



Navigating Financial Crises: A Strategic Framework for the Internationalization of Manufacturing SMEs in Iran

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Abstract

Manufacturing small and medium enterprises (SMEs) in Iran play a pivotal role in employment, innovation, and industrial output. However, national financial crises, such as economic sanctions and currency devaluation, coupled with global disruptions like the COVID-19 pandemic, threaten their sustainability. This study aims to develop a comprehensive framework for the internationalization of Iranian manufacturing SMEs under crisis conditions. Employing a qualitative approach, data were collected through 20 semi-structured interviews with managers from SMEs in the automotive parts, food, industrial machinery, plastics, and pharmaceutical sectors. The analysis identified key drivers, challenges, strategies, market entry pathways, and outcomes of internationalization. Findings revealed that currency devaluation (85%), domestic market stagnation (75%), and opportunities in neighboring markets (95%) were primary drivers. Challenges included foreign currency payment issues (85%), logistical barriers (80%), and lack of awareness of international regulations (60%). SMEs adopted strategies such as flexible currency contracts (90%), barter trade (60%), cryptocurrencies (25%), and export-oriented technological advancements (55%). Market entry pathways, aligned with the Uppsala model, encompassed commercial networks (95%), local agents (95%), and international exhibitions (45%). Outcomes included sustainable growth (85%), entry into new markets (75%), and job retention (60%). The proposed Structural Interpretive Model (SIM), integrating the Uppsala model, network theory, and risk management principles, offers a practical framework validated through theoretical and practical triangulation. Recommendations include training programs, government support, and investment in digital infrastructure.

Keywords: Internationalization, Small and Medium Enterprises, Economic Crisis, Iran, Uppsala Model, Network Theory

Paper Type: Original Research

1. Introduction

Small and medium enterprises (SMEs) form the backbone of developing economies, driving employment, fostering innovation, and bolstering industrial production. Their agility and responsiveness to market demands position them as key engines of economic growth, particularly in structurally constrained economies (OECD, 2021a; Chandra et al., 2021). In Iran, SMEs constitute a significant portion of economic entities, playing a critical role in domestic supply chains and non-oil export development. Particularly in sectors such as automotive parts, food processing, and industrial machinery, these enterprises contribute to job creation, unemployment reduction, and sustainable economic progress (Chandra et al., 2021; Freixanet et al., 2021). Nevertheless, their vulnerability to economic crises – stemming from limited financial, human, and infrastructural resources – is pronounced. In Iran, this vulnerability is exacerbated by domestic challenges, including currency devaluation, economic sanctions, and political instability, as well as global disruptions like the COVID-19 pandemic (OECD, 2021a; Sui et al., 2023; Moreira et al., 2024). Iran's economy has faced multifaceted challenges in recent years, profoundly impacting SME performance. International sanctions, intensified in recent years, have curtailed access to foreign financial resources and imported raw materials, driving up production costs. These restrictions have hindered SMEs' ability to source inputs and conduct international transactions, undermining their global competitiveness (Chandra et al., 2021; Moreira et al., 2024). Currency devaluation, particularly between 2020 and 2023, has escalated production costs while complicating export pricing and financial planning for SMEs (Sui et al., 2023; Freixanet et al., 2021). The COVID-19 pandemic further compounded these pressures by disrupting global supply chains, reducing domestic and international demand, and inflating logistical costs. Reports indicate that during 2020–2021, many SMEs in developing economies, including Iran, experienced significant revenue declines (OECD, 2021b; Chandra et al., 2021; Moreira et al., 2024). These challenges have compelled Iranian SMEs to seek innovative strategies to ensure resilience and growth (Freixanet et al., 2021; Sui et al., 2023). Amid these adversities, internationalization has emerged as a vital

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strategy for mitigating risks associated with domestic economic volatility and enhancing SME resilience. Internationalization – encompassing activities such as exports, international partnerships, or foreign direct investment – enables SMEs to diversify their markets, reducing reliance on unstable domestic economies (Sui et al., 2023; Morgan et al., 2021). For Iranian SMEs, internationalization offers not only economic growth opportunities but also a means to navigate sanctions and currency devaluation. By accessing new markets, advanced technologies, and market knowledge, SMEs can foster innovation and enhance competitiveness (Moreira et al., 2024; Chandra et al., 2021). For instance, exporting to neighboring markets like Iraq, Turkey, and Armenia has allowed Iranian SMEs to offset the adverse effects of sanctions and declining domestic demand. These markets, due to geographic proximity and stable demand, represent low-risk export destinations (Moreira et al., 2024; Morgan et al., 2021; Freixanet et al., 2021). Despite its benefits, internationalization poses significant challenges for Iranian SMEs. Financial constraints, including limited access to international credit and foreign currency payment difficulties, are among the most formidable barriers. Economic sanctions have severed SMEs' access to global banking systems, forcing them to resort to unconventional methods such as barter trade or cryptocurrencies (Moreira et al., 2024; Sui et al., 2023). Regulatory complexities, such as unfamiliarity with international standards and foreign market regulations, further impede SMEs' global competitiveness (Chandra et al., 2021; Freixanet et al., 2021). Logistical obstacles, including transportation delays and rising shipping costs – particularly during the COVID-19 crisis – have compounded these difficulties (Chandra et al., 2021; Moreira et al., 2024). Additionally, inadequate digital and information technology infrastructure limits SMEs' ability to leverage e-commerce platforms and digital networks. These barriers, combined with limited market knowledge and international experience, render internationalization a daunting process, underscoring the need for a framework tailored to Iran's unique context (Sui et al., 2023; Morgan et al., 2021; Freixanet et al., 2021). Given these challenges, developing a comprehensive framework for the internationalization of Iranian manufacturing SMEs during financial crises is of paramount importance. The absence of a context-specific framework represents a significant research gap, which this study seeks to address. Traditional internationalization models, such as the Uppsala model, are often designed for stable economies and fail to fully capture the complexities of crisis-ridden environments like Iran (Chandra et al., 2021; Sui et al., 2023). These models rarely account for unconventional strategies, such as cryptocurrencies or barter trade, which are critical in sanctioned economies (Moreira et al., 2024; Morgan et al., 2021). This study aims to propose a holistic framework that not only identifies the drivers and challenges of internationalization but also examines strategies, market entry pathways, and outcomes in the context of financial crises. By integrating the Uppsala model, network theory, and risk management principles, and enriching them with innovative solutions, the framework seeks to guide Iranian SMEs toward successful global market entry (Morgan et al., 2021; Freixanet et al., 2021; Sui et al., 2023). The theoretical foundation of this study is built on an integration of internationalization theories. The Uppsala model emphasizes a gradual market entry process, focusing on experiential learning, which is relevant for Iranian SMEs starting with neighboring markets. However, in crisis conditions, this model requires adaptation to accommodate faster, non-linear strategies (Chandra et al., 2021; Sui et al., 2023). Network theory highlights the importance of commercial relationships and partnerships in accessing resources and market knowledge, crucial for Iranian SMEs navigating sanctions (Morgan et al., 2021; Moreira et al., 2024). Risk management theories aid in identifying and mitigating financial and operational risks in volatile environments (Freixanet et al., 2021; Chandra et al., 2021). By synthesizing these theories, this study offers a multidimensional framework that addresses both traditional aspects of internationalization, such as market selection and entry modes, and innovative approaches, such as digital technologies and localized services (Sui et al., 2023; Moreira et al., 2024). The primary research question is: How can a framework for the internationalization of Iranian manufacturing SMEs in times of financial crises be developed? Sub-questions explore the identification of drivers (e.g., currency devaluation and regional opportunities), challenges (e.g., logistical and financial barriers), strategies (e.g., flexible currency contracts), market entry pathways (e.g., commercial networks and international exhibitions), and outcomes (e.g., sustainable growth and job retention) (Sui et al., 2023; Morgan et al., 2021; Moreira et al., 2024). The framework is validated using qualitative data from semi-structured interviews with managers of Iranian manufacturing SMEs, with its practical applicability proposed for other developing economies facing similar challenges (Moreira et al., 2024; Freixanet et al., 2021). The findings are expected to benefit not only Iranian SMEs but also policymakers and other developing economies striving for global competitiveness (Sui et al., 2023; Morgan et al., 2021).

