Revisiting the Financial Vulnerability of Nonprofit Business Leagues Post-2007 Recession

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Abstract

As early contributors to the literature on nonprofit financial vulnerability, Tuckman and Chang developed a four-financial ratio model that they argued could be used to predict the financial vulnerability of nonprofit organizations. Tuckman and Chang concluded that financially vulnerable organizations would most likely cutback services or cease to exist after experiencing substantial financial hardships. This current study described an empirical test of the usefulness of the Tuckman and Chang's model in predicting the financial vulnerability of a population of nonprofit business leagues before the financial shock of the 2007 recession. This current study concluded that the Tuckman and Chang model could identify and predict the financial demise of certain types of nonprofit business leagues, but not all. The findings of this study have implications for nonprofit organizational stakeholders, and fill the gap in the literature on the practical application of ratio analysis in nonprofit subsectors.

Keywords: Nonprofit organizations, accounting, financial ratios, financial performance, financial management.

1. Introduction

Methods used to analyze the financial statements of for-profit entities are well known and frequently used; however, such applications do not exist for nonprofit organizations (Fischer, Gordon, Greenlee, & Keating, 2004; Mensah, Lam, & Werner, 2008). Researchers have argued that traditional for-profit financial ratios are not appropriate for use by nonprofit organizations (NPOs) (Greenlee & Bukovinsky, 1998; Mulligan, 2007). Limited research has been conducted on the financial vulnerability of nonprofit membership organizations (NMOs) (Gronbjerg & Tennen, 2005; & Hall, 2009). Additionally, there has been an increase in scholarly interest and writing on the mortality or failure of nonprofit organizations (Carroll & Hannan, 1989). Research on NMOs is generally included as part of studies on NPOs in general (Carroll & Stater, 2009; Trussel, 2002; Tuckman & Chang, 1991a). Tuckman and Chang (1991a) have developed one of the earliest vulnerability prediction models applicable to NPOs.

Tuckman and Chang's (1991a) four-ratio model utilized the equity balance ratio, revenue concentration ratio, administrative costs ratio, and operating margin ratio. Tuckman and Chang (1991a) argued that their ratio model could effectively measure and predict the financial vulnerability of nonprofit organizations, in general (Tuckman & Chang, 1991b). Subsequent empirical studies conducted by Greenlee and Trussel (2000), Hager (2001), Hodge and Piccolo (2005), and Trussel (2002) tested the usefulness of the Tuckman-Chang (1991a) measures on nonprofit organizations in general, large and small nonprofit organizations, and specific nonprofit subsectors, reached contrasting conclusions than Tuckman and Chang (1991a). Therefore, a test of the usefulness of the Tuckman and Chang (1991a) measures in predicting the financial vulnerability of membership-based nonprofit business leagues (NBLs) was utilized in this research study.

2. Nature of Nonprofit Business Leagues

A business league is an association of persons having some common business interest, the purpose of which is to promote such common interest and not to engage in a regular business of a kind ordinarily carried on for profit (Publication 557, 2008). Section 501(c) (6) of the Internal Revenue Service (IRS) Internal Revenue Code (IRC) provides tax-exemption for business leagues, which includes business leagues, chambers of commerce, real estate boards and associations, and boards of trade. Therefore, IRC Section 501(c) (6) organizations are nonprofit membership organizations. Due to systematically differences between the activities of nonprofit business leagues, the IRS separates nonprofit business leagues into discrete subgroups, based on the National Taxonomy of Exempt Entities (NTEE) Codes (Publication 557, 2008).

3. Significance of Studying the Financially Vulnerable NMOs

The number of NPOs, in general, increased significantly from 1998–2008 (NCCS Business League, 2009). However, the number of NMOs that experienced financial challenges, closures, or operating at a deficient sharply increased (Littlepage, 2009). The growth in the nonprofit membership sector implicated the demand for its services. The National Center for Charitable Statistics (NCCS) reported that: (a) The number of NMOs reporting to the IRS increased 22% from 1998 to 2008, and (b) the total revenues for NMOs reporting to the IRS increased by 59%, from about $23.7 billion in 1998 to about $37.7 billion in 2008 (NCCS Business League, 2009). Nonprofit membership-based organizations may be more financially vulnerable than donations and fundraising-based charities because NMOs rely on a narrower source of revenue, membership dues.

A decrease in members, resulting from increased unemployment, has led to a drastic decrease in membership revenue for NMOs. As a result, membership-based organizations are more susceptible to financial vulnerability and less likely to overcome financial shock (hardship) because of limited revenue sources (Omar, Arshad, Asyiqi, & Razali, 2013). In a 2002 study of Indiana NMOs (Gronbjerg & Tennen, 2005), it was found that: (a) 87% of the organizations surveyed were faced with a challenge in attracting new members, (b) 66% of organizations were challenged to obtain funding, and (c) 60% of membership organizations relied on dues for 75% of revenues. In a study of Maryland NMOs (Hall, 2009), it was determined that 60% of the surveyed organizations that started between 1995 and 1999 never generated revenue in excess of $25,000, and 20% of organizations with revenues of $25,000–$250,000 in 1995 may have disappeared by 2005.

