# THE APPLICATION OF FINANCIAL RATIOS IN ANALYSING NONPROFIT ORGANISATIONS

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## ABSTRACT

Historically ratios have been used to assess the financial standing of profit organisations. It would be expected the role which such ratios play in analysing nonprofit organisations would be considerably different due to the lack of profit motive. Many traditional ratios are based on profitability as a benchmark. The nonprofit sector plays an important role in society yet to date there has been no research carried out on financial statement analysis for nonprofit organisations in Australia.

This paper examines ratios of a group of nonprofit organisations and assesses the applicability of the traditional profit-based ratios to nonprofit organisations. Financial statements of a sample of charities registered in Queensland are analysed. The traditional profitability, liquidity and financial stability ratios are analysed and calculated wherever practicable and compared to the typical benchmarks used in profit analysis.

The traditional ratios and their benchmarks (used in the profit sector) calculated from the financial statements prepared within the present reporting framework are inappropriate to the nonprofit sector. Alternative benchmarks useful for the nonprofit sector are suggested.

## INTRODUCTION

The accounting profession has received a deal of publicity after the excesses of the entrepreneurial party of the eighties. Creative accounting practices played an important part in the confounding of the markets for years until the house of cards tumbled. One might expect nonprofit organisations and particularly charitable bodies because of their altruistic aims and trust placed in them to adopt the moral high ground and not be involved in misleading the users of their financial reports. This view is not held by many practising accountants as reported by Robert Vincent when he writes,

> "Some pundits consider charity accounting as the last refuge for the creative accountant. (Vincent, 1987)"

Even if one proceeds from the basis that nonprofit organisations have no gain in intentionally confusing the users of their financial reports, then the very structure of the financial reporting framework may be the cause of inappropriate financial reports. There is a growing literature that suggests that the conceptual framework designed for a profit world and even those slightly adapted for nonprofits are inappropriate to many nonprofit activities (Vincent, 1987; Chabotar, 1989; Glazer and Jaenicke, 1991; Mautz, 1988, 1989; Pallot, 1990; Cutt, 1982; Nonprofit Quality Reporting Project, 1991).

Firstly, this paper identifies the accounting standards required of Australian nonprofit organisations and its stated purposes. The paper then turns to consider one aspect of financial analysis, the use of ratios to analyse the financial situation of entities. Financial ratios have been developed for profit organisations, but increasingly new ratios are being developed for the nonprofit sector (Chabotar, 1989). Finally, traditional profit ratios are applied to a sample of charity accounts to examine their usefulness.

The results of this study suggest alternative tools for the evaluation of the financial statements of nonprofits.

**DO NONPROFIT ORGANISATIONS MEET THE CRITERIA OF REPORTING ENTITY?**

The accountancy profession has recently released several documents which form part of the newly established Conceptual Framework. These documents are called Statements of Accounting Concepts (SACs). SAC1, Definition of the Reporting Entity, defines Reporting Entities in paragraph 40 as:

> "all entities (including economic entities) in respect of which it is reasonable to expect the existence of users dependent on general purpose financial reports for information which will be useful to them for making and evaluating decisions about the allocation of scarce resources".

Paragraph 13 notes that this concept of the reporting entity is not dependent on the sector, public or private, or the purpose for which the entity was created, profit or not for profit.

The identification of a reporting entity, according to paragraph 19, is linked to the information needs of users. For nonprofit organisations, the resource providers fall into two main groups. Firstly governments; Local, State and Federal, providing resources in the form of grants and subsidies; and secondly, the general public providing resources in the form of donations and membership dues. Clients of such services may also have an interest in the information and this is consistent with the thrust of the Disability Services Act. Paragraphs 20, 21 and 22 outline the three primary factors to be considered in determining whether an entity meets the criteria of a reporting entity. These factors are

(a) separation of management from economic interest, that is, the greater the extent of the separation between the management and the members or others with an economic interest (fund providers) the more likely it is that there will exist users who are dependent on general purpose financial reports (in nonprofits this is particularly the case because the managing board of directors is separate from the fund providers)

(b) economic or political importance or influence (for the case of nonprofits, they **are** of great importance and influence)

(c) financial characteristics, that is

> "In the case of non-business entities in particular, the amount of resources provided or allocated by governments and or other parties to the activities conducted by the entities should be considered" (SAC1, para. 22)

For nonprofit entities, the amounts provided by government and donors are critical to the continuence of the nonprofit entity.

