

# A STUDY OF FINANCIAL HEALTH IN SMALL BUSINESS BY USING STRUCTURAL EQUATIONS MODELLING

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## Abstract

This study investigates the financial health of small businesses using Structural Equation Modelling (SEM) to analyze and evaluate the factors that influence financial stability. Small and medium enterprises (SMEs) play a critical role in economic growth but are often vulnerable to financial challenges. The study identifies key financial indicators such as profitability, liquidity, and solvency that significantly impact a business's overall financial health. By applying SEM, the research explores the relationships between these financial factors and their effects on business sustainability. This methodological approach enables the development of a comprehensive model that highlights the pathways and determinants critical for improving financial performance in small businesses. The findings aim to provide valuable insights for business owners, policymakers, and financial analysts to enhance decision-making processes and promote long-term business viability.

*Keywords: Financial Health, Small Business, Structural Equation Modelling (SEM), Business Performance, Financial Stability, SMEs, Financial Indicators, Business Sustainability, Financial Analysis, Structural Model, Profitability, Liquidity, Solvency, Path Analysis.*

## Introduction:

This paper explores the vital role of financial health metrics in the sustainability and growth of small businesses. Utilizing Structural Equation Modeling (SEM), this study evaluates the complex interrelationships among various financial indicators such as operating efficiency, liquidity, and profitability. These metrics serve as crucial indicators of a company's overall health, with findings suggesting that a multifaceted approach, rather than reliance on a single indicator, is essential for accurately assessing financial stability.[1][2]

The study highlights the significance of innovative practices and agility as critical factors enhancing the competitive positioning of small businesses. Through the application of Partial Least Squares SEM (PLS-SEM), it reveals that both innovation and agility positively influence competitiveness, confirming several research hypotheses related to financial health. These insights not only deepen the understanding of the financial dynamics at play but also provide actionable strategies for practitioners aiming to improve small business viability in a competitive landscape.[2][3]

Notably, the study addresses methodological challenges, including sample size and the complexities of model interpretation, which can impact the generalizability of the findings. Additionally, it underscores the importance of understanding shared values between financial planners and their clients, which fosters stronger relationships and enhances

financial planning outcomes.[4][5] By integrating various modeling techniques, such as multilevel and latent class modeling, the research offers a nuanced perspective on the financial health of small businesses, paving the way for future investigations in this critical area of study.[4][6]

Overall, this research contributes significantly to the discourse on financial health in small businesses by employing advanced analytical methodologies to capture the intricate relationships among financial metrics, thereby informing both academic literature and practical applications in the field.[7][8]

## Background

The financial health of small businesses is critical for their sustainability and growth. Financial metrics, such as operating efficiency, liquidity, and profitability, serve as essential indicators of a company's overall health. Operating margin, in particular, reflects how effectively a company's management can control costs while generating profit from its operations[1]. Understanding these metrics is vital, as no single indicator can provide a complete picture; rather, a combination of factors must be analyzed to gauge stability and performance[1].

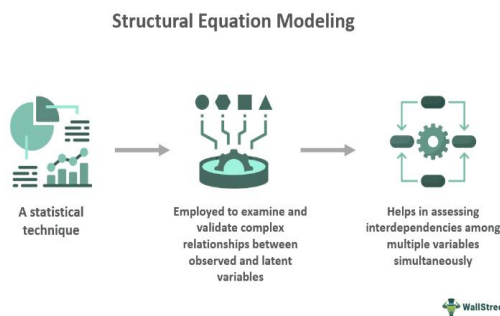
In recent years, structural equation modeling (SEM) has emerged as a robust analytical tool to explore relationships between financial health indicators. SEM allows researchers to assess multiple variables simultaneously, capturing the complexities of how different financial metrics interrelate[2][3]. For

instance, the use of partial least squares structural equation modeling (PLS-SEM) is especially relevant in new technology research and financial studies, offering updated guidelines for application in real-world scenarios[2].

