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Assessment of Risk Using Financial Ratios in Non-Profit Organisations

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Abstract

Financial ratios have been widely used and regarded as a useful tool in predicting business failure, detecting fraud and evaluating performance. In the current study, financial ratios are used to assess risk of financial vulnerability. This study examines to what extent Non-Profit Organisations (NPOs) are exposed to risk of financial vulnerability. This study extends the work by Tuckman and Chang (1991) who developed financial vulnerability prediction model by using financial ratios as four financial indicators of financial vulnerability- Administrative cost ratio, Debt ratio, Revenue Concentration Index and Surplus margin. To provide a more meaningful investigation, the current study uses eight financial indicators -Debt ratio, Cash ratio, Revenue concentration index, Reliance ration ratio, Administrative ratio, Management cost rate ratio, Net Operating Margin and Primary Reserve Ratio. The financial data to compute the ratios were derived from annual reports of 134 NPOs registered under Companies Commission of Malaysia (CCM) for the financial period of 2011. This study finds that 14% of the samples NPOs are classified under high risk of financial vulnerability. Majority of NPOs (69%) are at moderate risk. The study indicates that NPOs are at risk because their revenues are not well diversified, revenues earned are highly depending on the major source of income, low administrative cost, and do not have any surpluses during financial shock. Overall, this financial vulnerability model provide useful device for NPOs to assess their level of risk and the regulators to enhance their monitoring system.

Keywords: assessment of risk, financial ratios, financial vulnerability, non-profit organisations

1. Introduction

Over the years, financial ratios have been widely used by financial analysts in analyzing the financial health of a business organisation particularly in predicting business failures and fraud occurrences. Similar to profit-making organisations, the usage of ratios is also relevant to non-profit organisations (NPOs) because in the event of unfavorable economic conditions, these organisations will also be affected. For example, during economy uncertainty, NPOs may be experiencing reduction or termination of funding from major donors and general public and interestingly an unforeseen increase in demand for their services (Charity Commission, 2010). These uncertainties lead NPOs to be exposed to multitude financial vulnerabilities.

Previous researchers like Tuckman and Chang (1991); Greenlee and Trussel, (2000); Trussel and Greenlee, (2001); Trussel (2002) have successfully adopted financial ratios as indicators in identifying financial vulnerability of non-profit organisations. Identifying financial vulnerability in NPOs is important in predicting their survival. Financial vulnerability raises the question on the going-concern of NPOs during the economic uncertainty. Tuckman and Chang (1991) highlighted that financial vulnerable NPOs are likely to reduce their social services in the event of financial crisis and therefore jeopardizing the long-term survival of NPOs. NPOs with high risk of financial vulnerabilities are very likely to be susceptible to fraud threats and subsequently will distort their capabilities to achieve their goals (Young, 2009). Hence, to prevent the risk of financial vulnerability, it is crucial for NPOs to carry out risk assessment on their respective NPOs. Assessment of risk will assist NPOs in understanding their financial vulnerabilities so that NPOs are able to plan ahead and take necessary precautions.

As recommended by Financial Action Task Force (FATF), the regulators of NPOs are strongly encouraged to implement a Risk-based approach where NPOs are to be divided in accordance to their riskiness. This enables the regulators to give more attention to high-risk NPOs in terms of monitoring. FATF is an intergovernmental body established in 1989 is responsible in promoting guidelines and policies on money laundering and terrorism financing among NPOs. FATF issued 40 Recommendations on money laundering in 1990 and consequently revised in 2003. In between year 2001 and 2004, FATF also issued Recommendations and Special

Recommendations on terrorism financing. In ensuring compliance to the recommendations given by FATF, Asia Pacific group (APG) is responsible to assess NPOs that are under Asia Pacific region. Malaysia is one of the members of APG, thus Risk-based approach is relevant to be complied. In 2007, the APG made an assessment on NPOs in Malaysia. Based on their assessment, their comments stated that:

