

## Review.

# Exploring Financial Statement Indexes of Nonprofits: A Study of Private Schools in Taiwan

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**Nonprofit organizations have become the important employment in many societies. However, the measurement of nonprofit organizations did not receive enough attentions. This study built an evaluation model by examining financial indexes of private technical and vocational schools in Taiwan.**

**One hundred and fifty-six samples were collected from private technical and vocational schools in Taiwan during 2004 to 2007. Seventeen financial indexes and seven factors were finalized by Exploratory Factor Analysis method. Seven factors are identified as nonprofit organizations financial factors and named as: “Liquidity”, “Financial Structure”, “Cash Flow”, “Profitability”, “Earning Capacity”, “Operational Efficiency” and “Financial Fitness”. Comparison on financial indexes between private technical and vocational schools and business organization are reported and managerial implications are analyzed and discussed.**

**Keywords :** Financial Statement Analysis, Nonprofit Organization, Exploratory Factor Analysis

## Introduction

Dating back to 1995, Peter Drucker, the management master, has mentioned that the non-profit organizations have become the most important employers (Drucker, 1995). The social development of Taiwan is highly correlated to that of the U.S. Therefore, it is clear that the non-profit organizations are gradually playing the important role.

Evan all private schools in Taiwan are nonprofit organization, the declining of birthrate will soon impair school student enrollment. According to Taiwan Department of Statistics, Ministry of the Interior in 2011, the birthrate has decreased 30% during the past ten

years; in 2008 was 0.864% while that of 1998 was 1.243%. However, the birthrate was 1.390% in the U.S. and 1.290% in the U.K. in 1998. The declining birthrate first impacted schools, such as kindergartens, primary schools and junior high schools. Sooner or later, colleges and universities will also experiencing the under-enrollment.

In addition, after being the member of World Trade Organization in 2001, lots of international prestigious educational institutions have made Taiwan's educational system more diversified by offering online programs or degrees. With all these factors, the operation modes of private schools change from allocation-oriented to

competition-oriented. Therefore, it is then an essential issue to inspect how schools can manage their financial resources properly. Finance is an important resource of organization management and a critical indicator of organization management and effectiveness (Torres and Pina, 2003). Financial statements are theoretically and practically proved that operational indexes of financial statements are of use in business management; however, few papers discuss the financial reports of nonprofit organizations. Thus, this paper aims to establish a series of financial indexes to reflect the operation nature of private technical and vocational schools and to compare the financial statement differences between nonprofit organization and business organizations. Two purposes of this study are:

- (a) To explore valuable financial indexes when analyze nonprofit organization as private technical and vocational schools.
- (b) To establish financial analytical factors based on valuable financial indexes by transforming terms from business organizations.

Different from public organizations or profit organizations, nonprofit organizations are also named the Third Sector Economy (Weisbrod, 1975). The nonprofit organizations are called the Third Sector Economy because their goal of establishment and business type are different from those of public organizations or profit organizations. The Third Sector Economy includes the religious institutions, charity organizations and science research groups, publishers, education institutions (Jegers and Lapsley, 1998).

Because of the growth of nonprofit organizations and their social resources, the accountability issue is increasingly important. A research to account for accountability by evaluating accounting system of nonprofit organizations was conducted in Canada, U.K., U.S., and Spain. According to that research, adequate disclosure of financial and non-financial information is helpful to the management of nonprofit organizations,

the accrual basis and consistency principle should be followed in the nonprofit organizations, and the operation indexes on nonprofit organizations are not generally accepted (Torres and Pina, 2003). If the nonprofit organizations plan to provide the social services continually, their financial resources should be fully managed. According to Zietlow *et al.*, (2007), financial plans can be divided in to long-term and short-term categories. The long-term financial plans aim to maintain the solidity of funds and its autonomy whereas the short-term financial plans aim to the management of cash, current assets and liabilities. The researchers also mentioned the two extremes of nonprofit organizations: the donation-based type and the business-based type. The donation-based type such as religious groups and charities believe that due to the uncertainty of incomes, the basic financial goal should be break even. However, the business-based type such as education institutions and hospitals hold that making profit should be the goal of finance. The global financial crisis makes the donation-based nonprofit organizations realize the importance of stability and sufficiency of financial resources.