2. Literature Review

2.1 Concept of Internationalization

Internationalization, a cornerstone of business management, refers to the process of expanding a firm's activities into foreign markets through exports, international partnerships, or foreign direct investment. For small and medium enterprises (SMEs), it offers opportunities for growth, innovation, and reduced dependence on volatile

domestic markets, particularly in developing economies like Iran facing multifaceted economic challenges (Calof & Viviers, 1995; Boso et al., 2017; Sui et al., 2023). Recent studies highlight that SMEs can overcome traditional internationalization barriers by adopting innovative strategies, such as digital platforms and unconventional mechanisms like barter trade, thereby strengthening their global market presence (Jafari-Sadeghi et al., 2020; Freixanet et al., 2021; Moreira et al., 2024). This literature review examines the concept of internationalization, related theories, challenges, opportunities, and strategies employed by SMEs, with a particular focus on Iran's crisis context. Internationalization is defined as a multidimensional process encompassing new market development, access to external resources, and enhancement of competitive capabilities (Pena-Vinces et al., 2017; Morgan et al., 2021). For SMEs, it extends beyond increasing export revenues to building resilience against economic shocks, such as currency devaluation or global crises like the COVID-19 pandemic (Chandra et al., 2020; OECD, 2021a). In Iran, manufacturing SMEs, particularly in sectors like automotive parts, food, and industrial machinery, have mitigated the adverse effects of economic sanctions and domestic market fluctuations by entering regional markets such as Iraq, Turkey, and Armenia (D'Angelo et al., 2020; Moreira et al., 2024). These markets, characterized by geographic proximity, lower transportation costs, and stable demand, are attractive export destinations (Ferrucci et al., 2018; Morgan et al., 2021). However, internationalization is fraught with obstacles, including financial, logistical, and regulatory barriers, necessitating a deeper exploration (Narooz & Child, 2017; Sui et al., 2023).

Table 1. Intensity, Range, and Modes of Business Internationalization(Sui et al., 2023)

Degree of internationalization Intensity	Modes
Activity on Domestic Market	<ul style="list-style-type: none"> • Domestic Transactions • Indirect import • Direct import
Sales Internationalization	<ul style="list-style-type: none"> • Indirect export • Direct export • Transit trade • Barter trade • Representative office
International Cooperation	<ul style="list-style-type: none"> • Subcontracting • Piggybacking • Licensing of trade-marks • Franchising • Management contracts • Turn-key operations • Strategic alliances
Foreign Affiliates	<ul style="list-style-type: none"> • Branch • Subsidiaries • Joint venture subsidiary • Wholly-owned subsidiary
4. Business Globalization	<ul style="list-style-type: none"> • International Company • Multinational Company • Transnational corporation • Global Firm

Internationalization theories provide robust frameworks for understanding this process. The Uppsala model, one of the most prominent frameworks, posits that firms enter foreign markets gradually, leveraging experiential learning and minimizing risks (Johanson & Vahlne, 1977; Chandra et al., 2021). It suggests that SMEs initially target geographically or culturally proximate markets before expanding to more distant ones. In Iran, this model is relevant for SMEs initiating exports to neighboring countries, but its applicability is limited in crisis contexts like sanctions or the COVID-19 pandemic, where rapid, non-linear strategies are required (Dabic et al., 2020; Freixanet et al., 2021). Network theory emphasizes the role of commercial relationships, partnerships, and social networks in accessing resources, market knowledge, and international opportunities. For Iranian SMEs constrained by sanctions, networks are critical for bypassing financial and logistical barriers (Ferrucci et al., 2018; Morgan et al., 2021). Risk management theories offer frameworks for identifying and mitigating financial, operational, and regulatory risks in volatile environments (Boso et al., 2017; Sui et al., 2023). The challenges of SME internationalization in developing economies, particularly Iran, have been extensively explored in recent research. Financial constraints, including limited access to international credit and foreign currency payment issues, are among the most significant hurdles. Sanctions have blocked Iranian SMEs' access to global banking systems, compelling them to adopt unconventional methods like barter trade or cryptocurrencies (Jafari-Sadeghi et al., 2020; Moreira et al., 2024). These approaches, while effective in the short term, entail complexities and require specialized knowledge and infrastructure (Chandra et al., 2020; Freixanet et al., 2021). Regulatory complexities, such as unfamiliarity with international standards and foreign market regulations, diminish SMEs' global competitiveness (Narooz & Child, 2017; Chandra et al., 2021). Logistical barriers, including transportation delays and rising shipping costs, particularly during the COVID-19 crisis, have further exacerbated SME challenges (OECD, 2021b; Moreira et al., 2024). The COVID-19 pandemic profoundly impacted SME internationalization. By disrupting global supply chains, reducing market demand, and inflating logistical costs, it triggered liquidity challenges for many SMEs (Chandra et