Under SAC1 most nonprofit organisations would be regarded as Reporting Entities.

This conclusion is supported by the Auditing Practice Statement 1 - Conformity with Statements of Accounting Concepts (SACs) and Accounting Standards. Auditing Practice Statements (APS) are professional statements issued by the accounting profession and must be complied with by members of the profession. Paragraph 15 of APS1 states interalia

> "not-for-profit organisations (for example, charities and professional associations) ...., in particular circumstances, exhibit the characteristics necessary for identification as reporting entities. Such entities are required to prepare general purpose financial reports in those circumstances."

The particular circumstances for recognition as a Reporting Entity referred to in APS1 are the criteria referenced earlier from SAC1. Thus it could be argued that charities meet the criteria of Reporting Entities.

Since charities may be defined as Reporting Entities then Paragraph 43 of SAC2, Objective of General Purpose Financial Reporting is relevant. The objective of general purpose financial reporting is to

> "provide information useful to users for making and evaluating decisions about the allocation of scare resources."

SAC2 Paragraph 45 explains further that the information to be disclosed be

> "relevant to the assessment of performance, financial position, and financing and investing ..."

Thus, according to professional accounting statements, the ability to assess and evaluate the financial situation of an entity is an important outcome of financial reports prepared for reporting entities. This conclusion from the accounting profession supports the notion that stakeholders in nonprofits need to evaluate their performance.

## APPROPRIATENESS OF KEY FINANCIAL INDICATORS

Numerous analytical techniques exist which enable assessment and evaluation of financial situation - ranging from simple comparisons to advanced statistical techniques. Statement of Auditing Practice 17 (AUP17) prepared by the Auditing Standards Board of the Australian Accounting Research Foundation, lists such techniques in the Appendix, Paragraph 5 distinguishing between simple and complex techniques:

"A simple (a) Simple Comparisons
(b) Ratio Analysis
(c) Common - Size Statements
(d) Trend Statements
(e) Time Series Analysis

B complex (f) Time Series Modelling
(g) Regression Analysis
(h) Financial Modelling"

Currently the most widely used analytical procedure is ratio analysis (AUP17 Paragraph 8). The remainder of this paper will consider the appropriateness of ratio analysis to nonprofit entities.

Many ratios are based on profit figures as profit entities generally have profit maximisation as their over-riding objective. Nonprofits are characterised by their lack of maximisation-of-profits objective and therefore, ratios which are based on profits may not be relevant for the nonprofit sector. Perhaps of greater relevance to nonprofits are ratios that measure liquidity or financial stability, assuming that nonprofits have as an objective the continuance of operations in order to provide services in the future.

## TRADITIONAL USE OF FINANCIAL RATIO ANALYSIS

The analysis of financial statements includes the study of relationships within one set of financial statements at a point in time, and trends in financial statements over time. The most widely used cross-sectional technique of financial statement analysis is financial ratio analysis.

A financial statement ratio is calculated by dividing the dollar amount of one item reported in the financial statements by the dollar amount of another item reported. The purpose is to express a relationship between two relevant items which is easy to interpret and compare with other information. Relationship which are greater than 1:1 are expressed in ratio format; relationships which are less than 1:1 are expressed as percentages.

Ratios are classified and presented in many different ways in the accounting literature. Three general categories of ratios are commonly discussed that is those ratios used to evaluate profitability, liquidity and financial stability. Each category is discussed in turn.

**Profitability**

Profitability refers to the ability of a firm to generate an excess of revenues over expenses that is to generate a profit. Profitability ratios are a test used to evaluate an entity's profit performance during the year. The adequacy of profits is measured in terms of relationships usually between profits and total assets; or profits and total shareholders equity; or profits compared to total sales. A widely used profitability ratio is Rate of Return on Total Assets.

$$\text{Rate of Return on Total Assets} = \frac{\text{Operating profit before tax}}{\text{Average total assets}}$$

For nonprofits the tax expense is not relevant as they exempt from tax. So the numerator is simply operating profit.

$$\text{Operating profit} = \text{Total Revenues less Total Expenses}$$

as disclosed in the Profit and Loss Statement or Income and Expenditure Statement as it is sometimes named.

