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Note on Financial Surpluses in Nonprofit Organizations

The accounting and financial management literature on nonprofit organizations is in considerable agreement that such organizations need adequate financial surpluses for a variety of reasons. Herzlinger and Nitterhouse, for example, identify three reasons: (1) to replace assets because asset values are reported at cost rather than at their substantially higher replacement value, (2) to help finance expansion because an organization cannot rely entirely on borrowing to finance its expansion, and (3) to protect against uncertainties and variability in earnings.[1]

Similarly, Suver, Neumann and Boles, focusing specifically on the needs of healthcare organizations,[2] argue that a nonprofit organization must achieve a surplus to meet its "total financial requirements," which include the costs of both *doing business* and *staying in business*. The costs of doing business include the cash needs associated with growth. The costs of staying in business include the need to replace fixed assets as they become obsolete or wear out.

As a result, a nonprofit organization, especially one that has significant plant, equipment, and other fixed assets (such as a hospital, a museum, a university, or a port authority), or one that is growing rapidly, needs to earn a surplus. It must do so to "... avoid the erosion of its real capital and its ability to continue to provide the volume and quality of services desired by the community it serves."[3]

In sum, the relevant literature pertaining to nonprofit management and accounting has established the fundamental principle that a nonprofit organization must generate a financial surplus. Moreover, that surplus must serve four purposes:

1. Assist the organization to obtain the funds necessary to replace assets that wear out or become obsolete.

2. Finance the cash needs associated with a growth in revenues in conjunction with its charitable or nonprofit purposes.

3. Provide the organization with the funds necessary to expand and diversify its fixed assets as it expands its charitable activities.

4. Protect the organization from fluctuations in revenues from year to year, and from general economic and other uncertainties surrounding its ongoing operations.

These requirements are not unique to nonprofit organizations. Rather, what distinguishes a nonprofit from a for-profit organization is the absence of "owners" or "investors." As a result, a nonprofit organization does not need a surplus to provide a return to its owners. Apart from this distinction, however, any organization that wishes to remain in business, or that is called upon to expand its operations, needs a surplus for one or more of the above four requirements.

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[1] Herzlinger, Regina E., and Denise Nitterhouse, *Financial Accounting and Managerial Control for Nonprofit Organizations,* Cincinnati, Ohio, South-Western Publishing Co., 1994, p. 152. See also Ziebell, Mary T., and Don T. DeCoster, *Management Control Systems in Nonprofit Organizations,* San Diego, Harcourt Brace Jovanovich, Publishers, 1991; and Young, David W., "Nonprofits Need Surplus Too," *Harvard Business Review,* January-February 1982.

[2] Suver, James D., Bruce R. Neumann, and Keith E. Boles, *Management Accounting for Healthcare Organizations, 3rd edition,* Chicago, Healthcare Financial Management Association and Pluribus Press, Inc., 1992.

[3] Seawell, L. Vann, *Introduction to Hospital Accounting,* 3rd edition, Dubuque, Iowa, Kendall/Hunt Publishing Company, 1992.

This background note was prepared by Professor David W. Young. It is intended to assist with case analyses, and not to illustrate either effective or ineffective handling of administrative situations.

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Failure to understand these requirements and their implications has led many observers to suggest that the term "nonprofit" implies there should be a zero surplus. Nothing could be further from the truth. Nevertheless, there is an important question to be answered about whether the surplus of a given nonprofit organization is "reasonable." This question can be addressed from the perspective of each of the above four requirements.

REQUIREMENT #1. FIXED ASSET REPLACEMENT

The surplus requirements associated with replacing fixed assets (principally plant and equipment) arise because, at some point, all fixed assets wear out or become technologically obsolete. Because of inflation, their replacement cost usually is more than their initial cost.

Some have argued that sufficient funds would be available for fixed asset replacement if their depreciation were "funded," i.e., if an equivalent amount of cash were sequestered each year in a special fund dedicated to fixed asset replacement. However, funded depreciation would be sufficient only if there were no inflation. In an inflationary economy, the inflation base is the asset's purchase price, whereas the earnings on the funded depreciation come from a base that is only a small fraction of the asset's purchase price. This phenomenon is illustrated in Exhibit 1.

