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Cornhusker Economics

Reconciling the Paradox of Positive Profit and Negative Cash Flow.

I have to make a confession, I like accounting. In fact, I like accounting so much, that there have been times that I've wondered if I chose the wrong profession. Why, you ask, am I making this confession? An obvious reason would be the jokes; A nun, an accountant, and Tiger Woods walk into a bar...I am definitely guilty of teasing my accountant friends, but that's not it.

I like accounting for the rules. If I told anyone who knew me well that I considered myself a "rule follower," they may laugh; there are many examples where this is not true. However, when rules exist that make order out of otherwise complex situations, I find great comfort in the assistance and clarity that a framework of rules provides.

That's where accounting enters my professional life. When I teach Farm and Ranch Management, one of the biggest overall learning objectives is to help students understand how liquidity, solvency, and profitability are three distinct concepts that depend on each other throughout the life of a farm business.

One of the paradoxes of business that accrual accounting sorts out is the reconciliation between cash flow (liquidity) and profit. The rest of this article is a summary of a case study/example utilized in Farm and Ranch Management to explain how profits and cash flow can be opposite, how this can be analyzed, and how the concept of financial feasibility and investment analysis can be used to make strategic farm and ranch decisions.

Definitions

Solvency: The extent to which asset values are greater than liabilities. Solvency can be measured by either owner's equity on the business balance sheet, or net worth on an individual's balance sheet. For this exercise, there is no difference.

Profitability: Revenues less expenses. For this activity, only explicit expenses will be considered. If expenses are greater than revenue, profitability is negative, or there is a positive loss.

Liquidity: The cash position of the entity. If the cash balance rises due to an investment or operations, it is said to "cashflow".

Scenario

Your Uncle Rico is a terminal bachelor. He's 55 years old and has been farming full-time since he was 18. Rico has been an above-average producer and has always shown an instinct for decision-making. This has left him in a very positive financial situation. With his accountant and appraiser, Rico has put together an accurate (but conservative) estimate of his net worth. Rico's land, buildings, and improvements have a market value of $26,000,000. His equipment line is fully depreciated and is worth $1,000,000, and he has $14,000,000 in cash. Rico has used debt to finance land, and equipment purchases in the past, but now with an excess amount of unencumbered cash, he prefers to self-finance. At present, Uncle Rico has no debt, so his owner's equity is equal to the total assets of his farm.

Uncle Rico's Balance Sheet					
January 1, 20xx					
Cash	$	14,000,000	Short Term Debt	$	-
Land	$	26,000,000	Long Term Debt	$	-
Equipment	$	1,000,000	Owner's Equity	$	41,000,000
Total	$	41,000,000	Total	$	41,000,000

Shortly after the beginning of the year, a quarter section of land adjacent to Uncle Rico's place is auctioned to the highest bidder. Uncle Rico wins the bid and buys the land with cash for $10,000/acre ($1.6m). His new balance sheet shows no change in owner's equity. Uncle Rico has exchanged a liquid asset (cash) for a long-term asset (land). Rico plans to produce corn on the new quarter section of land.

Uncle Rico's Balance Sheet					
January 2, 20xx					
Cash	$	12,400,000	Short Term Debt	$	-
Land	$	27,600,000	Long Term Debt	$	-
Equipment	$	1,000,000	Owner's Equity	$	41,000,000
Total	$	41,000,000	Total	$	41,000,000

Outcome #1 (Uncle Rico buys land with cash, and new operations are profitable)

Uncle Rico purchases inputs with cash that total $700/acre. When harvest is complete, Rico sells his entire crop for $5.00/bu. His average yield/acre is 180bu. Rico "reinvests" his profit by depositing $144,000 directly into the business checking account, which results in a cash balance that is $32,000 higher than the beginning of the year.

In this case, liquidity, solvency, and profitability reconcile neatly. Rico's cash profit is $200/acre. Because Rico takes this excess cash flow and reinvests it into the farm business, his solvency (owners' equity/net worth) increases by exactly the same amount ($144,000-$112.000=$32,000).

Uncle Rico's Balance Sheet				
December 1, 20xx				
Cash	$ 12,432,000	Short Term Debt	$	-
Land	$ 27,600,000	Long Term Debt	$	-
Equipment	$ 1,000,000	Owner's Equity	$	41,032,000
Total	$ 41,032,000	Total	$	41,032,000

Outcome #2 (Uncle Rico buys land with cash, and new operations are unprofitable)

Uncle Rico purchases inputs for $700/acre, but his new farmland only yields 100 bu/acre at a price of $5/bu. Rico takes his entire grain revenue ($80,000) and deposits it into the business checking account. Because inputs cost $700/acre ($112,000), Rico's cash balance is $32,000 less than it was at the beginning of the year. The unprofitable year is realized in both the cash account, and the owner's equity account as well.

Uncle Rico's Balance Sheet				
December 1, 20xx				
Cash	$ 12,368,000	Short Term Debt	$	-
Land	$ 27,600,000	Long Term Debt	$	-
Equipment	$ 1,000,000	Owner's Equity	$	40,968,000
Total	$ 40,968,000	Total	$	40,968,000

Alternate Scenario

In this scenario, Uncle Rico's friend at the bank convinces him to borrow the money, to be repaid over the next ten years. The interest rate of the loan is 0%, and payments are due July 1.

