

Financial Risk and Capital Structure

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The risks that farmers face come from numerous sources, but their consequences can be categorized as impacting business operating performance or financial performance. Operating risk is commonly defined as the inherent uncertainty in the operating performance of the firm independent of the way it is financed. Thus, operating risk includes those sources of risk that would be present with 100% debt or 100% equity financing. Operating risk is evidenced by variability in the return on assets (ROA) of the business. The major sources of operating risk in any production period are price, cost, productivity, and production uncertainty: a number of factors may affect this variability over time including weather, markets, technology, weed and insect pests, diseases, management practices, etc.

Financial risk or uncertainty is defined as the added variability of net returns to owner equity that results from the financial obligation associated with debt (or capital lease) financing. This risk results primarily from the use of debt as reflected by leverage; leverage multiplies the potential return or loss that will be generated with different levels of operating performance. Financial risk is evidenced by variability in the return on equity (ROE) of the business.

Furthermore, there are other risks inherent in using debt. Uncertainty associated with the cost and availability of debt is reflected partly in fluctuations in interest rates for loans, and partly through nonprice sources. Nonprice sources include differing loan limits, security requirements, and maturities, depending on the availability of loan funds over time. Thus, financial risk also includes uncertain interest rates and uncertain loan availability.

Principle of Increasing Risk

Financial risk increases rapidly with the use of borrowed funds. The tendency for total risk to become greater at an increasing rate as the relative amount of nonequity (debt or capital lease) capital used in a business expands is referred to as the *principle of increasing risk*. The way this principle works is illustrated in Table 1.

Assume a farmer has \$200,000 of equity capital and can borrow additional capital at a cost of 9%. Consider first the situation where the operator has full equity in the business. When a 15% return is earned on total assets (ROA), the gross return is \$30,000; since there is no interest to pay, earnings are also \$30,000 – a 15% rate on return (ROE) on the \$200,000 equity. Similarly, there is a 15% loss on owner equity under adverse business conditions.

The situation changes, however, when nonequity capital (whether borrowed or leased) is used. When \$200,000 of nonequity capital is combined with the \$200,000 of equity capital and the rate of return on assets is 15%, the rate of return on equity capital increases by 6% (from 15% to 21%) under favorable business conditions. But under adverse business conditions (a rate of return on assets of -15%), the use of the \$200,000 in nonequity financing increases the loss on owner equity from -15% to -39% – a net change of 24 percentage points from the all-equity situation. If \$400,000 of nonequity capital is used, the business would earn a 27% return on equity under favorable conditions; however, the loss would be -63% with unfavorable conditions.

Table 1 – The Principle of Increasing Risk

	Leverage = (nonequity capital) ÷ (equity capital)		
	0	1	2
Equity capital used in business	\$200,000	\$200,000	\$200,000
Nonequity capital used in business	0	200,000	400,000
Total capital used in business	\$200,000	\$400,000	\$600,000
Income When Return on Assets (ROA) is 15%			
Returns to total capital used	\$30,000	\$60,000	\$90,000
Cost of nonequity capital (9%)	0	18,000	36,000
Total return on equity capital used	\$30,000	\$42,000	\$54,000
Rate of return on equity (ROE)	15%	21%	27%
Income When Return on Assets (ROA) is – 15%			
Returns to total capital used ¹	(\$30,000)	(\$60,000)	(\$90,000)
Cost of nonequity capital (9%)	0	18,000	36,000
Total return on equity capital used	(\$30,000)	(\$78,000)	\$126,000
Rate of return on equity (ROE)	-15%	-39%	-63%

¹Numbers in parentheses are negative.

The use of nonequity capital – whether it is acquired by borrowing, leasing, or some other contractual agreement – creates a fixed financial commitment in the form of interest, rent, or other obligations. This commitment to the supplier of nonequity capital results in financial risk. As leverage (the amount of nonequity capital relative to equity capital) increases, the financial commitment increases; hence, the risk increases also. Note that with an equal percentage of gain or loss on assets (ROA), the magnitude and percentage of loss on equity capital (ROE) is greater than that of the gain. Thus the principle of increasing risk. At the same time, as long as the rate of return on capital invested (ROA) exceeds the cost of using nonequity capital there is a gain from the use of leverage in the form of increased returns to the owner of the business.

Risk Management and Leverage

The principle of increasing risk clearly indicates the potential disastrous financial consequences of more leverage – the potential loss with increased leverage is higher than the potential gain. Yet some firms safely use more debt and leverage than others. Are

they just lucky, or is there an approach to borrowing that captures the benefits but reduces or mitigates the risk?

The answer is – yes, there is! Returning to the earlier discussion of business operating risk and financial risk, the total risk the firm faces can be managed by reducing either (or both). Buying insurance, hedging, diversification, and contract production are all approaches to managing operating risk. And if a firm can withstand only a given amount of total risk, it must more aggressively manage the operating risk as it borrows more and thus incurs more financial risk – it must balance operating and financial risk so as to not exceed the total risk-bearing capacity of the business. So the methods that more highly leveraged firms use to capture the upside potential of borrowing more, and protect against downside risk exposure, are to give up some of that upside through, for example buying crop insurance, hedging selling prices or producing under contract – in essence incurring some costs to reduce the operating risk so as to keep the financial risk within acceptable bounds. The implication of the principle of increasing risk is clear – if a business is going to use increased leverage, it must manage operating risk so as to limit total risk exposure.