Exhibit 1. Funded Depreciation and Asset Replacement Under Inflation

Assumptions:
Purchase Price of Asset = $50,000
Economic Life of Asset = 5 years
Depreciation = $10,000 per year ($50,000 ÷ 5 years)
Rate of inflation and return on invested depreciation funds = 10 percent

Earnings from funded depreciation:

Year	Beginning Balance	Depreciation Amount	New Balance	Investment Earnings	Ending Balance
1	$ 0	$10,000	$10,000	$1,000	$11,000
2	11,000	10,000	21,000	2,100	23,100
3	23,100	10,000	33,100	3,310	36,410
4	36,410	10,000	46,410	4,641	51,051
5	51,051	10,000	61,051	6,105	67,156

Inflation in purchase price of asset:

Year	Beginning Balance	Amount of Inflation	Ending Balance
1	$50,000	$5,000	$55,000
2	55,000	5,500	60,500
3	60,500	6,050	66,550
4	66,550	6,655	73,205
5	73,205	7,320	80,525

Difference between funds available and replacement cost = $67,156 - $80,525 = ($13,369)

As this exhibit illustrates, with inflation, there is a gap between available funds and the asset's replacement cost. This is true even if the rate of inflation is below the return on invested funds. Indeed, since the return on invested funds has a base (the amount of accumulated depreciation plus investment earnings) that is much smaller that the original cost of the asset, but inflation is affecting the full cost of the asset, the spread between the return on invested funds and inflation must be quite large if funded depreciation is to provide for asset replacement.[4]

How Large a Surplus?

To determine whether a nonprofit organization's surplus is reasonable in light of Requirement #1, the surplus must be considered in comparison to the organization's assets. That is, we must

[4] Of course, the replacement cost of some assets is less than their original cost. A good example is personal computers. However, these situations are rare. Far more common are advances that render an asset technologically obsolete, and that require replacement with an asset whose price is greater than the original asset by more than the consumer price index would lead one to believe. This phenomenon has been particularly prevalent in the health-care field.

compute the organization's return on assets (ROA), which is the ratio between surplus and total assets. ROA also is used to measure the financial performance of for-profit organizations, although analysts frequently will also focus on a company's return on equity (ROE).[5]

For purposes of assessing the reasonableness of a nonprofit organization's surplus, ROA can be considered to be a more useful measure than ROE. This is because ROE is influenced by the amount of an organization's debt, whereas ROA is not. Thus, ROE is concerned not only with the organization's *financial performance,* but also with its *financing strategy*. This phenomenon is illustrated in Exhibit 2.

Exhibit 2. Ratios Related to ROA and ROE

Computation of ROA

$$\frac{\text{Surplus}}{\text{Revenue}} \times \frac{\text{Revenue}}{\text{Assets}} = \frac{\text{Surplus}}{\text{Assets}}$$

Profit margin *Asset turnover* *ROA*

Impact of Leverage

$$\frac{\text{Surplus}}{\text{Assets}} \times \frac{\text{Assets}}{\text{Equity}} = \frac{\text{Surplus}}{\text{Equity}}$$

ROA *Leverage* *ROE*

As Exhibit 2 indicates, surplus must be looked at in conjunction with revenues and assets. Thus, the profit margin can be multiplied by the asset turnover ratio to determine the return on assets. Note that when an organization has debt, it can have more assets on its balance sheet than otherwise would be possible. This phenomenon, called *leverage,* can be measured by a ratio of total assets to equity. ROA, multiplied by leverage, determines ROE. Thus, other things equal, debt allows an organization to have an ROE that exceeds its ROA.

Because nonprofit organizations do not have the ability to raise capital through equity offerings, as do their for-profit counterparts, they must rely to a greater extent on surpluses to generate the funds to replace their assets. Otherwise, their only options are capital campaigns, donations, or continual increases in their debt levels. However, (a) capital campaigns are highly infrequent events, (b) donations of the magnitude necessary to replace fixed assets are rare in most nonprofits, and, (c) as discussed below, increases in debt levels often are imprudent.

