

- **In the real world**
 - Financial Soundness
 - **Market value balance sheets**
 - Financial Performance
 - **Schedule F tax statement**
 - ***How can we measure financial performance in the real world?***

Tax Forms/Income Statement

- **Balance sheets**
- **Schedule F database**

Balance Sheets

- **Problems with Ag Balance Sheets**

- Market valuation
- Whenever...



Income Statement

- **Problems with Schedule F**

- Cash based
- Tax rules that distort income
- Fast depreciation



Balance Sheet

- A snapshot of the assets and liabilities of a business at specific point in time
 - **Assets**
 - Everything owned or payable to the business
 - **Liabilities**
 - All obligations owed
 - **Owners Equity/Net Worth**
 - Total assets minus total liabilities



Balance Sheet Analysis

- **Current position**
- **Financial structure**
- **Total solvency**
- **Net worth change**

Balance Sheets

- **Market value balance sheets provide:**
 - Solvency
 - Collateral analysis
 - Loan to value
- **What's missing?**
 - Reliable measure of performance
 - Earned net worth change

Balance Sheet Challenge

Asset Valuation

- **Market Valuation**
 - *Capital assets valued at estimated fair market value*
- **Cost Valuation**
 - *Capital assets valued at depreciated value*



Balance Sheet Challenge

Asset Valuation

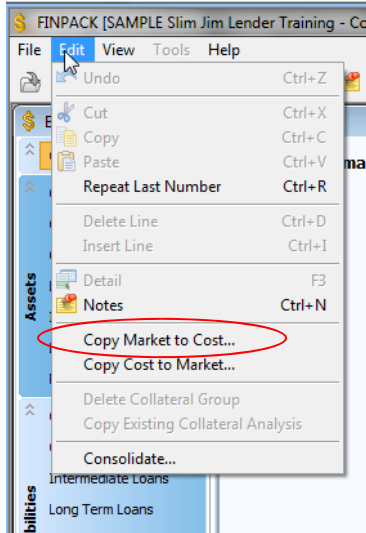
- **Market Valuation**
 - *Market estimates supplied by borrower*
- **Cost Valuation**
 - *Base values used for credit analysis*



Cost or Base Value Balance Sheets

$$\begin{aligned} \text{Net worth change} \\ &= \\ \text{Change in retained earnings} \\ &= \\ \text{Earned net worth change} \end{aligned}$$

Copy Market Values to Cost



Income Statement

- **Problems with Schedule F**
 - Cash based
 - Tax rules that distort income
 - Fast depreciation



Sch F vs. Accrual Net Income

% difference for years averaged

Years Averaged	All farms	20-40% in debt	>40% in debt
2002-04	67%	56%	60%
2003-05	41%	56%	61%
2004-06	63%	57%	63%
5-Year			
2002-06	66%	55%	60%

Source: Barnard, F. L., Ellinger, P. N., & Wilson, C. (2010). Measurement Issues in Assessing Profitability through Cash Tax Returns. Journal of American Society of Farm Managers and Rural Appraisers, 2010(1), 207-217.

Accrual Adjusted Income Statement

Jones Farm		Smith Farm	
Gross income	\$500,000	Gross income	\$500,000
Cash expenses	-450,000	Cash expenses	-450,000
Net cash income	50,000	Net cash income	50,000
Inventory change	+100,000	Inventory change	-100,000
Depreciation	-40,000	Depreciation	-40,000
Net farm income	110,000	Net farm income	-90,000

