

## Redefining the Role of Strategic Management Accounting in Organizational Resilience of Iranian Manufacturing Companies under Sanctions: A Qualitative Exploratory Study

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### ABSTRACT

**Purpose:** This study was designed to redefine the role of Strategic Management Accounting (SMA) in enhancing the organizational resilience of Iranian manufacturing companies under sanctions. The primary research gap lies in the absence of a deep understanding of how SMA tools are reconfigured in response to environmental uncertainties caused by sanctions.

**Methodology:** A qualitative exploratory approach was adopted using Braun and Clarke's (2006) thematic analysis. Data were collected through 22 semi-structured interviews with financial managers, management accountants, and faculty members (until theoretical saturation). Participants were selected through purposive sampling from listed and non-listed manufacturing companies in Tehran, Isfahan, and Razavi Khorasan provinces. Coding was performed using MAXQDA 2022, with a Kappa coefficient of 0.81.

**Findings:** Five main themes emerged: (1) Cost architecture redesign (transition from traditional to dynamic and scenario-based costing), (2) Strategic finance under constraint (cash cycle management, barter contracts, and currency risk hedging), (3) Asymmetric information networking (business intelligence-based reporting systems), (4) Strategic performance alignment (resilience-oriented balanced scorecard), and (5) Accounting human capital as a dynamic capability.

**Conclusion:** In the Iranian context, SMA is not merely a control tool but a dynamic organizational capability that, through continuous redesign of financial processes, helps reduce vulnerability and create competitive advantage in a sanctioned environment. The findings offer a localized framework for "resilient management accounting" that transcends the literature on VUCA environments and emphasizes antifragility.

**Keywords:** Strategic Management Accounting, Organizational Resilience, Economic Sanctions, Iranian Manufacturing Companies, Thematic Analysis.

### ARTICLE INFORMATION

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## **1. Introduction**

Iranian manufacturing companies have operated over the past two decades in an environment whose defining characteristic is not merely episodic crises but the persistence of exogenous shocks. International sanctions, restricted access to the global banking network, severe currency fluctuations, and supply chain disruptions have transformed Iran's economic structure into one of the most complex operational environments in the world (World Bank, 2024). Official reports indicate that in 2025, only about 35 percent of Iranian industries' raw material needs were met through domestic production, and approximately 40 percent of production capacity remained idle due to supply disruptions (Statistical Center of Iran, 2025). These figures paint a picture of a business environment in which survival and growth are not strategic choices but vital necessities for manufacturing firms (Rajabzadeh et al., 2024).

The management literature has offered numerous theoretical responses to such conditions. The concept of organizational resilience is defined as "an organization's ability to anticipate, cope with, and adapt to unexpected shocks" and can be analyzed across three stages: anticipation, coping, and adaptation (Hollnagel, 2023). What has received less attention, however, is the role of accounting information infrastructure as a prerequisite for decision-making under crisis conditions (Abdollahi & Moradi, 2024). Strategic Management Accounting (SMA) comprises a set of techniques—strategic costing, competitor analysis, balanced performance evaluation, and scenario-based budgeting—that have traditionally been designed to optimize performance under relatively stable conditions (Cadez & Guilding, 2024). A fundamental question arises: do these tools serve the same function in a sanctioned environment, or do they require fundamental redefinition and reconfiguration (Bhimani, 2023)?

International empirical evidence suggests that SMA can play a decisive role in resilience. A study of 210 Vietnamese firms showed that five SMA components together explained 60.7 percent of the variance in organizational resilience, with strategic costing techniques having the strongest effect, with a coefficient of 0.386 (Nguyen et al., 2024). Another study of manufacturing firms in emerging economies found that exchange rate volatility is significantly and positively related to the intensity of SMA use; that is, the greater the currency uncertainty, the more firms turn to strategic accounting tools, and these tools in turn strengthen competitive advantage (Al-Mawali & Al-Hattami, 2023). Studies in logistics have also shown that "designing a performance measurement system for turbulent conditions" not only strengthens organizational resilience but also indirectly improves service performance (Bourne et al., 2023).

In the Russian context—which has faced severe sanctions similar to Iran's since 2022—qualitative research on small and medium-sized enterprises showed that resilience under sanctions depends less on the magnitude of external pressure and more on the firm's internal capacities: access to financing, management quality, and human capital are key moderators of the negative effects of sanctions (Kovalev & Smirnova, 2024). This finding underscores the importance of an intra-organizational perspective on resilience (Rostami et al., 2025).

What is less visible in both domestic and international literature, however, is an explanation of the mechanism through which SMA contributes to organizational resilience in the specific

context of Iran. Existing domestic studies are predominantly descriptive or content themselves with normative models. A study adopting a Jihadi culture approach offered a localized model of resilience emphasizing strategic resource management (the Bricolage approach) and internal cultural capacities (Kaviani, 2025). However, this model overlooks the dimension of information systems and accounting (Mahdavi & Sharifi, 2025). On the other hand, the experience of Iranian firms in confronting sanctions has also drawn the attention of management institutions; the head of the Industrial Management Organization, in evaluating 23 cycles of the Organizational Excellence Award, emphasized that "Iranian companies have achieved valuable gains in resilience and crisis management and, in some cases, have developed innovative management models" (Industrial Management Organization, 2025). Yet these achievements have rarely been documented and theorized (Hosseini et al., 2025).