Profit Margin: A Mistaken Focus. In determining the reasonableness of a surplus, many analysts focus only on a nonprofit organization's *profit margin*. This is a mistaken notion. To understand why, note that an organization with a low profit margin can achieve a reasonable ROA by having a high asset turnover. A good example might be a day care center, which could have a low profit margin but turn its assets (mainly inventory) over more than once a month. By contrast, an organization with a high base of fixed assets, such as a port authority, would not be able to turn its assets over as fast as a day care center. It thus needs a higher profit margin if it is to earn a reasonable ROA. To illustrate the above point, consider the following two sets of ratios:

	Profit margin	x	*Asset turnover*	=	*ROA*
Day Care Center	.01		15.0		.15
Port Authority	.10		1.5		.15

Note that in both instances, the ROA is 15 percent. Thus, having a high profit margin is not necessarily good or bad. Rather, the key issue is the *combination* of profit margin and asset turnover. ROA measures how well an organization is performing in earning a return on its invested assets.

Making the Computations. Assume that we wish to compute a reasonable surplus for both the day care center and the port authority. We first would need to agree on two assumptions: (1) an appropriate ROA, given the entity's fixed assets and their rate of inflation[6] and (2) a target asset turnover ratio.

[5] This is sometimes referred to as return on investment (ROI)

[6] While it may be difficult to ascertain the precise rate of inflation affecting an organization's assets, the use of one or more inflation indices usually is sufficient to determine an approximate ROA standard.

Assume we agree that the port authority's fixed assets are inflating at a rate of 9 percent and the day care center's at a rate of 3 percent. Assume further that we think the port authority (with a high proportion of fixed assets relative to total assets) should have an asset turnover ratio of 1.5, and the day care center (with a low proportion of fixed assets) a ratio of 15. We now can compute the relevant profit margins as follows:

	ROA ÷	*Asset turnover* =	*Profit margin*
Day Care Center	.03	15.0	.002
Port Authority	.09	1.5	.06

Once we know the revenue figures for the two organizations, we can compute the absolute amount of the surplus. Assume that the day care center had revenues of $200,000 and the port authority had revenues of $200 million. Reasonable surpluses for Requirement #1 then could be computed as follows:

	Reasonable Profit Margin	x	*Revenue*	=	*Surplus*
Day Care Center	.002		$200,000		$400
Port Authority	.06		$2,000,000		$120,000

The Impact of Leverage

As Exhibit 2 indicates, leverage, i.e., the use of debt, can allow an organization to purchase more assets than otherwise would be possible. To understand the role of leverage, you should note that, if an organization had no debt whatsoever, its assets and equity would be equal. Its leverage ratio, therefore, would be one. As it begins to rely on debt to finance its assets, the ratio increases. Exhibit 3 illustrates this phenomenon with a simple example, beginning with a balance sheet in which assets and equity are equal, and moving to a situation in which assets are twice as large as equity. As can be seen, the leverage ratio increases to a level of 2.0 under these circumstances.

Exhibit 3. Examples of Leverage

	Assets	=	*Liabilities*	+	*Equity*
Situation 1: No debt	1,000		0		1,000
	Leverage = 1,000 ÷ 1,000 = 1.0				
Situation 2: Debt of $500	1,500		500		1,000
	Leverage = 1,500 ÷ 1,000 = 1.5				
Situation 3: Debt of $1,000	2,000		1,000		1,000
	Leverage = 2,000 ÷ 1,000 = 2.0				

Advantages of Leverage. As Exhibit 3 shows, leverage allows an organization to own more assets than it could if it relied only on its own equity. Note that equity has remained unchanged in this example while assets have doubled. In effect, the organization is using debt as a "lever" to expand its asset base. This, in turn, allows it to deliver more services than otherwise would be possible, and therefore to earn more revenue.

In short, two organizations with identical ROA ratios could have quite different ROE ratios, as the following example illustrates:

	ROA	x	*Leverage*	=	*ROE*
Organization #1	.15		1.5		.225
Organization #2	.15		2.0		.30

Note that Organization #1 has leverage of 1.5, i.e., debt that is 50 percent of its equity. This transforms its 15% ROA into a 22.5% ROE. Organization #2, by contrast, has leverage of 2.0, i.e., debt that is 100 percent of its equity, thereby allowing it to transform its 15% ROA into a 30% ROE.