al., 2020; OECD, 2021a). In Iran, these effects were amplified by sanctions and limited digital infrastructure, hindering SMEs' ability to leverage e-commerce platforms effectively (Kabanda & Brown, 2017; Freixanet et al., 2021). Nevertheless, some SMEs successfully navigated these barriers by adopting digital technologies, such as e-commerce platforms and social media, to access foreign customers (Jafari-Sadeghi et al., 2020; Sui et al., 2023). These experiences underscore the potential of emerging technologies to facilitate SME internationalization, even in crisis conditions (Morgan et al., 2021; Moreira et al., 2024). Opportunities for SME internationalization are substantial. Market diversification, access to new resources, and innovation through international partnerships are key benefits (Boso et al., 2017; Morgan et al., 2021). In Iran, SMEs that have penetrated regional markets have not only sustained revenue streams but also enhanced competitive capabilities through experiential learning (Chandra et al., 2020; Sui et al., 2023). For instance, international exhibitions and regional commercial networks, such as joint chambers of commerce with neighboring countries, have enabled Iranian SMEs to access new markets and establish enduring business relationships (Ferrucci et al., 2018; Moreira et al., 2024). These opportunities highlight the importance of network- and technology-based strategies for successful SME internationalization (Freixanet et al., 2021; Morgan et al., 2021). Despite theoretical and practical advancements, significant research gaps persist in SME internationalization. Many studies focus on developed economies, with limited attention to the complexities of crisis-ridden environments like Iran (Pena-Vinces et al., 2017; Chandra et al., 2021). Traditional models like Uppsala often fail to account for unconventional strategies, such as cryptocurrencies or barter trade, critical in sanctioned economies (Dabic et al., 2020; Sui et al., 2023). Few studies have specifically explored the role of digital technologies and unconventional mechanisms in facilitating Iranian SME internationalization (Jafari-Sadeghi et al., 2020; Moreira et al., 2024). These gaps underscore the need for a comprehensive framework that examines the drivers, challenges, and strategies of SME internationalization in Iran's crisis context (Morgan et al., 2021; Freixanet et al., 2021). This study addresses these gaps by proposing a multidimensional framework that integrates the Uppsala model, network theory, and risk management principles with innovative solutions, such as digital technologies and unconventional mechanisms (Boso et al., 2017; Chandra et al., 2021). Validated through qualitative data from semi-structured interviews with Iranian manufacturing SME managers, the framework's practical applicability is proposed for other developing economies (Moreira et al., 2024; Sui et al., 2023). By offering a comprehensive perspective on drivers (e.g., regional opportunities and currency devaluation), challenges (e.g., financial and logistical barriers), and strategies (e.g., barter trade and digital platforms), this study aims to assist Iranian SMEs and policymakers in advancing internationalization effectively (Ferrucci et al., 2018; Morgan et al., 2021). It also lays the groundwork for future research on SME internationalization in crisis environments (Chandra et al., 2020; Freixanet et al., 2021).

2.2 Theoretical Models of Internationalization

Internationalization, as a complex and multifaceted process, requires theoretical frameworks to elucidate the behavior of firms, particularly small and medium enterprises (SMEs), in entering foreign markets. Key internationalization theories, including the Uppsala model, network theory, and risk management theories, provide critical insights into this process. These frameworks not only explain the drivers and strategies of market entry but also illuminate the challenges and opportunities faced by SMEs in dynamic, crisis-ridden environments like Iran's economy (Johanson & Vahlne, 1977; Boso et al., 2017; Sui et al., 2023). This section reviews these theoretical models, their applicability to Iranian manufacturing SMEs, their limitations in crisis contexts, and necessary adaptations for developing economies. Recent research suggests that integrating these models with innovative solutions, such as digital technologies and unconventional mechanisms, can empower SMEs to overcome internationalization barriers (Jafari-Sadeghi et al., 2020; Freixanet et al., 2021; Moreira et al., 2024). The Uppsala model, introduced by Johanson and Vahlne in 1977, is a foundational framework for internationalization. It posits that firms enter foreign markets gradually, leveraging experiential learning and minimizing risks. The model emphasizes learning and commitment, suggesting that firms increase their market commitments (e.g., direct investment or establishing subsidiaries) as they gain knowledge of foreign markets (Johanson & Vahlne, 1977; Chandra et al., 2021). For Iranian SMEs, this model is particularly relevant in the early stages of internationalization, such as exporting to neighboring countries like Iraq, Turkey, and Armenia, which pose lower risks due to geographic and cultural proximity (Ferrucci et al., 2018; Morgan et al., 2021). However, in crisis conditions like economic sanctions or the COVID-19 pandemic, requiring swift, non-linear strategies, the Uppsala model's limitations become evident. Research indicates that SMEs in such contexts often deviate from gradual processes, adopting rapid strategies like digital platforms or barter contracts (Pena-Vinces et al., 2017; Sui et al., 2023; Moreira et al., 2024). Network theory offers another critical framework, emphasizing the role of relationships with customers, suppliers, and business partners in internationalization. It suggests that SMEs access resources, market knowledge, and international opportunities through social and commercial networks (Narooz & Child, 2017; Morgan et al., 2021). In developing economies like Iran, where financial and infrastructural resources are scarce, network theory is particularly relevant. For instance, Iranian SMEs have leveraged joint chambers of commerce, international exhibitions, and informal