The research gap is clear: no study has systematically extracted the mechanisms through which SMA contributes to the organizational resilience of Iranian manufacturing companies under sanctions from the perspective of the actors themselves (Rezaei-Zadeh et al., 2024). The existing literature is either descriptive (Ebrahimi Kordlar & Hajipour, 2024), normative (Sabzeali-Pour et al., 2025), or conducted in other contexts (Vietnam, Russia, emerging economies in general) and thus cannot be directly generalized to Iran (Tran et al., 2024). This study seeks to fill this gap through a qualitative exploratory study that treats the lived experience of financial managers and management accountants as its foundational data (Braun & Clarke, 2024).

The theoretical significance of this study lies in its potential to offer a localized framework for "resilient management accounting"—a framework that transcends the conventional SMA literature and emphasizes context-based mechanisms (Otley, 2023). Its practical significance lies in providing specific implications for financial managers, management accountants, and policymakers: if it becomes clear through which mechanisms SMA contributes to resilience, then priorities for investment in information systems and training programs can be defined accordingly (Golmohammadi et al., 2025).

Accordingly, the main research question is: Through what mechanisms does Strategic Management Accounting contribute to the organizational resilience of Iranian manufacturing companies under sanctions, and how can these mechanisms be explained within a localized model?

## **2. Theoretical Foundations and Literature Review**

### **2.1. Strategic Management Accounting: From Operational Control to Dynamic Capability**

The evolution of Strategic Management Accounting (SMA) can be narrated across three distinct waves. The first wave, emerging in the 1980s, focused on strategic costing: techniques such as target costing, activity-based costing, and value chain analysis all sought to uncover sources of cost advantage at the strategic level (Duçi, 2021). The second wave, during the 1990s and 2000s, expanded performance from a single financial dimension to four dimensions with

the advent of the Balanced Scorecard, transforming performance measurement systems into tools for strategy implementation (Galabi et al., 2023). The third wave, beginning in the 2010s, redefines SMA not as a static set of techniques but as a dynamic organizational capability: the organization's ability to integrate, build, and reconfigure financial and informational competencies in response to changing environments (Rinaldi et al., 2025).

This redefinition carries a fundamental implication. In turbulent environments, the mere use of SMA tools is insufficient; what matters is the ability to continuously redesign these tools in response to environmental change. Research by Rinaldi and colleagues shows that resilient organizations reconfigure their management accounting practices through dynamic budgeting, enhanced risk management, supply chain transparency, and stakeholder engagement. This finding aligns with the concept of dynamic capability: resilient SMA is a process of organizational learning in which financial and non-financial information is used to sense, seize, and reconfigure resources.

## **2.2. Organizational Resilience: From Recovery to Leap**

Organizational resilience is defined as "an organization's ability to effectively cope with unexpected events, recover from crisis, and even achieve greater success in the future" (Duchek, 2020). This capability can be analyzed across three sequential stages: anticipation, coping, and adaptation (Duchek et al., 2020; cited in the role of risk management orientation, 2024). The anticipation stage encompasses the ability to detect critical developments before they occur. The coping stage comprises activities that ensure the organization's survival during crisis. The adaptation stage provides opportunities for improvement and the strengthening of new capabilities.

The key point is that these three stages require different information infrastructures. Anticipation requires early warning systems and environmental scanning. Coping requires scenario planning and contingency planning. Adaptation requires organizational learning and resource reconfiguration (The role of risk management orientation, 2024). SMA, as a system for producing and distributing financial and non-financial information, plays a role in all three stages.

In the domestic literature, a study of the banking network under sanctions showed that factors influencing organizational resilience include "expanding communications, resilient economy, regulatory transparency, and management empowerment." This finding highlights the informational and decision-making dimension: resilient organizations possess systems for collecting, processing, and distributing critical information that enable them to respond before a crisis escalates.

## **2.3. Sanctions as a Localized VUCA Environment: Distinctive Characteristics**

The VUCA framework (volatility, uncertainty, complexity, ambiguity) has been widely used to analyze turbulent environments. However, sanctions possess characteristics that distinguish them from generic VUCA. First, intentionality: sanctions are not random shocks but deliberate actions to exert economic pressure. Second, institutional pervasiveness: sanctions target not only firms but also banks, insurers, transportation, and the entire supply chain. Third,

persistence and gradual intensification: sanctions typically intensify over time and eliminate the opportunity to "return to normal."

In the Iranian context, these characteristics have given rise to an environment in which the assumption of relative stability—the foundation for designing most traditional SMA tools—is invalidated. The performance report of Krouz Industrial Manufacturing Company shows that the production chain was 45 percent damaged between two waves of sanctions, and raw materials in some cases remained in customs for up to two years. In such an environment, organizations require structural reconfiguration: changes in sourcing patterns, redesign of the value chain, and creation of alternative pathways for financial flows.