The justification for focusing on NMOs in this current study was fueled by the conflicting occurrences that took place in the nonprofit sector during 2004-2007. Trussel (2002) argued that although a decline in financial conditions likely occurs over time, it is in the best interest of the organization's stakeholders to identify potential crises as soon as possible. Therefore, it is in the best interest of all concerned parties that prompt, preemptive, and corrective actions could ward off financial demise. The implication of these events are that research is needed to understand what caused these potential threats to organizational survival and how these occurrences could be better predicted.

4. Literature Review

The groundbreaking and influential work by Tuckman and Chang (1991a) has been subjected to subsequent empirical studies. Tuckman and Chang (1991a) applied their model in a study 4,730 nonprofit organizations across six nonprofit categories, including membership-based organizations, which filed an annual Form 990 tax return with the Internal Revenue Service (IRS) in 1983. Tuckman and Chang (1991a, p. 445) defined an organization as financially vulnerability if "it is likely to cut back its program service offerings immediately when it experiences a financial shock, due to an economic downturn or the loss of a major revenue source." Tuckman and Chang (1991a) described a financially flexible nonprofit as one with access to equity balances, many revenue sources, high administrative costs, and high operating margins.

Tuckman and Chang (1991a) argued that organizations that lack one or more of these elements of flexibility are more vulnerable to financial shocks than flexible organizations. Tuckman and Chang (1991a) ranked nonprofits falling into the lowest quintile for all four measures as being severely at risk of becoming financially vulnerable, and those with any one of the four measures in the bottom quintile were defined as at risk of becoming financially vulnerable (Hager, 2001). Tuckman and Chang (1991a) acknowledged that their financial vulnerability measures were likely to differ across nonprofit industries, but concluded that their ratio model could be used to predict the financial vulnerability of NPOs, in general.

The description and operationalization of the four ratios are central to Tuckman and Chang's (1991b) work, and therefore summarized and operationalized here (Hager, 2001, p. 378-379):

Equity balance ratio--Equity ÷ Revenue. Nonprofits with greater amounts of equity are more flexible in the face of financial shocks than organizations with comparatively lesser amounts of equity, for four reasons. First, organizations with greater amounts of equity are better positioned to borrow money from capital markets, should borrowing be necessary to avert closure. Second, unrestricted equity can be converted to cash to offset financial shocks. Third, illiquid assets can also be sold for cash. Fourth, organizations with restricted equities can alter their mix of services so that organizational efforts can be paid for with restricted funds.

Revenue concentration ratio (index)--$\sum$*(Individual source of revenue ÷ Total of all revenue sources)*^{2}. An organization's revenue concentration refers to the proportion of funding it receives from different sources of income. The revenue concentration ratio is an index, which captures both the number of revenue sources and the extent to which a nonprofit organization's revenues originate from multiple sources. An organization with revenues from a single source will have a concentration index of 1, while an organization with equal revenues from many sources has an index close to 0. In short, an organization with diverse funding streams that suffers loss or decline in one stream can offset the loss by increasing revenues from another stream.

Administrative costs ratio--Administrative and management costs ÷ Total expenses. Administrative costs are spent to run an organization, whereas program costs are spent to run specific programs or projects. High administrative costs can buffer organizations facing financial shocks. Therefore, organizations with high administrative costs can cut back administrative expenses in lean times rather than reducing programs. High administrative costs, then, is a source of flexibility that might separate the survivors from those organizations that cannot weather hard times.

Operating margin ratio--(Revenues – expenses) ÷ Total revenues. The lower an organization's expenditures (in proportion to revenue), the higher the operating margin. The greater the operating margin, the more surplus the organization is able to save or invest. The greater the surplus, the more the organization has to draw on in event of a financial shock. Organizations, then, seek a high operating margin as a long-term precaution against bad fiscal times. Accordingly, a high operating margin is a source of financial flexibility.

Different researchers have defined financial vulnerability in different ways when studying the financial vulnerability of NPOs, while using all or some of Tuckman and Chang's (1991a) measures. Trussel, Greenlee, and Brady (2002), utilized Tuckman and Chang's (1991a) measures in a study of NPOs in general, and defined an organization as financially vulnerable if it had an overall reduction in its fund balance during a consecutive 3-year period. Trussel (2002) employed three of Tuckman and Chang's (1991) four measures in a study on a random sample of large NPOs (assets over $10 million) and a random sample of small NPOs, but defined an organization as financially vulnerable if it had more than a 20% reduction in net assets over a 3-year period. Greenlee and Trussel (2000) adapted Tuckman and Chang's (1991a) four ratios in a study of financially vulnerable large nonprofit charities (assets greater than $10 million), and defined an organization as financially vulnerable if it reduced program costs in each of three consecutive years over a three-year period.

