Journal of Economics and Administrative Sciences
2024; 30(140), pp. 1-14

P-ISSN 2518-5764
E-ISSN 2227-703X

Journal of Economics and Administrative Sciences (JEAS)

Available online at http://jeasiq.uobaghdad.edu.iq
DOI: https://doi.org/10.33095/x18s6328

Enhancing Financial Vulnerability Models for Non-Profit Organizations: Integrating Financial Ratios and Macroeconomic Indicators for Comprehensive Risk Assessment

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Received:13/3/2024 **Accepted:24/3/2024** **Published Online First: 30 /4/ 2024**

Abstract:
Purpose: This research advances the financial vulnerability prediction model for Non-Profit Organizations (NPOs) by incorporating a comprehensive set of financial and macroeconomic indicators, aiming to refine risk management and strategic planning within the sector.
Theoretical Framework: Building upon Tuckman and Chang (1991) foundational work, this study addresses the evolving financial landscape's complexities. It expands on traditional financial ratio analyses to include broader economic conditions affecting NPOs, recognizing the limitations of previous literature.
Design/Methodology/Approach: The study analyzes financial data from two NPOs (2017-2021), using three models to assess the influence of internal financial ratios (e.g., Debt Ratio, Cash Ratio, Net Operating Margin) and external macroeconomic factors (e.g., inflation, GDP growth) on NPO financial vulnerability and performance.
Findings: Results highlight a significant positive relationship between the Cash Ratio and Return on Assets, underscoring liquidity management's importance for NPO sustainability. Other factors showed minimal impact, suggesting a nuanced approach to financial vulnerability.
Research Implications: The findings emphasize the necessity of integrating financial ratios with macroeconomic indicators in NPO management strategies, offering a refined model for understanding and mitigating financial risk.
Originality/Value: This study enhances the financial management literature for NPOs by incorporating macroeconomic indicators into vulnerability assessment models. It provides a comprehensive framework for robust financial planning, filling a crucial gap in non-profit financial analysis and contributing to the sector's resilience.

Keywords: Financial Vulnerability, Non-Profit Financial Management, Risk Assessment, Financial Performance, Macroeconomic Indicators, Liquidity Management.
JEL Classification: M10, M12, M15, M19.

P-ISSN 2518-5764
E-ISSN 2227-703X

Authors' individual contribution: Conceptualization — A.F.O.F..; Methodology — A.F.O.F..; Formal Analysis — A.F.O.F..; Investigation — A.F.O.F.; Data Curation — A.F.O.F..; Writing — Original Draft — A.F.O.F..; Writing — Review & Editing — A.F.O.F.; Visualization — A.F.O.F.; Supervision — A.F.O.F.; Project Administration —A.F.O.F.
Declaration of conflicting interests: The Authors declare that there is no conflict of interest.

1.0 Introduction:

Nonprofit organizations stand as vital contributors to societal health, undertaking a wide array of initiatives that span charitable works, educational programs, healthcare provision, and religious missions. These entities are distinguished by their commitment to social good over financial gain, a commitment that fosters a unique culture of unity and purpose among their members and leaders. The challenge of effectively managing these organizations is multifaceted, requiring judicious resource management to enhance service offerings and ensure the optimization of both current assets and potential new resources. This necessity becomes increasingly pronounced as nonprofits engage in complex dynamics with business entities and governmental institutions, placing a premium on the strategic savvy of nonprofit managers in stewarding these critical relationships. Amidst these operational challenges, financial vulnerability looms as a pivotal concern, casting a shadow of increased risk of fiscal distress (Duncan, 2020). This precarious position not only imperils the sustainability of such organizations but also escalates the risk of engaging in unethical practices and suffering from inadequate resources. These conditions, in turn, threaten the very core of their mission to serve society, comply with regulatory standards, and ensure organizational longevity. Economic volatility exacerbates these vulnerabilities, with potential fluctuations in funding and unexpected surges in demand for services underscoring the indispensable role of thorough financial risk assessments. Recent scholarly works, such as those by Santos and Laureano (2023), Guerrero (2022), Plaisance (2022), and Searing et al. (2023) have significantly advanced our comprehension of the intricacies of financial vulnerability within the nonprofit sector. These studies elucidate the evolving landscape of financial risks and validate the application of financial ratios as potent tools for risk assessment. This research seeks to harness these insights to forge a nuanced analytical framework that addresses the multifaceted dimensions of financial vulnerability, aiming to not only build upon but also to broaden the scope of previous scholarly contributions. By integrating current research findings with the seminal methodologies of pioneers like Tuckman and Chang (1991), this study proposes a refined set of financial indicators that, together with an assessment of macroeconomic factors, can effectively gauge the financial vulnerability risks faced by Non-Profit Organizations (NPOs). This investigation is poised to equip regulatory authorities with a more precise toolset for identifying NPOs that are at an elevated risk of financial distress, thereby enabling the implementation of more focused monitoring and intervention strategies. Through a comprehensive examination that spans an exhaustive literature review, a detailed outline of empirical methodologies, the presentation of findings, and a thorough discussion of implications, limitations, and future research directions, this paper endeavors to deepen the understanding of financial vulnerability within the nonprofit sector. The ultimate goal is to contribute to the cultivation of a more robust, resilient, and transparent nonprofit landscape.