Research by Hosseini Fard, adopting a Jihadi culture approach, offered a localized model for resilience and agility under sanctions that emphasizes "strategic resource management" (the Bricolage approach) and internal cultural capacities. This model shows that under severe constraints, organizations focus on recombining existing resources and creating innovative solutions rather than relying on external resources. However, this model overlooks the dimension of information systems and accounting—a gap this study seeks to fill.

#### **2.4. Empirical Background: SMA and Resilience under Sanctions Pressure**

Recent international research has highlighted the role of SMA in organizational resilience under sanctions and crisis. A study of Vietnamese firms found that SMA techniques are the strongest predictors of organizational resilience (Nguyen et al., 2024). Another study analyzing 47 Russian companies under sanctions (282 firm-years, 2019–2024) showed that the "sanctions sensitivity index," "adjusted discount mechanism," "scenario-based accounting system," and "dynamic revaluation algorithm" are effective tools for modernizing the investment management accounting system under sanctions pressure. This study emphasizes that the tools developed are also relevant for Iranian, Venezuelan, and other firms with limited access to capital markets.

A 2024 study on the relationship between "risk management orientation" and "budgeting function" with organizational resilience showed that these two management accounting concepts have a significant positive effect on resilience, and resilience in turn strengthens competitive advantage during crisis. This finding establishes a direct link between SMA tools and strategic outcomes.

In the specific domain of sanctions, Hosseini Fard's research using the PLS-SEM method showed that "Jihadi culture" has a significant effect on organizational resilience and agility, with "strategic resource management" playing a positive moderating role. This model proposes a combination of cultural and strategic factors for survival in a sanctioned environment. Practical solutions for small firms under sanctions include "focusing on production that keeps turning, not production that only has capacity," "reducing the receivables collection period," and "careful cheque management." These recommendations reflect the reconfiguration of SMA tools at the operational level.

## 2.5. Research Gap and Preliminary Conceptual Model

The literature review reveals the following gaps. First, existing domestic studies are predominantly descriptive or content themselves with normative models. Second, international studies have been conducted in other contexts (Vietnam, Russia, emerging economies in general) and cannot be directly generalized to Iran. Third, no study has systematically extracted the mechanisms through which SMA contributes to the organizational resilience of Iranian manufacturing companies under sanctions from the perspective of the actors themselves.

Based on the literature review, a preliminary conceptual model was designed in which SMA, as a dynamic organizational capability, affects four dimensions of resilience: (1) financial resilience (liquidity and risk management), (2) operational resilience (supply chain flexibility), (3) strategic resilience (business model reconfiguration), and (4) learning resilience (human capital and knowledge). This model served as the starting point for the study's theoretical sensitivity and was revised during data analysis.

## 3. Methodology

### 3.1. Research Approach and Design

This study is philosophically situated within the interpretive-constructivist paradigm: the aim is to understand the meaning of SMA's role from the perspective of organizational actors, not to test causal relationships among predefined variables. Accordingly, a qualitative exploratory approach—specifically Braun and Clarke's thematic analysis—was adopted. Thematic analysis is suited to research seeking to identify patterns of meaning in participants' experiences and provides the theoretical flexibility necessary for the emergence of unexpected themes (Braun & Clarke, 2024).

### 3.2. Participants and Sampling

The statistical population comprised three groups: (1) financial managers and management accountants of manufacturing companies, (2) accounting faculty members with a research background in SMA, and (3) financial consultants with experience working in sanctioned companies. Purposive sampling with maximum variation was employed: variation in industry (metals, petrochemicals, food, pharmaceuticals, auto parts), firm size (listed/non-listed), and geographic location (Tehran, Isfahan, Razavi Khorasan).

Inclusion criteria: at least 5 years of experience in financial/accounting positions or 3 years of research experience related to SMA. Sample size was determined based on theoretical saturation. Interviews continued until no new codes were added to existing codes. Ultimately, 22 interviews were conducted. Theoretical saturation was declared at interview 19; three final interviews were conducted to confirm saturation.

**Table 1.** Participant Characteristics

| Code | Gender | Age | Experience (Years) | Industry      | Role                  | Education Level   |
|------|--------|-----|--------------------|---------------|-----------------------|-------------------|
| M01  | Male   | 48  | 22                 | Basic Metals  | Financial Manager     | PhD in Accounting |
| M02  | Female | 42  | 16                 | Petrochemical | Management Accountant | Master's          |