Average total assets is a simple average calculation of

$$\frac{\text{total assets at start of year + total assets at end of year}}{2}$$

Average total assets is used because profits were earned throughout the period by utilising the assets throughout the period.

This attempts to measure the efficiency of management in its operating activities, that is how well did management organise the assets and operations of the entity. For all profitability ratios, the higher the ratio, the more profitable is the firm. There are no traditional rules of thumb for these ratios however a rate of return which equates to the current bank interest rate would indicate a successful firm.

Other profitability ratios are:

$$\text{Profit margin} = \frac{\text{Operating profit after tax}}{\text{Net sales revenue}}$$

Return on ordinary shareholders' equity

$$= \frac{\text{Operating profit after tax - Preference Dividends}}{\text{Average Ordinary Shareholders' Equity}}$$

Both of these ratios are inappropriate to nonprofits because sales revenue and shareholders equity are generally not relevant to the activities of nonprofits.

According to Lyons (1991), nonprofit organisations have not been established to make a profit for an owner or for distribution to shareholders. It could be argued that those ratios which evaluate profitability are inappropriate for nonprofit organisations. In order to demonstrate the appropriateness of a profitability ratio, an analysis of Rate of Return on Total Assets is undertaken.

**Liquidity**

Liquidity refers to the ability of a firm to meet its short-term **financial** obligations when, and as they fall due. This is an important aspect of an entity's operations because if it is unable to meet its short-term obligations then it may be forced into liquidation, thus affecting its longrun position as well as its shortrun position. The two most often used liquidity ratios are the Current Ratio and the Quick Ratio.

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

Current assets are those assets which are reasonably expected to be converted to cash, sold or consumed within one year of the balance sheet date. Current liabilities are obligations of the firm that are reasonably expected to be paid or satisfied within one year of the balance sheet date.

The Current Ratio is a liquidity measure of a firm's ability to meet its current obligations on time and to have funds readily available for current operations. A low ratio may indicate inability to meet short term debts in a situation where those debts need to be repaid quickly. A high ratio would be considered favourable to creditors but may indicate excessive investment in current assets that may not be an efficient utilisation of resources. Traditionally, financial analysts have used a rule of thumb of 2:1. (Hoggett & Edwards, 1992, p.1020). However, Gaffikin (1993, p.684) cautions

> "The rule is not completely reliable, since many companies have operated successfully with lower current ratios".

Nonetheless, deviations from a rule of thumb highlight areas that deserve attention.

The Quick Ratio is a more stringent test of the liquidity of a firm.

$$\text{Quick Ratio} = \frac{\text{Cash + Marketable Securities + Receivables}}{\text{Current Liabilities}}$$

The denominator is the same as the current ratio but the numerator is restricted to current assets that can be converted to cash in a very short space of time, for example, 30 days. The rule of thumb traditionally used here is 1:1 (Gaffikin, 1993, p.685). A lower ratio may indicate that in the event of an early call on debt the entity would be unable to meet its immediate obligations. The higher the quick ratio, the greater proportion of their assets are in the form of liquid assets. By looking at the quick ratio and the current ratio together, an indication can be given as to the entity's liquidity position.

The Current and Quick Ratios provide a general view of liquidity. More specific liquidity information can be provided by Inventory Turnover and Average Collection Period.

$$\text{Inventory Turnover} = \frac{\text{Cost of Goods Sold}}{\text{Average Inventory Balance}}$$

Cost of Goods Sold = the expense (from the Profit and Loss Statement) which measures the cost of the items which were sold during the year.

$$\text{Average Inventory Balance} = \frac{\text{Beginning Inventory} + \text{Ending Inventory}}{2}$$

This ratio focuses on liquidity of inventory. It measures the number of times inventory was sold on average during the year. In general, no rules of thumb exist, however, the higher the ratio, the more favourable the situation. This ratio is very industry dependent, for example, it would be expected that the Inventory Turnover for a fruit shop would be much higher than the Inventory Turnover for a luxury vehicle retailer.

