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Structural Modeling of Systematic Risk Management in the Iranian Capital Market: An ISM–MICMAC Approach

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Abstract

Systematic risk is one of the fundamental challenges in financial markets, and conventional approaches to addressing it have primarily focused on quantitative measurement and control instruments. However, experiences from financial crises indicate that reliance solely on these approaches, without considering institutional structures and policy frameworks, cannot achieve sustainable management of systematic risk. This study adopts a structural approach to analyze the factors influencing systematic risk management in the Iranian capital market, examining the roles of institutional, policy, and instrument-based factors within a causal framework. The research methodology integrates qualitative thematic analysis with Interpretive Structural Modeling (ISM) and Multiplication Applied to Classification (MICMAC) analysis. Data were derived from the structural judgments of experts in capital markets, financial policy, and risk management, and the final indicators were analyzed within a hierarchical structure. Findings indicate that institutional and policy factors occupy the foundational levels of the causal structure and act as key drivers shaping the behavior of the entire system, whereas financial instruments primarily occupy intermediate and outcome levels. These results suggest that systematic risk in the Iranian capital market is structural and endogenous in nature, and its effective management requires attention to institutional drivers and policy patterns. By providing a structural analytical framework, this study contributes to the literature on systematic risk management in emerging markets and offers a foundation for forward-looking policy design.

Keywords: Systematic risk, Structural risk management, Institutional and policy factors, Interpretive Structural Modeling–Multiplication applied to classification, Iranian capital market.

1 | Introduction

Systematic risk is one of the fundamental challenges in financial markets, capable of jeopardizing the stability of the entire financial system. Unlike unsystematic risks, which can be managed through diversification,

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systematic risk is structural in nature and emerges from the interactions among financial institutions, policy frameworks, and market behavior [1]. Experiences from financial crises have shown that systematic shocks are often transmitted not through ordinary price fluctuations but via institutional mechanisms and intra-system decision-making processes, mechanisms that are not fully observable in purely statistical analyses [2]. Recent studies also indicate that many financial crises originate from structural and endogenous vulnerabilities within the financial system, which accumulate within institutional and policy contexts [3].

Despite the widespread development of risk measurement and management tools, a significant portion of financial policies remains dependent on quantitative and instrument-based approaches. While these methods are effective in monitoring market volatility, they typically operate after risks have already accumulated and have limited capacity to identify the sources of systematic risk [4]. Consequently, interventions based on these approaches are often reactive in nature and face constraints in achieving sustainable control over systematic risk [5]. The recent financial stability literature emphasizes that effective monitoring of systematic risk requires an integrated framework for macroprudential oversight and forward-looking risk identification [6].

In financial research, two dominant approaches can be distinguished in explaining systematic risk. The first approach treats systematic risk primarily as a market-driven phenomenon and focuses on developing quantitative tools for its measurement and control [7]. In contrast, the second approach posits that systematic risk is shaped within institutional structures, policy patterns, and the interactions of financial entities before it is reflected in prices or market indices, with financial instruments merely capturing the outcomes of this structure [4]. This study explicitly adopts the second approach, viewing systematic risk not as a consequence of deficiencies in financial instruments, but rather as the outcome of institutional and policy shortcomings.

The Iranian capital market provides a context in which the significance of this structural approach becomes particularly evident. Institutional multiplicity in market regulation, overlapping monetary, fiscal, and capital market policies, regulatory instability, and the development of financial instruments in the absence of coherent institutional infrastructure have created conditions in which systematic risk is reproduced not sporadically, but chronically. These characteristics position the Iranian capital market not merely as a high-risk case, but as a revealing example for the structural analysis of systematic risk, one in which institutional and policy inefficiencies make the mechanisms of risk generation more transparent.

Despite these distinctive features, much of the domestic research remains focused on statistical risk measurement or descriptive analyses and has paid limited attention to identifying causal and structural relationships among institutional, policy, and instrument-based factors [8]. In particular, systematic differentiation between the driving factors of systematic risk and its outcome factors, as well as structural analysis of risk transmission pathways within the Iranian capital market, has received comparatively little attention.

In response to this gap, the present study focuses on distinguishing the driving and outcome factors of systematic risk and integrates Interpretive Structural Modeling[1] (ISM) with Cross-Impact Matrix Multiplication Applied to Classification[2] (MICMAC) analysis to develop a structural framework for prioritizing policy interventions in managing systematic risk in the Iranian capital market. This research is based on the premise that the primary source of systematic risk in the Iranian capital market lies not in deficiencies of financial instruments, but in institutional structures and policy patterns. It is expected that the findings will demonstrate that, without addressing these underlying conditions, instrument-based policies alone are insufficient for the sustainable mitigation of systematic risk.

[1] Interpretive Structural Modeling (ISM) is a qualitative–quantitative methodology used to identify relationships among specific variables and to impose order and direction on the complexity of a system.

[2] MICMAC Method (Cross-Impact Matrix Multiplication Applied to Classification) is a structural analysis technique used to classify variables based on their driving and dependence power.