Greenlee and Trussel (2000) found that all four ratios, as anticipated, were significantly higher for nonfinancially vulnerable organizations than for vulnerable organizations, and concluded the Tuckman and Chang (1991a) model could predict the likelihood of financial vulnerability. Hager (2001), in a study of nonprofit arts organizations defined an organization as financially vulnerable if the organization failed to survive. Hager (2001) concluded that in general, Tuckman and Chang's (1991a) ratio model was effective in predicting the financial vulnerability of some nonprofit arts organizations, but not all. In this current study, an organization was defined as financial vulnerability if it experienced a 20% decrease in fund balance for any year within a 3-year period during the 2004-2007 timeframe.

The profound events of 2007 and 2008 were neither bumps in the road nor an accentuated dip in the financial nor business cycles that were anticipated in a free market economic system (Marshall, 2009). The stock market crash of 2008 caused massive, largely unanticipated, and widespread losses of wealth over a period of just a few months (Katkov, 2012). "These events were a fundamental disruption--a financial upheaval that wreaked devastation in public and private communities and neighborhoods across the country" (Marshall, 2009). In 2008, the convergence of the financial crisis, the stock market crash, and the housing market bust ushered in the Great Recession (Katkov, 2012). Compounding the effect of large stock market losses, plummeting real estate values, and the weakening labor market, investors' wealth was reduced (Katkov, 2012).

The economic shock of 2008–2009, also referred to as a Global Credit Crunch, caused a gigantic loss of capital in both the worldwide and U.S. economy (Lusk, Sheridan, & Welsh, 2010). As a result, NPOs were faced with financial struggles, as corporate and government support were slashed, and private giving quickly declined. The cutback in government support has put more demands on services offered by NPOs. The diminished resources of NPOs threaten the rendering of needed and necessary services at unprecedented levels (Marshall, 2009). Consequently, programs were cut as state government budget cutbacks reduced revenues for human-service nonprofits (Reed & Bridgeland, 2009). Many nonprofits found themselves with depleted resources because of losses sustained in the stock market, and from the fall in the value of real estate and other investments (Sheets, Marcus, & Migliaccio, 2009). During 2008, three in four nonprofit foundations experienced a decrease in their endowments of 25 percent or more (Council on Foundations, 2009). In 2009, two in five foundations expected to dip into their endowment principal to fund their grants budget (Lawrence, 2009). Also in 2009, about two-thirds of nonprofit foundations expected to reduce the number or size of grants they would award, or both, although most foundations planned to maintain existing programs and to maintain general commitments to geographic areas they currently serve (Lawrence, 2009). Public charities experienced significant declines in overall giving during these periods. Overall giving by individuals, which constituted three-quarters of all giving, also declined $6.4 billion, a 2-percent drop, which was the largest recorded (Hrywna, 2009).

The recession took a toll on Arizonans employed in real estate during 2007-2012 with the loss of nearly 17,000 agents (Corbett, 2012). As of 2012, there were 35,864 real-estate agents with active licenses, which is down 32 percent from 2007 when there were 52,286 active agents, according to figures from the Arizona Department of Real Estate (Corbett, 2012). According to a report issued by the Bureau of Labor Statistics, nationwide between 2000 and 2006, roughly 40 percent of the job growth in the real estate housing market was related to financial industries and industries directly related to the selling and buying of homes. Combined, employment in real estate credit, mortgage and nonmortgage brokers, and real estate agents and brokers reached a pre-recession employment high in April 2006, and corresponding with an employment peak in the construction industry, and then declined by 184,000 jobs through December 2007. Following the 2007 recession, real estate credit and mortgage and nonmortgage brokers, lost 32 percent and 34 percent, respectively, of their workforce during this period. Job losses continued through the end of the recession, although at a slower pace. Between April 2006 and December 2010, housing-related financial industries lost 348,000 jobs and employment fell to its lowest level since January 1998 (Prassas, 2011).

5. Sample Selection

This section describes the data and methodology used to test Tuckman and Chang's (1991a) four-ratio financial vulnerability prediction model on a specific nonprofit subsector. The discussion includes specifics of the model, the sample selection, and quantitative methods used in conducting the study.

The research conducted in this study was in the tradition of Tuckman and Chang's (1991a) work by using their four ratio measures as independent variables to test for possible financial vulnerability in nonprofit business leagues within the 2004–2007 timeframe. The financial data used in this study, as with previous empirical studies on NPOs (Hager, 2001), was obtained from the National Center for Charitable Statistics' IRS Statistics of Income database. The data was based on a population of organizations that were tax-exempt under IRS Code Section 501(c)(6)–Business Leagues and filed a Form 990 tax return for each year during the 2004–2007 timeframe.

Based upon a Power Analysis, 176 U.S.-based NBLs comprised the total sample population. Due to systematically differences between the activities of business leagues, the IRS separates business leagues into three discrete subgroups, based on the National Taxonomy of Exempt Entities (NTEE) Codes: business leagues and chambers of commerce (NTEE code S41), real estate boards (NTEE Code S46), and boards of trade (NTEE Code S47). The NTEE Codes were used to randomly select organizations for a NTEE Code-based stratified population. A random, stratified sample of 88 organizations defined as financially flexible, and a sample of 88 organizations defined as financially vulnerable were selected and separated into approximately equal samples of three discrete subsectors of NBLs, as shown in Table 1.