"*Overall however the Registry of Society (ROS) does not appear to have a* ***clear policy*** *for the identification and closer monitoring of those activities which might be regarded as being more* ***vulnerable*** *to possible misuse for terrorist financing. ROS appears to* ***lack resources*** *to identify terrorist financing risks in the Non-Profit Organisations (NPO) sector and ROS appears to be relying largely upon information from the public, media and the RMP to target investigation of misuse of NPOs*"

APG Mutual Evaluation Report (July, 2007)

To address the above issue, in this study we are proposing financial ratios as a device to assess the risk of financial vulnerability of NPOs. This study examines to what extent NPOs are exposed to risk of financial vulnerability. This study extends the study done by Tuckman and Chang (1991) who identified four financial indicators to develop a financial vulnerability prediction model. In addition to the four financial indicators, this study identifies another four financial indicators as assessment of risk of financial vulnerability. The results of this study are expected to assist the regulators to identify NPOs with high risk of financial vulnerability and therefore closer monitoring can be carried out on high risk NPOs.

1.1 Non-Profit Organisations in Malaysia

Non-profit organisations (NPOs) are generally defined as associations, charities, and other voluntary organisations formed to further cultural, religious or public service objectives (Bottiglieri, Kroleski, & Conway, 2011). Their goals are not focused on profit maximisation (Behn, DeVries & Lin, 2010) but solely for creating social values (Othman, Ali, Omar & Abdul Rahman, 2012). Their main source of revenue is from public donations and thus, "the generosity of the donors determines the survival of the NPOs" (Atan & Zainon, 2009). In Malaysia, NPOs are generally subjected to less stringent reporting requirements and lack of monitoring by regulators (APG Mutual Evaluation Report, July, 2007). As such these creates opportunity for various vulnerabilities.

In Malaysia, NPOs can be registered or incorporated under Companies Act 1965, Trustees (Incorporation) Act 1952, Societies Act 1966 and States' Enactments. NPOs with revenue less than RM1 million can be incorporated under Registrar of Societies Malaysia (ROS), within the Ministry of Home Affairs and governed by Societies Act 1966. On the other hand, NPOs registered under Companies Commission of Malaysia (CCM) is obligated to derive their revenue of RM 1 million within six months from the date of incorporation. NPOs incorporated under CCM are known as company limited by guarantee and liable under Companies Act 1965. The current study uses financial data obtained from annual reports of NPOs incorporated under Companies Commission of Malaysia.

1.2 Risk Assessment in NPOs

Risk is the uncertainties of expecting negative outcomes and considered as a threat to Non-Profit Organisations in achieving the goals of the NPOs. According to Young (2009) risks can be classified as a threat to NPOs in terms of their survival and also their capabilities to achieve their goals.

According to Charity Commission (2010), NPOs face different types of risk due to the diverse nature of the sector. They further classified the risk into five main categories (1) Governance risks, (2) Operational risks, (3) Financial risks, (4) External risks and (5) Compliance with law and regulation. The types of risk that fall into each category are further illustrated in Table 1.

Charity Commission (2010) further highlighted that from the five categories of risk presented in Table 1, in most cases, financial risks deem to give an ultimate impact of risk in NPOs. Therefore, NPOs need to assess their financial risk and understand their financial vulnerabilities and subsequently come up with plans to reduce or mitigate the risks.