2 | Literature Review

2.1 | Systematic Risk as a Structural Phenomenon

In classical financial literature, systematic risk is primarily defined as a component of total risk arising from general market fluctuations and not eliminable through diversification. Rooted in capital asset pricing models, this perspective treats systematic risk as an exogenous phenomenon dependent on macroeconomic shocks [9]. Although this framework has played a significant role in the development of financial theory, it has a limited capacity to explain the origins and accumulation of risk within the actual structure of financial markets.

In more recent approaches, systematic risk has gradually been reconceptualized as an endogenous phenomenon, emerging from the complex interactions among components of the financial system. This perspective assumes that external shocks only acquire significance within existing institutional and network structures, and their impact depends on the organizational configuration of the financial system [10]. From this standpoint, systematic risk is not merely the result of market fluctuations but a consequence of the structural relationships among institutions and financial actors.

Network studies have shown that the way financial institutions are interconnected, the degree of concentration, and their interdependencies can either amplify or mitigate risk transmission. Within such a structure, even limited shocks can propagate through nonlinear and cascading pathways, potentially triggering widespread crises [11]. These findings indicate that understanding systematic risk without considering the relational structure among components of the financial system is incomplete. Recent research in financial networks further demonstrates that asset allocation and the connectivity structure among institutions play a critical role in either exacerbating or containing the spread of systemic risk. Moreover, appropriately designed network-level portfolios can reduce the vulnerability of the financial system [12].

However, a significant portion of these studies has primarily focused on network characteristics and the connectivity patterns among institutions. This study moves beyond mere descriptive analyses of network structures by conceptualizing systematic risk within a framework of causal relationships among institutions, policies, and financial instruments, treating it as a structural phenomenon that emerges within the context of institutional and policy decisions.

While much of the prior research has analyzed systematic risk either through market-based quantitative indicators or by focusing on the network structure of financial relationships, the present study emphasizes the causal interconnections among institutions, policies, and financial instruments. This institutional–structural approach enables the differentiation of driving factors from outcome factors of systematic risk and provides a foundation for policy analyses aimed at structural reforms.

2.2 | The Role of Institutions and Policy in the Generation of Systematic Risk

In the structural approach, institutions and policies are recognized as the primary context for the generation and accumulation of systematic risk. From an institutional perspective, the quality of formal and informal rules, the manner of regulatory enforcement, and accountability mechanisms play a decisive role in shaping the behavior of market participants [13]. Within this framework, systematic risk arises less from price behavior and more from the way the financial system is regulated and guided. Recent empirical studies indicate that the quality of institutional structures and the degree of coordination in financial policymaking are critical determinants in the formation and propagation of systematic risk within financial systems [14].

Empirical evidence shows that institutional misalignment and multiplicity of decision-making centers can send conflicting signals to the market, creating conditions conducive to risk accumulation. When financial, monetary, and regulatory policies operate without alignment, rational micro-level decisions may produce undesirable macro-level outcomes [15]. This situation is particularly pronounced in markets with unstable institutional frameworks.

Distinguishing between reactive and forward-looking policies is also crucial in the institutional analysis of systematic risk. Reactive policies, implemented after severe market fluctuations, may temporarily stabilize markets but often fail to address the mechanisms generating risk and can even contribute to its transformation or transmission [16]. In contrast, forward-looking approaches focus on reforming the institutional environment and preventing the accumulation of risk.

2.3 | Financial Instruments and the Limitations of an Instrument-Based Approach

In conventional risk management literature, financial instruments are introduced as the primary mechanisms for controlling volatility and hedging risk. The development of instruments such as derivatives has been intended to enable the transfer or distribution of risk among market participants [17]. From this perspective, risk management is primarily defined at the level of tools and trading techniques.

However, empirical evidence indicates that financial instruments do not necessarily reduce systematic risk. In many cases, rather than mitigating risk, these instruments redistribute it to other parts of the financial system and can increase intra-system dependencies [18]. From this viewpoint, financial instruments function more as intermediaries for risk transmission than as genuine risk-controlling factors.

A fundamental limitation of the instrument-based approach is its neglect of the institutional and behavioral dimensions of systematic risk. Solely focusing on the ability to price risk obscures the reality that market participants' behavior is shaped by policy and regulatory frameworks [19]. In the absence of such frameworks, financial instruments can even exacerbate moral hazard and increase system vulnerability.

Within the framework of this study, financial instruments are not considered driving factors but rather outcome-based and intermediary mechanisms of systematic risk, whose effectiveness depends on the quality of the institutional and policy environment.

3 | Research Conceptual Framework

Based on the findings from the qualitative phase of the study and following the validation of indicators through the fuzzy Delphi method, eleven final variables influencing the systematic risk management of the Iranian capital market were identified. These variables were subsequently analyzed from the perspective of causal relationships, influence, and dependence, and hierarchical positioning using the ISM method and Cross-Impact Matrix MICMAC analysis.