Accrual Adjusted Income Statement

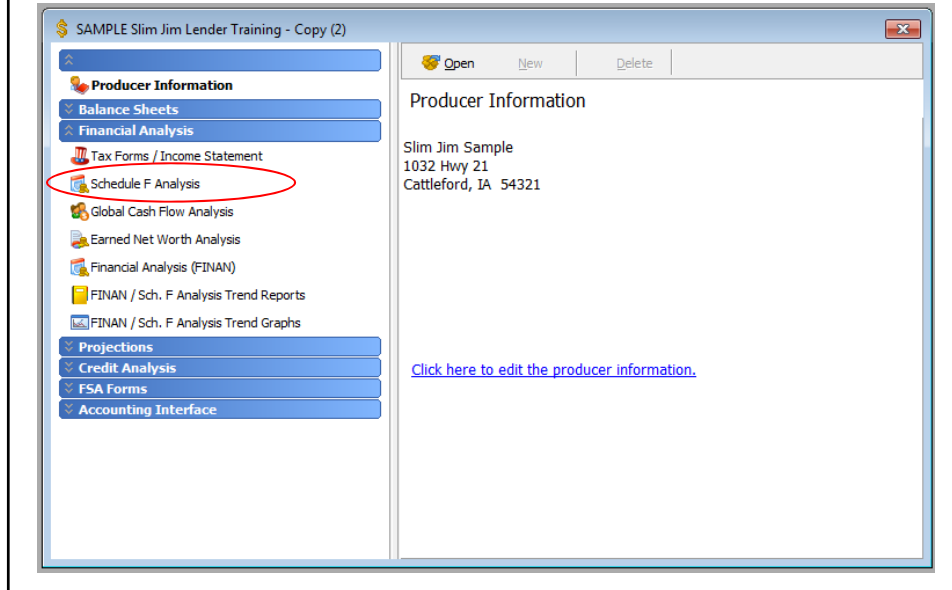


Accrual Adjusted Income Statement

- Reflects the value of everything produced during the year
- Reflects the cost incurred to produce it



FINPACK Financial Analysis Tools



Year	2003	2004	2005	2006	2007
Beginning balance sheet	January 1, 2003	January 1, 2004	January 1, 2005	January 1, 2006	January 1, 2007
Ending balance sheet	January 1, 2004	January 1, 2005	January 1, 2006	January 1, 2007	January 1, 2008
FARM INFLOWS					
Cull income	...				
Net hedging (withdrawals - deposits)	-28,438	...			-3,000
Other income (not on Schedule F)	...				
FARM OUTFLOWS					
Feeder livestock purchases	694,127	407,896	455,051	552,158	1,269,418
Value of labor and management	29,000	29,000	29,000	41,568	57,356
Other expense (not on Schedule F)	...				
PERSONAL INFLOWS					
Personal income	1,731	2,089	33,801	28,889	46,660
Inheritances, gifts, contributed capital	...				
PERSONAL OUTFLOWS					
Family living / Owner withdrawals	74,564	83,312	82,710	77,164	75,382
Income and social security tax	53,342	42,684	26,270	19,397	8,167
Gifts given, distributed capital	...	17,740	1,547		
CAPITAL TRANSACTIONS					
Capital purchases	159,639	94,800	103,275	370,563	46,334
Capital sales	...				
Economic depreciation	28,175	34,396	40,766	56,378	56,858
Personal capital purchases	9,800	7,100	5,000	10,300	10,266
Personal capital sales	...				
Change in personal assets	17,300	7,700	3,850	3,150	3,036

20 data points

Schedule F Analysis - Additional Input

	Amount	Description
Cull income		Enter the amount of cash received from the sale of breeding livestock. This is usually reported on form 4797.
Net hedging (withdrawals – deposits)		Enter the amount of net hedging account transfers during the year. This is withdrawals minus deposits. If you have a Form 1099-B, enter two of the amounts from that form below instead.
(optional) Form 1099-B box 10		Profit or loss on closed contracts
(optional) Form 1099-B box 13		Aggregate profit or loss on contracts
Other income (not on Schedule F)		Enter any other income related to activities of the farm that are not reported on the Schedule F. An example of this would be a farm corporation that received rental income reported on a Schedule E.
Feeder livestock purchases		Enter the amount of cash expenses for feeder livestock purchases during the year. This differs from the value on the Schedule F. That value is the purchase price of feeder livestock sold during the year. The analysis will not use that value; it needs the amount of purchases made during the year.
Value of labor & management		Enter an estimate for the value of unpaid owner / operator labor and management. This is not an amount of cash outflow. It is used to calculate the rates of return. If the

Accrual Adjusted Income Statement

- **A cruel thing happened on the way to the Farm Financial Standards**
- **16 of the 21 measures require accrual Net Farm Income**

Accrual Adjusted Income Statement

- **Can you accurately evaluate debt coverage with cash based information?**

Accrual Adjusted Income Statement


- **Accrual vs. cash based debt coverage**
 - Last 5 years, accrual has been better generally been better than cash
 - 2013 – will the chickens come home to roost

Accrual Adjusted Income Statement

- **Requires fiscal year end balance sheets**
 - Minimize within year cyclical changes
 - Measure net worth change over a set time-frame
 - Ability to measure profitability
 - Accounting discipline