| Code | Gender | Age | Experience (Years) | Industry        | Role                     | Education Level   |
|------|--------|-----|--------------------|-----------------|--------------------------|-------------------|
| M03  | Male   | 55  | 28                 | Auto Parts      | Deputy Financial Officer | Master's          |
| M04  | Male   | 39  | 14                 | Food Industry   | Financial Manager        | Master's          |
| M05  | Female | 46  | 19                 | Pharmaceuticals | Financial Manager        | PhD in Accounting |
| M06  | Male   | 51  | 25                 | Petrochemical   | Financial Consultant     | PhD in Finance    |
| M07  | Male   | 37  | 12                 | Basic Metals    | Management Accountant    | Master's          |
| M08  | Female | 44  | 17                 | Food Industry   | Financial Manager        | Master's          |
| M09  | Male   | 59  | 31                 | Auto Parts      | Financial Consultant     | PhD in Management |
| M10  | Male   | 43  | 15                 | Pharmaceuticals | Financial Manager        | Master's          |
| M11  | Female | 41  | 13                 | Petrochemical   | Management Accountant    | Master's          |
| M12  | Male   | 56  | 29                 | Basic Metals    | Faculty Member           | PhD in Accounting |
| M13  | Male   | 47  | 18                 | Food Industry   | Faculty Member           | PhD in Accounting |
| M14  | Female | 38  | 11                 | Auto Parts      | Management Accountant    | Master's          |
| M15  | Male   | 52  | 26                 | Petrochemical   | Financial Manager        | PhD in Accounting |
| M16  | Male   | 45  | 16                 | Pharmaceuticals | Financial Consultant     | Master's          |
| M17  | Female | 49  | 20                 | Basic Metals    | Faculty Member           | PhD in Accounting |
| M18  | Male   | 40  | 12                 | Food Industry   | Financial Manager        | Master's          |
| M19  | Male   | 58  | 30                 | Auto Parts      | Financial Manager        | Master's          |
| M20  | Female | 43  | 15                 | Petrochemical   | Faculty Member           | PhD in Accounting |
| M21  | Male   | 46  | 17                 | Pharmaceuticals | Management Accountant    | Master's          |
| M22  | Male   | 54  | 27                 | Basic Metals    | Financial Consultant     | PhD in Finance    |

Source: Data collected by the authors.

### 3.3. Data Collection Instrument and Procedure

The primary instrument was a semi-structured interview guide designed based on the preliminary conceptual model and the literature. The main questions were:

1. Which SMA tools have been most used in your company under sanctions? Why?
2. In the face of currency shocks or supply constraints, how did management accounting information contribute to decision-making?
3. What changes were made in the design of management accounting systems in response to sanctions?
4. In what situations did SMA tools fail to contribute to resilience? Why?
5. If you were to define "resilient management accounting" for Iranian companies, what components would it have?

Interviews were conducted both in person and online. The average interview duration was 52 minutes (range: 35–75 minutes). With participants' consent, interviews were recorded and subsequently transcribed verbatim.

### 3.4. Data Analysis

Data analysis followed Braun and Clarke's six stages: familiarization with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report. Coding was performed using MAXQDA 2022.

To enhance inter-coder reliability, 20% of the interviews (5 interviews) were independently coded by a second coder (a PhD in accounting with qualitative research experience). A Kappa coefficient of 0.81 was calculated, which, according to Landis and Koch's criteria, is considered "almost perfect" agreement.

Lincoln and Guba's criteria were employed for qualitative validation:

- **Credibility:** Review of findings by three participants (Member Checking).
- **Transferability:** Rich description of the context and provision of complete participant characteristics.
- **Dependability:** Complete recording of the analysis path (Audit Trail).
- **Confirmability:** Peer review by two independent researchers.

The final output of the thematic analysis will be presented in the form of a thematic map (Figure 1) and a final conceptual model (Figure 2).

### 3.5. Ethical Considerations

Prior to commencement, the purpose of the study and the confidentiality of data were explained to participants. Written informed consent was obtained. Participants' and companies' names were replaced with anonymous codes (M01 to M22). Raw data are stored in a secure university environment.

## 4. Findings

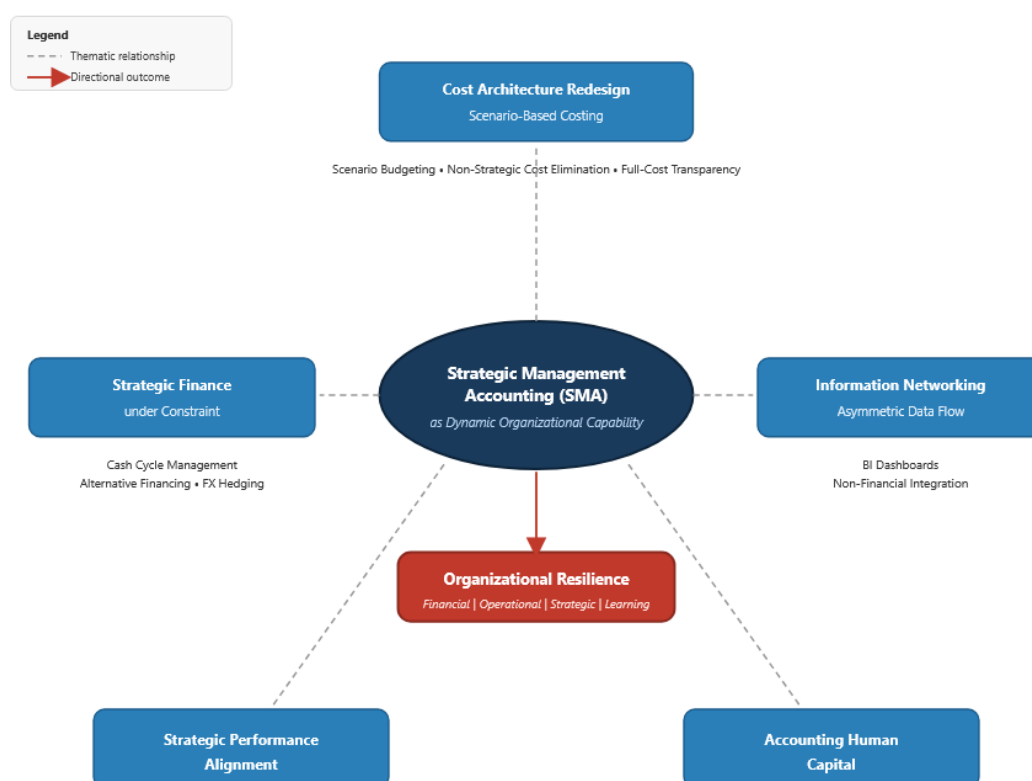
Data analysis resulted in the extraction of **5 main themes, 12 sub-themes, and 47 initial codes**. In the following, each main theme is presented with related codes, documented quotations, and interpretive analysis.