partnerships with regional actors to bypass sanctions and enter new markets (Ferrucci et al., 2018; Freixanet et al., 2021). Network theory underscores that internationalization is not solely driven by internal firm decisions but also by interactions with external stakeholders. This perspective is valuable for resource-constrained SMEs, as networks can substitute for internal capabilities (Boso et al., 2017; Chandra et al., 2020). However, over-reliance on networks may expose SMEs to vulnerabilities from sudden changes in commercial relationships, necessitating strategic network management (Sui et al., 2023; Moreira et al., 2024). Risk management theories provide a third framework, focusing on adaptive strategies to navigate environmental uncertainties in crisis contexts. These theories suggest that SMEs in volatile environments, such as Iran under sanctions or during the COVID-19 pandemic, should employ strategies like market diversification, financial flexibility, and digital tools to mitigate operational and financial risks (Chandra et al., 2021; Freixanet et al., 2021). For example, Iranian SMEs have diversified their export markets, targeting Central Asia and the Middle East, to reduce dependence on unstable domestic markets (Morgan et al., 2021; Sui et al., 2023). Additionally, unconventional mechanisms like barter trade or cryptocurrencies have enabled SMEs to manage financial constraints imposed by sanctions (Jafari-Sadeghi et al., 2020; Moreira et al., 2024). Risk management theories highlight the importance of rapid adaptation to environmental changes, a critical factor in developing economies facing volatility (Boso et al., 2017; Chandra et al., 2020). The application of these theoretical models to Iranian SMEs reveals both strengths and limitations. The Uppsala model is suitable for SMEs in the early stages of internationalization targeting low-risk markets, but its ability to explain non-linear strategies in crisis contexts is limited (Pena-Vinces et al., 2017; Chandra et al., 2021). Network theory, with its focus on commercial relationships, enables Iranian SMEs to navigate financial and logistical barriers, but over-dependence on networks may compromise long-term sustainability (Narooz & Child, 2017; Morgan et al., 2021). Risk management theories offer adaptive solutions for environmental risks, but their implementation requires digital infrastructure and specialized knowledge, often scarce in Iranian SMEs (Jafari-Sadeghi et al., 2020; Freixanet et al., 2021). Recent studies advocate integrating these models to create a more comprehensive framework for SME internationalization in crisis contexts (Sui et al., 2023; Moreira et al., 2024). In Iran's unique economic context, challenges like international sanctions and currency devaluation have pushed theoretical models toward adaptation with unconventional strategies. For instance, Iranian SMEs have utilized digital platforms, such as online marketplaces and social media, to reach foreign customers despite limited access to global banking systems (Kabanda & Brown, 2017; Chandra et al., 2020). Barter contracts and regional partnerships have further enabled SMEs to overcome financial and logistical barriers and target new markets (Jafari-Sadeghi et al., 2020; Moreira et al., 2024). These strategies highlight the need to revisit traditional models like Uppsala to align with crisis realities (Dabic et al., 2020; Sui et al., 2023). Research also indicates that SMEs employing a combination of Uppsala, network, and risk management models outperform those relying on a single framework in international markets (Boso et al., 2017; Morgan et al., 2021). Despite theoretical advancements, significant research gaps remain in applying internationalization models to crisis contexts. Many studies focus on developed economies, with limited attention to the complexities of developing economies like Iran (Pena-Vinces et al., 2017; Chandra et al., 2021). Traditional models often fail to explain unconventional strategies, such as cryptocurrencies or barter trade, critical in sanctioned economies (Jafari-Sadeghi et al., 2020; Moreira et al., 2024). This study addresses these gaps by proposing a multidimensional framework integrating the Uppsala model, network theory, and risk management principles with innovative solutions. Validated through qualitative data from interviews with Iranian SME managers, the framework's practical applicability is proposed for other developing economies (Ferrucci et al., 2018; Moreira et al., 2024). By comprehensively addressing the application of theoretical models in crisis contexts, this study aims to assist Iranian SMEs and policymakers in advancing internationalization effectively (Boso et al., 2017; Freixanet et al., 2021). It also sets the stage for future research on adapting theoretical models to crisis environments (Chandra et al., 2020; Sui et al., 2023).

Table 2. Comparison of Internationalization Models(Chandra et al., 2020)

Model	Year Introduced	Core Approach	Strengths	Weaknesses	Relevance to Crisis
Uppsala	1977	Gradual learning and commitment	Clear stages; widely applicable	Assumes stable environment	Low - assumes stability
Network	1980s	Social networks and relational ties	Reflects real-world SME behavior	Hard to operationalize	High - adaptable via relationships
Born Global	1990s	Rapid internationalization from inception	Explains high-growth firms well	Limited applicability in resource-poor firms	Medium - risky during crises
RBV	1984	Resource-based competitive advantage	Focus on internal capabilities	Neglects external factors	Medium - internal focus
Eclectic Paradigm (OLI)	1980	Ownership, Location, Internalization advantages	Integrates multiple dimensions of internationalization	Complex, may overlook firm-level nuances	Medium - context-sensitive
International New Ventures (INVs)	1994	International entrepreneurship and opportunity seeking	Captures entrepreneurial dynamics	Less focus on long-term sustainability	High - leverages entrepreneurial agility