The research conceptual framework is grounded in the assumption that systematic risk management in the capital market is a networked, multi-level process in which variables play distinct roles as drivers, intermediaries, or outcomes. Accordingly, the identified variables are not examined at a single level; rather, they are analyzed within a hierarchical causal structure. To assess the influence and dependence of the variables and to classify them as driving, linkage, or dependent variables, MICMAC analysis was employed. The results of this analysis provided the definitive basis for determining the role of each variable within the systematic risk management structure.

3.1 | Driving Variables

3.1.1 | Conceptualization of systematic risk

This variable refers to the level of understanding and interpretation of systematic risks among policymakers, regulatory authorities, and key actors in the capital market. Conceptualization of systematic risk encompasses awareness of the nature of macro-level risks, their origins, transmission mechanisms, and potential consequences for the entire financial system. The study's findings indicate that without a structural understanding of systematic risks, other managerial and policy interventions are likely to remain purely reactive and short-term in nature.

3.1.2 | Identification of risks with systemic implications

This variable refers to the financial system's ability to proactively identify risks that, if realized, have the potential to propagate throughout the capital market and other sectors of the financial system. The identification of risks with systemic consequences represents a preliminary and necessary step for designing macroprudential policies and effective control mechanisms. Structural analysis results indicate that, alongside Variable A, this variable serves as a primary driving factor in the systematic risk management system.

3.2 | Linkage Variables

Variables in this group exhibit both high influence and high dependence and function as intermediate layers within the system, transmitting the effects of driving variables to the outcomes. Any instability in these linkage variables can disrupt the entire systematic risk management structure.

I. Prevention of systematic risk.

II. Measurement of systematic risk.

III. Macroprudential and regulatory interventions.

IV. Enhancement of technical and structural market factors.

V. Long-term and sustainable capital market growth.

VI. Development and implementation of a systemic stability regulatory framework across financial institutions.

These variables represent the institutional, regulatory, and operational mechanisms whose effectiveness depends on the activity of the driving variables. MICMAC analysis indicates that this group of variables is highly sensitive to changes in the levels of perception and identification of systematic risks. In the absence of robust driving variables, they may themselves become sources of systemic instability.

3.3 | Dependent Variables

I. Enhancement of financial literacy and knowledge in derivatives usage.

II. Preservation of market integrity through prevention of derivatives misuse.

III. Design of innovative derivative instruments and associated trading mechanisms.

These variables occupy the highest levels within the ISM structure and are recognized as the outputs of the systematic risk management system. The study's findings indicate that the performance of these variables is directly dependent on the effectiveness of the driving variables and the stability of the linkage variables. From this perspective, financial derivative instruments in this framework are not conceptualized as the starting point of risk management; rather, they represent a conditional outcome of an efficient institutional and cognitive structure.

Table 1. ISM model variables in systemic risk management, including driving and linkage variables with definitions and types.

Variable Type	Definition	Variable Title	Code
Driving	Institutional understanding of the nature, origins, and transmission mechanisms of systematic risks in the capital market	Perception of systematic risk	A
Driving	The financial system's proactive ability to detect risks with widespread contagion potential	Identification of risks with systemic consequences	B
Linkage	Proactive institutional and policy mechanisms to control risk accumulation	Prevention of systematic risk	C
Linkage	Frameworks and tools for measuring macro-level market risks	Measurement of systematic risk	D
Linkage	Macro-level prudential policies and regulations across the financial system	Macroprudential and regulatory interventions	E
Linkage	Reform of capital market infrastructure and operational mechanisms	Enhancement of technical and structural market factors	F
Linkage	Long-term market performance sustainability	Long-term and sustainable capital market growth	G
Linkage	Institutional coordination mechanism among financial institutions	Systemic stability regulatory framework	H
Linkage	Knowledge and informed behavior in the use of derivative instruments	Enhancement of financial literacy and knowledge in derivatives usage	I
Linkage	Prevention of misuse and risks of derivative instruments	Market integrity in relation to derivatives	J
Linkage	Development of derivative instruments aligned with the institutional framework	Design of innovative derivative instruments	K

4 | Research Methodology

4.1 | Structural Analysis of Systematic Risk Using a Qualitative Approach

This study is based on research adopting a strategic foresight approach. From the perspective of research objectives, it is applied, and in terms of approach, it is qualitative–structural. The methodological focus is on identifying and analyzing causal relationships among factors influencing systematic risk management in the Iranian capital market, in a manner that allows the distinction of driving variables from outcome variables and the prioritization of policy interventions. Accordingly, a multi-stage research design was employed, including conceptual identification of variables, expert validation, and structural modeling of the relationships among them.

In the first stage, the preliminary research variables were extracted based on a systematic review of theoretical literature and empirical studies related to systematic risk, macroprudential policy, and the institutional structure of the capital market. In this stage, in addition to international sources, research conducted within the context of the Iranian capital market was utilized to account for its specific institutional and policy characteristics [20].

