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DIAGNOSING MSME FINANCIAL HEALTH: AN EARLY WARNING FRAME-WORK BASED ON RATIO ANALYSIS IN THE INDIAN CONTEXT- A STUDY

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ABSTRACT

This study investigates the persistent issue of cash shortage in India's Small and Medium Enterprises (SME) sector through a systematic review and metanalysis. Drawing from over 70 sources – including academic articles, theses, reports, and databases – the research identifies key financial constraints such as limited access to formal credit, poor cash flow management, and in-adequate working capital. Traditional literature review models, while foundational, lack contextual relevance and analytical depth for Indian SMEs. To address this, the study employs digital tools like PRISMA, PICOC, and VosViewer, ultimately selecting metanalysis as the most suitable meth-odology for synthesizing financial data. The findings reveal significant gaps in existing research, particularly at the micro-enterprise level, and propose a replicable framework for diagnosing fi-nancial distress. This approach enhances the precision of literature reviews and supports evi-dence-based policymaking, offering actionable insights for researchers, financial institutions, and government bodies aiming to strengthen SME resilience and sustainability.

KEYWORDS: *Cash shortage, Indian SMEs, Metanalysis, Financial distress, Literature review, PRISMA*

INTRODUCTION

a. Aim of the Research Paper

This research paper aims to systematically examine the issue of cash shortage in India's Small and Medium Enterprises (SME) sector through a metanalytic approach. It seeks to consolidate existing literature, identify gaps, and propose a robust methodology for future inquiry. The study emphasizes the importance of financial health in SMEs and the need for data-driven insights to guide policy and practice.

b. Review of Literature

The literature on SME financial distress spans decades, with foundational studies by Beaver (1966), Altman (1968), and Gupta (1979) establishing the predictive power of financial ratios. These models have been widely applied to assess corporate health, yet their relevance to Indian SMEs remains limited due to contextual differences. More recent studies (Rajamani et al., 2022; Saleh & Ahmad, 2023; Maheshkar & Soni, 2022) highlight persistent financing gaps, inadequate access to formal credit, and structural challenges in SME ecosystems.

Despite the breadth of research, most studies focus on macro-level trends or sector-wide diagnostics, with limited attention to micro-level financial behavior and cash flow dynamics. Moreover, traditional models often overlook the informal nature of Indian SMEs and the role of digital finance, fintech, and evolving credit ecosystems (Singh & Wasdani, 2016; Shinozaki et al., 2024).

c. Research Gap

The review reveals a critical gap: while financial ratio analysis and predictive models are well-established, there is a lack of metanalytic synthesis focused specifically on cash shortages within Indian SMEs. Existing studies are fragmented, contextually outdated, or methodologically narrow (Sharma & Sharma, 2024; Deolankar, 1983). This paper addresses the gap by proposing metanalysis as a suitable methodology to aggregate and interpret financial data across diverse studies.

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Problems and Issues with Traditional Models

As a researcher, several limitations in traditional literature review models have been identified:

- **a. Global Issues Not Covered:** Many models are based on Western economies and fail to capture the unique financial challenges of Indian SMEs (Blum, 1969; Ewert, 1968).
- **b. Considered Duplicate:** Repetitive use of univariate ratio analysis and generic frameworks has led to redundancy in findings (Miller, 1971; Deakin, 1967).
- **c. Adoption of Digital Methods:** To overcome these limitations, the researcher explored 11–12 digital tools and frameworks for literature review, including PRISMA (2020), PICOC, VosViewer, R Programming, Python, Shiny App, Web of Science, Scispace, ResearchGate, J-Gate, and ProQuest.
- **d. Limitations of Digital Methods:** While these tools enhance transparency and reproducibility, they are not fully suited for financial data synthesis in SME contexts (Shinozaki et al., 2024).
- **e. Selection of Metanalysis:** Among all methods, metanalysis emerged as the most apt for this study. It allows for statistical aggregation of financial findings across studies, enabling robust identification of patterns, predictors, and anomalies in SME cash flow behavior (Gupta, 1983; Paranjpe, 2015).