6. Empirical Analysis

In this current study, Tuckman and Chang's (1991a) model was applied to a specific nonprofit subsector, membership-based nonprofit organizations. Comparisons of the four ratios measures were conducted between samples of financially flexible and financially vulnerable NMOs, over a three-year period.

To measure the degree of linearity between the average mean ratio values, Pearson's correlation coefficients were computed for each of the four ratio variables, by NMO subgroup and the all organizations' categories for financially flexible and financially vulnerable organizations. To assess whether the differences between the average mean ratio values of flexible versus vulnerable organizations were statistically different from each other, *t*-tests were performed. A discriminant analysis (probability analysis) was performed on each of the four ratio measures, to predict the probability that a randomly selected financially flexible organization could become financially vulnerable by having an average mean ratio value equal to or less than that of a financially vulnerable organization.

Table 1 show the frequency distribution of the study's sample of 176 NBLs, which was normally distributed among the three discrete subgroups, and between financially flexible and vulnerable organizations, by subgroups. Table 2 displays the correlations between the equity balance ratio and the other independent ratio variables, for the sample subgroups and the all organizations' category of financially flexible and vulnerable organizations. Significant positive and negative correlations were noted across all subgroups and the all organizations category. Within the chambers of commerce and business leagues subgroup, it was noteworthy that significant negative relationships were found between the equity balance and operating margin ratio *(r* =-.28), and the operating margin and revenue concentration ratios (*r*=-.45). The negative coefficients suggest that chambers of commerce and business leagues with low equity balances usually maintain high operating margins and vice-versa, and high equity balances are associated with a lack of revenue diversification. These relationships are contrary to Tuckman and Chang's (1991b) argument that high equity balances are associated with high or positive operating margins and revenue diversification.

For Boards of trade, Table 2 reveals that positive and significant correlations existed between the equity balance and administrative costs ratios (*r*=.80), and the revenue concentration and administrative costs ratios (*r*=.60). These relationships support Tuckman and Chang's (1991a) conclusions that high equity balances are associated with high administrative costs and revenue diversification, which may negate financial demise. Within the real estate associations' subgroup, as presented in Table 2, the equity balance and revenue concentration ratios were negative and significantly correlated, (*r*=-.37), contradicting Tuckman and Chang's (1991b) conclusion that high equity balances are associated with multiple sources of revenue, in the same manner as noted with the chambers of commerce and business leagues subgroup. The revenue concentration and operating margin ratios were positive and significantly correlated (*r* =.41), confirming Tuckman and Chang's (1991b) argument that organizations with multiple sources of revenue also maintain high or positive operating margins.

The results of the Pearson correlations for financially flexible organizations are shown in Table 3. Across all subgroups, the correlations were generally positive. The most notable relationships are within the boards of trade subgroup and the overall all organizations' category. For the financially flexible boards of trade subgroup, the correlations between the variables were generally high, positive, and significant. Within this subgroup, the correlations between the equity balance and the operating margin, administrative costs, and revenue concentration ratios were significant at the $p < .01$level of significance, and ranged from low to high, $r(28) = .56$, $r(28) = .76$, $r(28) = .92$, respectively. For the all organizations' category, the correlations between the equity balance ratio and the revenue concentration, administrative costs, and operating margin ratios were positive and generally significant at the $p < .01$level of significance. The correlations in these groups of organizations confirmed Tuckman and Chang's (1991a) conclusions that for financially flexible organizations, high equity balances are associated with multiple sources of revenues, high administrative costs, and positive or high operating margins.

The results of the Pearson correlations between the equity balance ratio and the other ratio variables, for financially vulnerable organizations, are represented in Table 4. Across all subgroups and the all organizations' category, the correlations between the equity balance ratio and the other ratio variables were generally low, negative, and significant. The most noteworthy relationships existed within the chambers of commerce and business leagues subgroup were significantly and negative correlations occurred between the equity balance ratio, revenue concentration and operating margin ratios, $r(28) = -.72$ and $r(28) = -.71$, respectively, at the $p < .01$level of significance. For the boards of trade subgroup, a high equity balance was associated with a significant and very high operating margin, $r(28) = .94$, $p < .01$level of significance; however, all the other relationships between the equity balance ratio were either negative or low. For the boards of trade, real estate associations' subgroups, and the all organizations' category, high equity balances were associated with low or negative amounts of administrative costs and operating margins, and negative revenue concentration ratios.

The relationships, across the subgroups, partially confirmed Tuckman and Chang's (1991a) conclusion that: (a) Financially vulnerability is associated with low equity balances, few sources of revenues, low administrative costs, and low or negative operating margins, and (b) in times of financial shock, financial vulnerable organizations are likely to cut back its service offerings immediately. The results of the second analysis, *t*-test of means, are shown in Table 5. The equity balance ratio for flexible organizations was higher than for vulnerable organizations across all subgroups and the all organizations category. The equity balance and revenue concentration ratios for financial vulnerable real estate associations were significantly higher than for flexible organizations in this subgroup and the all organizations' category, at the .01 level of significance. Generally, across all subgroups and the all organizations' category, the administrative costs ratios for financially flexible organizations were higher than that of vulnerable organizations. The difference between mean values for the operating margin was significantly higher for the chambers of commerce and business leagues and boards of trade subgroups, at the .05 and .01 levels of significance, respectively.

