



Decoupling vs. De-Risking Divergent Paths and Their Productivity Outcomes

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Abstract: The global economy is increasingly shaped by strategic decisions between decoupling and de-risking approaches to supply chains. Decoupling entails reducing economic interdependence between states, often for geopolitical reasons, whereas de-risking focuses on enhancing resilience without fully severing links. This paper explores how these divergent strategies impact productivity at the firm, industry, and macroeconomic levels. Drawing on global value chain theory, network analysis, and political economy frameworks, the study develops a conceptual model linking strategic supply chain restructuring to productivity outcomes. The analysis suggests that decoupling generally leads to higher efficiency losses, reduced innovation spillovers, and slower growth, whereas de-risking preserves more productivity while enhancing resilience. The paper offers insights for policymakers and firms navigating geopolitical uncertainty and provides recommendations for balancing strategic security and economic efficiency.

Keywords: divergent; decoupling and de-risking; strategic decision; productivity

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1. Introduction

Global supply chains have historically facilitated efficiency gains, specialization, and productivity improvements through the geographic fragmentation of production (Baldwin, 2016). Firms leveraged comparative advantages and scale economies, benefiting from cross-border knowledge spillovers and technological diffusion (Keller, 2010). However, recent geopolitical tensions, trade disputes, and strategic rivalries have challenged this model. Policymakers and firms face decisions on how to protect economic interests while maintaining operational efficiency (Farrell & Newman, 2019).

Two primary strategies have emerged: decoupling and de-risking. Decoupling involves a more pronounced reduction in interdependence, often along geopolitical or technological lines, effectively creating separate economic spheres (Evenett & Fritz, 2023). De-risking, in contrast, entails measures such as supplier diversification, nearshoring, and contingency planning, which aim to reduce vulnerability while preserving global economic links (Miroudot, 2020). Understanding the productivity implications of these divergent approaches is crucial for both economic policy and corporate strategy.

The COVID-19 pandemic and the intensification of U.S.-China strategic competition have accelerated the adoption of both strategies (Jaax et al., 2023). Firms in high-tech and GVC-intensive sectors are particularly sensitive to these changes, as the costs of supply chain disruptions are substantial. Evaluating the trade-offs between decoupling and de-risking is therefore critical for sustaining productivity and long-term growth.

Despite growing interest in decoupling and de-risking, the literature has yet to systematically compare their productivity outcomes. Most studies focus either on geopolitical risks, trade barriers, or supply chain resilience in isolation, without examining how strategic choices between severing and safeguarding links affect productivity (Freund et

al., 2022). Consequently, policymakers and firms lack comprehensive guidance on the relative efficiency costs and benefits of these approaches.

Decoupling may safeguard strategic autonomy but often leads to higher operational costs, reduced scale economies, and diminished knowledge diffusion (Kancs, 2022). De-risking, while preserving productivity, may require ongoing investment in redundancy and risk management infrastructure. Without understanding these trade-offs, decisions may inadvertently reduce productivity and slow economic growth. This gap motivates the need for a conceptual framework linking strategic supply chain decisions to productivity outcomes, particularly in high-risk sectors and globally integrated industries.

Specifically, this study aims to answer the following questions:

How do decoupling and de-risking strategies reshape global supply chains?

What are the mechanisms through which these strategies impact productivity?

Which strategy better balances resilience and efficiency under geopolitical uncertainty?

How do these strategic choices affect industry-level and macroeconomic growth outcomes?

This paper makes several contributions. First, it develops a conceptual framework linking decoupling and de-risking to productivity outcomes, integrating insights from GVC theory, network economics, and political economy. Second, it identifies key mechanisms—such as scale economies, coordination costs, and knowledge spillovers—that explain the differential impact of these strategies. Third, it synthesizes the literature on geopolitical risk, supply chain resilience, and technological decoupling to provide a structured understanding of their long-term consequences. Fourth, it offers policy and managerial recommendations for balancing strategic security with productivity and growth objectives. By clarifying the trade-offs inherent in these divergent strategies, the paper provides actionable guidance for firms and policymakers navigating a fragmented global economy.

2. Literature Review

Global value chain (GVC) theory emphasizes the productivity gains from geographic fragmentation and specialization (Baldwin, 2016). Knowledge spillovers, technological diffusion, and cost advantages arise when production networks cross borders (Keller, 2010). However, these benefits are increasingly threatened by geopolitical tensions, strategic rivalry, and trade barriers (Farrell & Newman, 2019).