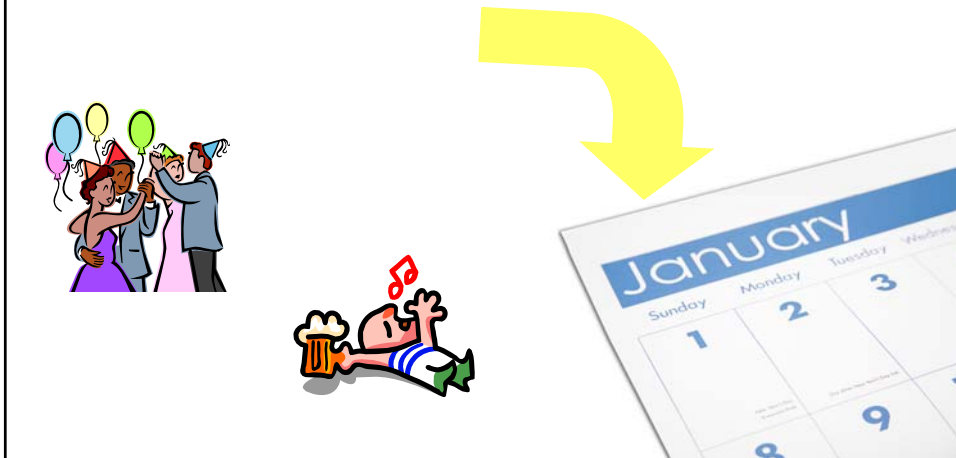


How can we help you get fiscal year end balance sheets?

- **FINPACK Lite** 
- **Personal version of FINPACK \$149**
 - (.01468% of average gross farm income)
- **Import from FBM**
- **Send out the Balance Sheet Worksheet**

Balance Sheets

**What if you can't get fiscal year
balance sheets?**



Earned Net Worth Analysis

- **Measures earned net worth change between any to balance sheet dates**
- **Calculate term debt coverage for the period**



Statement of Owner's Equity

Commercial Business	
Beginning shareholder's equity	
+ Net income after taxes (income statement)	
- Dividends	
= Ending shareholder's equity	

Retained earnings = Earned net worth change

Statement of Owner's Equity

Farm Business	
Beginning net worth	
+ Net farm income (accrual)	
+ Non-farm income	
- Owner withdrawals/family living	
- Income taxes	
+/- Valuation changes	
= Ending net worth	

Retained earnings = Earned net worth change

Earned Net Worth Change

Farm Business

Ending net worth

- Beginning net worth

= Net worth change

Earned Net Worth Change

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

- **Not just land**
- **Machinery and buildings – if depreciation isn't realistic, valuation changes creep in**
- **Use of inconsistent depreciation methods may distort the signals**

Depreciation Is Real

Southern Minnesota Crop Farms 2003 - 2012

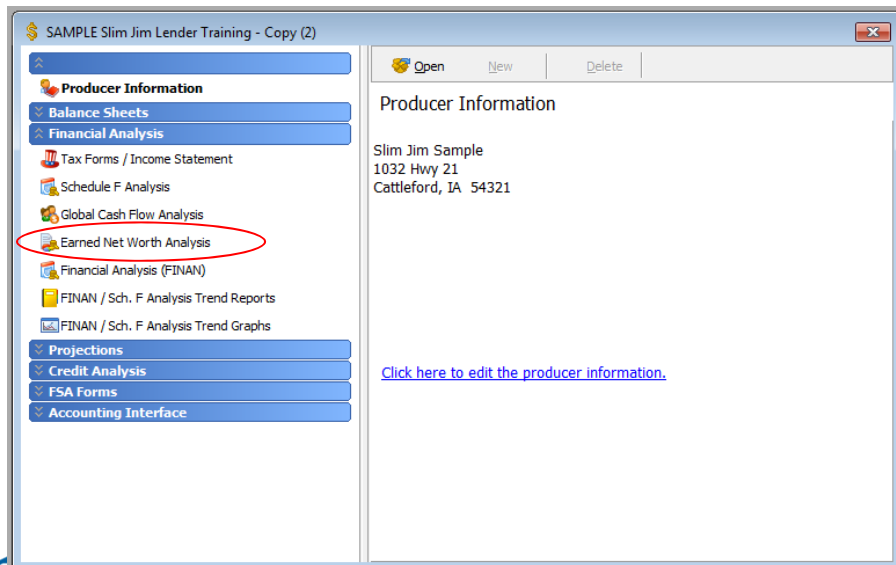
Mach & building purchases	\$84,577
Mach & building sales	6,533
Net purchases	\$78,054

Source: FINBIN (www.finbin.umn.edu)

Depreciation Dilemma

- **Depreciation is a real expense**
- **Tax depreciation just messes everything up**
- **Economic depreciation**
 - Starts with original purchase cost
 - Spreads cost as accurately as possible across useful life of the asset
- **Land values never change**