Average Collection Period measures the liquidity of Accounts Receivable to determine whether the accounts are being paid slowly or are overdue.

$$\text{Average Collection Period} = \frac{\text{Trade Accounts Receivable x 365}}{\text{Sales for the Year}}$$

A rough rule of thumb used in evaluating this ratio is 1_ times the usual credit period for the firm. (Gaffikin, 1993, p.687) If the credit period is 30 days then the average collection period should not exceed 40 days.

Both Inventory Turnover and Average Collection Period are largely inappropriate to the nonprofit sector as most nonprofit entities provide services only and are not involved in manufacturing or retailing of goods thus do not have inventories, sales or accounts receivables. Further analysis of these is not undertaken in this study. Further research is needed in this area to determine the applicability of these particular ratios to nonprofits.

**Financial Stability**

Financial Stability refers to the ability of an entity to continue operations in the long term. The Debt Ratio, also referred to as the Gearing Ratio, is one of the most common ratios used to assess financial stability.

$$\text{Debt Ratio} = \frac{\text{Total Liabilities}}{\text{Total Assets}}$$

where total liabilities includes all liabilities both current and non-current shown in the Balance Sheet and total assets includes all assets shown in the Balance Sheet.

The ratio measures the margin of safety to the creditors of an entity in the event of liquidation; thus the lower the ratio, the greater asset protection to creditors. Profit entities aim to keep the debt ratio below 60% (often for debt covenant purposes) (Whittred & Zimmer, 1991, p.9) and generally the ratio hovers around this percentage.

Other ratios which evaluate financial stability are measured using Shareholders Equity. For example,

$$\text{Equity Ratio} = \frac{\text{Total Shareholders Equity}}{\text{Total Assets}}$$

and indicates the percentage of assets that are funded by shareholders. The higher the equity ratio, the greater the asset protection to creditors. Similarly, the reciprocal of the Equity Ratio is the Capitalisation Ratio.

$$\text{Capitalisation Ratio} = \frac{\text{Total Assets}}{\text{Total Shareholders Equity}}$$

which indicates the extent to which assets are financed by shareholder's capital. These ratios are inappropriate to nonprofits as shareholders equity is not a component of nonprofit organisations. A surrogate for shareholders equity, Members Funds, may be used but this notion is not pursued in this paper.

This study of nonprofits considers the four key ratios:

- Rate of Return on Total Assets
- Current Ratio
- Quick Ratio
- Debt Ratio.

**METHODOLOGY**

An analysis of four ratios is undertaken using charities registered with the Justice Department (Queensland) under the Collections Act 1966. The Collections Act requires all nonprofit organisations which seek donations from the public to seek approval for their activities. Approval is given for `charities' or `community purpose' organisations to register. Charities are defined by reference to the common law definition of charity and number just over 1,000 compared to community purpose organisations which number over 3,000. Religious denominations and their agencies are exempted from the Act. A sample of the financial records of 75 charities were analysed for the years 1988 to 1992. Due to the incompleteness of the financial records available at the Justice Department, ratios for the entire sample for the full five years could not be calculated. Complete data for the years 1989, 1990 and 1991 was available for 29 organisations for both the Current Ratio and Quick Ratio and 37 organisations for both the Rate of Return on Total Assets Ratio and Debt Ratio.

The data was analysed by calculating Mean, Standard Deviation, maximum and minimum values, for each of the specified ratios for each of the three years to enable comparisons to Rules of Thumb for profit organisations in order to determine their applicability to nonprofit organisations.

**RESULTS**

The results of the ratio analysis are shown in Tables 1, 2 and 3.