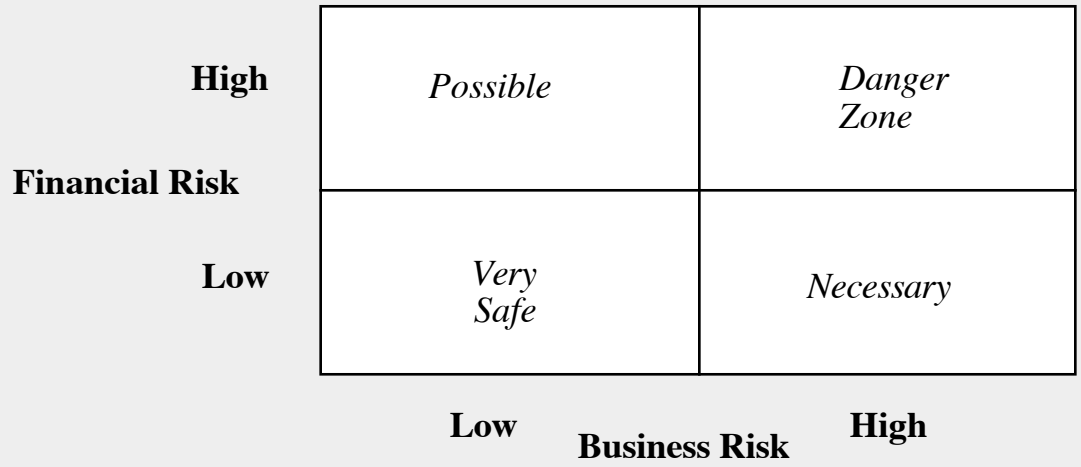
Drawbacks to Leverage. Leverage does not come without some drawbacks. Borrowings must be repaid, and generally there is an interest charge. Organizations that rely heavily on borrowed funds spend considerable time and effort predicting and managing their cash flows so as to assure themselves of sufficient cash on hand to meet their debt service obligations.

Financial Risk versus Business Risk. One way to think about leverage is in terms of the *financial risk* it creates as compared with the organization's overall *business risk*. Financial risk and leverage are synonymous. That is, other things equal, the higher an organization's leverage, the higher its debt service obligation, and the greater the risk that it will be unable to meet this obligation, i.e., the greater its financial risk.

Business risk, by contrast, refers to the certainty of an organization's annual cash flows. Specifically, organizations that have a relatively high business risk have a high degree of *uncertainty* about their cash flows. A good example of an organization with a high business risk is a farming cooperative, where product availability and cost are greatly influenced by unpredictable climactic conditions. A good example of an organization with a low business risk is a day care center in a wealthy suburban neighborhood. The farming cooperative quite likely would face a great deal of uncertainty from one year to the next about its annual cash flows, whereas the day care center would be almost completely certain of its.

The relationship between financial and business risk is illustrated in Exhibit 4. As it suggests, other things equal, an organization with low business risk can have a fairly high financial risk. Assuming the organization structures its debt properly, the relative certainty of its annual cash flows gives it some reasonable assurance that it will be able to meet its debt service obligations each year.

Exhibit 4. Business Risk vs. Financial Risk



By contrast, an organization with a high business risk generally would find it unwise to have high financial risk. Since debt service obligations remain constant each year, the organization could quite easily find itself in a situation where, because of events beyond its control, its cash flows were not sufficient to meet these obligations. The result could be detrimental to the organization's continued existence as a financially viable entity.

Returning to the above example of Organization #1 and Organization #2, the important point to notice is that the *financial performance* of the two organizations was the same, i.e., the surplus of each was 15 percent of its assets. By adopting a different *financing strategy,* however, Organization #2 was able to earn a higher ROE. This is why it is important to focus on ROA and not ROE when assessing the reasonableness of a nonprofit organization's surplus.

In short, ROA is a more appropriate measure of financial performance than ROE because it measures an organization's ability to generate sufficient surpluses to replace its assets as they wear out or become obsolete. Computed over a period of several years, ROA effectively measures the ability of a nonprofit organization to remain financially viable. Indeed, if ROA does not approximate the rate of inflation for the fixed assets an organization must replace, and if the organization is unable to obtain contributions from donors to replace its assets, it will atrophy.

REQUIREMENT #2. CASH NEEDS

When an organization is both growing and selling its goods and services on credit—a common situation for many nonprofit organizations—this requirement translates into a need to have sufficient cash on hand to meet financial obligations. That is, nonprofit organizations that are expanding their operations, and that have cash tied up in accounts receivable and inventory, must earn surpluses to finance the cash needs associated with their growth.