Table 1: Types of Risks of Non-Profit Organisations and examples

Risk category	Examples
Governance risks	• Inappropriate organisational structure • Trustee body lacks relevant skills or commitment • Conflicts of interest
Operational risks	• Lack of beneficiary welfare or safety • Poor contract pricing • Poor staff recruitment and training • Doubt about security of assets
Financial risks	• Inaccurate and/or insufficient financial information • Inadequate reserves and cash flow • Dependency on limited income sources • Inadequate investment management policies • Insufficient insurance cover
External risks	• Poor public perception and reputation • Demographic changes such as an increase in the size of beneficiary group • Turbulent economic or political environment • Changing government policy
Compliance with law and regulation	• Acting in breach of trust • Poor knowledge of the legal responsibilities of an employer • Poor knowledge of regulatory requirements of particular activities (eg fund-raising, running of care facilities operating vehicles)

Source: Charities and Risk Management (CC26), Charity Commission (2010)

1.3 Financial Ratios in Assessing Risk

Financial ratio is the relationship between two numbers taken from an organisation's financial statements such as balance sheet, income statement and other financial information Chabotar (1989). Financial ratios are used in many ways such as predicting bankruptcy, detecting fraud and evaluating performance. Financial institution and credit agencies are also using financial ratios for credit evaluation and risk assessment. As for NPOs, Tuckman and Chang (1991) developed a financial vulnerability prediction model using financial ratios. The model uses four types of financial vulnerability indicators (1) Administrative Cost ratio (2) Debt ratio (3) Revenue Concentration Index and (4) Surplus Margin.

Similar to Tuckman and Chang (1991), this study adapts the four financial indicators to assess the risk of financial vulnerability. However, based on previous literature of financial ratios (Chabotar, 1989; Grove and Basilico, 2008; and Ryan and Irvine, 2012) there were other ratios identified that are relevant in assessing risks. Thus, additional financial indicators are developed in this study to provide a more meaningful investigation in assessment of risk. The eight financial indicators chosen in the assessment of risk in the current study are (1) Debt ratio (2) Cash ratio (3) Revenue Concentration Index (4) Reliance Ration ratio (5) Administrative ratio (6) Management Cost Rate ratio (7) Net Operating Margin and (8) Primary Reserve Ratio. These eight indicators in assessing the risk of financial vulnerability are classified under the four main categories of ratio:-

i. Solvency Ratio

Solvency ratio indicates the financial health and the survival of an organisation. It shows the ability of the organisation in meeting their short-term and long-term obligations. This study uses two types of ratios in measuring the solvency of NPOs. The two ratios are Debt ratio and Cash ratio. Debt ratio measures to what extent an organisation rely on debts to finance their assets. Financing assets using debts involves risk because it

is associated with paying interest and principal amount on time. Therefore, the higher the debt ratio, the higher the risk of NPOs. On the other hand, cash ratio observed the true financial cash position of NPOs and whether they are able to survive in the short run. A high cash ratio indicates that NPOs have sufficient cash to finance programs and short-term obligations.

ii. Stability Ratio

In NPOs, the continuity flow of revenue is important in determining the going-concern of the organisation (Ryan and Irvine, 2012). Relying on a limited source of income may expose NPOs to risk. For example, depending heavily on government's grant or on particular donors would not be a wise choice because during financial distress, there will be declining in donations received. Declining in revenue of NPOs will distort NPOs in carrying out programs or servicing the public. As such, NPOs to ensure revenue are obtained from diverse sources to ensure its stability. Revenue concentration index and reliance ration are used in this study. Revenue concentration was widely used in previous studies (Tuckman and Chang, 1991; Trussel 2002; and Ryan and Irvine, 2012) and proved to be an effective measurement in identifying revenue diversification of NPOs. Revenue concentration measures the amount and variety of revenue sources that NPOs have (Trussel, 2002). It is based on Hirschman-Herfindahl Index (HHI). The higher the HHI, the more concentrated of revenues and therefore, the higher the risk of financial vulnerability. Reliance ratio indicates to what extent NPOs rely on their main source of revenue. The increase of reliance ratio indicates that NPOs rely heavily on their main source of revenue and this will expose to higher risk.

iii. Efficiency Ratio

Efficiency in organisation can be defined as how effective the management and business processes are. According to Ryan and Irvine (2012), there are four non-profit efficiency ratios that is often used and accepted. The four ratios are administration, program and fundraising expense ratios and the percentage of cost of fundraising ratio.

