

The Risk Contagion Effect of Supply Chain Uncertainty on Capital Markets: A Literature Review from the Perspective of Capital Market Pricing Efficiency

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Abstract: Capital market pricing efficiency serves as the core benchmark for measuring optimal resource allocation, while supply chain uncertainty represents a critical external risk facing modern enterprises. This paper systematically reviews research progress on the determinants of capital market pricing efficiency, supply chain risk contagion mechanisms, and the linkage between the two. Existing studies at home and abroad have revealed the driving mechanisms of pricing efficiency from multiple dimensions including institutions, information, and agent behavior, and have preliminarily identified the vertical spillover effects of supply chain shocks. However, significant gaps remain in the current literature: supply chain uncertainty has not yet been systematically incorporated into the analytical framework of pricing efficiency; the complete causal chain of risk contagion effects from firm fundamentals to capital market pricing lacks empirical verification; and the micro-level mechanisms of pricing efficiency distortion under multi-tier supply chain networks remain underexplored. This paper aims to build a theoretical bridge of "supply chain uncertainty—risk contagion—pricing efficiency," providing a logical foundation and literature support for subsequent empirical research.

Keywords: Supply chain uncertainty; Risk contagion; Capital market pricing efficiency; Stock price synchronicity; Information efficiency

I. INTRODUCTION

Capital markets constitute the core of the modern financial system, and their fundamental function lies in guiding resources toward optimal allocation through price signals. The degree to which this function is realized—that is, capital market pricing efficiency, whether stock prices can timely and fully reflect information about a firm's intrinsic value—is directly related to the efficiency of transforming savings into investment and the stable operation of the macroeconomy (Zhao Qicheng, 2025; Li Chenyu, 2024). However, in reality, factors such as information asymmetry, bounded rationality of investors, and institutional frictions often cause stock prices to deviate from fundamentals, triggering mispricing and resource misallocation. Therefore, clarifying the key factors affecting capital market pricing efficiency and identifying their mechanisms and boundary conditions is not only a foundational issue in financial research but also an urgent practical need for China's deepening capital market reforms, preventing financial risks, and serving the high-quality development of the real economy.

Meanwhile, as global industrial division of labor has deepened, firms have formed tightly coupled supply chain networks through supply-demand relationships. While this

structure enhances production efficiency, it has also become an important channel for risk transmission. Shocks at any link—whether upstream supply disruptions, downstream demand fluctuations, or logistics bottlenecks—may propagate and amplify along the supply chain, forming risk contagion effects that affect the operational stability and market expectations of firms along the chain. However, existing research on capital market pricing efficiency has largely focused on the internal governance, information disclosure, or external institutional environment of individual firms, with relatively little systematic examination from the perspective of inter-firm linkages on how supply chain uncertainty triggers risk contagion among firms and ultimately distorts capital market pricing mechanisms.

Against this backdrop, this paper aims to systematically review the theoretical foundations and determinants of capital market pricing efficiency, with a particular focus on integrating relevant research threads on supply chain risk contagion, and on this basis identifying gaps in the existing literature. By constructing an analytical framework of "supply chain uncertainty—risk contagion—pricing efficiency," this paper provides theoretical support and a literature foundation for subsequent empirical research, with the goal of enriching research findings at the intersection of supply chain finance and capital markets, and offering insights into the micro-level mechanisms through which real economy risks are transmitted to financial markets.

II. RESEARCH ON DETERMINANTS OF CAPITAL MARKET PRICING EFFICIENCY

Capital market pricing efficiency, i.e., whether stock prices can timely and fully reflect information about a firm's intrinsic value, is the core criterion for measuring market effectiveness (Zhao Qicheng, 2025; Li Chenyu, 2024). Existing research has mainly explored the key factors affecting pricing efficiency from three dimensions: institutional policies, information environment, and market participant behavior.

First, at the institutional and policy level, a series of reforms in China's capital markets have been confirmed to significantly enhance pricing efficiency. The studies by Mao Jiahao (2024) and Li Chengyu (2024) consistently show that the registration-based IPO reform significantly reduces stock price synchronicity by improving corporate information transparency and stock turnover, with particularly pronounced effects on high-growth small firms. Li Kunwei (2024) finds that expanding the daily price limit to 20% significantly improves the pricing efficiency of the ChiNext board. Ye Chenkai's (2025) study on the Stock Connect program also demonstrates that capital market opening enhances pricing

efficiency by accelerating stock price information response speed. Collectively, these studies reveal that institutional changes involving deregulation and improved information environments are important drivers of enhanced pricing efficiency.

Second, the information environment and disclosure quality constitute a core channel affecting pricing efficiency. Lv Chengshuang et al. (2025) find that ownership structures with multiple large shareholders reduce stock price synchronicity by improving information transparency. Liu Zimin et al.'s (2024) study based on ESG information disclosure further confirms that high-quality information disclosure improves pricing efficiency by reducing noise trading and alleviating information asymmetry. Notably, Gan Qinyu and Luo Ronghua (2025) reveal the negative effects of information overload, pointing out an inverted U-shaped relationship between media coverage volume and pricing efficiency—excessive information actually damages pricing efficiency due to "noise effects" and "crowding-out effects." This reminds us that not all information can be effectively incorporated into stock prices; the quality of information and the environment in which it is received are crucial.