In the second stage, to refine and validate the identified variables, expert judgment from specialists in the fields of capital markets, financial policymaking, and risk management was utilized. The expert panel comprised individuals with both academic and practical experience in these domains. The research data were based on the experts' structural judgments regarding the relationships among variables. This stage aimed to reduce individual biases and ensure the alignment of variables with the research problem, a methodological approach recognized as valid in studies of systematic risk within complex institutional environments [21], [22].

To enhance the validity of the extracted causal structure, the process of collecting expert judgments was conducted iteratively over multiple rounds until convergence and stability of the assessments were achieved. The stopping criterion was a significant reduction in disagreement and stabilization of causal relationships within the final matrix. Ultimately, the final reachability matrix was established by aggregating the stable judgments of experts, serving as the basis for ISM.

In the third stage, ISM was employed to analyze the causal relationships among the final variables. This method enables the identification of a hierarchical structure of factors and the determination of their influence levels within the system. ISM has been widely used for the analysis of complex and multidimensional phenomena [23], [24]. In this study, ISM served as a tool to transition from a list of factors to a coherent causal structure.

Subsequently, to complete the structural analysis, the MICMAC method was employed to assess the driving power and dependence of the variables. This analysis allows for the classification of variables as driving, dependent, independent, or autonomous, thereby facilitating their prioritization from a policy perspective [25]. The combination of ISM and MICMAC has been recognized in recent systematic risk studies as an effective approach for identifying structural intervention levers [26].

It should be noted that the focus of this study is on structural elucidation of relationships and extraction of policy implications, rather than providing step-by-step methodological instruction. Accordingly, the operational details of each applied technique are limited to what is necessary for scientific evaluation, with the primary emphasis placed on the coherence of the methodology with the study's conceptual framework.

5 | Research Findings

5.1 | Extraction and Finalization of Indicators based on Qualitative Analysis (Thematic Analysis)

Before the structural modeling of factors influencing systematic risk management, it was necessary to identify a set of meaningful indicators that were consistent with the institutional context of the Iranian capital market. In this study, the indicators were derived not merely by adapting existing literature but through a systematic qualitative analysis, grounded in the empirical findings of the primary research. This approach was adopted to avoid imposing abstract theoretical frameworks on the institutional realities of the Iranian capital market.

At this stage, the qualitative data, including expert judgments, policy analyses, and institutional evidence related to systematic risk, were analyzed using thematic analysis. The focus of the thematic analysis was on identifying recurring patterns in the explanation of the origins of systematic risk, its transmission mechanisms, and the role of institutions and policies in either exacerbating or mitigating such risks. This approach is recognized in qualitative research, particularly in studies addressing complex and multidimensional phenomena, as a valid method for generating analytical concepts [21].

The number of experts participating in this study (15 individuals) was determined based on the principles of theoretical saturation and the methodological requirements of ISM. In ISM-based research, the primary goal is to achieve convergence of expert judgments regarding causal relationships among variables; therefore, the quality and depth of expert knowledge are prioritized over sample size.

The experts in this study were purposively and judgmentally selected based on three main criteria: 1) academic or professional experience in the capital market and risk management, 2) decision-making experience or operational involvement in institutions related to financial policy and the capital market, and 3) theoretical familiarity with systematic risks.

The process of collecting expert judgments continued until convergence and stability of the assessments were achieved, indicating both the adequacy of the expert sample and the validity of the extracted causal structure. It should be noted that the expert data utilized in this article were drawn from the author's doctoral research and, within the framework of this study, have been re-analyzed and systematically structured.

Unlike some studies that employ qualitative analysis merely as a descriptive introduction, in this research, thematic analysis played a generative role in the development of indicators. In other words, the indicators used in subsequent stages of the study were derived directly from the extracted themes rather than from fixed theoretical assumptions. This approach ensures that the indicators maintain a direct connection with the institutional and policy realities of the Iranian capital market, a methodological advantage similarly emphasized in institutional and structural studies of systematic risk [8].

As a result of the thematic analysis, the indicators were organized into several conceptual clusters, each corresponding to a specific level of the systematic risk structure. These clusters include: macro-institutional factors, policy and regulatory factors, institutional transmission mechanisms, market behaviors and financial instruments, and, finally, observable outcomes of systematic risk. This conceptual classification served as the foundation for introducing the indicators into the structural modeling phase, enabling hierarchical analysis of the relationships among them.

Importantly, the qualitative analysis in this study did not merely produce a list of factors; it also revealed the causal logic underlying the relationships among the indicators. Consequently, the results of the thematic analysis were used as the conceptual input for the ISM model, allowing a coherent and interpretable multi-level structure of relationships among the factors influencing systematic risk management to be constructed. This integration of qualitative analysis with structural modeling represents one of the key distinctions of this study's findings compared to previous research in the field of systematic risk.

5.2 | Structural Modeling of Factors Influencing Systematic Risk Management: Interpretive Structural Modeling Results

At this stage, the indicators extracted from the thematic analysis were analyzed using ISM. The coding of indicators (a through K) was based on concepts derived from the thematic analysis and aimed at facilitating the reporting of the causal structure within the ISM model. ISM enables the identification of causal relationships among the indicators and allows the variables to be organized hierarchically according to their patterns of influence and dependence.