Tuckman and Chang (1991) stated in their study that organisations that incur high administrative costs are assumed to have financial flexibility in their organisations. Their study also assumed those organisations that have financial flexibility is less vulnerable compare to organisations that have low financial flexibility.

Generally, administrative costs are incurred in order for organisations to run and operate their organisations. According to Hager (2001), includes in the administrative cost are salaries and wages, office equipment expenses and fundraising expenses. At the first place, Hager (2001) in their study stated that organisations with high administrative cost are facing financial distress. In contrast, Tuckman and Chang (1991) argued that organisations that incurred high administration costs is in better position during any case of financial shock.

Based on Tuckman and Chang (1991), during in any case of financial shock, NPOs is considered financially vulnerable when they immediately reduce the services offered by them. By that, it is suggested that NPOs that incurred high administrative cost are better than NPOs with less administrative costs. This is because when the NPOs experiencing financial shocks, the NPOs with higher administrative costs are possibly to reduce their administrative cost rather than to cut back the services offered by them. Furthermore, according to Hyndman and McDonnell (2009), lower administrative costs indicate the NPOs had poor administration and ineffective fundraising programs.

In contrast, according to Tomkinson (2012), donors are more likely to attract to the NPOs that have lower administrative costs as compared to NPOs that have high administrative costs. This is because, donors feel more comfortable when the money that they donated is used wisely and only small part of their donations disbursed for administrative costs while the rest of the donations are used to finance the NPOs programs. Additionally, most programs conducted by NPOs are assisted by volunteers, thus NPOs may not incur high administrative cost. It is also one of the indicators that the NPOs are operating efficiently if they have low administrative cost.

In this study, based on previous relevant literature, two ratios had been selected and used to measure the organisation efficiency. The two ratios are management cost rate ratio and administrative ratio. According to Tuckman and Chang (1991), management cost rate is used to measure the percentage of administrative expenses that will spend from the revenue. They also claim that organisations with high management cost rate are more efficient than organisation that have low management cost rate. This is because, during financial shocks, organisation with high ratio can cut back on their administrative expenses rather that to cut back their services offered and hence reduce any possible impact that the organisation will face from the financial shock.

While, administrative cost ratio can be measured by divided the administrative expenses to total expenses. According to Ashley and Faulk (2010), this ratio is often used by non-profits and non-profits watchdog groups. For this ratio, Tuckman and Chang (1991) found that non-profits that have lower ratio and classify in the bottom

quintile are considered at risk.

Therefore, based on previous relevant literature, in order to measure the efficiency of the organisation, management cost rate ratio and administrative ratio had been used in this study.

iv. Surplus Margin

Surplus margin ratio is used to investigate the organisation's profitability. According to Tuckman and Chang (1991), high operating margins in organisations might be one of the reasons of the existence of financial flexibility. Their study assumed that those organisations that have financial flexibility is less vulnerable as compared to organisations that have low financial flexibility.

In a study done by Ashley and Faulk (2010), they claimed that surplus margin ratio for non-profit organisations is similar to the for profit organisations. The ratio is defined as revenue less expense divided by its revenue. This ratio shows the percentage of net incomes represents their revenue. According to Tuckman and Chang (1991), low surplus margin ratio can lead to the financial vulnerability in organisations. This is because organisations that operate with low surplus margin ratio more vulnerable to the financial problems compared to organisation with high surplus margin. In any case of financial shock, it is argued that organisation which has high surplus margin is capable to run their operation Trussel (2002). Therefore, Trussel (2002) claimed that organisations with low surplus margin would increase their financial vulnerability.

According to Hager (2001) and Tuckman and Chang (1991), high surplus margin indicates that the more fund an organisation can save or invest, the more drawings can be made by the organisation during any event of financial shock. Besides, low or negatives margin indicates that the organisations had lack or no cash surplus at all that can be used during financial shock and it will lead to the cut back of the services offered. Therefore, as for this ratio, Tuckman and Chang (1991) found that NPOs with lower ratio are labeled at risk. Therefore, as a long-term preventive measure against financial shocks, every organisation is aimed to have high operating margin.