Kluger (2006) believed that an evaluation of nonprofit organization is essential to all stakeholders and proposed an instrument to evaluate NPOs for program effectiveness. In this instrument there are 24 individual factors within five major categories: strategic, effectiveness/quality, financial, program importance to key stakeholders, and marketing. With ranking orders provided in the instrument, it provides valuable information to assess how effective a particular program is in each category. The Sarbanes-Oxley Act proposed by Jeffrey (2008) applies not only to the profit organizations but also to the nonprofit organizations. Effective internal control system helps the organization management of both profit and nonprofit organizations. He indicated that even private organizations and nonprofit organizations have more options of the

strictness of internal control system, good internal control systems are vital to all institutions. The Sarbanes-Oxley Act provides a set of standards to the nonprofit organizations. Making the analysis of school financial statement indexes available could not only provide valid information for measurement but also an initiation of internal control for related school stakeholders.

## Materials and Methods

Factor analysis applies mostly to the analysis of questionnaire but some experts also apply this method to test scores. It is new to use factor analysis in the test scores. According to Koh and Koh (1998), scores can be the dependent factor of unobserved accounting class and can also be the characteristic or the independent factor of the observed class. This study utilized the first-level data to analyze the financial indexes. Effectiveness means that the research tool can evaluate the tested idea or situation. According to Kerlinger (1986), factor analysis is a powerful and indispensable tool in constructing the validation of the questionnaire. Reliability means the steadiness and internal consistency of the research tool when it is re-tested. According to Kerlinger (1986), Nunnally and Bernstein (1994), the research tool is reliable when the

Cronbach's alpha coefficient is higher than 0.5. This study uses Cronbach's alpha coefficient of 0.5 to test the reliability of the different dimensions of financial indexes.

### 1. Research Steps

The research period is 4 years, from 2004 to 2007. The data was collected from the website of subsidies of private technical and vocational schools, according to which the first 60% of performance-based subsidies over the total schools subsidized is sampled. Based on regulations of the overall development expenditures of private technical and vocational schools announced by the Taiwan Department of Education, indexes of performance-based subsidies for private technical and vocational schools included 7 aspects. They are the result of education evaluation (25%), the characteristics of technical and vocational education (20%) and the improvement of teaching faculty (25%), the performance of expenditures execution (10%), the outcome of accounting administration (5%), the consequence of raising fund for schools development (5%), and the input of teaching resources (10%). If a significant fluctuation of overall performance of the schools existed, it will be difficult to analyze the variables or indexes of the sample schools. To enhance the stability of the variables and the indexes, this paper collected the subsidized amount of performance-based subsidies and excluded the last 40% private technical and vocational schools, and finally selects 156 schools as the samples. The effective samples of each year are shown as Table 1.

Table 1. Research Periods and Research Samples

| Period  | 2004 | 2005 | 2006 | 2007 | Total |
|---|------|------|------|------|-------|
| Total number of private technical and vocational school | 64   | 64   | 66   | 66   | 260   |
| Effective samples                                       | 38   | 38   | 40   | 40   | 156   |

### 2. Research Variables and the Definitions

To establish the financial statement indexes on private technical and vocational schools, this study first takes into account the nature of schools as juridical

persons, refers to the financial statements of nonprofit organizations and sets up financial indexes suitable for the use of private technical and vocational schools. The research variables and the formulas are shown as Table 2.

Table 2. Research Variables and the Formulas

| Variables Name of the variables          | Formulas  |
|--|---|
| IND01 Return on total assets             | Net income or loss/ total average assets  |
| IND02 Return on equity                   | Net income or loss / average (Net income or loss + accumulated income or loss)  |
| IND03 Profit margin                      | Net income or loss /(tuition incomes +promotion incomes +internship incomes +other teaching incomes)                    |
| IND04 Return on sales                    | Operating income: regular incomes- other financial incomes  |
| IND05 Fixed assets turnover              | (tuition incomes +promotion incomes +internship incomes +other teaching incomes)/ average fixed assets                  |
| IND06 Working capital turnover           | (tuition incomes +promotion incomes +internship incomes +other teaching incomes)/(current assets – current liabilities) |
| IND07 Debt ratio                         | Total debts / total assets  |
| IND08 Current assets ratio               | Current assets / total assets   |
| IND09 Debt to equity ratio               | Total debts / (Net income or loss + accumulated income or loss)   |
| IND10 Current ratio                      | Current assets / current liabilities  |
| IND11 Quick ratio                        | (Current assets – prepaid expenses) / current liabilities   |
| IND12 Cash ratio                         | (Cash+ short-term investments) / current liabilities  |
| IND13 Long-term debt to equity ratio     | Long-term debt / (Net income or loss + accumulated income or loss)  |
| IND14 Long-term capital ratio            | (Long-term debt + Net income or loss+ accumulated income or loss) / fixed assets  |
| IND15 Cash flow ratio                    | Operating cash / current liabilities  |
| IND16 Operating cash to total cash ratio | Operating cash /Cash * 100  |
| IND17 Fund reinvestment ratio            | Net income or loss /total average assets  |