P-ISSN 2518-5764
E-ISSN 2227-703X

2.0 Literature Review And Hypothesis Development:

2.1 Financial Ratios in Assessing Risk:

According to (Chabotar, 1989), the Risk Financial ratio assesses company risk through financial record analysis, predicting insolvency, detecting fraud, and evaluating performance. Financial institutions use these ratios for creditworthiness and risk assessment.

Tuckman and Chang (1991) introduced a model for Non-Profit Organizations (NPOs) to predict financial vulnerability using four key financial metrics: Administrative Cost ratio, Debt ratio, Revenue Concentration Index, and Surplus Margin. Despite prior research identifying essential risk indicators, this study introduces eight financial indicators across four categories to enhance financial vulnerability risk assessment;

2.1.1 Solvency Ratio:

The solvency ratio, essential for assessing an organization's ability to meet its obligations, includes the Debt ratio and Cash ratio for NPOs' solvency evaluation. The Debt ratio, indicating reliance on debt for asset financing, carries risks of interest and principal payments; a higher Debt ratio suggests greater risk (Rachman et al., 2023). In contrast, the Cash ratio shows an NPO's cash availability for short-term survival, with a higher Cash ratio indicating sufficient cash for programs and obligations (Pompeng & Rambak, 2022; Zuliyana et al., 2023).

H1a: There is a significant positive impact of Solvency Ratio on return on assets (ROA).

2.1.2 Stability Ratio:

For NPOs, a diverse revenue stream is crucial for sustainability and continuous operation. Heavy reliance on limited income sources, like government grants or specific donors, poses risks, especially during economic downturns which can decrease donations and affect NPOs' program execution (Cheuk, 2021; D. C. Hettiarachchi, 2023). To mitigate these risks, diversifying revenue sources is key. This study applies the Revenue Concentration Index and the Reliance Ratio to assess income concentration and dependence on a single source. These measures, previously used in research by Tuckman and Chang (1991), Trussel (2002), Cheuk (2021), and D. Hettiarachchi (2023) help evaluate revenue diversification in NPOs. The Revenue Concentration Index, informed by the Hirschman-Herfindahl Index, gauges revenue source quantity and diversity. A high index value indicates concentrated revenue and increased financial risk (Cheuk, 2021).Conversely, the Reliance Ratio measures NPOs' dependency on their primary income source, with a higher ratio signalling greater vulnerability to financial risks (Bansal, 2019).

H2a: There is a significant positive impact of Stability Ratio on return on assets (ROA).

2.1.3 Efficiency Ratio:

NPO efficiency hinges on effective management and operations, evaluated through ratios like administrative, program, fundraising expenses, and fundraising cost percentage (Treinta et al., 2020). Administrative costs indicate financial flexibility, with higher costs suggesting less vulnerability to instability by (Tuckman and Chang, 1991). However, Hager (2001) views high administrative costs as a risk for financial distress, whereas Tuckman and Chang see them as a buffer for financial shocks, allowing for cost adjustments over service cuts. Donor preference for low administrative costs, seen as efficient donation use, is highlighted by Finley et al. (2021). This study adopts the management cost rate ratio and administrative ratio to gauge efficiency, with the former indicating efficiency through higher ratios of administrative expenses to revenue. The latter, preferred by watchdogs, measures administrative expenses against total expenses. Tuckman and Chang (1991) found lower administrative cost ratios signified higher efficiency, making these ratios critical for assessing NPO efficiency in this research.

H3a: There is a significant positive impact of Efficiency Ratio on return on assets (ROA).

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E-ISSN 2227-703X

2.1.4 Surplus Margin:

The surplus margin ratio is a critical measure of an organization's profitability, with higher ratios indicating financial flexibility and resilience against distress (Mabelane et al., 2022; Tuckman & Chang, 1991). Similar to for-profit entities, the surplus margin ratio for NPOs shows the net income as a percentage of revenue, essential for assessing profitability and financial health (Gee et al., 2023). Tuckman and Chang (1991) highlighted the risks of low surplus margins, linking them to increased financial vulnerability. Conversely, high surplus margins suggest an organization's capacity to save or invest, providing a cushion during financial downturns (Hager, 2001; Searing et al., 2023; Tuckman & Chang, 1991). Guthrie et al. (2022) note that low or negative margins can force service reductions in times of financial difficulty. Therefore, maintaining high surplus margins is crucial for NPOs to mitigate financial risks and ensure long-term stability.

H4a: There is a significant positive impact of Surplus Margin on return on assets (ROA).

2.1.5 Risks and Company Performance:

In business, the main goal is to produce profits for stakeholders, serving as a crucial measure of the business's overall success. However, seeking larger profits often means taking on more risks. As a result, businesses strive to manage these risks to protect against undesirable outcomes. A study by Alabdullah (2022) investigated the effects of risk management on a company's performance, finding a strong positive relationship between efficient risk management and superior business results. This underlines the importance of integrating risk management strategies into the fundamental operations of a company (Malik et al., 2020). This study also emphasized the vital role of risk management in the prosperity of Malaysian Islamic banks. Khatib and Nour (2021) found a significant correlation between risk management and firm performance in Malaysia, aligning with prior studies in various contexts. Enhancing risk management practices within businesses can yield numerous benefits, including increased operational efficiency, minimized losses, improved customer satisfaction, and reduced legal liabilities, (Alabdullah, 2022). These principles are beneficial to businesses because they (i) allow them to attract more customers from different backgrounds, thus expanding their resource portfolio; (ii) enable them to become more profitable and efficient; and (iii) help them secure more funding than businesses with poor risk management, as found by Cebenoyan and Strahan (2004). Having more financial resources makes credit more accessible for a business, which in turn facilitates additional profit and asset generation.