Table 6 revealed the results of the discriminant analysis of the probabilities that a randomly selected financially flexible organization could become vulnerable by having an equity balance, administrative costs, or operating margin ratio less than a vulnerable organization, and a revenue concentration ratio closer to 1 than a vulnerable organization. Tuckman and Chang (1991a) did not operationalize their definition of financial vulnerability, but indicated that an organization would become vulnerable if it lacked multiple sources of revenue, thereby having a low revenue concentration ratio (close to 1). At least a 50% probability of these occurrences existed across all subgroups and the all organizations category, with the most notable probabilities with the operating margin ratios for the chambers of commerce and business leagues and boards of trade subgroups, p=.96 and p=.99, respectively. Historically, there have been difficulties in labeling NPOs as dead or alive. Some organizations in a study of Minnesota nonprofits were initially labeled as dead (and subsequently removed from the study), but were found to be revived when contacted several years later for exit interviews (Hager, 2001).

A NCCS researcher (Smith, 2003) in an analysis of financial stability of nonprofit organizations, and Hager (2001) in a subsequent empirical study of nonprofit arts organizations adopted the method typically employed by organizational ecologists in determining an organization's demise. That is, an organization was labeled alive if it appeared in a subsequent list of organizations and dead if it did not appear on the subsequent list of organizations (Hager, 2001). Hager (2001) defined an organization as dead (defunct) if it failed to file Form 990 with the IRS over a period of three succeeding years. Hager (2001) concluded that these organizations might be more properly labeled as missing because it could not be definitively sure that the organizations were dead. However, for purposes of the study, Hager (2001) held this to be a reasonably valid measure of organizational demise. Congress passed the Pension Protection Act in 2006 (effective 2007) requiring most tax-exempt organizations to file Form 990 or a notice with the IRS. In addition, the law automatically revokes the tax-exempt status of any organization that does not file required returns or notices for three consecutive years (Tax Exempt, 2011). In the tradition of the Smith (2003) and Hager (2001), this current study of organizational financial vulnerability adopted the same organizational ecologist approach. Therefore, for this current study, an NMO was defined as defunct (or ceased to exist) if it failed to file Form 990 or a notice with the IRS for three succeeding years (2008-2010) following the initial prediction period (2004-2007).

Tuckman and Chang (1991a, p. 445) concluded that a financially vulnerable organization lacks the ability to avoid cutbacks in the program and/or services offered, and is "likely to cut back its service offerings immediately when it experiences a financial shock." The inability to maintain program and/or services at pre-financial shock levels are attributed to financial instability. Tuckman and Chang (1991a) concluded that a financially vulnerable organization will: (1) Cut administrative costs to preserve its level of program costs, (2) not have adequate operating margins to generate surplus equity to maintain program costs, and (3) not have revenue diversification to replace sources of revenue lost as a result of a financial shock. The results of a pre and post 2007 recession test of mean values for the Tuckman and Chang (1991a) ratio measures of surviving financially vulnerable NMOs is shown in Table 7. In addition, a new ratio variable, program costs was introduced for the 2008-2010 timeframe. Program costs, program services divided by total expenses is used as a gauge for measuring cutbacks in programs and/or services offered (2014 Instructions). Generally, across all subgroups, there were decreases in all the ratio variables following the financial shock of 2007. The decreases in equity balances indicated the use of equity to fund program services. Most noteworthy, across all subgroups, following the 2007 financial shock, the amounts expensed for programs increased, but not significantly. Decreases in the mean averages for administrative costs indicated the likelihood that the administration of programs was at risk, despite increases in program costs.

In addition, diminishing operating margins prevented the replenishing of equity balances and the continued diversification of revenue streams. In summary, the results partially confirmed Tuckman and Chang's (1991a) conclusion that financially vulnerable organizations when faced with a financial shock will: (a) Cutback program services and related administrative costs, (b) experience a reduction in equity balances, and (c) become less revenue diversified.

As shown in Table 6, at least a 50% probability existed for all ratio variables, across all subgroups, that following a financial shock, a financially flexible organization could become financially vulnerable by having an equity balance, administrative costs, and operating margin ratio less than a vulnerable organization, or a revenue concentration ratio close to 1. Table 8 shows a *t*-test of means values for Tuckman and Chang's (1991a) measures, comparing the pre and post-2007 mean values of financially flexible and vulnerable NMOs. Across all subgroups, the equity balance ratio for financially flexible NMOs was significantly greater, at the 0.05 level of significance, than that of vulnerable organizations in the same subgroups. Although not significant, the revenue concentration ratio across all subgroups was closer to 0 for financially vulnerable organizations than for flexible organizations within these subgroups. Only among the boards of trade and real estate associations' subgroups was the administrative costs ratio higher for financially flexible NMOs than for vulnerable organizations within these subgroups. Across all subgroups, the operating margin ratio of financially vulnerable NMOs was higher for financially vulnerable NMOs than for flexible organizations within these subgroups. The test of means revealed that the model was effective in predicting the future financial vulnerability of some, but not all types of NMOs, following a financial shock.