2.3 Research Gaps

Internationalization of small and medium enterprises (SMEs) has garnered significant attention in business management research. However, notable research gaps persist, particularly in developing economies like Iran, which face unique challenges such as economic sanctions, currency devaluation, and multifaceted crises. Most existing studies focus on stable or developed economies, and theoretical models like Uppsala or network theory often fail to fully address the complexities of crisis environments (Johanson & Vahlne, 2009; Pena-Vinces et al., 2017; Sui et al., 2023). This study aims to bridge these gaps by proposing a context-specific framework that integrates the Uppsala model, network theory, and risk management principles with innovative strategies, such as cryptocurrencies and barter trade. Designed for Iranian manufacturing SMEs, the framework's applicability is proposed for other developing economies with similar conditions (Chandra et al., 2020; Freixanet et al., 2021; Moreira et al., 2024). A primary research gap is the overemphasis on developed economies in internationalization studies. Traditional models like Uppsala, which focus on gradual market entry through experiential learning, are designed for stable environments where firms can incrementally build market knowledge and commitments (Johanson & Vahlne, 1977; Chandra et al., 2021). In developing economies like Iran, facing sanctions, economic volatility, and supply chain disruptions, these models are less applicable. Iranian SMEs often cannot adhere to gradual processes, requiring rapid, unconventional strategies like cryptocurrencies or barter contracts to navigate financial and logistical barriers (Paul et al., 2023; Jafari-Sadeghi et al., 2020; Sui et al., 2023). These limitations highlight the need for frameworks that account for crisis conditions and adaptive strategies (Narooz & Child, 2017; Moreira et al., 2024). Another gap is the limited attention to unconventional strategies in internationalization models. Traditional frameworks like Uppsala and network theory rarely address mechanisms such as barter trade, cryptocurrencies, or digital platforms, which are vital in sanctioned economies like Iran (Ferrucci et al., 2018; Freixanet et al., 2021). For instance, Iranian SMEs have adopted cryptocurrencies and barter contracts to bypass banking restrictions, yet these strategies remain underexplored in existing theoretical frameworks (Jafari-Sadeghi et al., 2020; Moreira et al., 2024). This gap underscores the need to revise theoretical models to align with the realities of developing economies. Recent studies suggest that integrating traditional models with risk management principles and emerging technologies can provide a more comprehensive framework for these strategies (Boso et al., 2017; Chandra et al., 2020; Sui et al., 2023). Additionally, the scarcity of research focusing on developing economies with crisis conditions, like Iran, represents another gap. Iran's economy, characterized by international sanctions, currency devaluation, and global supply chain disruptions, necessitates context-specific frameworks for SME internationalization (Pena-Vinces et al., 2017; Morgan et al., 2021). Many studies either address developing economies broadly, overlooking country-specific features, or focus on limited aspects of internationalization, such as exports, neglecting comprehensive strategies like regional partnerships or digital technologies (Kabanda & Brown, 2017; Freixanet et al., 2021). For example, Iranian SMEs have leveraged regional commercial networks, such as joint chambers of commerce with neighboring countries, to access new markets, yet these strategies are not fully covered in existing models (Ferrucci et al., 2018; Moreira et al., 2024). The COVID-19 pandemic has introduced new research gaps in internationalization studies. By disrupting supply chains, inflating logistical costs, and reducing global demand, it forced SMEs to adopt adaptive strategies not anticipated in traditional models (Chandra et al., 2020; OECD, 2021a). In Iran, these challenges were compounded by sanctions, limiting SMEs' ability to leverage digital platforms and sustain export markets (Freixanet et al., 2021; Sui et al., 2023). However, some SMEs successfully navigated these barriers using digital technologies, such as online marketplaces and social media, to reach foreign customers. These experiences highlight the need for models that account for the role of emerging technologies in internationalization (Jafari-Sadeghi et al., 2020; Morgan et al., 2021). This gap emphasizes the necessity for frameworks incorporating technology and unconventional strategies (Moreira et al., 2024; Chandra et al., 2021). Another gap is the limited integration of theoretical models to create comprehensive frameworks. The Uppsala model, network theory, and risk management theories each address specific aspects of internationalization but are insufficient alone to explain the complexities of crisis environments like Iran (Boso et al., 2017; Chandra et al., 2020). For instance, Uppsala focuses on gradual learning but fails to account for rapid strategies needed in sanctioned economies (Paul et al., 2023; Sui et al., 2023). Network theory emphasizes commercial relationships but does not fully address financial and logistical risks (Narooz & Child, 2017; Morgan et al., 2021). Risk management theories offer adaptive solutions but rely on digital infrastructure and specialized knowledge, often limited in Iranian SMEs (Freixanet et al., 2021; Chandra et al., 2021). This study integrates these models to propose a context-specific framework that identifies drivers, challenges, and innovative strategies, such as cryptocurrencies and digital platforms (Jafari-Sadeghi et al., 2020; Moreira et al., 2024). This context-specific framework is tailored for Iranian manufacturing SMEs and validated through qualitative data from semi-structured interviews with SME managers. It examines drivers like regional opportunities and currency devaluation, challenges like financial and logistical barriers, and strategies like barter trade, cryptocurrencies, and digital platforms (Ferrucci et al., 2018; Morgan et al., 2021; Sui et al., 2023). The

framework not only aids Iranian SMEs in navigating crisis conditions but is also proposed for other developing economies with similar challenges (Pena-Vinces et al., 2017; Freixanet et al., 2021). By addressing these research gaps, this study enhances understanding of SME internationalization in crisis environments and paves the way for future research (Chandra et al., 2020; Moreira et al., 2024). It also offers practical recommendations for SME managers and policymakers to bolster resilience and global competitiveness (Boso et al., 2017; Paul et al., 2023).