2. Method

2.1 Sample and Data Collection

The sample for the present study consists of 150 NPOs registered with Companies Commission of Malaysia (CCM) for the financial year 2011. According to Huff et.al. (1999), large organisations provide meaningful comparisons with each other as compared to smaller organisations. Thus, NPOs with total revenue of RM500,000 and above are selected for the sample. The financial information gathered from these selected NPOs is based on the information disclosed in their annual reports. However, only 134 NPOs out of 150 NPOs were analysed in this study. 16 NPOs were taken out from the sample for analysis due to incomplete or limited data provided in the annual reports. The definition and measurement of variables in the present study are highlighted in Table 2.

Table 2: Definition and Measurement of Variables

Variable Acronym	Risk Assessment Ratios	Measurement
DEBT	Debt ratio	Ratio of total debts to total assets
CASH	Cash ratio	Ratio of cash and cash equivalent over current liabilities
REV	Revenue concentration index	Hirshman-Herfindahl Index
REL	Reliance ration	Ratio of largest type of income to total income
ADMIN	Administrative ratio	Ratio of administrative expenses to total expenses
MANAGE	Management cost rate	Ratio of administrative expenses to total revenue
NET	Net Operating Margin	Ratio of revenue less expenditure over revenue
PRIM	Primary Reserve Ratio	Ratio of net current assets over total expenses

3. Results

3.1 Descriptive Statistics

The results of the descriptive analysis on the financial ratios in assessing the risk are depicted in Table 3.

Table 3: Descriptive Statistics for Measures of Risk of Financial Vulnerability

	Minimum	Maximum	Mean	Std Deviation
Solvency				
DEBT (%)	0.00	186.18	28.46	41.49
CASH (%)	(0.03)	5482.04	111.14	505.39
Stability				
REV	0.33	1.00	0.89	0.16
REL (%)	0.33	1.00	0.92	0.14
Efficiency				
ADMIN (%)	0.00	1.00	0.54	0.37
MANAGE (%)	(0.24)	2.29	0.45	0.40
Surplus Margin				
NET (%)	(1.54)	1.29	0.12	0.43
PRIM (%)	(4.17)	297.84	4.65	26.23

Table 3 highlighted that the mean value of DEBT is relatively low of 28.46%. This result suggesting that on average only 28.46% of debts were used to finance the purchasing of assets. CASH showed a mean value of 111.14% and thus, indicating that NPOs in the sample study has sufficient cash to cover their short-term liabilities and to finance their programs. Overall, the results from DEBT and CASH implicating that in terms of solvency ratios, NPOs in the sample are at low risk to financial vulnerability.

REV and REL are used in this study to measure the stability of NPOs. REV is measured using Hirschman-Herfindahl Index where the index ranges from 0 to 1. The closer the index or equal to 1, the higher the NPOs to be dependent on one particular revenue. The results of this study showed that the mean REV is 0.89 thus indicating that NPOs in the sample are highly dependent only on one source of revenue. This statement further supported by the results showed from REL, which showed that 92% of revenues of NPOs are merely from the main source of revenue raised by NPOs. As such, the revenue of NPOs in the sample study is not diversified and this is subjected to the risk of major reduction in revenue if this source is reduced or stopped (Barr, 2008).

Table 3 reported that ADMIN and MANAGE ranges from a minimum of 0.00 to 1.00 and -0.24 to 2.29 respectively. The mean value of ADMIN, 0.54 and mean value of MANAGE, 0.45 indicates low administrative expenses incurred by the NPOs in the sample of study. Both ratios show that most of the NPOs are vulnerable to the operational risks as during in any cases of financial shock, NPOs is considered financially vulnerable when they immediately reduce the service offered by them. This is due to the results that show low administrative expenses incurred by the NPOs in the sample of study, when the NPOs experiencing financial shocks, the NPOs with lower administrative costs will cut back the services offered by them rather than reduce the administrative expenses incurred by them. Additionally, lower administrative costs also indicate the NPOs have poor administration and ineffective fundraising programs (Hyndman and McDonnell, 2009).