The most definitive test of an organization's financial flexibility is its ability to survive a financial shock, such as the 2007 recession. That is, an organization is truly financially vulnerable if it fails the ultimate test of simple persistence—continuing to exist after a financial shock. The NCCS IRS Statistics of Income databases for 2008-2010 were used to determine whether the original organizations included in this study survived the 2007 recession by appearing on the IRS list of tax-exempt organizations for 2008-2010. The subgroups of original study organizations that survived the 2007 recession are presented in Table 9. Approximately 28% of the study's original financially flexible NMOs and 33.7% of the financially vulnerable organizations did not file Form 990 for the period of 2008-2010, and were considered completely vulnerable and defunct. In addition, the total failure of 10% of the original financially flexible boards of trade, 10% of chambers of commerce and business leagues, and 63.0% of real estate associations confirmed Tuckman and Chang's (1991a) argument that the ratio model is useful in predicting the possibility of an organization becoming financially vulnerable or failing. Notably, the ultimate demise of 63.0% and 86.2% of financially flexible and vulnerable real estate associations, respectively, was due to additional conditions beyond being merely financially vulnerability. The cause of the acute demise of real estate organizations was attributed to one of the major reasons for the 2007 recession--the real estate market collapse (Katkov, 2012; DeLisle, 2008). The acute decrease in real estate associations' membership following the 2007 recession had a significant impact on dues revenue. Since the primary source of revenues for real estate associations is membership dues, any significant reduction in members would have an effect on the sustainability of revenue streams, maintaining adequate equity balances, incurring high administrative costs, and achieving high or positive operating margins.

7. Conclusion

Several limitations occurred in the methodology used in this study. The financial vulnerability model used in this study assumed that a NMO is financially vulnerable if it experienced a 20% decrease in fund balance for any year within a 3-year period. This assumption prohibits any consideration of financial vulnerability of NMOs with less than a 20% decrease in fund balance. In addition, only 61.9% of the total NMOs in the current study reported management and general administrative expenses on IRS Form 990, during the pre-2007 recession study period. Form 990 includes an assortment of places for reporting administrative costs, with few of those fields of data being available for public data files. In addition, several studies have identified substantial inaccuracies in the data (Abramson, 1995). The inherent limitations of Form 990 show that greater efforts are needed to ensure the reliability of the data (Tuckman & Chang, 1991a).

The findings in this study have implications for accounting theory and professional practice. The financial model tested in this study could: (a) Provide decision makers with insight into specific areas for improvement, (b) provide decision makers with a valuable tool to reduce the risk of financial distress, and (c) be used as an early warning signal to predict which types of organizations are facing financial vulnerability (Trussel & Patrick, 2009).

The model could provide auditors and audit committees with key ratios that could be applied in bringing the organization into compliance with the Statement on Auditing Standards (SAS) 56—Analytical Procedures (Colbert, 1994).

Future research may determine if the results obtained in this study are unique to NBLs, or other types of NPOs. Research separating chambers of commerce organizations from business leagues organizations may expose strong correlations among chambers of commerce organizations and weak correlations between the same variables for business leagues. A broader application of the Tuckman and Chang (1991b) measures will make information from the measures available to a larger array of nonprofit stakeholders, and a more extensive investigation of NPO subgroups will increase the chance that the right measures are used to assess the particulars of a specific nonprofit subsector (Hager, 2001).

Although researchers have used accounting information extensively in models to predict financial vulnerability in the for-profit sector, few analytical and prediction models exist that provide a framework to monitor financial vulnerability in nonprofit organizations (Greenlee & Trussel, 2000). Tuckman and Chang (1991a) concluded that in general, their four measures could be used to effectively identify and predict the factors that precipitate financial vulnerability of NPOs. These factors include a low equity balance, a high revenue concentration index (lack of revenue diversity), low administrative costs, and low or negative operating margins. This current study sought to test the usefulness of these aspects in explaining the financial vulnerability of a specific nonprofit subsector, membership-based business leagues.

Three conclusions were drawn from this study. First, Tuckman and Chang (1991b) suggested that high equity balances were associated with multiple revenue sources, high administrative costs, and positive or high operating margins. The findings in this study are in part contradictory to Tuckman and Chang's (1991b) conclusions because the strength and direction of the correlations varied across all subgroups of nonprofit business leagues. The correlations indicated that high equity balances were associated with low levels of revenue, administrative costs, and operating margins. Second, Tuckman and Chang (1991a) suggested that flexible organizations have higher equity balances, higher administrative costs, and higher or positive operating margins, and are more revenue diversified than vulnerable organizations. The results of this study confirmed Tuckman and Chang's (1991a) generalizations pertaining to business leagues as a whole, but not categorically across all subgroups of business leagues. Vulnerable boards of trade showed more revenue diversification than flexible organizations of this type. Nevertheless, across all subgroups, flexible organizations were more revenue diversified than vulnerable ones. In addition, real estate associations generated more positive operating margin than flexible organizations of this type. Third, the probability that a randomly selected flexible organization could be vulnerable existed across all subgroups, for all ratio measures, which were consistent with prior research studies. All four of Tuckman and Chang's (1991a) ratios were significant in evaluating the relationships between ratio measures and their influence on financial vulnerability. Generally, the ratio measures were useful in assessing and predicting the ultimate financial vulnerability of NBLs, the ability to survive a financial hardship. This research study also supported the conclusion reached by Hager (2001) that different measures are valuable in assessing different types of NPOs.