2.1.6 Inflation:

Johnson (1963) defines inflation as a constant rise in prices. Inflation, according to (Society et al., 1977), is a phenomenon in which prices continue to increase or the quantity of money continues to fall. Its relevance stems from capital's pervasiveness in today's economy. Inflation is expressed in percentage terms as the increase or decrease in the consumer price index (CPI) (Bryan & Cecchetti, 1993). According to Zhai et al. (2024) case study, inflation may have a number of consequences on NPLs. On the one hand, higher inflation simplifies debt payments for two reasons. It has two purposes: first, it reduces the real worth of outstanding debt, and second, it contributes to reduced unemployment. On the other hand, by lowering borrowers' real earnings, it erodes their ability to service debt (Palley, 2020).

H5a: There is a significant positive impact of the inflation on return on assets (ROA).

2.1.7 GDP Growth:

Gross Domestic Product Expansion is defined as an acceptable argument for decoupling economic growth from environmental effect growth in human civilization (Chang et al., 2019). GDP growth is calculated using the actual GDP growth rate (Coccia, 2021). (Kitov, 2008) performed a thorough investigation of the US personal income distribution (PID) and extensive modeling of some of the distribution's primary features.

H6a: There is a significant positive impact of the GDP Growth on return on assets (ROA).

P-ISSN 2518-5764
E-ISSN 2227-703X

2.1.8 Interest Rate:

The natural rate of interest is the real short-term interest rate associated with demand equaling its natural rate and stable inflation. It is a necessary component of both macroeconomic and monetary theory (Laubach & Williams, 2003). According to Ogundipe et al. (2020), interest rate is a percentage of the gross outstanding balance or the amount of payments given to the debtor in order to get credit within a specified time period; the rate charged may be fixed or variable. (Bahruddin & Masih, 2018) study demonstrates that interest rate risk volatility has an influence on the volume of problematic loans. Non-performing loans (NPL) at the financial institution would grow the bad debts and lead to higher interest rate payments. As a consequence, as interest rates rise, the bank's credit risk grows.

H7a: There is a significant positive impact of the Interest Rate on return on assets (ROA).

3.0 Methodology:

This study scrutinizes the relationship between internal factors (solvency ratio, stability ratio, efficiency ratio, surplus margin), external factors (inflation, GDP Growth, interest rate) and non-profit organizations' financial, utilizing various data sources to compile a rich dataset. The financial data, encompassing variables such as solvency ratio, stability ratio, efficiency ratio, surplus margin, as well as the non-profit organizations' performance metrics, will be extracted from the banks' annual reports and financial statements, which are available on their official websites and other reliable financial information platforms. The macroeconomic indicators, inflation, GDP growth and interest rate are the external factors in this analysis will be extracted from the open data world bank.

3.1 Sample :

This research examines the intricate dynamics between organizational factors and financial vulnerability within non-profit organizations, with a particular focus on International Cancer Control and The American Cancer Society. Given their critical role in societal welfare and their exposure to various financial challenges and governance issues, these organizations represent a vital segment of the study. Initially, data regarding financial health and organizational factors were to be collected from a wider range of non-profit organizations through Refinitiv Eikon & Datastream. However, due to limitations in data availability and consistency, the scope was narrowed down to these two organizations. They are uniquely situated within the non-profit sector, differing in scale, operational reach, and impact on the community.

The study aims to explore the relationships between specific organizational factors and financial vulnerability, emphasizing the period of five-year period (2017-2021). This temporal scope provides depth to the analysis, enabling the investigation of both immediate and prolonged effects. Data covering 5 years will enhance the robustness of the outcomes and facilitate a detailed exploration of the complex interactions between the variables. A one-year lag may be applied to certain variables to clarify causal links and address possible issues of endogeneity, in line with the methodological framework employed in prior research.

3.2 Research Model:

This theoretical framework was created to show the relationship between the underlying theories. The dependent variable is related to the independent variables, and the SPSS version 27 output can display the correlation between them as well. ROA is the dependent variable in this study of Nonprofit organization financial vulnerability is ROA. Solvency Ratio, Stability Ratio, Efficiency Ratio and Surplus Margin are some of the internal variables that were calculated in this analysis. The macroeconomic indicators (i.e., inflation, GDP growth and interest rate) are the external factors in this analysis.