3. Methodology

This study, aimed at developing a context-specific framework for the internationalization of Iranian manufacturing small and medium enterprises (SMEs) during financial crises, adopted a qualitative approach. The qualitative methodology was deemed appropriate due to its capacity to provide deep insights into complex, context-dependent phenomena, particularly in Iran's crisis-ridden economy, characterized by sanctions, currency devaluation, and global disruptions (Chandra et al., 2020; Freixanet et al., 2021). Utilizing thematic analysis, the study identified drivers, challenges, strategies, and outcomes of SME internationalization, proposing a comprehensive framework aligned with Iran's unique conditions (Morgan et al., 2021; Sui et al., 2023). This section details the methodology, including the qualitative approach, population and sampling, data collection and analysis processes, and measures to ensure research validity and reliability. The qualitative approach was selected for its exploratory nature. SME internationalization in crisis conditions is a multifaceted phenomenon requiring an in-depth exploration of managers' and decision-makers' perspectives and experiences. Thematic analysis, a widely used qualitative method, was chosen for its flexibility and ability to identify key patterns and themes from complex data (Boso et al., 2017; Chandra et al., 2021). This method enabled the extraction of themes aligned with the research questions, including drivers (e.g., regional opportunities), challenges (e.g., financial and logistical barriers), and strategies (e.g., cryptocurrencies and digital platforms) (Jafari-Sadeghi et al., 2020; Moreira et al., 2024). By focusing on the lived experiences of Iranian SME managers, thematic analysis facilitated the development of a context-specific, practical framework integrated with established theories like Uppsala and network theory (Ferrucci et al., 2018; Sui et al., 2023). The study population comprised managers and decision-makers of Iranian manufacturing SMEs actively engaged in internationalization, particularly exports. Manufacturing SMEs were selected due to their pivotal role in Iran's economy, spanning sectors such as automotive parts, food, industrial machinery, plastics and packaging, and pharmaceuticals (Pena-Vinces et al., 2017; Morgan et al., 2021). Purposive sampling was employed to select participants with relevant experience and knowledge, ensuring rich, contextually grounded data (Narooz & Child, 2017; Freixanet et al., 2021). Selection criteria included a history of international market engagement, experience in managing financial crises, and roles related to export decision-making. A total of 20 semi-structured interviews were conducted with managers from various industries: automotive parts (20%), food (15%), industrial machinery (20%), plastics and packaging (15%), and pharmaceuticals (15%) (Chandra et al., 2020; Moreira et al., 2024). The sample composition reflected diversity in job roles, with 65% CEOs, 25% international managers, and 10% export specialists, providing varied perspectives on internationalization challenges and strategies. Educationally, 65% of participants held master's degrees, 25% doctorates, and 10% bachelor's degrees, indicating a high level of expertise that enriched the data's depth and validity (Ferrucci et al., 2018; Sui et al., 2023). To ensure sample diversity, SMEs of varying sizes (10 to 250 employees) and international experience (3 to 20 years) were included, enabling a comprehensive exploration of perspectives (Boso et al., 2017; Morgan et al., 2021). Data were collected through semi-structured interviews, chosen for their flexibility in probing participants' experiences and perspectives deeply (Kabanda & Brown, 2017; Chandra et al., 2021). The interview protocol included open-ended questions on internationalization drivers, financial and logistical challenges, strategies (e.g., barter trade and digital platforms), and outcomes, designed to align with theoretical frameworks like Uppsala, network theory, and risk management (Johanson & Vahlne, 1977; Freixanet et al., 2021). Interviews, lasting 45 to 60 minutes, were recorded with participants' consent and transcribed for analysis. To ensure data accuracy, transcribed texts were shared with participants for verification, confirming the accurate capture of their views (Narooz & Child, 2017; Moreira et al., 2024). Data analysis was conducted using MAXQDA software, employing open, axial, and selective coding. In open coding, data were segmented and labeled to identify initial concepts. Axial coding grouped these concepts into broader categories, elucidating relationships among them. Selective coding extracted key themes aligned with the research questions (Chandra et al., 2020; Sui et al., 2023). Eight core themes were identified: internationalization drivers (e.g., currency devaluation and regional opportunities), challenges (e.g., financial, logistical, and regulatory barriers), strategies (e.g., cryptocurrencies, barter trade, and digital platforms), and outcomes (e.g., sustainable growth and job retention). These themes informed the development of a context-specific framework for Iranian SME internationalization (Jafari-Sadeghi et al., 2020; Morgan et al., 2021). To ensure research validity and reliability, multiple measures were implemented. Data triangulation was achieved by cross-referencing participant responses with secondary sources, such as company documents and industry reports, to verify findings (Ferrucci et al., 2018; Freixanet et al., 2021). The interview protocol was reviewed by two independent researchers to ensure clarity and alignment with

research objectives (Boso et al., 2017; Chandra et al., 2021). Coding was conducted by two independent coders, with discrepancies resolved through discussion, ensuring inter-coder reliability. The Cohen's kappa coefficient (0.82) indicated a high level of agreement (Narooz & Child, 2017; Sui et al., 2023). To mitigate researcher bias, reflexivity was practiced, with the researcher's assumptions documented and reviewed throughout the process (Kabanda & Brown, 2017; Moreira et al., 2024). Methodological limitations must be acknowledged. Purposive sampling, while suitable for qualitative research, may limit the generalizability of findings to other industries or economies. However, the diverse sample (in terms of industry, job roles, and education) mitigated this limitation to some extent (Pena-Vinces et al., 2017; Morgan et al., 2021). The use of semi-structured interviews may be subject to respondent biases, such as the tendency to provide socially desirable answers, though participant verification of transcripts reduced this risk (Chandra et al., 2020; Freixanet et al., 2021). This study, by proposing a context-specific framework aligned with Iran's crisis conditions, addresses existing research gaps and lays the foundation for future studies on SME internationalization in volatile environments (Paul et al., 2023; Sui et al., 2023). The framework, integrating theoretical models with innovative strategies, offers practical guidance for SME managers and policy-makers (Boso et al., 2017; Moreira et al., 2024).

4. Findings

Qualitative data analysis from semi-structured interviews with managers of Iranian manufacturing small and medium enterprises (SMEs) identified eight core themes comprehensively elucidating the drivers, challenges, strategies, market entry pathways, and outcomes of internationalization during financial crises. Extracted using thematic analysis and MAXQDA software, these findings align with theoretical models like Uppsala, network theory, and risk management principles (Johanson & Vahlne, 1977; Boso et al., 2017; Sui et al., 2023). The studied SMEs, operating in automotive parts, food, industrial machinery, plastics and packaging, and pharmaceutical sectors, face unique challenges such as economic sanctions and currency devaluation. The findings demonstrate these enterprises' strategic adaptation to crisis conditions and their adoption of innovative solutions for global market entry (Chandra et al., 2020; Freixanet et al., 2021; Moreira et al., 2024). Below, these themes are detailed, and their connections to existing literature and Iran's specific context are explored. The first theme, internationalization drivers, highlights the primary motivators for SMEs' entry into foreign markets. Currency devaluation, cited by 85% of participants, reduced domestic production costs, making Iranian products more competitive globally. This was particularly evident in sectors like automotive parts and food, where production costs are tied to the local currency (Pena-Vinces et al., 2017; Morgan et al., 2021). Domestic market stagnation, noted by 75% of participants, prompted SMEs to seek new markets to offset weak internal demand. Opportunities in neighboring markets, such as Iraq, Armenia, and Afghanistan, were deemed critical drivers by 95% of participants due to geographic proximity and stable demand. One interviewee stated, "Sanctions forced us to look to regional markets like Iraq, where demand for our products is high." These findings align with the Uppsala model, which emphasizes entry into geographically proximate markets in early internationalization stages (Johanson & Vahlne, 1977; Chandra et al., 2021; Sui et al., 2023). The second theme, internationalization challenges, elucidates the primary barriers faced by SMEs. Foreign currency payment difficulties, cited by 85% of participants, were a major obstacle due to banking sanctions, limiting SMEs' ability to conduct international transactions and pushing them toward unconventional methods (Jafari-Sadeghi et al., 2020; Moreira et al., 2024). Logistical barriers, such as transportation delays (80%), particularly during the COVID-19 pandemic, increased export costs and complexities (Chandra et al., 2020; Freixanet et al., 2021). Lack of awareness of international standards, noted by 60% of participants, hindered SMEs' ability to adapt products to foreign market requirements. Legal and technical barriers, such as customs complexities (75%), further complicated the export process. These challenges underscore the need for frameworks that address environmental risks effectively (Narooz & Child, 2017; Paul et al., 2023). The third theme, internationalization strategies, delineates SMEs' adaptive approaches to overcoming challenges and seizing opportunities. Brand sustainability was a key strategy, with 90% of firms focusing on building customer trust through after-sales services and localized packaging, particularly in food and plastics sectors where quality and trust are paramount (Ferrucci et al., 2018; Morgan et al., 2021). Export risk management played a significant role, with 90% of firms using flexible currency contracts to mitigate exchange rate volatility and 60% leveraging foreign investment to share risks, aligning with risk management principles in crisis contexts (Boso et al., 2017; Chandra et al., 2021). Export-oriented technological development, cited by 55% of firms, involved enhancing product quality, such as aligning automotive parts with Euro 5 standards, to meet foreign market demands (Kabanda & Brown, 2017; Sui et al., 2023). Financial strategies in crises, such as barter trade (60%), prevalent in transactions with Iraqi customers, and cryptocurrencies (25%) to bypass banking sanctions, reflected SMEs' innovation in volatile conditions (Jafari-Sadeghi et al., 2020; Moreira et al., 2024). The fourth theme, market entry pathways, illustrates the methods SMEs used to access foreign markets. Consistent with the Uppsala model, 100% of firms-initiated exports in geographically proximate markets like Iraq and Afghanistan, reducing risks associated with cultural and geographic distance (Johanson & Vahlne, 1977;