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Tables

Table 1: ***Frequency Distribution of Subgroups, Based on Financial Status***

	Financially Flexible		Financially Vulnerable	
Types of Organizations	Number	Percentage	Number	Percentage
Boards of trade	30	33.4%	29	33.7%
Chambers of commerce & business leagues	30	33.3%	28	32.6%
Real estate associations	30	33.3%	29	33.7%
Totals	90	100.0%	86	100.0%

Table 2: ***Pearson's Correlation for Financial Flexible and Vulnerable NBLs, by Subgroups***

	Equity Balance	**Revenue Concentration**	**Administrative Costs**
Chambers of commerce & business leagues			
Revenue concentration	.33*		
Administrative costs	-.15	-.18	
Operating margin	-.28*	-.45**	.07
Boards of trade			
Revenue concentration	.59		
Administrative costs	.80**	.60**	
Operating margin	-.24	-.06	.10
Real estate association			
Revenue concentration	-.37**		
Administrative costs	.06	.15	
Operating margin	.01	.41**	.22
All organizations			
Revenue concentration	-.26		
Administrative costs	.09	.08	
Operating margin	.05	.29**	.10

*Correlation significant at the 0.05 level (2-tailed).

**Correlation significant at the 0.01 level (2-tailed).

Table 3: ***Pearson's Correlation for Financially Flexible NBLs, by Subgroup***

	Equity Balance	**Revenue Concentration**	**Administrative Costs**
Chambers of commerce & business leagues			
Revenue concentration	-.04		
Administrative costs	-.22	-.02	
Operating margin	-.06	-.12	.28
Boards of trade			
Revenue concentration	.76**		
Administrative costs	.92**	.76**	
Operating margin	.56**	.28	.33
Real estate association			
Revenue concentration	.34		
Administrative costs	-.00	.05	
Operating margin	.69**	.13	.47**
All organizations			
Revenue concentration	.42**		
Administrative costs	.10	.25**	
Operating margin	.71**	.22**	.28**

*Correlation significant at the 0.05 level (2-tailed).
**Correlation significant at the 0.01 level (2-tailed).

Table 4: ***Pearson's Correlation for Financially Vulnerable NBLs, by Subgroup***

	Equity Balance	**Revenue Concentration**	**Administrative Costs**
Chambers of commerce & business leagues			
Revenue concentration	-.72**		
Administrative costs	-.05	-.27	
Operating margin	-.71**	-.47*	-.14
Boards of trade			
Revenue concentration	.15		
Administrative costs	-.13	.09	
Operating margin	.94**	-.19	.08
Real estate association			
Revenue concentration	-.36		
Administrative costs	.07	.31	
Operating margin	-.17	.41*	.11
All organizations			
Revenue concentration	-.32**		
Administrative costs	.05	.15	
Operating margin	-.15	.34	.02

*Correlation significant at the 0.05 level (2-tailed).
**Correlation significant at the 0.01 level (2-tailed).

Table 5: ***Test of Mean Values, by Financial Status***

Mean	**Chambers of Commerce & Business Leagues**	**Boards of Trade**	**Real Estate Associations**	**All Organizations**
Equity balance				
Flexible	.95	1.28	8.62	3.62
Vulnerable	.73	.75	.61	.69
t	.75	.81	2.29	2.36
Sig. (2-tailed)	.46	.42	.03*	.02*
df	56.00	57.00	57.00	174.00
Revenue concentration Flexible	.55	.74	.79	.69
Vulnerable	.69	.70	3.57	1.66
t	-1.58	.81	-3.00	-2.85
Sig. (2-tailed)	.13	.68	.00**	.01**
df	56.00	57.00	57.00	174.00
Administrative costs				
Flexible	.15	.07	.08	.10
Vulnerable	.12	.04	.05	.07
t	.73	.72	.69	1.24
Sig. (2-tailed)	.47	.48	.49	.22
df	56.00	57.00	57.00	174.00
Operating margin				
Flexible	.05	.13	.32	.17
Vulnerable	-.12	-.29	.45	.02
t	4.23	2.14	-1.04	1.75
Sig. (2-tailed)	.00**	.04*	.30	.08
df	56.00	57.00	57.00	174.00

*Correlation is significant at the 0.05 level (2-tailed).
**Correlation significant at the 0.01 level (2-tailed).

