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A study of the mechanism of firms' vertical integration on risk under uncertainty shocks

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Abstract: The aim of this investigation is to analyze the impact of firms' vertical integration on risk under uncertainty shocks. After conducting a thorough literature review and theoretical analysis, we conclude that vertical integration has both positive and negative effects on firm risk. Positive mechanisms consist of reducing transaction costs, boosting financing capacity, increasing barriers to entry and monopolies, and decreasing taxes. Negative mechanisms encompass reduced resilience, increased management costs, weakened employee incentives, and lowered industrial chain resilience. The question of whether an enterprise should be vertically integrated remains unresolved. Thus, each enterprise must base its decision of whether to vertically integrate on its unique situation. Enterprises must evaluate their operational, coordination, mechanism maintenance, and technology research and development capabilities to determine if they possess the necessary conditions and advantages to execute a vertical integration strategy.

1. Introduction

The rapid global spread of the new coronavirus pneumonia epidemic in early 2020, hereinafter referred to as the new coronavirus epidemic, posed a grave threat to human health and safety, as well as domestic and international economies, social structures, and political systems. The outbreak of the new coronavirus epidemic has led to a multitude of uncertainties, impacting various sectors in the economy. The severity of the economic crisis resulting from the new coronavirus epidemic has surpassed that of the subprime crisis in 2008, rendering it the most severe global economic crisis since the 1930s. In light of these circumstances, it is imperative to explore effective strategies for Chinese enterprises to mitigate the impacts of uncertainty and enhance their capacity to withstand risks. This, in turn, will foster long-term, stable development of enterprises.

We found that although most of the national enterprises were more seriously affected by the epidemic, there are some enterprises that have shown strong risk-taking ability after the impact of the new crown epidemic, such as Tianneng Stock, Changhong Energy, Desai Battery, Ningde Times, etc., ROE, net interest rate in 2020 are showing a rising trend. Analysis found that these enterprises in the new crown epidemic impact before the vertical integration layout, so that it realized the reduction of costs, increased sales and profits, vertical integration layout to a large extent to help enterprises to resist the uncertainty of the event impact.

Vertical integration strategy and its impact on enterprise risk-bearing capacity has been the focus

of attention of scholars at home and abroad, the current academic community on the relationship between the two hold different views, Coase, Williamson, et al. believe that vertical integration can help enterprises to increase enterprise value so as to resist risk, Dongli Zhang, Bao Xiaojing, Li Yachao, et al. believe that vertical integration will make the firms' costs to increase and thus the risks they face to increase.

Based on the above background, it can be seen that the existing studies have not reached a unanimous conclusion on whether enterprises should choose vertical integration or specialization under the impact of uncertainty, and most of the studies focus on the impact of asset specialization, transaction frequency, institutional environment, etc., on the vertical integration of enterprises, so it is very important to explore the mechanism of the risk contagion of vertical integration of enterprises, so as to put forward the relevant policy recommendations.

2. Literature review

In response to the research theme, this paper focuses on reviewing and commenting on the following two literatures: firstly, the current state of research on vertical integration; secondly, the related research on uncertainty.

Vertical integration of enterprises, as a hot topic of discussion in the field of economics and management, has been researched by many scholars, but different scholars have different understandings on the concept alone. Adam Smith (1776) believes that vertical integration and specialization is the existence of an inverse proposition of the relationship, from several relatively independent individuals eventually synthesize a complete whole process is vertical integration. And economist Coase (1937) viewed the vertical integration of enterprises as the merger between several enterprises with different production processes to form a larger organization[1]. Based on the previous theoretical foundation of Adam Smith, Perry (1989) further argued that the production of an enterprise is composed of two production chains, the upstream production chain and the downstream production chain, and if some or all of the output of the upstream production chain is applied by the enterprise to the downstream production chain, then it can be called a vertically integrated enterprise[2]. Michael Porter (1980) analyzed that if a firm wants to achieve an economic purpose, the act of integrating technologically different segments of production, distribution, transportation, etc. through internal or administrative management is called vertical integration[3].Tirole (1988) pointed out that if the upstream firms are able to control, directly or indirectly, all the decisions in the vertical structure of the industry chain in which they are located, the vertical integration of firms is accomplished[4]. Vertical integration of firms.Domestic research on the connotation of vertical integration is also rich, Sun Jingwei (1997) believes that the merger mode in which firms with different production processes and production technologies are placed under one ownership is called vertical integration. Rui Mingjie and Liu Mingyu (2006), on the other hand, examined "integration" from the perspective of the industry, i.e., "integration" in a broader sense, and argued that as long as enterprises in the industrial chain are able to directly or indirectly control the decision-making of the other enterprises in the chain, so as to achieve the expected cooperative behavior, this can be regarded as the "integration" of enterprises in the chain[5]. In their view, as long as the enterprises in the chain can directly or indirectly control the decision-making of other enterprises in the chain and thus achieve the desired cooperative behavior, this can be regarded as the formation of a certain degree of "integration".