**Table 2.** Structure of Themes and Initial Codes

| Main Theme                                     | Sub-theme                             | Initial Codes (Sample)                                                   | Code Frequency |
|------------------------------------------------|---------------------------------------|--------------------------------------------------------------------------|----------------|
| Cost Architecture Redesign                     | Scenario-Based Costing                | Multi-scenario budgeting, dynamic costing, sensitivity analysis          | 12             |
|                                                | Non-Strategic Cost Elimination        | Cost portfolio review, reverse target costing                            | 8              |
|                                                | Full-Cost Transparency                | Precise separation of direct/indirect costs, cost tracing in the chain   | 6              |
| Strategic Finance under Constraint             | Cash Conversion Cycle Management      | Reducing receivables collection period, restructuring payment period     | 11             |
|                                                | Alternative Financing Instruments     | Commercial barter, offset contracts, supply chain financing              | 9              |
|                                                | Currency Risk Hedging                 | Multi-currency contracts, strategic currency reserves                    | 7              |
| Asymmetric Information Networking              | Business Intelligence-Based Reporting | Local management dashboard, real-time reports                            | 8              |
|                                                | Non-Financial Data Integration        | Combining financial and operational indicators                           | 5              |
| Strategic Performance Alignment                | Resilience-Oriented Scorecard         | Adding resilience indicators to BSC                                      | 7              |
|                                                | Budget-Strategy Coherence             | Contingency budgeting, quarterly strategy review                         | 6              |
| Accounting Human Capital as Dynamic Capability | Multi-Skilling                        | Combining accounting and financial knowledge with information technology | 5              |

Source: Data collected by the authors.

Figure 1 presents the thematic map of the study. As can be observed, five main themes have formed around the central core of "Strategic Management Accounting as a Dynamic Organizational Capability" and are connected to organizational resilience through semantic relationships. Dashed lines represent thematic relationships, and the directional red arrow represents the final output of the model (organizational resilience).



**Figure 1.** Thematic Map of Strategic Management Accounting's Role in Organizational Resilience

Note. n = 22. Dashed lines represent thematic relationships; the solid red arrow represents the directional outcome.

#### 4.1. First Theme: Cost Architecture Redesign

Participants repeatedly noted that traditional costing—assuming stable input prices—becomes ineffective under sanctions. What emerged was a pattern that can be called "scenario-based costing":

"Previously we had one annual budget. Now we have three scenarios: optimistic, probable, pessimistic. Every month we check which scenario is unfolding and adjust the budget accordingly." (M03, Deputy Financial Officer, Auto Parts)

This approach goes beyond traditional contingency budgeting. In contingency budgeting, the budget is revised. In the scenario-based approach, the cost architecture is designed from the outset for multiple states. Participants spoke of dividing costs into three categories:

"We now divide costs into three categories: structural costs that are not eliminated under any circumstances, strategic costs that are adjusted with declining demand, and development costs that remain active only in the optimistic scenario." (M07, Management Accountant, Metals)

This finding aligns with the management accounting and resilient economy model, which introduces "cost management" and "continuous process improvement" as components of the production management and optimization dimension. However, the present theme goes beyond that model and highlights the dynamic mechanism of continuous adaptation.

#### **4.2. Second Theme: Strategic Finance under Constraint**

Participants emphasized that financial management under sanctions is not merely "liquidity management." What emerged was the design of an architecture of financial flows:

"Our problem is not just that we have little money. The problem is that money transfer routes have been closed. We must design new routes: barter, offset, even payment through intermediary companies in neighboring countries." (M09, Financial Consultant, Auto Parts)

Three sub-themes were identified within this theme:

**A) Cash Conversion Cycle Management:** Participants spoke of deliberately reducing the receivables collection period as a strategic tool:

"We used to think a 90-day receivables collection period was good. Now we know that under sanctions, every 30-day reduction in DSO means survival. We are even willing to offer cash discounts to get the money faster." (M11, Management Accountant, Petrochemical)

**B) Alternative Financing Instruments:** Commercial barter and offset contracts emerged as localized solutions:

"We now have barter contracts with our main suppliers: we give products, they give raw materials. This way we bypass the banking system, which is restricted." (M04, Financial Manager, Food Industry)