The results of the ISM indicate that the indicators identified in this study are organized into five distinct causal levels, ranging from fundamental driving variables to the ultimate outcomes of systematic risk management.

At the fifth level of the ISM structure, two indicators, A (perception of systematic risk) and B (identification of risks with systemic consequences), are positioned. Based on the final reachability matrix, these indicators occupy the foundational causal level, exerting the greatest influence on other variables without being directly affected by variables at lower levels. This placement highlights their role as driving variables, shaping the overall structure of systematic risk management in the capital market.

At the fourth level, indicator H (development and implementation of a systemic stability regulatory framework across financial institutions) is located. This variable serves as an institutional linkage, transmitting the causal effects of cognitive driving variables to policy and operational layers, and plays a key role in maintaining institutional coherence within the risk management structure.

The third level comprises a set of linkage indicators, including C (prevention of systematic risk), D (measurement of systematic risk), E (macroprudential and regulatory interventions), F (enhancement of technical and structural market factors), and G (long-term and sustainable capital market growth). Their placement at the intermediate level indicates that they are simultaneously influential and dependent, functioning as sensitive nodes that transmit causal effects from foundational levels to outcomes. This level forms the policy–operational core of systematic risk management.

At the second level, the indicators I (enhancement of financial literacy and knowledge in derivatives usage) and J (preservation of market integrity through prevention of derivatives misuse) are positioned. These indicators represent the behavioral and institutional outcomes of the higher-level variables and play a critical role in translating macro-level policies into stable market behaviors.

Finally, at the first level of the ISM structure, indicator K (design and development of innovative derivative instruments and associated trading mechanisms to mitigate systematic risk) is located. This variable is identified as the outcome of the causal structure, the realization of which depends on the effectiveness and stability of all upstream levels of the model.

This hierarchical structure demonstrates that, in the proposed model, financial derivatives do not serve as the starting point of systematic risk management, but rather as the outcome of a multi-level cognitive, institutional, and policy-driven process.

5.3 | Results of Cross-Impact Analysis Multiplication Applied to Classification

While the ISM model identifies the hierarchical structure of causal relationships among the indicators, the MICMAC analysis, by focusing on the driving power and dependence of variables, clarifies the structural role of each indicator within the overall system. This analysis complements ISM and enables the distinction among driving, linkage, and dependent factors.

The results of the MICMAC analysis indicate that indicators A (perception of systematic risk) and B (identification of risks with systemic consequences) fall within the Influential Variables region. These indicators exhibit high driving power and low dependence, reflecting their foundational role in shaping the structure of systematic risk management in the capital market. Their position implies that changes in the level of perception and identification of systematic risks can directly influence the performance of other system components, while these variables themselves are minimally affected by other factors.

Indicators C (prevention of systematic risk), D (measurement of systematic risk), E (macroprudential and regulatory interventions), F (enhancement of technical and structural market factors), G (long-term and sustainable capital market growth), and H (development and implementation of a systemic stability regulatory framework across financial institutions) fall within the Linkage Variables region. These variables exhibit both relatively high driving power and high dependence, functioning as sensitive nodes within the causal structure.

Their position indicates that they serve as intermediaries, transmitting causal effects from cognitive driving variables to the ultimate outcomes of the system. Any instability at this level can therefore amplify or weaken the overall structure of systematic risk management, highlighting its critical role in maintaining the coherence and effectiveness of the system.

In the dependent variables region, the indicators I (enhancement of financial literacy and knowledge in derivatives usage), J (preservation of market integrity through prevention of derivatives misuse), and K (design and development of innovative derivative instruments and associated trading mechanisms to mitigate systematic risk) are located. These indicators exhibit higher dependence compared to other variables, and their changes are primarily contingent upon the performance and stability of the driving and linkage variables.

According to the MICMAC results, financial derivatives and their associated mechanisms occupy a conditional output position within the systematic risk management structure of the Iranian capital market.

This implies that their stabilizing function is realized only if the cognitive and institutional variables at the upstream levels operate with sufficient efficiency and coherence.

6 | Discussion and Interpretation of Results

6.1 | Structured Synthesis of Findings: Integration of Interpretive Structural Modeling and Multiplication Applied to Classification Results

The integration of ISM and MICMAC results indicates that the structure of systematic risk management in the Iranian capital market is significantly influenced by institutional and policy factors. Indicators positioned at the foundational levels of the ISM model and simultaneously identified as driving variables in the MICMAC analysis play a decisive role in directing the behavior of the entire system. This alignment suggests that systematic risk is not merely a market- or instrument-driven phenomenon, but rather rooted in the institutional architecture and prevailing policy framework of the capital market [27].

In contrast, indicators related to financial instruments and operational market mechanisms are predominantly located at intermediate or outcome levels in ISM and classified as dependent variables in MICMAC. This finding indicates that the functionality of these tools is highly contingent upon the institutional environment, regulatory quality, and governance frameworks governing the capital market. In other words, within the current institutional structure, financial instruments alone have limited capacity for sustainable mitigation of systemic risk and, under certain conditions, may exacerbate systemic interconnections and amplify market instability [28].