There are many research results on the effects of vertical integration. From the perspective of the enterprise level, the enterprise value or performance of the enterprise will change before and after vertical integration, but whether vertical integration plays a role in promoting the enhancement or inhibiting the reduction of the enterprise value or performance, and whether the enterprise should

choose specialization or vertical integration, the existing researches have not yet come up with a consistent discussion result. Shang Yaohua and Jin Weixing (2005) focus on the issue of the development strategy choice of China's construction enterprises, and argue that China's construction enterprises can no longer continue the monolithic business model, and should adopt the strategic model of vertical integration[6]; Hu Quguang, Li Pinglong, and Wang Wenyu (2015) find that fishery enterprises can achieve the reduction of information asymmetry, the increase of asset specialization, and the transaction costs by means of vertical integration reduction, etc., thus achieving the purpose of improving firm performance[7]. On the contrary, Peyrefitte et al. (2002) argued that vertical integration of firms tends to detach firms from their original core competencies, and therefore brings additional management costs that not only fail to achieve the purpose of performance enhancement, but also lead to performance reduction[8]. Yuan Chun and Xiao Tusheng et al. (2021) use machine learning methods to conclude that digitalization makes the level of vertical integration of enterprises and enterprise value also have a negative relationship[9].

Many scholars have studied uncertainty. The current domestic and international research on uncertainty mainly focuses on the two aspects of economic policy uncertainty and environmental uncertainty. Economic policy uncertainty is the result of the current macroeconomic environment, Bloom (2007) argues that the government needs to formulate and adjust economic policies in a timely manner according to the changes in the macroenvironment, but the economic subject will be difficult to make predictions for these two governmental behaviors due to the lack of knowledge of the economic situation[10]. Zeng Minguang and Zhu Jia (2014) argue that environmental uncertainty arises when the object of uncertainty description is changed to the organizational environment[11], while Daft (1984) defines environmental uncertainty as something outside of the organization that can have an impact within the organization[12].

By combing through the previous related literature, it is found that the research on vertical integration and risk coping ability of enterprises has been more comprehensive in terms of connotation, influencing factors and economic consequences, and has also formed a relatively mature research system. However, there is a lack of research on the relationship between the two, and no unanimous conclusion has been reached. Therefore, based on the above research gaps, it is of practical significance to further explore the risk contagion mechanism of enterprise vertical integration under the impact of uncertainty and provide reasonable suggestions for the development of Chinese enterprises.

3. Mechanisms of Vertical Integration of Firms on Risk under Uncertainty Shocks

3.1. Positive Mechanisms

3.1.1. Reduced transaction costs

Vertical integration of firms can serve as a protective measure against the risks associated with uncertainty shocks by effectively reducing transaction costs.

Uncertainties in the external environment often trigger a consideration of vertical integration among enterprises with significant asset specialization in order to mitigate potential losses. In the face of a complex and volatile world, individuals tend to exhibit limited rationality during the transaction process. As the number of transactions increases and uncertain factors become more prevalent, individuals' ability to fully comprehend the trading market environment declines. The interdependence between upstream and downstream firms, resulting from their asset specialization, can heighten the vulnerability of downstream firms to opportunistic behavior, leading to increased transaction costs. Furthermore, the presence of incomplete contracts or asymmetric information within the relationship between upstream and downstream firms under uncertainty shocks further

hampers the efficiency of asset utilization. Implementing vertical integration allows enterprises to expand their reach across the industrial chain, internalize trading partners, and establish unified asset configuration. This integration enables enterprises to strengthen their responsiveness to market dynamics, swiftly adapt to changing circumstances, optimize resource allocation, minimize wastage of resources, and ultimately enhance overall efficiency in resource allocation within the enterprise. By coordinating activities across different stages of the value chain, vertical integration enables firms to streamline operations, overcome information asymmetry, establish closer relationships with suppliers and customers, and reduce transaction costs. This reduced reliance on external market transactions, coupled with better coordination and control over inputs, can provide firms with a competitive advantage in uncertain environments. Overall, vertical integration serves as a strategic approach for firms to navigate uncertainties and enhance their long-term sustainability and competitiveness.