OBJECTIVES

Objective 1: To Review Literature with the Help of Metanalysis

Metanalysis is a quantitative technique that synthesizes results from multiple studies to identify consistent patterns and effect sizes. In the context of SME cash shortages, it enables:

- **What**
  A structured aggregation of financial indicators (e.g., liquidity ratios, working capital metrics) across studies to assess the prevalence and severity of cash constraints (Beaver, 1966; Altman, 1968; Gupta, 1979).
- **How**
  - Selection of studies using PRISMA flow diagram (PRISMA, 2020)
  - Coding of financial variables
  - Calculation of weighted averages and effect sizes
  - Identification of high-risk financial profiles
  - Use of statistical software (R, Python, Excel) for analysis

This approach ensures methodological rigor and enhances the reliability of findings. It also allows for subgroup analysis (e.g., by region, sector, enterprise size) to uncover contextual nuances (Rajamani et al., 2022; Maheshkar & Soni, 2022).

Objective 2: To Identify the Research Gap Using the Selected Digital Method

To support the identification of the research problem, the following steps were undertaken:

- **Step 1: Screening Literature Using PRISMA:** A total of 43 research articles, 5 theses, 7 reports, and 5 databases were screened. The PRISMA model helped document inclusion/exclusion criteria and track study selection (PRISMA, 2020).
- **Step 2: Mapping Themes Using PICOC**
  - **Population:** Indian SMEs
  - **Intervention:** Financial practices and cash flow management
  - **Comparison:** Formal vs informal credit access
  - **Outcome:** Cash shortage and financial distress
  - **Context:** Post-liberalization Indian economy
- **Step 3: Identifying Gaps**
  - Lack of micro-level financial data synthesis
  - Absence of predictive models tailored to SME cash flow
  - Limited integration of digital finance trends in literature (Saleh & Ahmad, 2023; Nayak, 2024)
- **Step 4: Justifying Metanalysis**
  - Metanalysis bridges these gaps by offering:
  - Statistical validation of financial distress indicators
  - Evidence-based insights for policy and credit design
  - A replicable framework for future financial diagnostics (Gupta, 1983; Paranjpe, 2015)

This objective supports the formulation of a focused research problem: **How can metanalytic techniques be used to identify and address cash shortages in Indian SMEs?**