Outcome #1 (Uncle Rico borrows the money, and new operations are profitable)

Uncle Rico's Balance Sheet				
January 2, 20xx				
Cash	$ 14,000,000	Short Term Debt	$	-
Land	$ 27,600,000	Long Term Debt	$	1,600,000
Equipment	$ 1,000,000	Owner's Equity	$	41,000,000
Total	$ 42,600,000	Total	$	42,600,000

Before operations (but after purchasing the new land), Uncle Rico's Balance sheet does change, but his owner's equity does not. When Uncle Rico financed the purchase himself, he exchanged one asset (cash) for another (land), and his owner's equity was unchanged. In this scenario, Uncle Rico has increased his assets, but he has also increased his liabilities. The difference, owner's equity, remains the same.

Over the course of the year, Rico has the same operating expenditures per acre ($700) as before. This total amount ($112,000) is paid in cash. When Rico makes his loan payment in July, his new balance sheet shows the payment, as well as his cash crop expenditures. Because his corn crop is in progress, his owner's equity has fallen by the amount of cash expenditures only. The land payment decreases cash, but it also decreases the debt.

Uncle Rico's Balance Sheet					
July 2, 20xx					
Cash	$	13,728,000	Short Term Debt	$	-
Land	$	27,600,000	Long Term Debt	$	1,440,000
Equipment	$	1,000,000	Owner's Equity	$	40,888,000
Total	$	42,328,000	Total	$	42,328,000

In this alternate scenario, Rico still harvests in the fall and deposits $144,000 of grain revenue into his checking account. Just as the original scenario, Uncle Rico's owner's equity increases by the amount his crop is profitable.

Uncle Rico's Balance Sheet					
December 1, 20xx					
Cash	$	13,872,000	Short Term Debt	$	-
Land	$	27,600,000	Long Term Debt	$	1,440,000
Equipment	$	1,000,000	Owner's Equity	$	41,032,000
Total	$	42,472,000	Total	$	42,472,000

What is important to note, however, is that Rico's cash balance, $13,872,000, is *lower* than it was previously. Rico's profitable year is reflected in his owner's equity, but his cash flow was negative. Luckily, Uncle Rico's giant pile of cash insulates him from this negative cash flow situation.

In reality, many producers are faced with this exact scenario, without the benefit of a giant pile of cash. If Rico had, say, $50,000 in cash at the beginning of the year, this financing arrangement may not be feasible for very many additional operating years. He would have to either restructure his debt or, worse, sell his newly acquired land.

As arranged, Uncle Rico's cash account fell $128,000 in this one year of operations. Such a negative cash flow situation may be enough to dissuade some operators from expanding owned land under most scenarios.

Operating at an undetectable loss

Uncle Rico's first three outcomes probably are easier to understand because the profit and loss situations are so clear-cut. The $700 per acre expense was the approximate cash cost of planting dryland corn in Eastern Nebraska. While the $700 did include some fixed costs (property taxes) it did not include a land charge. To see how debt-free landownership could hide an economic loss, consider these two final scenarios.

Uncle Rico plays the stock market

Instead of buying $1.6M of land, Uncle Rico invests the same amount of money in the stock market. Initially, his balance sheet shows this exchange of assets (cash for stock), and there is no change to the owner's equity.

Uncle Rico's Balance Sheet					
January 1 , 20xx					
Cash	$	12,400,000	Short Term Debt	$	-
Land	$	26,000,000	Long Term Debt	$	-
XYZ Stock	$	1,600,000			
Equipment	$	1,000,000	Owner's Equity	$	41,000,000
Total	$	41,000,000	Total	$	41,000,000

Over the course of the next 5 years, the stock grows at an annual rate of 8%. This increase in value directly impacts Uncle Rico's owner's equity.

Uncle Rico's Balance Sheet					
Five Years Later					
Cash	$	12,400,000	Short Term Debt	$	-
Land	$	26,000,000	Long Term Debt	$	-
XYZ Stock	$	2,350,925			
Equipment	$	1,000,000	Owner's Equity	$	41,750,925
Total	$	41,750,925	Total	$	41,750,925

Uncle Rico's investment in XYZ stock has resulted in a $750,925 return without him lifting a finger. If Uncle Rico had instead invested the $1.6 million in land, and simply reinvested the profits into the cash account, his increase in owner's equity over the 5-year period (assuming prices of $5/bu and 180 bu/acre yields) would have been $160,000 ($32,000*5). This "loss" is much more difficult to detect because it isn't a loss at all and does not necessarily mean that an investment in land is a bad idea.

What it does indicate, is that debt-free land ownership is not "free" to use. An opportunity cost of capital or a land charge should be included in Uncle Rico's budgeting process.

Summary

In closing, cash flow and profit are not the same thing over any specific year. However, they must reconcile over longer periods of time. Understanding the relationship between cash flow, profit, and solvency will help producers make profit-maximizing decisions.

This example made many assumptions and left out several moving parts. For example, Uncle Rico's other operations may produce enough positive cash flow to offset the negative cash flow created by financing. However, its purpose was to isolate the real impact that operations and financing arrangements have on the actual owner's equity and financial feasibility.

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