For enterprises heavily dependent on raw materials and semi-finished products, uncertainty shocks can significantly magnify the volatility of their cost shares. In such cases, vertical integration emerges as a compelling strategy to effectively manage and control costs. Non-integrated enterprises, which rely on market prices for their raw materials, are subjected to the uncertainties of price fluctuations and encounter challenges in ensuring the quality and quantity of inputs. These uncertainties can have a substantial impact on the profitability of downstream enterprises, even for small and medium-sized ones. A mere one percent change in the prices of upstream raw materials can lead to profit fluctuations exceeding one percent for downstream enterprises. This highlights the vulnerability of non-integrated firms to extreme price movements and the potential disruptions they can cause to their bottom line. However, by strategically engaging in activities such as holding, equity participation, or strategic cooperation to establish a presence in the upstream industry, enterprises can gain several advantages. Firstly, they acquire valuable knowledge regarding the production technology for raw materials and semi-finished products. This enables them to better understand the intricacies of the production process and optimize their utilization of inputs. Moreover, by securing ownership or direct access to core raw materials, integrated enterprises are able to strengthen their position within the higher levels of the industry chain. This enhanced position, combined with a deeper understanding of the market dynamics, affords integrated firms greater negotiation power when it comes to price setting. Consequently, they are better equipped to achieve more effective cost control measures. By leveraging vertical integration, enterprises can not only achieve a more stable and reliable supply of raw materials but also exert greater control over their costs. This strategic move allows them to mitigate the negative impact of uncertainty shocks and enhance their competitiveness in the marketplace. Ultimately, vertical integration provides a pathway for enterprises to achieve a more sustainable and optimal cost structure, ensuring their long-term success and resilience in a volatile business environment.

3.1.2. Enhancing financing capacity

The vertical integration of enterprises enhances their financing capacity, primarily through the credit transmission effect. This effect strengthens the ability of enterprises to withstand the risks arising from uncertainty shocks. Uncertainty, whether in terms of economic policy or the business environment, can significantly impact the financing landscape for enterprises in the market. During a market downturn, small and medium-sized enterprises (SMEs) often encounter challenges when seeking loan financing from banks or other financial institutions. These difficulties arise from factors such as their relatively small size, limited operational stability, and lower level of transparency compared to larger enterprises. As a result, banks and financial institutions may hesitate to extend credit to SMEs, deeming them as higher risk borrowers. However, when core leading enterprises within the industrial chain engage in vertical integration, they can play a crucial

role in extending credit to their upstream or downstream SMEs. This integration provides SMEs with a protective financial buffer, effectively mitigating their financing risks. The creditworthiness of the core enterprises, the closeness of their connection with SMEs, and the strength of the credit transmission effect are interrelated factors determining the effectiveness of this mechanism.When the core enterprises exhibit strong creditworthiness, their ability to extend credit to SMEs is enhanced. The close connection between the core enterprises and SMEs ensures a more direct and reliable credit transmission. This enables SMEs to face lower risks in terms of repayment difficulties, as they have access to funding from their integrated partners. Simultaneously, banks and financial institutions are more inclined to issue loans to SMEs with confidence, as their connection with stable and reliable core enterprises acts as a form of collateral. Through vertical integration, enterprises can establish a mutually beneficial relationship in terms of financing. SMEs gain improved access to timely and vital financial resources, enabling them to continue operating even amidst uncertainty shocks. At the same time, core enterprises can strengthen their position within the industry chain by fostering stronger ties with SMEs. This integration of financing capabilities contributes to improving the overall resilience and stability of the industrial ecosystem.