The integrated findings further show that a substantial portion of the regulatory interventions in the Iranian capital market has historically focused on outcome-oriented and observable indicators of systematic risk. This reactive approach has led to the chronic reproduction of systematic risk, with corrective measures typically yielding short-term and unstable effects. By contrast, an analytical focus on institutional and intermediary driving variables can constrain structural risk transmission paths and create the conditions for more stable and proactive risk management [29].

Overall, the integration of ISM and MICMAC results demonstrates that shifting the analytical focus from controlling risk outcomes to identifying and understanding institutional and policy drivers is a necessary condition for enhancing the effectiveness of systematic risk management frameworks in the Iranian capital market. This structured synthesis provides the foundation for deriving the analytical and policy implications presented in the subsequent sections of this article.

6.2 | Structural Interpretation of Research Findings

The findings of this study indicate that systematic risk in the Iranian capital market extends beyond a purely quantitative phenomenon and requires a structural and causal analytical approach. Based on the outputs of the ISM, the factors influencing systematic risk management occupy asymmetrical positions in terms of their driving power, and their roles in shaping the behavior of the overall system are not equivalent. This structural asymmetry suggests that policy and regulatory focus on outcome-oriented variables, without attention to the foundational levels of the system, cannot achieve sustainable mitigation of systematic risk [30].

The structural analysis also indicates that a substantial portion of the observed instabilities in the Iranian capital market arises not from transient or external shocks, but from the endogenous interactions among institutional, policy, and instrument-related factors. This finding aligns with recent approaches in the systemic risk literature, which emphasize the endogeneity of risk and the networked nature of financial relationships in generating macro-level instabilities. From this perspective, systematic risk is less a direct reflection of asset price fluctuations and more a product of the decision-making structure, regulatory framework, and the interactions among institutional components of the capital market.

6.3 | Institutional and Policy Roles of Driving Factors in Systematic Risk Management

One of the most significant findings of this study is the prominent role of underlying institutional and policy factors as primary drivers in the architecture of systemic risk management. These factors, particularly components related to the "perception of systemic risk" and the "identification of risks with systemic consequences", occupy foundational positions within the ISM model and are situated in high-influence zones in the MICMAC analysis, indicating their strong impact on other system variables. Such positioning suggests that institutional interventions at these levels can shape the transmission pathways of risk throughout the market structure.

The results further indicate that these institutional interventions are most meaningfully enacted at the level of policy coordination, institutional transparency, and the regulatory architecture of capital markets, rather than merely through sector-specific instruments or regulations. Conversely, policies designed without attention to these driving levels often result in reactive, short-term interventions. Empirical evidence from financial markets also demonstrates that the absence of institutional stability and policy coherence can transform even advanced control instruments into new sources of risk [30].

6.4 | The Role of Financial Instruments in the Framework of Systemic Risk Management

The findings of this study indicate that financial instruments, including derivatives, occupy primarily dependent and consequential positions within the framework of systemic risk management. While these instruments can, under specific conditions, facilitate risk distribution and transfer, their effectiveness is highly contingent upon the institutional context and the regulatory framework governing the capital market [31]. In the absence of such a framework, widespread utilization of these instruments may exacerbate risk-taking behaviors and amplify systemic correlations [28].

From this perspective, financial instruments are not points of origin but conditional outputs of an effective institutional and policy structure in systemic risk management. The results further suggest that exclusive reliance on quantitative tools, without considering the causal relationships among institutional variables and key drivers, can lead to analytical errors in assessing risk controllability and may even contribute to the reproduction of financial instability [4].

6.5 | Analytical Synthesis and Future Research Directions

Overall, this study demonstrates that systemic risk management in Iran's capital market requires an analytical shift from instrument-centered approaches toward structural and causal frameworks. The integration of ISM and MICMAC results indicates that foundational and institutional variables play a decisive role in shaping risk transmission pathways, and that effective interventions must therefore be designed at these levels. This analytical framework enables the identification of prospective intervention points and provides a foundation for policy design oriented toward systemic stability [10].

From a research perspective, the proposed framework offers a basis for future investigations in emerging markets. It is recommended that subsequent studies empirically test the identified causal relationships using quantitative data and network-based methodologies to enhance the model's external validity. Moreover, a comparative examination of systemic risk structures in Iran's capital market and other transition economies could further advance the literature and contribute to the development of context-sensitive systemic risk management frameworks.

7 | Policy and Regulatory Implications for Systemic Risk Management

The findings of this study indicate that the prevailing policy logic in Iran's capital market, largely centered on controlling the observable consequences of systemic risk, is not fully aligned with the causal structure identified in this analysis. A policy focus on consequential variables, without simultaneous intervention at the level of institutional and policy drivers, provides only limited capacity for the sustained containment of systemic risk. This conclusion, derived directly from the positioning of driving variables in the ISM model and the MICMAC analysis, suggests that the effectiveness of macroprudential policies depends critically on their alignment with the institutional architecture of the market [32]. International financial stability reports likewise emphasize that strengthening institutional coordination and enhancing structural resilience are among the most important prerequisites for mitigating systemic vulnerabilities in emerging economies.