Finally, the behavior of market participants has a dual impact on pricing efficiency. On the one hand, Ren He and Zhao Xiuyun (2024) find that minority shareholder activism represented by the exercising of rights by the Investor Service Center reduces stock price synchronicity through an information efficiency mechanism. Li Haoyang and Cheng Xiaoke (2017) also confirm that investor site visits enhance the value relevance of accounting information. On the other hand, Li Chenyu's (2024) study reveals the potential negative role of institutional investors, finding that in firms with low information transparency and poor corporate governance, institutional investors have stronger incentives to collude with management, which actually slows down stock price response to information. This indicates that the impact of market participants on pricing efficiency depends on their own incentive structures and the external supervisory environment.

III. SUPPLY CHAIN UNCERTAINTY AND RISK CONTAGION EFFECTS IN CAPITAL MARKETS

Compared to the rich body of research on pricing efficiency, literature directly examining how supply chain uncertainty affects capital markets is relatively scarce, yet a clear thread of "risk contagion" is emerging. At the theoretical level, supply chain relationships themselves contain risk amplification mechanisms: when upstream and downstream product demands are positively correlated, risks are amplified; when negatively correlated, risks may be hedged. Meanwhile, demand fluctuations transmitted upstream along the supply chain produce the "bullwhip effect," causing upstream firms to face greater operational uncertainty.

At the empirical level, Zhao Qicheng (2025) made a key contribution in his high-frequency study, using textual analysis to measure inter-firm supply chain linkages and finding that stock price jumps of related firms significantly affect the stock price reactions of target firms, providing direct stock price evidence for cross-firm contagion of supply chain risks. In addition, some studies, though not directly titled "supply chain uncertainty," provide indirect support for this area. For example, Wang Jianxin and Ding Yanan (2024) find that macroeconomic policy uncertainty increases information asymmetry in capital markets and reduces stock price information content. This logic also holds at the micro supply chain level: when the operational uncertainty of suppliers or

customers increases, the focal firm's information environment becomes more complex, which may trigger market mispricing.

Existing literature also hints at potential conditions under which supply chain information affects capital markets. Xu Boyu's (2024) study on interactive information disclosure shows that two-way communication channels may have a greater impact on pricing efficiency than traditional one-way disclosure. This implies that if supply chain risk information is passively disclosed only in annual report footnotes, market reactions may be limited; whereas if it receives timely responses on investor interactive platforms, it may be absorbed by stock prices more quickly. Meanwhile, Liu Zimin et al. (2024) note that the Chinese market as a whole presents a "noisy environment," suggesting that supply chain risk information may be drowned out by noise or misinterpreted during transmission, ultimately exacerbating rather than alleviating pricing biases.

IV. LITERATURE REVIEW AND CRITIQUE

After reviewing the above literature, it can be seen that academia has achieved fruitful results in the field of capital market pricing efficiency, yet research on how supply chain uncertainty affects pricing efficiency through risk contagion effects is still in its infancy, with the following obvious gaps:

First, fragmented research perspectives.

Existing literature has developed two mature research paths separately: one focuses on "capital market pricing efficiency," revealing its determinants from dimensions such as institutions, information, and behavior; the other concerns "supply chain risk contagion," preliminarily confirming the transmission effects of shocks among firms. However, research integrating the two to systematically examine the complete causal chain of "supply chain uncertainty → risk contagion → pricing efficiency distortion" is extremely scarce. This leaves us unclear about the extent to which and through what paths supply chain-level risks are priced by capital markets.

Second, limitations in research content.

Current research on the linkage between supply chains and capital markets mostly focuses on the impact of a single firm's supply chain characteristics (such as supplier concentration) on its own stock price, with less attention paid to how dynamic risk contagion in multi-tier supply chain networks triggers systematic pricing biases. Moreover, existing studies mostly treat supply chain shocks as "events," with insufficient exploration of how "persistent uncertainty" (such as demand fluctuations and supply disruption risks) shapes market pricing behavior.

Third, micro-level mechanisms and contextual conditions remain unclear.

Although existing research has revealed general mechanisms affecting pricing efficiency such as information transparency, noise trading, and investor attention, how these mechanisms are activated or altered in supply chain contexts still lacks targeted analysis. For example, does supply chain uncertainty affect pricing efficiency by exacerbating information asymmetry, triggering investor sentiment fluctuations, or diverting investor attention? Does this effect exhibit significant heterogeneity across different firm characteristics (such as supply chain concentration, information transparency, and institutional ownership)? These questions remain to be further explored.

CONCLUSION AND RESEARCH POSITIONING

Based on a synthesis of existing literature, capital market pricing efficiency is jointly influenced by institutional policies, information environments, and market participant behavior, among which information transparency and the noisy environment are core channels of influence. Meanwhile, supply chain risks have been confirmed to have cross-firm contagion characteristics and can trigger stock price reactions in capital markets. However, the systematic linkage between "supply chain uncertainty" and "capital market pricing efficiency" has not yet been established, and existing research shows clear deficiencies in perspective integration, content depth, and mechanism exploration.

Based on this, this undergraduate innovation project aims to fill the above gaps, taking "the risk contagion effect of supply chain uncertainty on capital markets" as its core, and from the perspective of capital market pricing efficiency, systematically examining the following questions: Does supply chain uncertainty significantly affect capital market pricing efficiency? How does the risk contagion effect transmit from firm fundamentals to stock prices? Does this effect differ across different information environments and firm characteristics? This research will not only enrich the literature at the intersection of supply chains and capital markets but also provide theoretical basis and empirical reference for understanding the transmission mechanisms of risks between the real economy and financial markets.

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