The profitability of small businesses can be evaluated through various ratios, such as the Profitability Ratio (EBIT/Total Revenue) and Return on Capital Employed (ROCE). These ratios help determine how effectively a business converts sales into profit and the returns generated from capital investment[7]. Moreover, liquidity ratios like the current ratio and quick ratio provide insights into a firm's ability to manage short-term obligations, further emphasizing the importance of financial management in achieving long-term sustainability[1][7].

Research comparing organic and conventional production methods in family farming has also highlighted profitability differences, indicating that management practices and financial performance are intrinsically linked[8][2]. As small businesses navigate challenges, understanding and applying structural equation modeling can provide valuable insights into financial health, enabling informed decision-making and strategic planning for future growth.

### Structural Equations Modelling (SEM)



Structural Equation Modelling (SEM) is a comprehensive statistical methodology that facilitates the analysis and validation of complex relationships between both observed and latent variables. It combines elements of factor analysis and multiple regression to provide a robust framework for hypothesis testing, model comparison, and theory validation in various fields such as social sciences, psychology, and economics[4][9].

#### Definition and Purpose

SEM allows researchers to assess interdependencies among multiple variables simultaneously. The approach comprises two primary components: the

measurement model, which examines the relationships between latent variables and their observed indicators, and the structural model, which delineates the relationships among latent variables themselves. This dual structure enables researchers to not only test theoretical frameworks but also to refine their models based on empirical data[4][10]. By accounting for measurement errors and complex interactions, SEM supports more accurate conclusions in the context of intricate systems[4].

#### Application in Research

The methodology is particularly beneficial for testing and improving theories based on real-world data. It facilitates the evaluation of model fit through various fit indices, allowing users to compare different models to find the most suitable representation of their data[4]. Additionally, SEM techniques are adept at handling missing data, ensuring robust analysis even in the presence of incomplete observations[4].

#### Types of Models in SEM

Several types of models can be analyzed using SEM, including path models, which utilize observed variables measured directly in surveys or experiments. The outcomes of path models produced through SEM align closely with those obtained from traditional regression analysis[9].

#### Limitations

Despite its strengths, SEM is not without limitations. The complexity of the models can sometimes lead to challenges in estimation and interpretation. Furthermore, the requirement for a substantial sample size and the assumptions regarding the distribution of data can constrain its application in certain research contexts[4].

#### Methodology

##### Overview of Structural Equation Modeling

The study employs Structural Equation Modeling (SEM) as the primary analytical technique to assess the financial health of small businesses. SEM is a powerful statistical method that enables researchers to evaluate complex relationships between latent and observed variables, facilitating the understanding of interdependencies among multiple factors affecting financial health[4]. This methodology combines elements of both measurement and structural models, allowing for theory validation, model comparison, and hypothesis testing across various disciplines, including economics and business research[4].

## Types of Structural Equation Modeling

### Partial Least Squares Modeling

Partial Least Squares (PLS) modeling is particularly suited for this study due to its component-based approach, which focuses on predicting latent variables through observed indicators. PLS is advantageous in predictive modeling contexts, making it suitable for exploring the financial health of small businesses where practical application is a key concern[4][6]. The third edition of serves as a foundational resource for understanding this methodology, featuring a running case study that aids in applying PLS techniques to real-world scenarios[11].

### Multilevel Modeling

Given the hierarchical nature of data often seen in small business contexts—where individual businesses are nested within broader economic categories—multilevel modeling will also be utilized. This approach accounts for dependencies and variations at multiple levels of analysis, which is essential when analyzing financial health across diverse business types and structures[4].

### Latent Class Modeling

Latent Class Modeling will be integrated into the analysis to identify unobserved subgroups within the small business population. This technique allows for the differentiation of businesses that may exhibit distinct financial health profiles, thereby enhancing the model's explanatory power and providing deeper insights into the financial dynamics at play[4].

### Methodological Considerations

#### *Sample Size and Data Robustness*

The selection of sample size is critical for ensuring robust SEM results. The study aims for a minimum sample size that meets the ten times rule proposed in the literature, thus enhancing the reliability of the results. Previous research indicates that larger sample sizes (average  $n=354$  in international business studies) facilitate more accurate estimations and model comparisons, supporting the theoretical rigor of the findings[6]. Furthermore, to assess the robustness of the results, the study will incorporate holdout samples, ensuring that conclusions drawn from the SEM analysis are reliable[6].