In conclusion, vertical integration serves as a mechanism to bolster the financing capacity of enterprises in the face of uncertainty shocks. By extending credit to SMEs, core leading enterprises ensure a smoother flow of financial resources within the industry chain. This not only mitigates the financing risks faced by SMEs but also enables banks and financial institutions to support the operations of these smaller enterprises with greater confidence.

3.1.3. Increasing monopolies and barriers to entry

The vertical integration of firms can indeed provide a level of protection against the risk of uncertainty shocks by increasing monopolistic power and creating barriers to entry. Enterprises that are not vertically integrated not only face higher raw material costs upstream after an uncertainty shock but also encounter the downstream dumping strategies employed by vertically integrated enterprises, which force them to lower their selling prices. The combination of high raw material costs and low product prices significantly squeezes the profit margins of non-integrated enterprises. As vertically integrated firms continue to expand and improve their market positions, non-integrated firms may find it increasingly difficult to withstand the impact of this competitive pressure. In some cases, non-integrated firms may even be forced out of the market due to their inability to compete effectively. Additionally, vertical integration brings together upstream and downstream enterprises within the industry chain, creating economies of scale. This leads to significant capital requirements and establishes a substantial initial scale for entry into the industry. Even if new entrants meet the capital and scale requirements, they will likely face the disadvantage of existing firms' low-cost advantages derived from economies of scale. As a result, new entrants are collectively crowded out, making it exceedingly challenging for them to establish a foothold within the market, especially during times of uncertainty shocks.

The protection offered by vertical integration against uncertainty shocks stems from the advantages conferred by monopolistic power and barriers to entry. By controlling different stages of the supply chain, vertically integrated firms can effectively dictate prices, access lower-cost inputs, and maintain a more stable position during volatile market conditions. This can enable them to mitigate the impact of uncertainties, maintain profitability, and potentially even eliminate competition.

In conclusion, the vertical integration of firms can provide protection against uncertainty shocks by increasing monopolistic power and creating barriers to entry. By controlling different stages of the supply chain, vertically integrated firms have the ability to withstand the impact of market uncertainties more effectively.

3.1.4. Reducing the tax burden

The vertical integration of enterprises, in addition to its ability to mitigate risks arising from uncertainty shocks, can also provide a means of reducing the tax burden. When production materials upstream or sales products downstream within an industry chain fall under national policy preferences, such as being eligible for tax incentives, vertical integration can result in a reduction in the overall tax burden borne by the enterprises involved. By integrating vertically, enterprises can bring production processes that were previously outsourced to external suppliers in-house. This means that the production materials or intermediate products used by the enterprise can be classified as part of its operations, allowing it to potentially benefit from tax incentives or exemptions provided by the government. The impact of reduced taxes can be significant for enterprises facing uncertainty shocks, as it helps alleviate the financial strain resulting from increased costs or reduced revenue during turbulent times. By lowering the tax burden, enterprises gain additional financial resources that can be directed towards activities such as recovering from the shock, maintaining operations, or investing in innovation and growth. The reduction in the tax burden resulting from vertical integration can have a positive impact on the overall financial health of enterprises, providing them with the necessary flexibility to navigate through challenging periods. By lowering the cost pressure after an uncertainty shock, enterprises can better manage their financial obligations and accelerate their recovery process, eventually returning to their pre-shock production and operational situation. It is worth noting that the tax benefits derived from vertical integration will vary depending on the specific policies and regulations of the country or region in which the enterprise operates. Additionally, the integration should align with the broader goals and preferences set forth by the government. Therefore, enterprises need to carefully assess and consider the tax implications and incentives associated with vertical integration within their respective jurisdictions. Overall, vertical integration can offer enterprises a strategic advantage by reducing their tax burden in the face of uncertainty shocks. This reduction in costs allows enterprises to better navigate through challenging times, maintain their operations, and return to a stable production and operational situation.