P-ISSN 2518-5764
E-ISSN 2227-703X

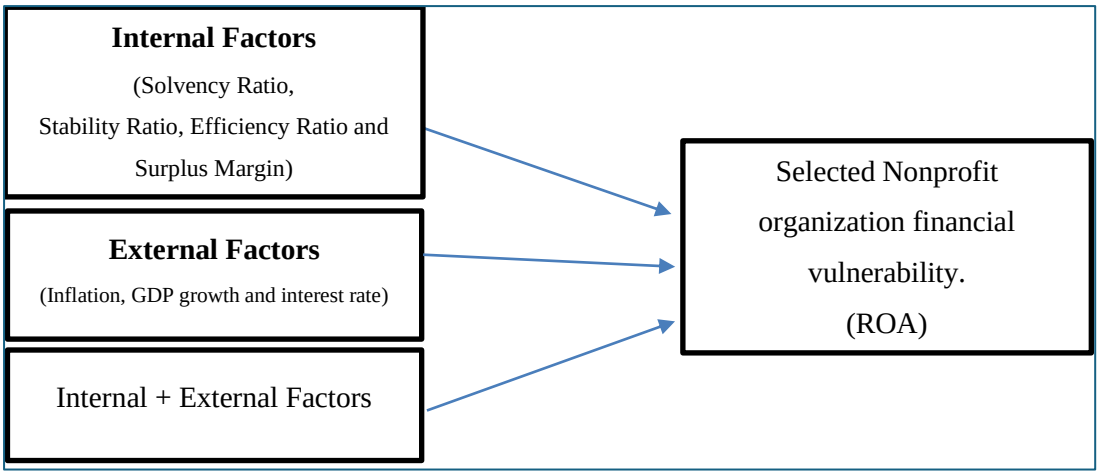

Figure. 1. Theoretical framework

3.3 Measurement of variables:

Table 1. Measurement of variables

Constructs	Measurement
ROA =	$\frac{net\ income}{total\ assets}$
Solvency Ratio (Debt ratio) =	$\frac{Total\ Debt}{Total\ Assest}$
Solvency Ratio (Cash ratio) =	$\frac{Current\ Assest}{Current\ liability}$
Stability Ratio (Gearing ratio) =	$\frac{Total\ Liability + Current\ Liability}{Captial\ Eemployed}$
Efficiency Ratio (Administrative costs) =	$\frac{Total\ Administrative}{Total\ expenses}$
Surplus Margin =	$\frac{Management\ cost}{Total\ Revenue}$

4.0 Empirical analyses and findings:

The study has used SPSS to analyse the results and findings of the two non-profit organizations. By using SPSS, part of the statistical functions such as coefficients, correlations, descriptive tables, graphical plots and others will be able to be produced. Besides, normal P-P plot, Durbin Watson can also be generated by using SPSS in order to improve the reliability of the research. However, linear regression analysis is the major focus in this study.

4.1 Descriptive Statistics:

Table 2. Descriptive Statistics

Items	Mean	Std. Deviation
ROA	1.14	0.42
Cash Ratio	4.29	3.29
Stability Ratio	0.72	0.37
Efficiency Ratio	0.64	0.20
Inflation	13.41	38.54
Interest Rate	2.40	0.75

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E-ISSN 2227-703X

This analysis offers detailed statistics on key financial metrics and economic indicators, including their means, standard deviations, and sample sizes, to give a comprehensive view of industry performance and economic trends from a non-profit organization perspective. The Return on Assets (ROA), with a mean of 1.139 %, signifies that, on average, organizations are able to generate a modest return on their assets. This is crucial for non-profits to understand as it reflects on the financial efficiency and sustainability in achieving their mission goals. The ROA's standard deviation of 0.424 indicates a relatively stable profitability across the sector, suggesting that most non-profits manage their assets consistently to support their activities. The Cash Ratio, averaging at 4.29, demonstrates a strong liquidity position among organizations, which is vital for non-profits to ensure they have sufficient resources to meet immediate obligations and continue their mission-related activities without disruption. The high standard deviation of 3.291, however, points to significant differences in liquidity among organizations, emphasizing the need for effective financial planning and risk management strategies within the non-profit sector.

With a mean Stability Ratio of 0.718, there's a tendency towards leveraging long-term debt over equity, indicating a higher financial risk. For non-profits, understanding this balance is key to managing long-term commitments and ensuring financial resilience. The consistency of this practice across the industry, as shown by a standard deviation of 0.370, underscores the importance of strategic financial management.

The Efficiency Ratio, with a mean of 0.640, suggests that non-profits generally do well in generating revenue from their assets, highlighting operational efficiency. This metric, along with its standard deviation of 0.199, reveals a degree of diversity in asset management efficiency, which could guide non-profits in benchmarking and improving their operations.

On the economic front, the average inflation rate of 13.4% presents a challenging environment of rising costs, significantly impacting non-profit operations and funding capabilities. The wide variability in inflation rates, indicated by a standard deviation of 38.53, further stresses the importance of adaptive financial planning to navigate economic volatility.

Finally, the interest rate mean of 2.39%, with a relatively low standard deviation of 0.753, points to stable borrowing costs. This stability benefits non-profits by providing predictability in financial planning and facilitating investment decisions in support of their mission.

In summary, these statistics provide valuable insights for non-profit stakeholders into the financial health, efficiency, and economic positioning of their organizations, highlighting the importance of strategic financial management to navigate the complexities of the economic landscape and ensure mission sustainability.