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PRISMA Flow Diagram

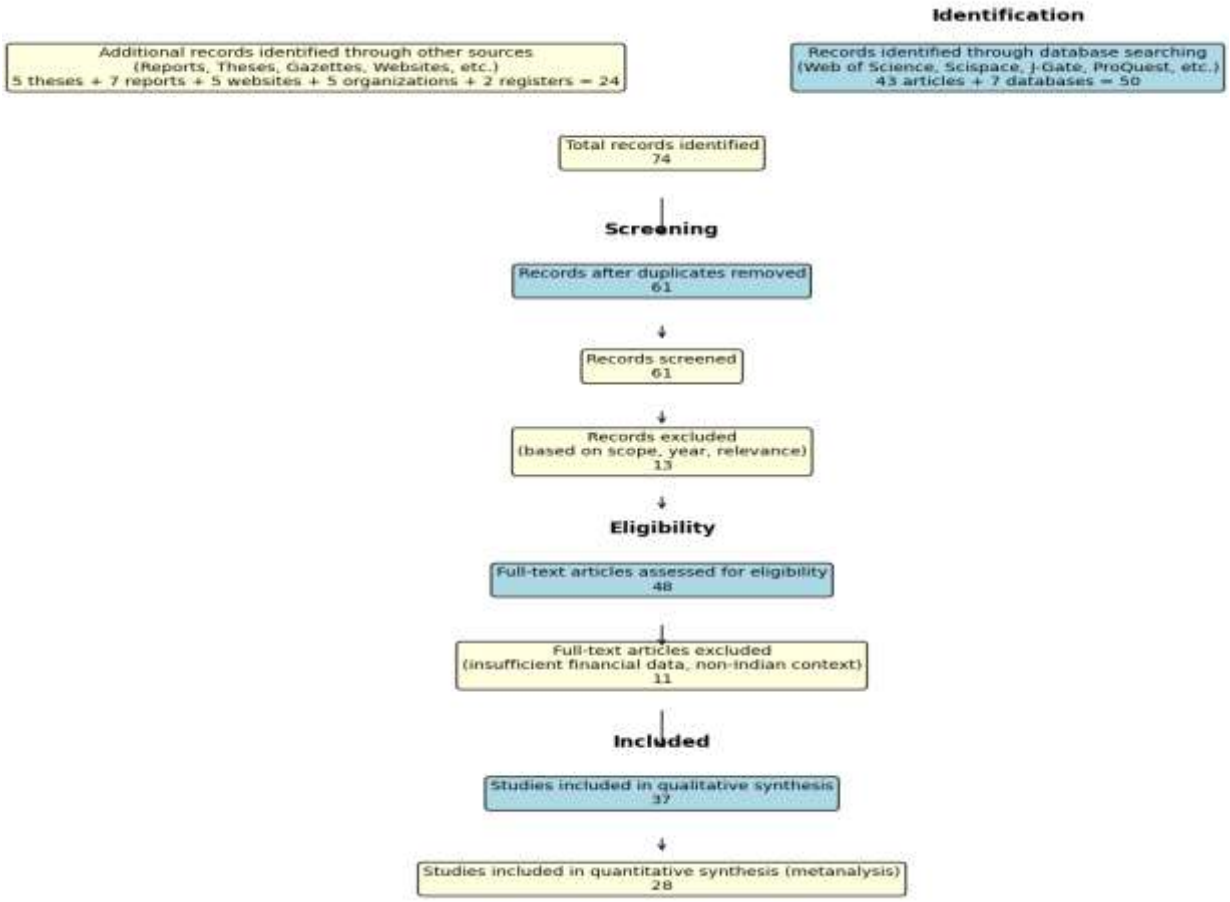


Figure 1: PRISMA Flow Diagram for Systematic Review of Cash Shortage in Indian SMEs

Summary of the study

This study highlights the significance of adopting **meta-analysis as a systematic methodology** for reviewing and synthesizing existing literature on cash shortages faced by Small and Medium Enterprises (SMEs) in India. Traditional financial models and analytical frameworks have long served as foundational tools for understanding financial management issues. However, many of these models lack contextual sensitivity to the unique economic, institutional, and operational environments in which Indian SMEs function. As a result, their applicability in addressing cash flow constraints and financial distress within this sector remains limited.

Recent technological advancements and the growing availability of digital financial tools have improved transparency, data accessibility, and financial monitoring capabilities for SMEs. Nevertheless, these tools often fall short when it comes to providing **comprehensive financial synthesis and integrated analysis**, which are essential for identifying the root causes of persistent cash shortages (Sharma & Sharma, 2024; Maheshkar & Soni, 2022).

By employing **meta-analysis**, this study systematically consolidates fragmented findings from diverse empirical studies and theoretical frameworks. This methodological approach enables the researcher to identify consistent patterns, key determinants, and actionable predictors associated with financial distress among Indian SMEs. Through statistical aggregation and comparative evaluation of previous research, meta-analysis enhances the reliability, validity, and analytical rigor of the literature review process.

Furthermore, the study demonstrates that meta-analysis not only strengthens the **precision and depth of academic literature reviews** but also provides valuable insights for policymakers, financial institutions, and SME stakeholders. The synthesized findings can support the development of **evidence-based policy interventions**,

targeted financial support mechanisms, and improved financial management practices aimed at reducing cash shortages.

CONCLUSION

This research paper contributes to the growing body of knowledge on SME financial health by presenting meta-analysis as a robust and effective methodological framework for literature synthesis. The findings also emphasize the importance of **localized, data-driven strategies** tailored to the specific challenges faced by Indian SMEs. Future research can build upon this approach by incorporating sector-specific data, regional financial dynamics, and emerging digital financial ecosystems to develop more comprehensive solutions for improving liquidity management and ensuring the sustainable growth of SMEs (Shinozaki et al., 2024; Kumar & Arora, 2023).

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