3.2. Negative mechanism of action

3.2.1. Reduced elasticity

Vertical integration, although offering benefits in certain contexts, can also reduce the resilience of firms and increase their vulnerability to uncertainty shocks. This reduction in resilience stems from the transformation of external transactions into internal ones, which makes it costlier for firms to change suppliers or customers in response to uncertainty shocks. In the case of specialized firms that engage in market-based transactions, the absence of vertical integration provides more flexibility in changing partners. These firms are better equipped to adjust their costs and adapt to shocks in the business environment. The absence of vertical integration enables these firms to strategically react to changing market conditions and optimize their operations accordingly. On the other hand, vertical integration establishes fixed relationships between firms at each segment of the industry chain. This results in a higher degree of asset specialization for vertically integrated firms compared to other firms. Consequently, vertically integrated firms become more sensitive to market uncertainties such as technological changes or shifts in the policy environment. The higher asset specificity associated with vertical integration can hinder the ability of firms to exit the market when faced with significant changes. This limitation prevents firms from swiftly reallocating their resources to new ventures or areas of opportunity. The rigidity imposed by vertical integration negates the flexibility necessary for firms to adapt and respond effectively to rapidly changing

market dynamics.

In conclusion, while vertical integration provides certain benefits, its impact on the resilience and adaptability of firms in the face of uncertainty shocks should be carefully considered. The asset specificity and rigidity introduced by vertical integration can limit firms' ability to navigate through dynamically changing market conditions and explore new ventures promptly. Flexibility and agility are vital in today's dynamic business environment, making a case for carefully assessing the costs and benefits of vertical integration in each specific context.

3.2.2. Rising management costs

The vertical integration of enterprises, although offering potential economies of scale, can indeed lead to increased management costs and difficulties in withstanding the risks associated with uncertainty shocks. While mergers, acquisitions, and equity investments are often pursued to achieve economies of scale, there are inherent challenges in integrating different enterprises with varying management styles and corporate cultures. This integration process inevitably generates additional coordination and management costs, further burdening enterprises, particularly during challenging times. The increased management costs associated with vertical integration can be observed in various aspects. Firstly, the differences in management styles and corporate cultures between the integrated entities can create challenges in aligning operations and decision-making processes. The need to integrate and harmonize these diverse practices can result in additional costs, both financial and human resource-related. Furthermore, the rising management costs also manifest in the increased difficulty of management supervision. As uncertainty shocks arise, the ability to observe and evaluate management's due diligence and decision-making becomes more challenging. The reduced observability arises from the greater ambiguity and unpredictability that characterize uncertain situations. This, in turn, leads to heightened information asymmetry between shareholders and management, making it difficult for shareholders to effectively monitor the utilization of funds for beneficial investments. The aggravated agency problems resulting from uncertainty shocks increase the costs associated with monitoring and disciplining agents. As shareholders and management face increased uncertainty, it becomes more challenging for shareholders to assess and ensure that management acts in the best interest of the firm and its shareholders. This can widen the trust gap between shareholders and management, complicate decision-making processes, and lead to potential conflicts and inefficiencies. The increased management costs and difficulties associated with vertical integration under uncertainty shocks can hinder enterprises' ability to effectively respond and adapt to changing market conditions. The burden of these costs, combined with the challenges of aligning different management styles and cultures, can strain the financial resources and decision-making capabilities of enterprises.

In conclusion, while vertical integration may offer potential economies of scale, it is important to recognize the increased management costs and difficulties that can arise in such situations. The challenges of aligning management styles, corporate cultures, and the complexities related to monitoring and supervision can place additional burdens on enterprises, making it harder to navigate through uncertain times. Enterprises must proactively address these challenges to ensure the viability and success of their vertical integration strategies.

3.2.3. Weakening of staff incentives

The vertical integration of firms can indeed lead to weakened employee incentives, thereby reducing the firm's ability to resist risk in the face of uncertainty. When enterprises engage in transactions with external specialized entities, employees often have a stronger motivation to negotiate for lower prices to reduce costs. This is because the impact of such negotiations directly

affects the enterprise's bottom line. However, when transactions occur internally within vertically integrated firms, the fixed relationships between different links can undermine employees' incentives to negotiate for lower prices. Even if the upstream raw materials or semi-finished products are of poor quality, downstream enterprises are compelled to accept these subpar products, ultimately impacting the final sales profit. This decline in profitability, in turn, affects the overall performance of the enterprise. Another factor contributing to weakened employee incentives within vertically integrated firms is the presence of cost-sharing and benefit-sharing relationships between various departments. Due to the inherent difficulties in accurately measuring employee contributions, the enterprise's mechanism for determining incentives often falls short. Consequently, employees may not receive work incentives that align with their level of contribution. This significant mismatch in incentives greatly discourages employee motivation and can lead to higher regulatory costs. The weakened incentives of employees within vertically integrated firms can have detrimental effects on the firm's ability to navigate uncertainty and effectively respond to risks. Without the proper motivation and incentives, employees may be less inclined to take proactive measures to address risks and seize opportunities. This lack of initiative from employees can hinder the firm's ability to innovate, adapt, and make timely decisions, thereby increasing vulnerabilities to market uncertainties.