4.2 Coefficients:

Table. 3 Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.715	.645		2.661	.056		
	Cash Ratio	.110	.043	.852	2.555	.063	.446	2.243
	Stability Ratio	-.324	.421	-.283	-.771	.484	.369	2.712
	Efficiency Ratio	-1.028	.592	-.481	-1.735	.158	.643	1.554
	Inflation	-.001	.003	-.117	-.485	.653	.851	1.175
	Interest Rate	-.058	.140	-.103	-.416	.699	.807	1.239
a. Dependent Variable: ROA								

P-ISSN 2518-5764
E-ISSN 2227-703X

In the detailed examination of coefficients presented in Table 3, our analysis delves into the intricate relationship between various financial metrics, economic indicators, and their impact on the Return on Assets (ROA), a critical measure of organizational efficiency for non-profit entities. This efficiency metric is paramount for non-profits that strive to maximize resource utilization towards achieving their mission-driven objectives. Among the key findings, the Cash Ratio stands out for its positive and nearly significant relationship with ROA, underscoring the paramount importance of liquidity management for non-profits. This result emphasizes that maintaining robust cash reserves is crucial for enhancing operational efficiency and ensuring long-term organizational sustainability. Further broadening our perspective beyond liquidity, the analysis brings to light the nuanced roles of other financial health indicators. Despite not achieving statistical significance, the Stability Ratio and Efficiency Ratio reveal negative coefficients, hinting at underexplored areas where financial management practices might be optimized. These findings, although not directly impactful on ROA in a statistically significant manner, provide a comprehensive view of an organization's financial health, signaling opportunities for improvement and deeper investigation.

Moreover, the analysis observes that macroeconomic factors, such as Inflation and Interest Rates, do not exhibit a significant direct impact on the efficiency of asset utilization within non-profits. This insight is particularly valuable for non-profit managers, emphasizing the precedence of internal financial management strategies over the influence of external economic conditions. This reinforces the idea that the strategic management of internal resources holds the key to navigating financial challenges and leveraging opportunities for growth and sustainability.

To further enrich our understanding, the negative association of the Efficiency Ratio with ROA, despite its lack of statistical significance, prompts a critical examination of how non-profits manage their resources between administrative costs and mission-driven activities. This invites a deeper exploration into strategic financial planning and resource allocation to ensure that operations are both efficient and aligned with organizational goals. Similarly, the Stability Ratio's negative coefficient, although not significantly impacting ROA, initiates a conversation around financial stability and risk management. It suggests that the balance between an organization's assets and liabilities can significantly affect its capability to endure financial uncertainties and invest in initiatives that are crucial to its mission.

By extending our analysis to encompass both significant and non-significant financial metrics, this study encourages non-profit organizations to adopt a more nuanced approach to financial strategy. This approach should not only prioritize liquidity through effective cash management but also consider the broader spectrum of financial health indicators to optimize operational efficiency, ensure financial stability, and build resilience against economic challenges. Such a comprehensive approach to financial management empowers non-profits to better support their mission-critical activities, enhancing organizational sustainability and maximizing impact in their respective sectors. This enriched analysis underscores the complexity of financial management within non-profit organizations, highlighting the need for a holistic, informed, and strategic approach to navigating the financial landscape.

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E-ISSN 2227-703X

3.4 Correlations:

Table. 4 Correlations

		ROA	Cash Ratio	Stability Ratio	Efficiency Ratio	Inflation	Interest Rate
Pearson Correlation	ROA	1.000	.784	.546	-.474	-.388	-.141
	Cash Ratio	.784	1.000	.666	-.150	-.259	-.175
	Stability Ratio	.546	.666	1.000	-.499	-.316	.159
	Efficiency Ratio	-.474	-.150	-.499	1.000	.312	-.298
	Inflation	-.388	-.259	-.316	.312	1.000	-.105
	Interest Rate	-.141	-.175	.159	-.298	-.105	1.000
Sig. (1-tailed)	ROA	.	.004	.051	.083	.134	.349
	Cash Ratio	.004	.	.018	.339	.235	.315
	Stability Ratio	.051	.018	.	.071	.187	.330
	Efficiency Ratio	.083	.339	.071	.	.190	.201
	Inflation	.134	.235	.187	.190	.	.387
	Interest Rate	.349	.315	.330	.201	.387	.
N	ROA	10	10	10	10	10	10
	Cash Ratio	10	10	10	10	10	10
	Stability Ratio	10	10	10	10	10	10
	Efficiency Ratio	10	10	10	10	10	10
	Inflation	10	10	10	10	10	10
	Interest Rate	10	10	10	10	10	10

This section analyzes the correlations between various financial metrics and economic indicators with the Return on Assets (ROA), a crucial measure of organizational efficiency, particularly important for non-profit organizations aiming to optimize asset utilization for mission impact.

The analysis highlights a statistically significant positive correlation between the Cash Ratio and ROA (p -value = 0.004), suggesting that an increase in the Cash Ratio, indicative of higher liquidity, correlates with an increase in ROA. This finding aligns with previous research such as Tesfaye (2012) in the context of Ethiopian banks, Molefe and Muzindutsi (2016); in Nigerian banks and Weersainghe and Perera (2013), in Sri Lankan commercial banks, all of which reported a positive correlation between Cash Ratio and ROA. For non-profits, this emphasizes the importance of liquidity management in supporting operational efficiency and sustainability.

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E-ISSN 2227-703X

The Stability Ratio's weak positive correlation with ROA (p-value = 0.051) suggests a minimal influence of debt management on asset returns, echoing findings by Nath et al. (2015) in the pharmaceutical industry and Ahmad et al. (2022) in the food and beverage sector. This indicates that, for non-profits, the Stability Ratio may not significantly impact their financial efficiency.