Decoupling represents a more radical approach to managing geopolitical risk, involving the reduction of interdependence across critical sectors (Evenett & Fritz, 2023). While it can protect strategic autonomy and national security, decoupling often results in duplicated supply chains, higher operational costs, and slower innovation (Cerina et al., 2023). Studies show that decoupling disrupts economies of scale and knowledge flows, creating productivity losses that may persist over time (Kancs, 2024).

De-risking, by contrast, seeks resilience without fully severing economic links (Miroudot, 2020). Strategies include supplier diversification, nearshoring, and enhanced contingency planning. Empirical evidence suggests that de-risking mitigates the impact of shocks while preserving a significant portion of productivity gains (Schwellnus et al., 2023). While it requires investment in risk management, the efficiency costs are generally lower than those associated with decoupling.

The literature also underscores sectoral variation. High-tech industries, with complex GVCs and rapid innovation cycles, are particularly sensitive to decoupling (Jaax et al., 2023). Conversely, mature industries with simpler supply chains can often manage risk through de-risking strategies with limited productivity loss.

Despite these insights, few studies integrate decoupling and de-risking into a unified framework for evaluating productivity outcomes. Most existing research is either qualitative or focuses on short-term shock responses, leaving gaps in understanding long-term economic implications. This paper addresses this gap by developing a conceptual model linking strategic choices to productivity and growth outcomes.

3. Research Methodology

This study employs a qualitative, theory-driven approach to conceptualize the productivity consequences of decoupling and de-risking. The methodology draws on GVC theory, network economics, and political economy frameworks to analyze mechanisms linking supply chain strategies to productivity outcomes (Baldwin, 2016; Keller, 2010; Farrell & Newman, 2019).

The analysis proceeds in three steps. First, it develops a conceptual framework identifying the channels through which decoupling and de-risking affect production costs, scale economies, and knowledge spillovers. Second, it applies mechanism-based reasoning to evaluate the differential impacts of the two strategies on firm-level, industry-level, and

macroeconomic productivity. Third, it employs scenario-based reasoning to compare outcomes under high-decoupling versus high de-risking strategies.

The methodology emphasizes structural and theoretical reasoning over empirical estimation. This approach is appropriate given the paper's focus on integrating interdisciplinary insights and assessing long-term productivity implications rather than immediate operational outcomes.

4. Results

The conceptual analysis indicates that decoupling generally imposes higher productivity costs than de-risking. By severing or reducing critical economic links, decoupling disrupts supply chain efficiency, reduces economies of scale, and limits knowledge spillovers, especially in high-tech and GVC-intensive sectors. Firms may incur significant duplication costs and face slower innovation cycles.

De-risking, in contrast, preserves many productivity benefits while enhancing resilience. Supplier diversification and nearshoring reduce exposure to geopolitical shocks without fully abandoning efficient global networks. Firms adopting de-risking maintain access to international knowledge flows, enabling continued innovation and more stable growth trajectories.

At the macroeconomic level, economies pursuing decoupling may experience slower growth and lower aggregate productivity due to reduced integration and innovation spillovers. De-risking strategies support more balanced outcomes, maintaining moderate productivity while improving stability and resilience against external shocks.

Sectoral differences are notable. High-technology industries are particularly sensitive to decoupling, experiencing large efficiency and innovation losses. Less complex industries benefit more from de-risking without substantial productivity trade-offs. Overall, the analysis highlights the critical importance of strategy selection in shaping productivity outcomes under geopolitical uncertainty.

5. Conclusions

This paper analyzed the divergent productivity outcomes of decoupling versus de-risking strategies in global supply chains. Decoupling, characterized by the deliberate reduction of economic interdependence for geopolitical or strategic reasons, tends to increase operational costs, reduce economies of scale, and limit knowledge spillovers, resulting in slower growth and diminished productivity. De-risking, in contrast, emphasizes resilience through measures such as supplier diversification, nearshoring, and contingency planning while maintaining global economic links, thereby preserving efficiency and innovation channels.

The analysis highlights that sectoral characteristics are crucial: high-tech and GVC-intensive industries are particularly vulnerable to decoupling due to their reliance on complex networks and rapid innovation cycles. Less complex sectors can often adopt de-risking strategies with minimal productivity loss. At the macroeconomic level, economies emphasizing de-risking maintain higher aggregate productivity and more stable growth trajectories compared with those pursuing broad decoupling.

Policymakers and corporate managers must carefully weigh the trade-offs between strategic security and economic efficiency. Implementing de-risking strategies can achieve resilience objectives while mitigating productivity costs, whereas indiscriminate decoupling may compromise long-term growth. Future research should integrate firm-level and industry-level empirical analyses to validate these conceptual findings, quantify productivity impacts, and inform policy frameworks that balance resilience and efficiency in a fragmented global economy.

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