Based on the structure derived from the integration of ISM and MICMAC, effective policymaking in the domain of systemic risk requires a reconsideration of the level of intervention, shifting the focus from instrument-level regulation and ad hoc responses toward institutional coordination, policy coherence, and transparency in supervisory mechanisms. This analytical reorientation does not imply disregarding the role of financial instruments; rather, it underscores their complementary and dependent position within a structurally grounded framework of risk management.

The findings indicate that the development of advanced financial instruments, in the absence of a coherent institutional infrastructure, may lead to increased systemic correlations and the intensification of herding behavior in the market. This result is consistent with prior research demonstrating that derivatives, when not embedded within effective regulatory and institutional frameworks, can become channels for the transmission and amplification of systemic risk [28].

Finally, the analytical framework proposed in this study may serve as a conceptual tool for policymakers and supervisory authorities to recalibrate intervention priorities in systemic risk management based on the causal logic of market structure. It enables a transition from reactive, short-term prudential policymaking toward a forward-looking and structurally grounded approach, without advancing prescriptive operational measures or detailed policy directives.

8 | Conclusion

This study examined systematic risk management in the Iranian capital market through a structural and institutional lens. The findings show that systematic risk is endogenous and primarily driven by institutional and policy factors rather than financial instruments alone.

The results identify the perception and identification of systemic risks as key driving variables, while policy and regulatory mechanisms act as critical intermediaries. Financial instruments, in contrast, are positioned as dependent outcomes whose effectiveness relies on the strength of upstream institutional structures.

Overall, the study highlights the need to shift from reactive, instrument-based approaches toward proactive and structurally grounded policymaking. Sustainable management of systematic risk depends on institutional coherence, policy coordination, and forward-looking risk identification, rather than solely on the development of financial tools.

Conflict of Interest

The authors declare that they have no conflicts of interest.

Data Availability Statement

All data relevant to the study are included in the article.

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References

[1] Diamond, D. W., & Dybvig, P. H. (1983). Bank runs, deposit insurance, and liquidity. *Journal of political economy*, *91*(3), 401–419. https://knowledge.uchicago.edu/record/4957/files/Bank-Runs-Deposit-Insurance-and-Liquidity.pdf

[2] Laeven, L., Maddaloni, A., & Mendicino, C. (2022). *Monetary policy, macroprudential policy and financial stability*. https://doi.org/10.2866/919182

[3] Claessens, S., Kose, M. A., & Terrones, M. E. (2012). How do business and financial cycles interact? *Journal of international economics*, *87*(1), 178–190. https://doi.org/10.1016/j.jinteco.2011.11.008

[4] Danielsson, J., Shin, H. S., & Zigrand, J. P. (2010). *Risk appetite and endogenous risk*. Financial Markets Group. https://www.fmg.ac.uk/sites/default/files/2020-08/risk-apetite.pdf

[5] Claessens, S., Ghosh, S. R., & Mihet, R. (2013). Macro-prudential policies to mitigate financial system vulnerabilities. *Journal of international money and finance*, *39*, 153–185. https://doi.org/10.1016/j.jimonfin.2013.06.023

[6] Adrian, T., Covitz, D., & Liang, N. (2015). Financial stability monitoring. *Annual review of financial economics*, *7*(1), 357–395. https://doi.org/10.1146/annurev-financial-111914-042008

[7] Tobias, A., & Brunnermeier, M. K. (2016). CoVaR. *The american economic review*, *106*(7), 1705. https://doi.org/10.1257/aer.20120555

[8] Ebadi, J., Elahi, N., & Gohar, S. H. (2020). Systemic risk and mutual fund. *Quarterly journal of applied theories of economics*, *7*(2), 199–222. https://ecoj.tabrizu.ac.ir/article_11286_b11d728908cbd20c1af30cedd3eb3efc.pdf

[9] Sharpe, W. F. (1964). Capital asset prices: A theory of market equilibrium under conditions of risk. *The journal of finance*, *19*(3), 425–442. https://doi.org/10.1111/j.1540-6261.1964.tb02865.x

[10] Acemoglu, D., Ozdaglar, A., & Tahbaz-Salehi, A. (2015). Systemic risk and stability in financial networks. *American economic review*, *105*(2), 564–608. https://doi.org/10.1257/aer.20130456

[11] Battiston, S., Gatti, D. D., Gallegati, M., Greenwald, B., & Stiglitz, J. E. (2012). Default cascades: When does risk diversification increase stability? *Journal of financial stability*, *8*(3), 138–149. https://doi.org/10.1016/j.jfs.2012.01.002

[12] Poledna, S., & Thurner, S. (2016). Elimination of systemic risk in financial networks by means of a systemic risk transaction tax. *Quantitative finance*, *16*(10), 1599–1613. https://arxiv.org/pdf/1401.8026