**Rate of Return on Total Assets**

The mean of Rate of Return on Total Assets has declined from 16.8% down to 5% over the three years. This is a statistically significant decline ($p=.006$). The mean returns appear to follow a pattern similar to bank interest rates over that same period of time, that is steadily declining. Furthermore the rates of return roughly equate with bank interest rates. This is to be expected for nonprofits because they would have a large proportion of their assets in current investment form earning current bank interest rates. Thus the analysis of the means indicates that the nonprofits are on average achieving returns on assets equivalent to bank term deposit interest rates. The question that needs to be answered is whether this situation is an **efficient** use of the resources employed by nonprofits. The maximum and minimum values of rates of return are very wide ranging particularly in 1990 when the range of values spread from 76% return down to **minus** 32% return. Further research is needed to determine efficiency levels which could be used as benchmarks for nonprofits.

**TABLE 1**
**Rate of Return on Total Assets (as a %)**

| | 1991 | 1990 | 1989 |
|---|---|---|---|
| **Mean** | **5%** | **9.6%** | **16.8%** |
| Std. Deviation | .154 | .177 | .226 |
| Maximum | 64% | 76% | 72% |
| Minimum | -21% | -32% | -18% |

**Current Ratio and Quick Ratio**

The means for each year for both the Current Ratio and the Quick Ratio are considerably higher than their respective rules of thumb viz 2:1 and 1:1 respectively. These ratios indicate that nonprofits hold larger proportions of current assets and have fewer current liabilities than profit organisations. This would be expected given the nature of nonprofits. Chang and Tuckman (1990) have addressed the question of why nonprofits accumulate assets and propose five major reasons which are as relevant to the Australian scenario as to the US context in which Chang and Tuckman have researched.

(i) As a source of subsidy

- where nonprofits wish to embark on projects which do not receive funds from the usual avenues then accumulated assets may be used for such projects.

(ii) As a facilitator of allocations to the future

- accumulated assets can be used for future expansion, facilitating growth of existing programs and allowing diversification into new program areas. This expansion can be embarked upon without having to obtain external financing say from banks. Banks usually prefer not to lend to nonprofits because of the lack of profitability of the investment.

(iii) As a hedge against uncertainty and risk

- the availability of funds from assets provides protection against downturns in the economy thus providing security to nonprofits

(iv) As a means to increase independence from the marketplace

- usually providers of funds to nonprofits put pressures on the management of nonprofits to perform at certain levels of achievement; accumulated assets used as a source of funds relieves management from such pressures

(v) As a measure of financial success

- nonprofits that increase their net worth provide tangible proof of their ability to conduct operations in a business like fashion.

There is no significant difference between the means for the current ratio and the means for the quick ratio for each of the three years. This result was expected. The difference between the two ratios traditionally lies in the amount of inventories held by an entity ie. inventories are included in the current ratio calculation, thus giving a 2:1 ratio but not in the quick ratio calculation yielding a 1:1 ratio. Nonprofits generally are non trading entities and thus do not hold inventories therefore there is little distinction between current and quick ratios.

Both ratios have decreased over the three year period but the t-test (p=.194 for current ratio and p=.180 for quick ratio) proved there was no statistical significant difference in these declines.

Of further interest is the large range for both Current Ratio and Quick Ratio viz for 1991 both ratios range from 21.36 down to .35 thus indicating the diversity of management practices with respect to holdings of current assets and current liabilities in nonprofits.

**TABLE 2**
**Current Ratio and Quick Ratio**

| | 1991 | 1990 | 1989 |
|---|---|---|---|
| Current Ratio<br>(expressed as ratio :1)<br>**Mean** | **5.243** | **7.416** | **7.630** |
| Std. Deviation | 5.894 | 8.904 | 9.661 |
| Maximum | 21.36 | 37.12 | 41.68 |
| Minimum | .35 | .69 | .48 |
| Quick Ratio<br>(expressed as a ratio :1)<br>**Mean** | **5.128** | **7.296** | **7.524** |
| Std. Deviation | 5.876 | 8.878 | 9.390 |
| Maximum | 21.36 | 36.85 | 39.89 |
| Minimum | .35 | .59 | .32 |

**Debt Ratio**

The means for the three years are very low in comparison to the rule of thumb of 60% for profit entities. Nonprofits appear to have low levels of debt. This may be because of their lower borrowing capacity due to financial institutions reticence to lend funds caused by lack of profitability objective. Another explanation for the low levels of debt may be that nonprofits do not **want** to borrow funds perhaps because of the restrictive terms that may be imposed by the lenders of the debt or perhaps the nonprofits do not want the additional liability of having to service that debt by regular interest payment. Alternatively, nonprofits may not **need** to borrow funds due to asset accumulation. (Chang and Tuckman, 1990). It is apparent that nonprofits do tend to accumulate assets and thus the combination of lower debt levels and higher asset levels leads to a much lower debt ratio than profit entities. Further research is needed to analyse the debt situation of nonprofits and to determine possible reasons for low debt levels.