**C) Currency Risk Hedging:** Some companies had established strategic currency reserves:

"We have a foreign currency account that we do not touch. The CEO says this money is 'crisis money.' If the exchange rate doubles tomorrow, at least we can secure three months of raw materials." (M15, Financial Manager, Petrochemical)

#### **4.3. Third Theme: Asymmetric Information Networking**

This theme refers to the informational dimension of SMA. Participants spoke of the inadequacy of traditional reporting systems:

"Traditional monthly reports are no longer enough. By the time we prepare the report, the exchange rate has changed twice. We need a system that tells us in real time what is happening." (M02, Management Accountant, Petrochemical)

Two main strategies were identified:

**A) Local Management Dashboards:**

"We have a dashboard that shows product profit margins, raw material inventory levels, and the real-time exchange rate—all on one page." (M05, Financial Manager, Pharmaceuticals)

**B) Non-Financial Data Integration:** Indicators such as replenishment time and supplier diversity had been added to management accounting systems:

"We now have an indicator called 'supply chain fragility.' We calculate it: if the main supplier of any raw material is lost, how many days can we continue?" (M17, Faculty Member, Metals)

#### **4.4. Fourth Theme: Strategic Performance Alignment**

Participants spoke of the gap between budget, strategy, and performance evaluation under normal conditions—a gap that becomes dangerous in crisis:

"The strategy says we should diversify exports. The budget says resources are limited. Performance evaluation says why has last quarter's profit declined. These three are three parallel worlds. In crisis, this parallelism is a disaster." (M13, Faculty Member, Food Industry)

The emerging solution was a resilience-oriented balanced scorecard:

"We added a fifth dimension to the BSC: resilience. Its indicators are: supplier diversity, strategic reserves, recovery time after shock, and share of sales from alternative markets." (M19, Financial Manager, Auto Parts)

#### **4.5. Fifth Theme: Accounting Human Capital as Dynamic Capability**

This theme is the most human dimension of the findings:

"You can buy the best software. But if your management accountant cannot build scenarios, if they cannot extract a story from the data, that software becomes an expensive archive." (M12, Faculty Member, Metals)

Two main components: multi-skilling and crisis learning:

"After every crisis, we hold a 'lessons learned' session. We write: what shock came? What response did we give? What worked? What did not? This becomes part of our organizational memory." (M21, Management Accountant, Pharmaceuticals)

This finding aligns with the "human resource and organizational management" dimension of the management accounting and resilient economy model, which introduces "training and learning" and "performance evaluation" as key components.

### **5. Discussion and Conclusion**

#### **5.1. Revisiting the Findings in Light of the Literature**

The findings of this study revealed five distinct mechanisms through which Strategic Management Accounting (SMA) contributes to the organizational resilience of Iranian manufacturing companies under sanctions. These five mechanisms—cost architecture redesign, strategic finance under constraint, asymmetric information networking, strategic performance alignment, and accounting human capital as a dynamic capability—were organized within an integrated model (Figure 2) in which SMA operates not as a set of static techniques but as a **dynamic organizational capability**.

This finding aligns with recent literature on SMA and resilience. Nguyen et al.'s (2024) study of Vietnamese firms showed that strategic costing techniques are the strongest predictors of organizational resilience. Our findings confirm this result but also reveal the **mediating mechanism**: what links scenario-based costing to resilience is **structural flexibility**—the

organization's ability to rapidly adapt its cost portfolio to unfolding scenarios. This mechanism was not explicitly identified in Nguyen et al.'s study.

The second finding—strategic finance under constraint—shows striking convergence with Kovalev and Smirnova's (2024) research on Russian firms. They showed that under sanctions, access to financing and management quality are key moderators of the negative effects of sanctions. Our findings extend this result: Iranian financial managers not only **face constraints** but actively **design alternative financial flow architectures** (barter, offset, strategic currency reserves). This proactivity moves beyond "resistance" toward **antifragility**.