Table 3 highlighted that NET ranges from -1.54 to 1.29. The low mean value of 0.12 indicates that most of the NPOs in the sample do not have surpluses during the financial period 2011. This low mean value of NET also indicates that most of the NPOs had lack or no cash surplus at all that can be used during financial shock. This will lead to the cut back of the services offered and therefore NPOs are labeled as at risk.

3.2 Assessment of Risk of Financially Vulnerable

The current study uses financial ratios to assess risk of financial vulnerability of NPOs in Malaysia. Tuckman and Chang (1991) developed four financial indicators of risk assessment. This study expands their work (1991) by adding another four financial indicators for assessing the risk. The eight financial indicators are Debt ratio, Cash ratio, Revenue concentration index, Reliance ration ratio, Administrative ratio, Management cost rate ratio, Net Operating Margin and Primary Reserve Ratio. These ratios are grouped into four main categories of ratios namely Solvency, Stability, Efficiency and Surplus margin.

Using quintile analysis, the risk is divided into three levels namely low risk, moderate risk and high risk. The result of this analysis is presented in Table 4. Results in Table 4 highlighted that 23 NPOs (17%) are classified as low risk, 93 NPOs (69%) are classified as medium risk and 18 (14%) NPOs are classified as high risk. Thus, NPOs with higher risk should be closely monitored (APG Typologies Report, 2011).

Table 4: Categories of Financially Vulnerable NPOs

N=134 NPOs	Low risk	Moderate Risk	High Risk
No. of Financially Vulnerable NPOs	23	93	18

4. Conclusion and Limitations

The focus of this study is to investigate to what extent NPOs in Malaysia is exposed to risk of financial vulnerability. FATF recommended NPOs to adopt the risk-based approach. This risk-based approach is important for (1) NPOs and (2) the regulators. With the adoption of this risk-based approach, NPOs are able to assess their levels of risk, understand their financial vulnerabilities and thus, plan ahead to reduce or mitigate the risk. For regulators this approach is useful to assist them in efficient monitoring process. This will help regulators to provide appropriate attention and controls to NPOs based on their risk exposure level. Monitoring high risk NPOs is pertinent because high risk NPOs leads to high risk financial vulnerability which in turn, leads to fraud occurrence (APG Typologies Report, 2011).

The current study extends the model developed by Tuckman and Chang (1991) in assessing risk of financial vulnerabilities. Tuckman and Chang (1991) developed financial vulnerability prediction model by using four financial indicators. In order to provide a more meaningful investigation, this study uses eight financial indicators in assessing risk of financial vulnerability. The risk of financial vulnerability is classified by three levels namely low risk, moderate risk and high risk. Using eight types of financial ratios to assess the risk, the results of the study highlighted that 14% of NPOs in the sample are classified as high risk NPOs, whereas 69% of NPOs in the sample are at moderate risk. The results further suggest that the NPOs are at risk because (1) their revenues are not well diversified, (2) revenues earned are highly depending on the major source of income, (3) low administrative cost that will lead to reduction of services offered, and (4) do not have any surpluses during financial shock. However, NPOs in the sample study indicate a lower debt ratio that defines lower debts was used by NPOs to finance their assets. Despite most NPOs are classified under moderate risk (69%), attention should also be given to these NPOs to avoid them from falling into high risk NPOs.

This study contributes to the existing literature on NPOs as it adopts additional financial indicators as assessment of risk of financial vulnerability. Additionally, the result of this study provides a useful screening device for the regulators to come up with efficient monitoring decisions. The current study is limited to NPOs analysed for one financial period. For future research, this study can be expanded to several financial periods.

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