If an organization without a surplus uses debt to supply these cash needs, it will be unable to repay the debt until its growth rate slows or other measures are taken (such as accelerating the collection of accounts receivable or delaying the payment of accounts payable). Therefore, under these circumstances, debt generally is considered to be an undesirable alternative.

The impact of growth on cash is illustrated in Exhibit 5. As the exhibit shows, a growing organization that (a) has a 2-month collection lag in its accounts receivable, (b) pays its expenses immediately, and (c) earns a zero surplus, will constantly run short of cash. For example, the $100 in revenue earned in month 1 is received in month 3 (two months later), when the accounts receivable are collected. However, with growth, the expenses, and hence cash outflows, in month 3 are $104, causing a $4 decline in cash.

Exhibit 5. Cash Needs Associated with Growth

Assumptions:

1. Growth in revenue and expenses of approximately 2 percent a month.
2. Accounts receivable collection lag of two months.
3. All expenses paid immediately.
4. No growth in inventory or other current items.

	MONTH					
	1	2	3	4	5	6
Operating statement						
Revenue	100	102	104	106	108	110
Expenses	100	102	104	106	108	110
Surplus	0	0	0	0	0	0
Cash flows:						
Cash collections (1)	96	98	100	102	104	106
Less: cash payments (2)	100	102	104	106	108	110
Change in cash	(4)	(4)	(4)	(4)	(4)	(4)
Cumulative cash change	(4)	(8)	(12)	(16)	(20)	(24)

1. From revenue earned two months ago that went into accounts receivable.
2. Same as expenses due to assumptions #3 and #4 above.

How Large a Surplus?

In the simplified example in Exhibit 5, a surplus equivalent to the "Change in cash" line would avoid the cash shortages. This is shown in Exhibit 6. Note that, with a net income of $4 per month, there is no change in cash. Of course, the cash problem also could be averted by slowing growth or accelerating the collection of accounts receivable, but many nonprofit managers and their boards see growth as highly desirable, and usually find it difficult to collect receivables much faster than the norm in their organization's industry (which for many nonprofits is far longer than 2 months). Thus, profit margin (or an increased profit margin) is sometimes the only feasible option. It can be attained by increasing revenue or decreasing expenses. Here, we did it by decreasing expenses.

Exhibit 6. Using Surplus to Finance Growth-Related Cash Needs

Assumptions: Same as in Exhibit 5

	MONTH					
	1	2	3	4	5	6
Operating statement:						
Revenue	100	102	104	106	108	110
Expenses	96	98	100	102	104	106
Surplus	4	4	4	4	4	4
Cash flows:						
Cash collections	96	98	100	102	104	106
Cash payments	96	98	100	102	104	106
Change in cash	(0)	(0)	(0)	(0)	(0)	(0)
Cumulative change	(0)	(0)	(0)	(0)	(0)	(0)

REQUIREMENTS #3 AND #4. EXPAND AND DIVERSIFY ASSETS, AND PROVIDE FOR ECONOMIC UNCERTAINTIES

These requirements relate to planned expansion activities of a nonprofit organization and the economic uncertainties of the environment in which it operates. As such, they are inherently more difficult to measure and quantify than Requirements #1 and #2.

Requirement #3 involves an examination of an organization's growth strategy and the potential sources of financing its asset expansion (e.g., whether contributions are available or debt financing is appropriate). The surplus needed for meeting Requirement #4 involves an analysis of the organization's financial history, including the stability of its prices and its mixture of operating surpluses and deficits over time. Wide swings in prices for the organization's goods or services, for example, or the occasional occurrence of an operating deficit, usually indicate that a surplus is necessary whenever feasible. These surpluses, in turn, can help to fund future deficits.

SUMMARY

Of the four requirements for a surplus, this Note has focused mainly on the first two. These are the most easily quantified measures, and ones that generally can be determined by focusing on a nonprofit's financial statements for several years, including *pro forma* financial statements. Although the latter two measures are more strategic and environmental in nature, they nevertheless are important, and should be considered in assessing the reasonableness of a nonprofit organization's surplus.

Not all nonprofits will need a surplus for each of the four requirements. Others will base a portion of their desired surplus on each. Few nonprofits will have none of the requirements present. In this regard, a key job for a nonprofit's senior management is to determine which of the four requirements are appropriate, and to sum the associated surplus requirements for each as part of the organization's annual budgetary process. To do otherwise is to jeopardize the organization's long-run financial viability.