#### *Theory-Driven Hypotheses*

The study is grounded in theoretical assertions about the factors influencing financial health, leading to the formulation of specific hypotheses. These hypotheses will be empirically tested within a theoretically

specified causal model, ensuring that the research aligns with established frameworks in financial health analysis[6]. Confirmatory empirical research will thus be employed to validate the relationships hypothesized, providing a comprehensive view of the factors impacting small business financial health.

By integrating these methodologies, the study aims to deliver a nuanced understanding of small business financial health through the lens of structural equation modeling, thereby contributing valuable insights to both academic literature and practical applications in the field.

### Results

The study employed partial least square structural equation modeling (PLS-SEM) to evaluate critical factors influencing the financial health of small businesses. The results affirm that both innovation (INNOV) and agility (AGLTY) positively impact competitiveness, thus supporting hypotheses H5a, H5b, H6a, and H6b. Specifically, the path coefficients revealed significant effects:

INNOV ( $\beta = 0.294, T = 6.099, p < 0.000$ ) and AGLTY ( $\beta = 0.413, T = 6.0965, p < 0.000$ )[2].

This indicates that the development of agile and innovative financial products enhances the competitive positioning of small businesses.

Additionally, the evaluation of the inner structural model was conducted using major criteria, including the coefficient of determination ( $R^2$ ), path coefficients ( $\beta$  values), and T-statistic values, which validated the predictive relevancy of the model[2]. Further assessments included the predictive relevance of the model ( $Q^2$ ) and goodness-of-fit (GOF) index, contributing to the robust understanding of relationships between constructs.

In assessing the significance of different indicators, the study found that financial satisfaction and perceived financial capability were positively correlated with financial well-being, while financial stress had a negative correlation[12]. This suggests that improving financial perceptions among small business owners can enhance overall financial health.

The findings demonstrate the importance of comprehensive financial analysis, as individual financial ratios alone may not adequately reflect a company's overall health. Instead, a combination of analyses across financial statements is recommended for a more nuanced understanding of performance against competitors[13]. By using these findings,

practitioners can turn insights into actionable strategies, ultimately supporting the long-term viability of small businesses in a competitive landscape.

### Discussion

The findings from this study highlight several important implications for the field of financial planning and its associated practices. One significant consideration is the demographic limitations of the sample. The lack of diversity in terms of race and ethnicity may restrict the generalizability of the results. Furthermore, the younger age of participants suggests a potential bias, as financial planners may have incentivized those in earlier stages of their financial accumulation, who stand to benefit more from such incentives. This aligns with prior research indicating that younger individuals are often more willing to engage in online surveys compared to older demographics[5]. Moreover, the research emphasizes the importance of understanding shared values as a cornerstone in establishing trust and commitment between clients and financial planners. The study corroborates Morgan and Hunt's (1994) theoretical framework, indicating that a deep comprehension of clients' values, beliefs, and spending habits is crucial. Interestingly, it also underscores the reciprocal nature of this relationship; clients equally value financial planners' awareness of their own beliefs and attitudes regarding money. This reciprocal understanding, referred to as the "self of the therapist" in counseling, is critical for fostering strong client-planner relationships[5].

From a methodological standpoint, the complexity of the model utilized in this study posed challenges, particularly with the small sample size, which impeded the convergence of a latent variable structural equation model (SEM). Consequently, the decision to employ a summed structural model was made, leveraging the strong internal consistency shown in the confirmatory factor analysis (CFA) results. This approach allows for a more straightforward interpretation of the data while acknowledging the limitations imposed by the data structure[5].

The broader implications of this study extend to the realm of international business research, where adapting methodological approaches to address the changing and complex landscape is essential. It highlights the necessity for ongoing theorizing to remain relevant amidst unforeseen challenges such as technological shifts and geopolitical changes. As

emphasized in the literature, researchers must consider the specific characteristics of their data and research objectives to select the most appropriate analytical methods, particularly when exploring phenomena that may benefit from exploratory and dynamic theorizing[8].

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