Similarly, the Efficiency Ratio shows a weak positive correlation with ROA (p-value = 0.083), suggesting that while efficient asset utilization is beneficial, it is not the sole determinant of financial performance. This is supported by studies such as Matar and Eneizan (2018) in Jordanian banks, Setiawan et al. (2013) in Indonesia, and Bharathi Kamath (2008) in the Indian pharmaceutical sector, which all found weak positive correlations between efficiency measures and profitability.

The analysis also reveals a weak yet positive correlation between Inflation and ROA (p-value = 0.134), indicating that higher inflation rates might slightly benefit returns on assets. This is consistent with findings by Omer (2021) in Iraqi Stock Exchange-listed companies, Mirza and Javed (2013) in Pakistani firms, and Kyereboah-Coleman and Agyire-Tettey (2008) in Ghanaian firms. For non-profits, this suggests that inflation's impact on financial performance is marginal and likely overshadowed by other factors.

Lastly, the Interest Rate shows a very weak yet positive correlation with ROA (p-value = 0.349), implying that changes in interest rates have minimal influence on asset returns. This observation is in line with Brahmaiah (2018), who noted a positive but not strong correlation between interest rates and ROA in Indian banks. For non-profits, this indicates that while interest rates may affect investment income, their impact on overall financial efficiency is limited.

In summary, this correlation analysis provides valuable insights for non-profit organizations, highlighting the critical role of liquidity management (i.e., Cash Ratio) in enhancing financial performance (ROA). It suggests that while other financial metrics and economic indicators like the Stability Ratio, Efficiency Ratio, Inflation, and Interest Rates have some correlation with ROA, their impact is relatively weak, pointing to the multifaceted nature of financial efficiency in the non-profit sector.

5. Discussion of Results:

Our study delves into the financial vulnerability of non-profit organizations, uncovering critical insights into how internal and external factors influence their financial health. A key discovery is the significant positive correlation between the Cash Ratio and Return on Assets (ROA). This highlights liquidity management as not merely a financial strategy but a crucial determinant of non-profit profitability and sustainability. Such a finding echoes the conclusions of prior research (Tesfaye, 2012; Molefe & Muzindutsi, 2016; Weersainghe & Perera, 2013), underscoring the pivotal role of a strong Cash Ratio in securing favorable returns on assets. However, our analysis also revealed that the ROA's relationship with other financial health indicators—such as the Stability Ratio, Efficiency Ratio, and even macroeconomic variables like inflation rates—is less pronounced. This suggests that while these factors do affect non-profit financial performance, their impact is substantially less critical than liquidity management. This nuanced understanding aligns with previous findings (Nath et al., 2015; Ahmad et al., 2022; Matar & Eneizan, 2018; Setiawan et al., 2013; Bharathi Kamath, 2008), indicating a consensus on their relative influence. Interestingly, the study observes that non-profits can implement marginal adjustments to buffer against inflation's effects, though the overall influence of macroeconomic factors on financial performance remains modest. This observation is consistent with earlier studies (Omer, 2021; Mirza and Javed, 2013; Kyereboah-Coleman and Agyire-Tettey, 2008), suggesting a widespread understanding of these dynamics across different economic settings. Despite these insights, the study's limitations warrant a careful interpretation of the findings.

P-ISSN 2518-5764
E-ISSN 2227-703X

The reliance on annual reports from a limited sample of non-profit organizations and the challenges associated with using SPSS for data analysis, including addressing multicollinearity, highlight the need for caution. These constraints emphasize the necessity of expanding the research scope to include a wider variety of organizations and extending the study period to enhance the applicability and reliability of the results.

6. Conclusion:

This research sheds light on the nuanced impacts of internal and external factors on the financial vulnerability of non-profit organizations, with a spotlight on the critical role of liquidity management. Despite the influences of various financial metrics and macroeconomic conditions, the study conclusively demonstrates that liquidity management remains paramount. Non-profits, therefore, are urged to adopt liquidity-enhancing practices as a cornerstone strategy to navigate the financial complexities inherent in fulfilling their mission-driven objectives. While the insights gleaned from this analysis are significant, the study's scope, constrained by data from only two organizations over a limited five-year period, necessitates a careful interpretation of the results. This limitation not only highlights the challenges encountered in data analysis but also opens avenues for future research. Broadening the empirical base to encompass a more diverse array of non-profits and extending the observational period could significantly bolster the study's generalizability and applicability. In drawing to a close, this research not only enriches the existing body of knowledge on financial vulnerability in the non-profit sector but also lays foundational stones for subsequent inquiries. It accentuates the indispensable nature of liquidity management in ensuring the financial well-being and operational sustainability of non-profit organizations. Given this context, non-profit leaders are encouraged to prioritize strategic liquidity management, exploring avenues such as maintaining adequate cash reserves, improving cash flow forecasting, and establishing lines of credit. These targeted strategies are instrumental in enhancing financial resilience, ensuring that non-profits are better equipped to weather financial uncertainties and continue their vital work.

Ultimately, this study underscores the necessity for non-profits to embrace a proactive approach to financial management, with liquidity enhancement at its core, thereby safeguarding their capacity to achieve long-term, mission-driven success.