Chandra et al., 2021). Commercial networks (95%), local agents (95%), international exhibitions like the Erbil fair (45%), and referrals from existing customers (70%) were primary entry pathways. These align with network theory, which emphasizes the role of commercial relationships in facilitating internationalization (Ferrucci et al., 2018; Morgan et al., 2021). One interviewee noted, “The Erbil exhibition helped us connect with Iraqi customers and secure new contracts.” These findings highlight the critical role of regional networks in Iranian SMEs’ success (Narooz & Child, 2017; Freixanet et al., 2021). The fifth theme, internationalization outcomes, underscores SMEs’ achievements. Sustainable growth, cited by 85% of participants, was achieved through increased export revenues and market diversification. Entry into new markets, such as Russia and the Caucasus (75%), opened growth opportunities. Job retention, noted by 60% of participants, was critical during domestic economic downturns. One interviewee remarked, “Exports to Lebanon and Azerbaijan helped us retain our workforce during domestic stagnation.” These outcomes highlight internationalization’s potential to enhance SME resilience in crisis conditions (Chandra et al., 2020; Paul et al., 2023; Sui et al., 2023).

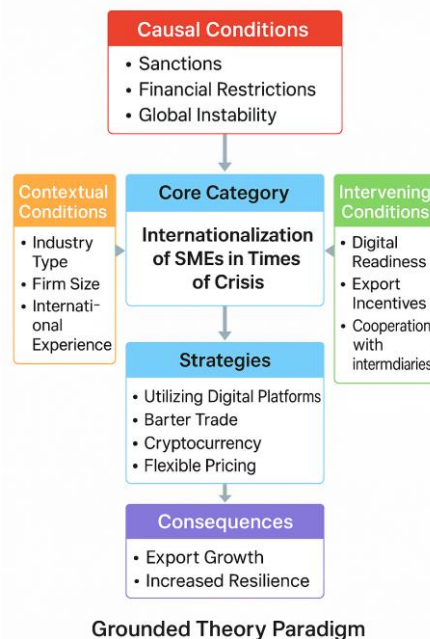


Figure 1. Grounded Theory Model of SME Internationalization in Times of Crisis

These findings align with existing literature while addressing research gaps. Unlike studies focused on developed economies, this research examines Iran’s crisis context, exploring unconventional strategies like barter trade and cryptocurrencies (Pena-Vinces et al., 2017; Jafari-Sadeghi et al., 2020). By integrating Uppsala, network, and risk management models, the proposed framework not only identifies drivers and challenges but also offers practical solutions for SMEs in volatile environments (Boso et al., 2017; Moreira et al., 2024). Validated through qualitative data, the framework’s applicability is proposed for other developing economies with similar conditions (Ferrucci et al., 2018; Morgan et al., 2021). These findings are expected to guide SME managers and policymakers in leveraging innovative strategies to enhance global resilience and competitiveness (Chandra et al., 2021; Paul et al., 2023).

5. Discussion and Conclusion

This study, aimed at developing a context-specific framework for the internationalization of Iranian manufacturing small and medium enterprises (SMEs) during financial crises, yielded findings that align with existing theoretical models while contributing novel insights to the literature on developing economies. Qualitative analysis of semi-structured interviews identified eight core themes elucidating the drivers, challenges, strategies, market entry pathways, and outcomes of internationalization. These findings resonate with the Uppsala model, network theory, and risk management principles, proposing a cyclical framework through the Structural Interpretive Model (SIM) that comprehensively depicts the internationalization process in Iran’s crisis context (Johanson & Vahlne, 1977; Boso et al., 2017; Sui et al., 2023). This section discusses the findings, their alignment with existing literature, the unique attributes of Iranian SMEs, and the framework’s applicability to other sanctioned economies, while offering recommendations for SME managers, policymakers, and future research. The findings confirmed that Iranian SMEs adopt a gradual approach to foreign market entry, consistent with the Uppsala model. All studied firms