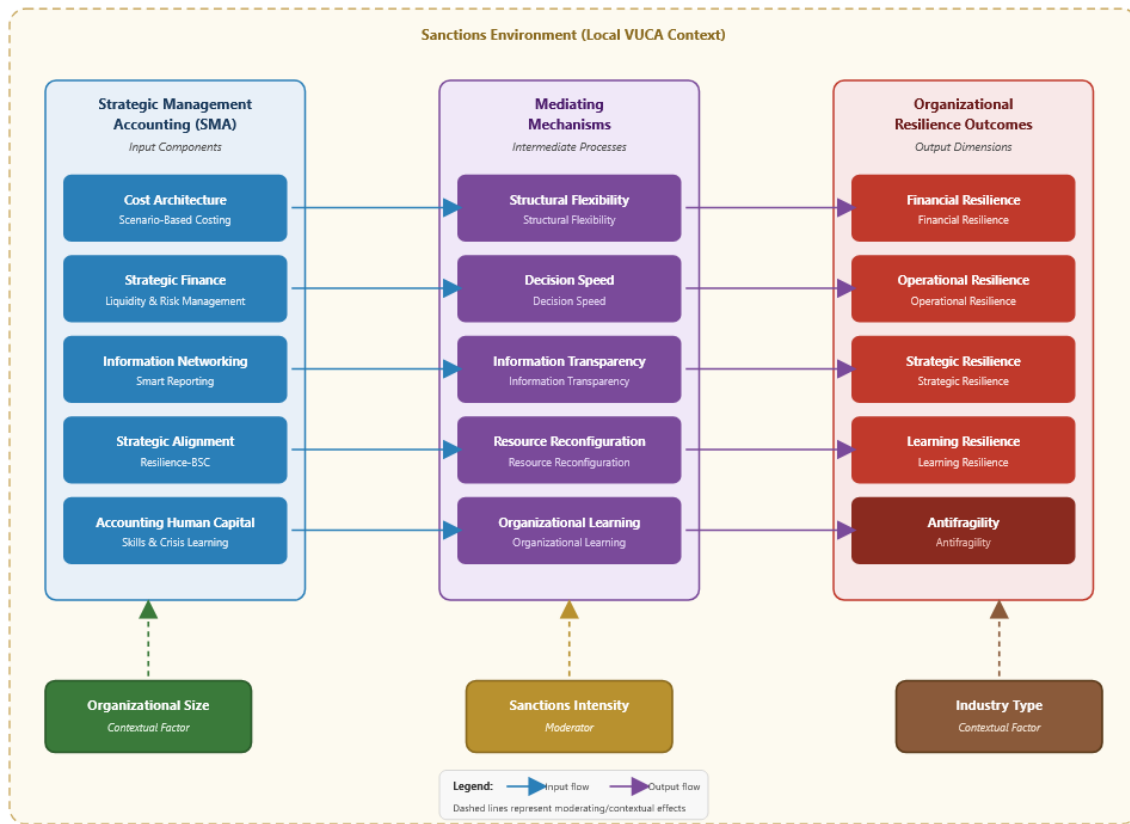
The third finding—asymmetric information networking—aligns with the theoretical framework of resilience as "the ability to anticipate, cope, and adapt" (Duchek, 2020). Real-time reporting systems and local business intelligence dashboards provide the infrastructure for the **anticipation stage**. But the more important finding is that in the Iranian context, these systems are not merely **monitoring** tools but tools for **creating strategic knowledge**. Participants mentioned the "supply chain fragility" indicator as an **innovative localized indicator** with no precedent in the international SMA literature.

The fourth finding—strategic performance alignment—is consistent with the 2024 Springer study on the relationship between "risk management orientation" and "budgeting function" with resilience. But our finding highlights the **fifth dimension of the BSC**: adding "resilience" as an independent dimension of performance evaluation. This theoretical innovation is a localized response to the gap in the conventional BSC literature, which views resilience as an **output** rather than a **measurable and manageable dimension**.

The fifth finding—accounting human capital as a dynamic capability—aligns with the concept of "absorptive capacity" in the dynamic capabilities' literature (Rinaldi et al., 2025). But our finding reveals an important **localized dimension**: "crisis learning" as a **documented organizational routine** (lessons-learned sessions) that is less frequently seen in the international literature as a **formal mechanism**.

## **5.2. A Localized Model of "Resilient Management Accounting"**

Based on the thematic analysis findings, the final conceptual model of the study is presented in Figure 2. This model represents the three-part logic of "Input – Mechanism – Outcome": five SMA components as inputs, through five mediating mechanisms (structural flexibility, decision speed, information transparency, resource reconfiguration, organizational learning), affect five dimensions of resilience. Two contextual factors (organizational size and industry type) and one moderating factor (sanctions intensity) are also incorporated into the model.



**Figure 2.** Final Conceptual Model: SMA's Role in Organizational Resilience under Sanctions

*Note.* The three-part "Input – Mechanism – Outcome" framework with two contextual factors and one moderating factor.

Based on the findings of this study, "resilient management accounting" can be defined in the Iranian context as follows:

Resilient management accounting is a set of routines and informational capabilities that enable an organization, under conditions of chronic uncertainty, not only to survive but also to create new strategic capacities from the heart of crisis.

This definition has three distinctive characteristics:

1. **Beyond resistance:** Emphasis on "creating new capacity" (antifragility), not merely returning to the previous state.
2. **Chronic uncertainty:** Unlike conventional literature that views crisis as an episodic event, this definition takes the persistence of uncertainty as its premise.
3. **Informational capability:** SMA is defined not as an **organizational unit** but as a **distributed capability** across the entire organization.

### 5.3. Theoretical Implications

This study has three specific theoretical implications:

**First, redefining the SMA-resilience relationship from a linear to a mechanistic relationship.** Existing models (Nguyen et al., 2024; Springer, 2024) assume a direct relationship between SMA and resilience. The present model shows that this relationship operates through **five mediating mechanisms**. This finding has an important implication for

future research: instead of asking "Does SMA affect resilience?", one should ask "Through what mechanisms does SMA affect resilience?"