Authors Declaration:

Conflicts of Interest: None

-We Hereby Confirm That All The Figures and Tables In The Manuscript Are Mine and Ours. Besides, The Figures and Images, Which are Not Mine, Have Been Permitted Republication and Attached to The Manuscript.

- Ethical Clearance: The Research Was Approved By The Local Ethical Committee in The University.

P-ISSN 2518-5764
E-ISSN 2227-703X

References:

1.Ahmad, G. N., Prasetyo, M. R. P., Buchdadi, A. D., Suherman, W., & Kurniawati, H. (2022). The effect of CEO characteristics on firm performance of food and beverage companies in Indonesia, Malaysia and Singapore. *Quality-Access to Success*, *23*(186), 111-122.

2.Alabdullah, T. T. Y. (2022). Management accounting insight via a new perspective on risk management-companies' profitability relationship. *International Journal of Intelligent Enterprise*, *9*(2), 244-257.

3.Bahruddin, W. A., & Masih, M. (2018). Is the relation between lending interest rate and non-performing loans symmetric or asymmetric? evidence from ARDL and NARDL.

4.Bansal, K. k., Dr Pankaj (2019). Analysis of Debt-Equity Ratio in Reliance Industries Ltd. *Interpretation*, *230156*, 198687.198600.

5.Bharathi Kamath, G. (2008). Intellectual capital and corporate performance in Indian pharmaceutical industry. *Journal of Intellectual Capital*, *9*(4), 684-704.

6.Brahmaiah, B. (2018). Factors influencing profitability of banks in India. *Theoretical Economics Letters*, *8*(14), 3046.

7.Bryan, M. F., & Cecchetti, S. G. (1993). The consumer price index as a measure of inflation. In: National Bureau of Economic Research Cambridge, Mass., USA.

8.Chabotar, K. J. (1989). Financial ratio analysis comes to nonprofits. *The Journal of Higher Education*, *60*(2), 188-208.

9.Chang, A. Y., Cowling, K., Micah, A. E., Chapin, A., Chen, C. S., Ikilezi, G., Sadat, N., Tsakalos, G., Wu, J., & Younker, T. (2019). Past, present, and future of global health financing: a review of development assistance, government, out-of-pocket, and other private spending on health for 195 countries, 1995–2050. *The Lancet*, *393*(10187), 2233-2260.

10. Cheuk, S. (2021). Financial management capacity, accountability, own income generation, revenue diversification and financial sustainability in charities of Malaysia. *Studies of Applied Economics*, *39*(1).

11. Coccia, M. (2021). The relation between length of lockdown, numbers of infected people and deaths of Covid-19, and economic growth of countries: Lessons learned to cope with future pandemics similar to Covid-19 and to constrain the deterioration of economic system. *Science of The Total Environment*, *775*, 145801.

12. Duncan, J. (2020). *Impacting nonprofit financial sustainability and mission* Walden University].

13. Finley, A. R., Hall, C., Harris, E., & Lusch, S. J. (2021). The effect of large corporate donors on non-profit performance. *Journal of Business Ethics*, *172*, 463-485.

14. Gee, I. H., Nahm, P. I., Yu, T., & Cannella Jr, A. A. (2023). Not-for-Profit Organizations: A Multi-Disciplinary Review and Assessment From a Strategic Management Perspective. *Journal of Management*, *49*(1), 237-279.

15. Guerrero, S. (2022). Financial Vulnerability and Nonprofit Organizations. In A. Farazmand (Ed.), *Global Encyclopedia of Public Administration, Public Policy, and Governance* (pp. 4882-4888). Springer International Publishing. https://doi.org/10.1007/978-3-030-66252-3_2938

16. Guthrie, J., Linnenluecke, M. K., Martin-Sardesai, A., Shen, Y., & Smith, T. (2022). On the resilience of Australian public universities: why our institutions may fail unless vice-chancellors rethink broken commercial business models. *Accounting & Finance*, *62*(2).

17. Hager, M. A. (2001). Financial vulnerability among arts organizations: A test of the Tuckman-Chang measures. *Nonprofit and voluntary sector quarterly*, *30*(2), 376-392.

18. Hettiarachchi, D. (2023). Assessing the Financial Vulnerability of Not-for-Profit Organisations in the Australian Aged Care Sector. *Vidyodaya Journal of Humanities and Social Sciences*, *8*(02).

19. Hettiarachchi, D. C. (2023). Effects of non-financial performance management and risk disclosures on not-for-profit financial vulnerability: Evidence from the Australian aged care not-for-profit sector. *Journal of Accounting and Management Information Systems*, *23*(4), 723-745.