[13] North, D. C. (1990). *Institutions, institutional change and economic performance*. Cambridge Univ Pr. https://books.google.com/books

[14] Buch, C. M., & Goldberg, L. S. (2020). Global banking: Toward an assessment of benefits and costs. *Annual review of financial economics*, *12*(1), 141–175. https://www.newyorkfed.org/medialibrary/media/research/economists/goldberg/2020_buch_goldberg_global_banking.pdf?la=en

[15] Aikman, D., Galesic, M., Gigerenzer, G., Kapadia, S., Katsikopoulos, K., Kothiyal, A., … & Neumann, T. (2021). Taking uncertainty seriously: Simplicity versus complexity in financial regulation. *Industrial and corporate change*, *30*(2), 317–345.

[16] Borio, C. (2014). The financial cycle and macroeconomics: What have we learnt? *Journal of banking & finance*, *45*, 182–198. https://doi.org/10.1016/j.jbankfin.2013.07.031

[17] Hull, J. C., & Basu, S. (2016). *Options, futures, and other derivatives*. Pearson Education India. https://personal.lse.ac.uk/ROBERT49/teaching/ph232/pdf/Hull-Ch1.pdf

[18] Gorton, G., Metrick, A., Shleifer, A., & Tarullo, D. K. (2010). Regulating the shadow banking system [with comments and discussion]. *Brookings papers on economic activity*, 261–312. https://www.jstor.org/stable/41012848

[19] Stulz, R. M. (2008). Risk management failures: What are they and when do they happen? *Journal of applied corporate finance*, *20*(4), 39–48. https://doi.org/10.1111/j.1745-6622.2008.00202.x

[20] Altunbaş, Y., Polizzi, S., Scannella, E., & Thornton, J. (2022). European Banking Union and bank risk disclosure: The effects of the Single Supervisory Mechanism. *Review of quantitative finance and accounting*, *58*(2), 649–683. https://doi.org/10.1007/s11156-021-01005-z

[21] Creswell, J. W., & Poth, C. N. (2016). *Qualitative inquiry and research design: Choosing among five approaches*. Sage publications. https://www.academia.edu/download/55010759/creswell_Qualitative_In%20quiry_2nd_edition.pdf

[22] Mirashk, H., Albadvi, A., Kargari, M., & Rastegar, M. A. (2024). News Sentiment and Liquidity Risk Forecasting: Insights from Iranian Banks. *Risks*, *12*(11), 171. https://doi.org/10.3390/risks12110171

[23] Warfield, J. N. (2010). Developing subsystem matrices in structural modeling. *IEEE transactions on systems, man, and cybernetics*, 4(1), 74–80. https://doi.org/10.1109/TSMC.1974.5408523

[24] Hou, G., Rahman, M. N. A., Zain, C. R. C. M., Shao, Y., & Wahab, A. N. A. (2026). Prioritizing critical success factors for implementation of green-lean product development in industry 4.0 era. *The international journal of advanced manufacturing technology*, 1–23. https://doi.org/10.1007/s00170-025-17359-w

[25] Liu, W., Hu, Y., & Huang, Q. (2024). Research on critical factors influencing organizational resilience of major transportation infrastructure projects: A hybrid fuzzy DEMATEL-ISM-MICMAC approach. *Buildings*, *14*(6), 1598. https://doi.org/10.3390/buildings14061598

[26] Battiston, S., Caldarelli, G., May, R. M., Roukny, T., & Stiglitz, J. E. (2016). The price of complexity in financial networks. *Proceedings of the national academy of sciences*, *113*(36), 10031–10036. https://doi.org/10.1073/pnas.1521573113

[27] Chiriacescu, B. (2013). Macroprudential policy and financial stability. *Theoretical and applied economics*, *20*(2), 579. https://store.ectap.ro/articole/830.pdf

[28] Cont, R., & Schaanning, E. (2017). Fire sales, indirect contagion and systemic stress testing. *Indirect contagion and systemic stress testing*. https://dx.doi.org/10.2139/ssrn.2541114

[29] Battiston, S., Caldarelli, G., D'Errico, M., & Gurciullo, S. (2016). Leveraging the network: A stress-test framework based on DebtRank. *Statistics & risk modeling*, *33*(3–4), 117–138. https://doi.org/10.1515/strm-2015-0005

[30] Bahaj, S., & Foulis, A. (2016). Macroprudential policy under uncertainty. https://dx.doi.org/10.2139/ssrn.2726526

[31] Kahn, C. M., & Roberds, W. (2009). Why pay? An introduction to payments economics. *Journal of financial intermediation*, *18*(1), 1–23. https://doi.org/10.1016/j.jfi.2008.09.001

[32] Borio, C., & Zhu, H. (2012). Capital regulation, risk-taking and monetary policy: a missing link in the transmission mechanism?. *Journal of financial stability*, *8*(4), 236-251. https://doi.org/10.1016/j.jfs.2011.12.003