## Results and Discussion

### 1. Result of Factor Analysis

Before the factor analysis, this study used the Bartlett's ball test and attained the significance level. This study also attained the value of KMO (Kaiser-Meyer-Olkin) to be 0.642, showing that the samples are suitable for the factor analysis. This study utilized the Principal Components Method of factor analysis. Assuming that the characteristic value is higher than 1, the study uses the Varimax to be the Orthogonal Rotation, selects 16 indexes after the rotation and categorizes them to be 7 factors. The variance of accumulated interpretation is as high as 80.591%. Thus, this study established factors with good interpretation. The result analysis and factors are named as show on Table 3.

### 2. Name of the Dimensions

The dimension of Liquidity includes 4 indexes: Current ratio, Quick ratio, Cash ratio and Debt ratio. The first 3 indexes evaluate the ability to pay or the liquidity of the organization whereas the fourth index evaluates the debt level of the organization. This dimension is named Liquidity because the organization needs cash most to pay for their debts. The dimension of Financial Leverage includes 2 indexes: Debt to equity ratio and Long-term debt to equity ratio. These indexes mainly evaluate the relationship between the total debt or long-term debt and the equity. This dimension shows the financial structure of the organization and is named Financial Leverage because the high ratio means the high interest costs and shows the level of the Financial Leverage. The Cash Flow dimension is named because it evaluates the cash flow from operating activities and includes 2 indexes: Fund reinvestment ratio and Cash

flow ratio. These indexes mainly evaluate the relationship between operating cash flow and assets or debts. The dimension of Profitability includes 2 indexes: Return on total assets and Return on equity. Return on total assets means the return from one dollar invested in the assets whereas Return on equity means the profitability from the funds.

The dimension of Financial Fitness includes 2 indexes: Current assets ratio and Long-term capital ratio. This dimension is named Financial Fitness because these indexes mainly evaluate the percentage of current assets over total assets and the percentage of

fixed assets over long-term debts plus net income or loss and accumulated income or loss. The dimension of Earning Capacity includes 2 indexes: Fixed assets turnover and Operating cash to total cash ratio. This dimension is named Earning Capacity because these indexes mainly evaluate the earnings generated from the fixed assets and Operating cash flows generated from cash inflow. The dimension of Operational Efficiency includes 2 indexes: Working capital turnover and Return on sales. This dimension is named Operational Efficiency because Working capital turnover evaluates the operating incomes from the working capital whereas Return on sales evaluates the percentage of operating incomes over sales.

Table 3. Name of Factors and Factor Capacity of Each Index

| Name of the index                  | Matrix after rotation |       |       |       |       |       |       | Name of factor           |
|------------------------------------|-----------------------|-------|-------|-------|-------|-------|-------|--------------------------|
|                                    | 1                     | 2     | 3     | 4     | 5     | 6     | 7     |                          |
| Current ratio                      | .963                  | -.009 | .111  | .101  | .137  | -.065 | .033  | <Liquidity>              |
| Quick ratio                        | .963                  | -.009 | .111  | .100  | .138  | -.063 | .033  |                          |
| Cash ratio                         | .955                  | -.004 | .116  | .054  | .152  | -.099 | .030  |                          |
| Debt ratio                         | -.644                 | .066  | .174  | .160  | -.189 | -.217 | .244  | <Financial Leverage>     |
| Debt to equity ratio               | -.008                 | .994  | .005  | .060  | .011  | -.003 | -.003 |                          |
| Long-term debt to equity ratio     | -.037                 | .993  | .008  | .080  | -.005 | -.009 | .017  |                          |
| Fund reinvestment ratio            | -.028                 | .015  | .942  | .002  | .047  | -.027 | .013  | <Cash Flow>              |
| Cash flow ratio                    | .431                  | -.004 | .818  | .238  | .051  | .171  | .042  | <Profitability>          |
| Return on total assets             | .255                  | .040  | .176  | .835  | -.065 | .172  | -.108 |                          |
| Return on equity                   | -.191                 | .181  | -.051 | .714  | .299  | -.235 | .001  |                          |
| Current assets ratio               | .441                  | .010  | -.022 | -.074 | .841  | -.124 | -.007 | <Financial Fitness>      |
| Long-term capital ratio            | .175                  | -.009 | .139  | .224  | .809  | .287  | .046  | <Earning Capacity>       |
| Fixed assets turnover              | .010                  | -.005 | .129  | .058  | -.015 | -.741 | -.190 |                          |
| Operating cash to total cash ratio | -.084                 | -.014 | .297  | .116  | .109  | .638  | -.179 |                          |
| Working capital turnover           | -.022                 | -.026 | -.083 | .111  | .006  | .030  | .732  | <Operational Efficiency> |
| Return on sales                    | -2.36E-006            | -.035 | -.105 | .184  | -.020 | -.022 | -.609 |                          |