20. Khatib, S. F., & Nour, A. (2021). The impact of corporate governance on firm performance during the COVID-19 pandemic: Evidence from Malaysia. *Journal of Asian Finance, Economics and Business*, *8*(2), 0943-0952.
21. Kitov, I. O. (2008). GDP growth rate and population. *arXiv preprint arXiv:0811.2125*.
22. Kyereboah-Coleman, A., & Agyire-Tettey, K. F. (2008). Impact of macroeconomic indicators on stock market performance: The case of the Ghana Stock Exchange. *The Journal of Risk Finance*, *9*(4), 365-378.
23. Laubach, T., & Williams, J. C. (2003). Measuring the natural rate of interest. *Review of Economics and Statistics*, *85*(4), 1063-1070.
24. Mabelane, K., Mongwe, W. T., Mbuvha, R., & Marwala, T. (2022). An Analysis of Local Government Financial Statement Audit Outcomes in a Developing Economy Using Machine Learning. *Sustainability*, *15*(1), 12.
25. Malik, M. F., Zaman, M., & Buckby, S. (2020). Enterprise risk management and firm performance: Role of the risk committee. *Journal of Contemporary Accounting & Economics*, *16*(1), 100178.
26. Matar, A., & Eneizan, B. M. (2018). Determinants of financial performance in the industrial firms: Evidence from Jordan. *Asian Journal of Agricultural Extension, Economics & Sociology*, *22*(1), 1-10.
27. Mirza, S. A., & Javed, A. (2013). Determinants of financial performance of a firm: Case of Pakistani stock market. *Journal of economics and International Finance*, *5*(2), 43.
28. Molefe, B., & Muzindutsi, P.-F. (2016). Effect of capital and liquidity management on profitability of major South African banks. Proceedings of the 28th Annual Conference of the Southern African Institute of Management Scientists,
29. Nath, S. D., Islam, S., & Saha, A. K. (2015). Corporate board structure and firm performance: the context of pharmaceutical industry in Bangladesh. *International Journal of Economics and Finance*, *7*(7), 106-115.
30. Ogundipe, A. S., Akintola, A. F., & Olaoye, S. A. (2020). Interest rates and loan performance of deposit money banks in Nigeria. *International Journal of Economics and Business Review*, *8*(1), 13-20.
31. Omer, A. M. R. (2021). The impact of the Basel III committee decisions on the performance of banks in Iraq. *International Journal Of Economics And Finance Studies*, *13*(2), 477-499.
32. Palley, T. (2020). What's wrong with Modern Money Theory: macro and political economic restraints on deficit-financed fiscal policy. *Review of Keynesian Economics*, *8*(4), 472-493.
33. Plaisance, G. (2022). French non-profit organizations after one year of Covid-19: Insights into organizational resilience. *Journal of General Management*, 03063070221140725.
34. Pompeng, O. D. Y., & Rambak, J. E. (2022). Cash Flow Ratio Analysis as a Measuring Tool for The Company's Financial Performance at PT. Astra International Tbk. Proceeding of The International Conference on Economics and Business,
35. Rachman, S., Karyatun, S., & Digdowiseiso, K. (2023). The Effect of Current Ratio, Debt to Equity Ratio, Debt to Asset Ratio, and Total Asset Turnover on The Financial Performance of Property and Real Estate Companies Listed in The Idx For The 20162020 Period. *Jurnal Syntax Admiration*, *4*(2), 361-377.
36. Santos, M. R., & Laureano, R. M. (2023). Developing a vulnerability-based conceptual model for managing risk in non-profit projects: A multicase study in a European country. *Public Management Review*, *25*(2), 313-339.
37. Searing, E. A., Wiley, K. K., & Young, S. L. (2023). Resiliency tactics during financial crisis: The nonprofit resiliency framework. In *Understanding Nonprofit Organizations* (pp. 275-289). Routledge.
38. Setiawan, K., Junarsin, E., & Yuliati, S. H. (2013). Public Firm's Background on The Performance-Governance Relation: Evidence from Indonesia. *Journal of Indonesian Economy and Business*, *28*(3), 377-390.

P-ISSN 2518-5764
E-ISSN 2227-703X

39. Society, R. E., Council, S. S. R., & Morawetz, D. (1977). *Employment implications of industrialisation in developing countries: A survey*. Springer.
40. Tesfaye, T. (2012). Determinants of Banks Liquidity and their Impact on Financial Performance: empirical study on commercial banks in Ethiopia. *Unpublished Master's Thesis. Addis Ababa University. Ethiopia*.
41. Treinta, F. T., Moura, L. F., Almeida Prado Cestari, J. M., Pinheiro de Lima, E., Deschamps, F., Gouvea da Costa, S. E., Van Aken, E. M., Munik, J., & Leite, L. R. (2020). Design and implementation factors for performance measurement in non-profit organizations: A literature review. *Frontiers in Psychology*, *11*, 1799.
42. Trussel, J. M. (2002). Revisiting the prediction of financial vulnerability. *Nonprofit Management and Leadership*, *13*(1), 17-31.
43. Tuckman, H. P., & Chang, C. F. (1991). A methodology for measuring the financial vulnerability of charitable nonprofit organizations. *Nonprofit and voluntary sector quarterly*, *20*(4), 445-460.
44. Weersainghe, V., & Perera, T. R. (2013). Determinants of profitability of commercial banks in Sri Lanka. *International Journal of Arts and commerce*, *2*(10), 141-170.
45. Zhai, P., Wu, F., Ji, Q., & Nguyen, D. K. (2024). From fears to recession? Time-frequency risk contagion among stock and credit default swap markets during the COVID pandemic. *International Journal of Finance & Economics*, *29*(1), 551-580.
46. Zuliyana, S., Karyatun, S., & Digdowiseiso, K. (2023). Analisis Cash Ratio, Debt to Equity Ratio, and Sales Growth on Company Value for Food and Beverage Companies During the 2015-2021 Period. *Jurnal Syntax Admiration*, *4*(4), 739-748.