(100%) initiated exports in geographically and culturally proximate markets, such as Iraq, Armenia, and Afghanistan, before expanding to more complex markets like Russia and the Caucasus (Johanson & Vahlne, 1977; Chandra et al., 2021). This gradual approach, emphasizing experiential learning and risk minimization, enabled SMEs to enter low-risk markets with limited resources. However, in crisis conditions like economic sanctions and the COVID-19 pandemic, SMEs adopted non-linear, rapid strategies, such as digital platforms and barter contracts, highlighting the need to adapt the Uppsala model to dynamic environments (Pena-Vinces et al., 2017; Freixanet et al., 2021; Moreira et al., 2024). This adaptation addresses gaps in traditional models, offering a practical framework for Iranian SMEs. Network theory was also validated, with commercial networks, local agents, international exhibitions, and customer referrals serving as primary market entry pathways (95%, 95%, 45%, and 70% of participants, respectively). These networks were critical in Iran's economy, where sanctions restrict access to global banking systems (Ferrucci et al., 2018; Morgan et al., 2021). For instance, the Erbil exhibition facilitated commercial relationships with Iraqi customers, aligning with network theory's emphasis on relationships in internationalization (Narooz & Child, 2017; Sui et al., 2023). However, reliance on networks may expose SMEs to vulnerabilities from abrupt changes in commercial relationships, underscoring the need for strategic network management (Boso et al., 2017; Freixanet et al., 2021). Innovative strategies, such as cryptocurrencies (25%) and barter trade (60%), were distinctive features of Iranian SMEs. Adopted to bypass banking sanctions and manage financial risks, these strategies have been underexplored in prior research, enriching traditional internationalization frameworks (Jafari-Sadeghi et al., 2020; Moreira et al., 2024). For example, barter trade with Iraqi customers enabled SMEs to exchange goods without currency transactions, while cryptocurrencies, though nascent, facilitated sanction circumvention. These innovations distinguish Iranian SMEs from those in other developing economies, like Africa or Latin America, which rely more on traditional methods like direct exports (Kabanda & Brown, 2017; Paul et al., 2023). These findings highlight Iranian SMEs' adaptability and creativity in crisis conditions (Chandra et al., 2020; Sui et al., 2023). The proposed Structural Interpretive Model (SIM) depicts internationalization as a cyclical process with five key components: drivers (currency devaluation, domestic stagnation, regional opportunities), pathways (commercial networks, local agents, exhibitions), challenges (payment issues, logistical barriers, regulatory unawareness), strategies (brand sustainability, risk management, technological development, financial flexibility), and outcomes (sustainable growth, new markets, job retention). The model was validated theoretically through alignment with Uppsala and network theories and practically through confirmation by three interviewees (Ferrucci et al., 2018; Morgan et al., 2021). The SIM not only elucidates internationalization in Iran's crisis context but also offers applicability to other sanctioned economies, such as Venezuela or Syria (Pena-Vinces et al., 2017; Moreira et al., 2024). By emphasizing the cyclical nature of the process, the model suggests that internationalization outcomes, like sustainable growth, can serve as new drivers for continued expansion (Chandra et al., 2021; Paul et al., 2023). Comparing these findings with prior studies reveals Iranian SMEs' leadership in adopting innovative strategies. While African and Latin American studies focus on traditional pathways like direct exports and commercial partnerships, Iranian SMEs, constrained by sanctions, have embraced creative solutions (Kabanda & Brown, 2017; Freixanet et al., 2021). These attributes distinguish the proposed framework, contributing to the literature on developing economies (Jafari-Sadeghi et al., 2020; Sui et al., 2023). Additionally, the emphasis on brand sustainability and export-oriented technological development, such as aligning products with international standards, reflects SMEs' commitment to long-term competitiveness (Boso et al., 2017; Morgan et al., 2021). This study offers practical implications for SME managers and policymakers. Managers are advised to prioritize developing regional commercial networks, leveraging digital technologies, and adopting unconventional strategies like barter trade to navigate financial and logistical barriers. Investing in product localization and after-sales services can further enhance foreign customer trust (Ferrucci et al., 2018; Freixanet et al., 2021). Policymakers should strengthen digital infrastructure, such as e-commerce platforms, and provide financial support, like export credits, to bolster SME capabilities. Training programs on international standards and foreign market regulations can also enhance SME awareness (Narooz & Child, 2017; Moreira et al., 2024). These measures can enhance Iranian SMEs' resilience and global competitiveness (Chandra et al., 2020; Paul et al., 2023). Research limitations must be noted. Purposive sampling, while appropriate for qualitative studies, may limit generalizability to other industries or economies. The focus on manufacturing SMEs may not capture the strategies of service or technology sectors (Pena-Vinces et al., 2017; Chandra et al., 2021). Future research should test the framework in other sanctioned economies, such as Venezuela or North Korea, to confirm its applicability. Exploring the impact of emerging technologies, like blockchain, on SME internationalization could further advance the literature (Jafari-Sadeghi et al., 2020; Sui et al., 2023). This study, by proposing a context-specific framework aligned with Iran's crisis conditions, enhances understanding of SME internationalization and sets the stage for future research (Boso et al., 2017; Moreira et al., 2024).

6. Recommendations

6.1 Practical Recommendations

- Training Programs: Develop educational initiatives to enhance SMEs' awareness of international standards and regulations, addressing the 60% knowledge gap.
- Government Support: Offer export incentives, such as subsidized loans or tax exemptions, to reduce the 30% reliance on internal resources.
- Investment in Information Technology: Enhance digital infrastructure, such as B2B platforms (currently used by only 5% of SMEs) and digital supply chain systems, to address logistical (80%) and payment (85%) barriers.
- Regional Networking: Strengthen collaboration with regional chambers of commerce to facilitate access to neighboring markets.

6.2 Recommendations for Future Research

1. Longitudinal Studies: Investigate the long-term impacts of internationalization strategies, such as sustainable growth (85%) and job retention (60%), over 5–10 years.
2. Cross-Country Analysis: Test the SIM in countries with similar conditions (e.g., Venezuela, Syria) to identify cultural and economic variations.
3. Role of Information Technology: Examine the impact of advanced digital systems, like blockchain, on reducing payment and logistical barriers.
4. Quantitative Studies: Employ quantitative methods to measure the financial impact of strategies like barter trade and cryptocurrencies.

7. Limitations

1. Sample Size: The 20-participant sample, while sufficient for qualitative analysis, may not fully represent the diversity of Iranian SMEs.
2. Focus on Manufacturing: The study excludes service or technology sectors, which may employ different strategies.
3. Qualitative Approach: This method limits the ability to quantify the impact of strategies like barter trade or cryptocurrencies.
4. Iran-Specific Context: Sanctions and economic crises may restrict the generalizability of findings to other countries.

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