**Second, localizing the concept of dynamic capability in the sanctions context.** The dynamic capabilities literature (Teece, 2007) emphasizes "sensing, seizing, and reconfiguring." Our findings show that in the Iranian context, these three stages also have a **fourth dimension: documenting crisis learning**. Resilient Iranian organizations transform their crisis experiences into **sustainable organizational routines**—a process less frequently viewed as an independent capability in the conventional literature.

**Third, providing a framework for measuring "financial resilience."** The existing literature measures resilience at the macro-organizational level. Our findings show that **specific financial indicators** (such as the supply chain fragility index, the ratio of strategic currency reserves to currency obligations, and the cash flow recovery period after shock) can be used as **operational measures of resilience**.

#### 5.4. Practical Implications

For financial managers and management accountants:

- Designing scenario-based budgeting as a standard routine, not a contingency measure.
- Investing in integrated dashboards that simultaneously display financial and operational indicators.
- Establishing strategic currency reserves as a formal financial policy with specified criteria.
- Developing multi-skilling in management accounting teams (combining financial knowledge with data analytics and information technology).

For policymakers and professional institutions:

- Formulating resilience reporting standards that integrate financial and non-financial indicators.
- Encouraging documentation of crisis lessons as part of professional requirements.
- Developing training programs in strategic management accounting with a focus on scenario planning and risk analysis.

#### 5.5. Research Limitations

This study, like any qualitative study, has limitations that condition the interpretation of its findings:

**First, sampling limitations.** Although sampling was conducted with maximum variation, participants were predominantly selected from large listed companies and more developed provinces. The findings may have less generalizability for smaller companies and less developed regions.

**Second, temporal limitations.** Interviews were conducted within a specific time frame. Sanctions are a dynamic phenomenon, and the identified mechanisms may change at different stages of intensification or easing of sanctions.

**Third, self-reporting limitations.** Data were collected based on participants' reports of their experiences. The possibility of memory bias or social desirability bias exists, although validation methods (peer review, member checking) reduced this risk.

**Fourth, theoretical generalization limitations.** The findings were obtained in the specific context of Iran and manufacturing companies. Direct generalization to other sectors (services, technology) or other sanctioned countries requires comparative research.

### 5.6. Suggestions for Future Research

Based on the limitations and findings, the following suggestions are offered for future research:

1. **Quantitative research based on the present model:** Designing a standard questionnaire based on the five identified mechanisms and testing the model using PLS-SEM in a large sample (at least 384 participants) of financial managers of manufacturing companies. This research can determine the **effect size** of each mechanism.
2. **International comparative study:** Comparing the identified mechanisms in Iran with companies in Russia, Venezuela, and Cuba—countries with long-term sanctions experience. This comparison can reveal **global patterns** of financial resilience.
3. **Longitudinal research:** Following the studied companies over a 3- to 5-year period to examine the **evolution** of SMA mechanisms at different stages of intensification or easing of sanctions.
4. **In-depth case study:** Selecting two or three companies with outstanding resilience performance and deeply analyzing their **internal processes**—particularly how they document lessons learned and transform them into organizational routines.
5. **Design Science research:** Designing and validating a **resilient management accounting information system** as a technological artifact, with the active participation of financial managers and software developers.
6. **Examining the role of emerging technologies:** Studying the role of **artificial intelligence and big data** in strengthening the identified mechanisms, particularly in the areas of information networking and scenario forecasting.

### 5.7. Final Conclusion

This study, adopting a qualitative and context-based approach, identified five distinct mechanisms through which Strategic Management Accounting contributes to the organizational resilience of Iranian manufacturing companies under sanctions. The findings show that SMA in this context is not a **control tool** but a **dynamic organizational capability** that, through continuous redesign of financial processes, helps reduce vulnerability and create competitive advantage in a sanctioned environment.

The most important theoretical contribution of this study is the presentation of the **three-part "Input–Mechanism–Outcome" model**, which, unlike existing linear models, incorporates **mediating mechanisms** and **localized contextual factors** into the analysis of

SMA's role in resilience. This model provides a framework for future quantitative research and guidance for financial managers in designing resilient management accounting systems.

At the practical level, the findings indicate that Iranian manufacturing companies, in confronting sanctions, have developed **innovative management patterns** that are less frequently seen in the conventional SMA literature: scenario-based costing, alternative financial flow architectures, localized supply chain fragility indicators, and formal routines for documenting crisis lessons. These achievements constitute a valuable asset for **localized theorizing** in the fields of management and accounting.

## **Declarations**

### **Author Contributions (CRediT taxonomy)**

The author confirms sole responsibility for the following: study conception and design, data collection, analysis and interpretation of results, and manuscript preparation and revision. All aspects of this work were undertaken by the author.

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### **Ethical Statement**

Informed consent was obtained from all participants. The study was conducted in accordance with established ethical guidelines for qualitative research.

### **Authors' AI Use Statement**

The author declares that no artificial intelligence (AI) tools were used in the preparation of this manuscript for writing, analysis, or data generation. All content is the result of the author's own human effort and judgment.

### **Conflict of interest**

The author declares no competing financial interests or personal relationships that could have influenced the work reported in this paper.

### **Data Availability Statement**

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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