The means of the Debt Ratio over the three years increased from 11.6% to 17.4% which was statistically significant (p=.037). This increase in the debt ratio is consistent with the decreasing trend evidenced for the current and quick ratios. It would appear that investment in assets over the three year period has declined which may be explained by the general downward trend in the economy over the same period of time.

As with the other ratios examined the debt ratio has a large range, even greater than others studied. That is, the means ranged from zero up to 94%. Of particular interest is that when analysing the raw scores of the 87 ratios calculated for the three year period, 19 cases of zero debt ratio were found, that is greater than 20% of the population.

**TABLE 3**
**Debt Ratio (as a %)**

| | 1991 | 1990 | 1989 |
|---|---|---|---|
| **Mean** | **17.4%** | **13.9%** | **11.6%** |
| Std. Deviation | .210 | .187 | .127 |
| Maximum | 94% | 94% | 50% |
| Minimum | 0% | 0% | 0% |

## CONCLUSION

This paper answered the question of whether nonprofits met the accountancy professions' definition of Reporting Entity. It was concluded that nonprofits are reporting entities and therefore are obliged to prepare General Purpose Financial Reports. The objective of these reports is to provide useful information to users to enable them to assess the financial situation of the entity. Ratios are a popular aid used in evaluating the financial position of profit entities.

The combination of the financial statements of nonprofits as they are presently prepared and the application of the traditional rules of thumb for ratios commonly used in the profit sector produced results which were found to be inappropriate for the nonprofit sector.

Four ratios were calculated for a sample of charities. Several conclusions can be drawn from the results.

### Profitability

Profitability ratios in the main appear to be inappropriate to the nonprofit sector. However, the rate of return on total assets may be a useful ratio for nonprofits if a meaningful rule of thuumb can be adopted. The results suggest bank term deposit interest rates as an appropriate nonprofit rule of thumb. This is consistent with the types of assets held by nonprofits. Further research is needed to address the question of how to measure the **efficiency** of the nonprofit's asset utilisation as opposed to measuring the profitability of those assets.

**Liquidity**

The current and quick ratios which measure general liquidity are appropriate to the nonprofit sector. Other liquidity ratios appear to be inappropriate.

There is an insignificant difference between the current ratio and quick ratio for nonprofits hence only one of these need be used as a relevant ratio for analysing nonprofits.

The traditional rules of thumb for both current ratio (2:1) and quick ratio (1:1) are inappropriate to the nonprofit sector. The results suggest a rule of thumb for nonprofits closer to 5:1 for both current and qucik ratios.

**Financial Stability**

It is argued that the most appropriate measure of financial stability for nonprofits is the debt ratio. The traditional rule of thumb for the debt ratio (that is, not exceeding 60%) is shown to be inappropriate for the nonprofit sector.

The adoption of an alternative rule of thumb for example, not exceeding 20% may be a useful benchmark to the nonprofit sector in determining financial stability.

**The Future**

Two innovations are needed for the nonprofit sector. Firstly, a need exists for an alternative to the reporting system which currently comprises General Purpose Financial Reports. The nonprofit sector needs financial statements which focus not on profit per se but on efficiency of utilisation of all resources employed including in particular the voluntary labour contribution made to the nonprofit sector. Warren McGregor, the executive director of the Australian Accounting Research Foundation does not agree with this contention. He argues that if standards were developed specifically for charities then they would look very much like the standards which already exist (Cohn, 1992). Secondly, a set of ratio benchmarks is needed for the nonprofit sector to enable management and users to make informed decisions on the effectiveness of the nonprofit sector.

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