Note: Method of selection: main factor analysis. Method of rotation: Varimax Method with standardized Kaiser. The rotation converges at 8 iterations.

### 3. Naming Transformation from Business organizations

According to this study, four dimensions such as Liquidity, Financial Structure, Cash Flow and Profitability

of private technical and vocational schools are similar to those of general business organizations in terms of their financial indexes. However, the other three dimensions

such as Earning Capacity, Operational Efficiency and Financial Fitness are different from those of general business organizations.

As to the original Operational capacity or Cash Flow of business organizations, Fixed assets turnover and the Operating cash to total cash ratio are categorized into a new dimension of Earning Capacity. The two indexes form a new dimension to evaluate operating incomes and cash flows of the schools. Working capital turnover is originally of the dimension of Operating Capacity while Return on sales is of originally

of the dimension of Operational Efficiency. Both of the two indexes show the utilization of operating funds and operating costs and therefore the two indexes form a new dimension of Operational Efficiency. As to business organizations, Current assets ratio is categorized into the dimension of Financial Structure while Long-term capital ratio is of the dimension of Liquidity. In this study, however, the two indexes form a new dimension of Financial Fitness. This new dimension shows the allocation of short-term funds (current assets) and long-term funds(long-term debts +net income or loss +accumulated income or loss). All the transformation are shown as Table 4.

Table 4. Transformation of Financial Statement Indexes from Business to Nonprofit Organization

| Business Organizations |                                    | Private Technical and Vocational Schools |                                    |
|------------------------|------------------------------------|--|------------------------------------|
| < Liquidity >          | Current ratio                      | < Liquidity >                            | Current ratio                      |
|                        | Quick ratio                        |  | Quick ratio                        |
|                        | Cash ratio                         |  | Cash ratio                         |
|                        | Long-term debt to equity ratio     |  | Debt ratio                         |
|                        | Long-term capital ratio            |  |                                    |
| < Financial Structure> | Debt ratio                         | < Financial Structure>                   | Debt to equity ratio               |
|                        | Current assets ratio               |  | Long-term debt to equity ratio     |
| < Cash Flow >          | Debt to equity ratio               | < Cash Flow >                            | Cash flow ratio                    |
|                        | Cash flow ratio                    |  | Fund reinvestment ratio            |
|                        | Fund reinvestment ratio            |  |                                    |
| <Profitability>        | Operating cash to total cash ratio | <Profitability>                          | Return on total assets             |
|                        | Return on total assets             |  | Return on equity                   |
|                        | Return on equity                   |  |                                    |
| <Operational Capacity> | Return on sales                    | <Earning Capacity>                       | Fixed assets turnover              |
|                        | Sales growth rate                  |  | Operating cash to total cash ratio |
|                        | Fixed assets turnover              | <Operational Efficiency>                 | Working capital turnover           |
|                        | Working capital turnover           |  | Return on sales                    |
|                        |                                    | <Financial Fitness>                      | Current assets ratio               |
|                        |                                    |  | Long-term capital ratio            |

(Resource: this study)

## Results

The establishment and operation of educational institutions are strictly regulated by the education laws and the authorities concerned. The organization and operation of private technical and vocational schools are much different from those of general business organizations or nonprofit organizations. Analyzing the data from official website of subsidies of private technical and vocational schools, this study re-establishes financial statement indexes suitable for private technical and vocational schools. After analyzing 156 samples from 2004 to 2007, this study analyzed 17 specific financial statement indexes. According to the nature of the indexes, seven dimensions were formed and few differences were found between private schools and business organizations.

This study analyzed financial statement indexes on private technical and vocational schools in Taiwan there is still room for improvements. Several limitations of this study are stated as follows: (a) only financial data were analyzed, (b) no public school data was collected, and (c) results of this study only apply in private technical and vocational schools in Taiwan. For the follow-up studies in the future, an extension of the sample to both private and public schools and more qualitative data may also suggested for future research.

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