Table 6: ***Z-score Probability for the Ratio Measures***

Financial Status	Chambers of Commerce & Business Leagues	Boards of Trade	Real Estate Associations	All Organizations
Equity balance				
Flexible (*M*)	.96	1.28	8.62	3.62
Flexible (*SD*)	1.28	3.23	10.14	7.08
Vulnerable (*M*)	.90	.75	.61	.69
Z-score	-.05	-.16	-.79	-.41
Z distribution	.02	.06	.29	.16
p	.52	.56	.79	.66
Revenue concentration				
Flexible (*M*)	.55	.74	.79	.69
Flexible (*SD*)	.17	.33	.34	.31
Vulnerable *(M*)	.69	.70	3.57	1.66
Z score	.82	-.12	2.72	3.13
Z distribution	.29	.05	8.18	.50
p	.79	.55	.50	.50
Administrative costs				
Flexible (*M*)	.15	.07	.08	.10
Flexible (*SD*)	.17	.23	.23	.22
Vulnerable *(M*)	-.12	.04	.05	.07
Z score	.17	-.13	-.13	-.14
Z distribution	.07	.05	.05	.06
p	.57	.55	.55	.56
Operating margin				
Flexible (*M*)	.05	.13	.32	.17
Flexible (*SD*)	.10	.17	.34	.25
Vulnerable *(M*)	-.12	-.29	.45	.07
Z score	-1.70	2.47	.39	-.60
Z distribution	.46	.49	.15	.23
p	.96	.99	.65	.73

Table 7: ***Pre and Post-2007 T-Test of Mean Values for Surviving Vulnerable NMOs, by Subgroup***

Mean	Chambers of Commerce & Business Leagues	Boards of Trade	Real Estate Associations	All Organizations
Equity balance				
Pre-2007	.73	.75	.61	.69
Post -2007	.56	.55	.64	.56
T	.85	.73	-.00	.11
Sig. (2-tailed)	.38	.47	.99	.89
Df	50.00	56.00	31.00	141.00
Revenue concentration				
Pre-2007	.69	.70	3.56	1.66
Post-2007	.46	.50	.42	.48
T	1.98	2.81	1.22	2.76
Sig. (2-tailed)	.05*	.01**	.00**	.00**
Df	50.00	56.00	31.00	141.00
Administrative costs				
***Pre*-2007**	.12	.04	.45	.07
***Post*-2007**	.10	.01	.00	.05
T	.56	2.38	.20	1.07
Sig. (2-tailed)	.58	.02*	.63	.26
Df	50.00	56.00	31.00	141.00
Operating margin				
Pre-2007	-.12	-.29	.45	.02
Post - 2007	-.06	.02	.02	-.01
T	-.82	-1.56	1.38	.28
Sig. (2-tailed)	.43	.13	.00**	.74
Df	50.00	56.00	31.00	141.00
Program costs				
Pre-2007	.88	.94	.79	.87
Post-2007	.92	.99	.82	.95
T	-1.05	-1.35	-.13	-2.06
Sig. (2-tailed)	.30	.19	.89	.02*
Df	50.00	56.00	31.00	141.00

*Correlation is significant at the 0.05 level (2-tailed).

**Correlation significant at the 0.01 level (2-tailed).

Table 8: ***Pre and Post 2007 Test of Mean Values of Surviving Flexible Versus Vulnerable NMOs, by Subgroup***

Mean	**Chambers of Commerce & Business Leagues**	**Boards of Trade**	**Real Estate Associations**	**All Organizations**
Equity balance				
Flexible – Pre 2007	1.07	.69	2.32	1.12
Vulnerable – Post 2007	.55	.55	.64	.56
T	2.20	.98	1.42	3.23
Sig. (2-tailed)	.03*	.33	.04*	.00**
Df	49.00	54.00	13.00	120.00
Revenue concentration				
Flexible – Pre 2007	.56	.60	.58	.58
Vulnerable – Post 2007	.46	.50	.42	.48
T	1.16	1.28	1.03	1.93
Sig. (2-tailed)	.26	.21	.20	.06
Df	49.00	54.00	13.00	120.00
Administrative costs				
Flexible – Pre 2007	.05	.03	.04	.04
Vulnerable – Post 2007	.10	.01	.00	.05
T	-1.50	1.36	1.06	-.45
Sig. (2-tailed)	.15	.02*	.10	.66
Df	49.00	54.00	13.00	120.00
Operating margin				
Flexible – Pre 2007	-.17	-.01	-.03	-.08
Vulnerable – Post 2007	-.06	.02	.02	-1.15
T	-.8	-.81	-.97	.24
Sig. (2-tailed)	.29	.41	.37	.28
Df	49.00	54.00	13.00	120.00

*Correlation is significant at the 0.05 level (2-tailed).
**Correlation significant at the 0.01 level (2-tailed).

Table 9: ***Post-2007 Distribution of Surviving Organizations, by Subgroups, Based on Financial Status***

	Financially Flexible		**Financially Vulnerable**	
Types of Organizations	**Number**	**% Defunct**	**Number**	**% Decrease**
Boards of trade	27	10.0%	29	0.0%
Chambers of commerce & business leagues	27	10.0%	24	14.3%
Real estate associations	11	63.0%	4	86.2%
Totals	**65**		**57**	