FINPACK Financial Analysis Tools



Financial Management

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Year	2005		2006		2007
Beginning balance sheet	January 1, 2005	January 1, 2006	January 1, 2007	January 1, 2007	▼
Ending balance sheet	January 1, 2006	January 1, 2007	January 1, 2007	January 1, 2008	▼
EARNED NET WORTH CHANGE					
Change in net worth (mkt)		87,458	247,872		233,830
Change in market valuation	(-)	29,716 (-)	171,238 (-)		17,995 ...
Inheritances, gifts, contributed capital	(-)	(-)	(-)		...
Gifts given, distributed capital	(+)	1,547 (+)			...
Change in earned net worth	(=)	59,289 (=)	76,634 (=)		215,835
NET FARM INCOME					
Income and social security tax	(-)	26,270 (-)	19,337 (-)		167 ...
Family living / Owner withdrawals	(-)	82,710 (-)	77,164 (-)		75,382 ...
Personal income	(-)	33,201 (-)	28,889 (-)		46,660 ...
Personal asset depreciation	(+)	3,850 (+)	3,150 (+)		1,598 ...
Change in personal accounts payable	(+)	0 (+)	-19,535 (+)		0
Net farm income	(=)	138,918 (=)	127,921 (=)		254,322
DEPRECIATION					
Beginning value, noncurrent assets		364,883	428,001		1,011,381
Capital purchases	(+)	103,275 (+)	370,563 (+)		46,334 ...
Ending value, noncurrent assets	(-)	427,392 (-)	742,186 (-)		979,618
Capital sales	(-)	(-)	(-)		...
Depreciation / Capital adjustment	(=)	40,766 (=)	56,378 (=)		78,097
Term debt coverage ratio		1.96	2.74		3.43


71 data entry points


	Beginning Market Value	Capital Purchases	Capital Sales...		Depreciated	
			Amount Received	Balance Sheet Value	Value to be Depreciated	Percent
Breeding livestock		3				
Breeding livestock - raised						
Machinery and equipment	497,550	36,467			534,017	10.00
Titled vehicles	2,600				2,600	10.00
Other intermediate assets						
Land	30,000				30,000	
Buildings and improvements	479,000	9,697			488,697	5.00
Other long term assets	2,231	170			2,401	
Stocks and bonds						
Other personal current assets						
Household furnishings and appliances	15,000				15,000	
Personal vehicles	6,700	9,280			15,980	10.00
Cash value of life insurance						
Retirement accounts	10,000	986			10,986	
Personal business investment						
Other personal intermediate assets						
Total	1,158,081	46,334			1,214,681	

	Beginning Market Value	Depreciation...		Depreciated Ending Value	Reported Ending Market Value	Change in Market Valuation
		Percent	Amount			
Breeding livestock						
Breeding livestock - raised						
Machinery and equipment	497,550	10.00	53,402	480,615	502,500	21,885
Titled vehicles	2,600	10.00	260	2,340	1,450	-890
Other intermediate assets						
Land	30,000			30,000	30,000	
Buildings and improvements	479,000	5.00	24,435	464,262	462,700	-1,562
Other long term assets	2,231			2,401	2,401	
Stocks and bonds						
Other personal current assets						
Household furnishings and appliances	15,000			15,000	15,000	
Personal vehicles	6,700	10.00	1,598	14,382	13,930	-452
Cash value of life insurance						
Retirement accounts	10,000			10,986	10,000	-986
Personal business investment						
Other personal intermediate assets						
Total	1,158,081		78,097	1,134,986	1,152,981	17,995

Year	2005	2006	2007
Earned Net Worth Change			
Change in net worth (mkt)	87,458	247,872	233,830
Change in market valuation	(-) 29,716	171,238	17,995
Inheritances, gifts, contributed capital	(-) -	-	-
Gifts given, distributed capital	(+) 1,547	-	-
Change in earned net worth	(=) 59,289	76,634	215,835


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

 = *Earned net worth change*

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Debt Coverage in ENWA	
	Earned net worth change
	+ Depreciation
	+ Interest on term debt
	= Capital debt repayment capacity
	÷ Scheduled term debt payments

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Term Debt Coverage

Net farm income	←	138,918	127,921	254,322
Depreciation / Capital adjustment	(+)	40,766	56,378	78,097
Personal income	←	33,201	28,889	46,660
Change in personal accounts payable	(-)	-	-19,535	-
Family living / Owner withdrawals	←	82,710	77,164	75,382
Income and social security tax	←	26,270	19,397	8,167
Interest on term debt	(+)	9,308	21,487	40,855
Balance available for term debt	(=)	113,213	157,649	336,385
Scheduled term debt payments		57,641	57,641	97,951
Term debt coverage ratio		1.96	2.74	3.43

Shortcuts to Accrual

- **Can you get fiscal year end balance sheets?**
 - Yes
 - **Accrual financial analysis**
 - **Scheduled F Accrual Analysis**
 - **FINAN**
 - No
 - **Earned Net Worth Analysis**