In conclusion, the vertical integration of firms can lead to weakened employee incentives, reducing the firm's ability to withstand risk in the face of uncertainty. Issues arise due to the different motivations and dynamics in transactions conducted externally versus internally, as well as the challenges in accurately measuring and rewarding employee contributions. Recognizing these challenges and implementing effective performance measurement systems can help enhance employee incentives, improve risk resilience, and foster a more motivated and engaged workforce.

3.2.4. Reduced chain resilience

The vertical integration of enterprises, although having certain advantages, can indeed lead to a reduction in the resilience of the industry chain. This reduction in resilience weakens the overall risk response capacity of enterprises within the chain when confronted with uncertainty shocks. Vertical integration establishes close interdependencies among enterprises at various stages of the industry chain. As the integration progresses further, a larger proportion of associated enterprises become interconnected within the chain. While this integration can bring benefits such as improved coordination and efficiency, it also increases the vulnerability of the entire chain to shocks. When an uncertainty shock impacts one link of the enterprise within the chain, the resulting risk is swiftly transmitted to both the upstream and downstream segments. This transmission occurs due to the high correlation and interdependent nature of the vertically integrated enterprises. As a result, the risk is amplified and multiplied throughout the chain, exacerbating the overall impact and rendering the chain less resilient. The poor risk coping ability of vertically integrated enterprises can be attributed to the cascading effects of the transmitted risks. When one link in the chain is affected, it disrupts the smooth flow of materials, information, and cash among the associated enterprises. This disruption creates a ripple effect, causing disruptions in subsequent links within the chain. Ultimately, this can lead to widespread disruptions across the entire industry chain. The reduced resilience resulting from vertical integration is primarily driven by the lack of diversification and dependence on specific links within the chain. Due to the close integration, enterprises in the chain become heavily reliant on particular suppliers or customers. This dependency leaves them vulnerable to any shocks or disruptions that may occur in those specific links. As a result, the risk response capacity of the entire chain is weakened, and enterprises struggle to effectively cope with uncertainty shocks. In conclusion, while vertical integration can bring certain benefits, it also poses challenges to the resilience and risk response capacity of the industry chain. The close

interdependencies among vertically integrated enterprises lead to rapid and amplified transmission of risks, causing disruptions throughout the chain. To mitigate these challenges, it is crucial for enterprises to carefully evaluate the potential risks and develop strategies to enhance their resilience in the face of uncertainty shocks.

4. Conclusions and recommendations

4.1. Conclusions

This paper finds that there is no unanimous conclusion on whether firms should vertically integrate by studying the mechanism of the impact of vertical integration on risk under uncertainty shocks. On the one hand, the vertical integration of enterprises can enhance the risk coping ability under the impact by reducing transaction costs, improving financing ability, increasing monopoly and entry barriers, and reducing the path of tax burden, so as to get through the difficult period smoothly and ultimately realize the enhancement of enterprise value; on the other hand, the vertical integration layout of enterprises may lead to increased management costs, reduced flexibility, weakened incentives for employees, and reduced resilience of the industrial chain. These factors can end up magnifying the risks faced by enterprises under the impact, further burdening the companies, and ultimately reducing their profits instead of increasing them. As a result, enterprises may be forced to exit the market.

4.2. Recommendations

If an enterprise possesses strong operational adjustment capability, coordination capability, mechanism maintenance ability, and technology research and development prowess while also holding a significant industry position and demonstrating mature development, it is advisable for the enterprise to pursue a vertical integration strategy. Through methods such as mergers and acquisitions, holdings, equity participation, and strategic cooperation, enterprises can vertically integrate the upstream, midstream, and downstream links of the industry value chain. This allows for the exploration of a more efficient corporate governance model, reduces transaction costs, and improves overall economic efficiency. However, careful investment target selection is necessary. It is beneficial to leverage the development achievements of leading enterprises in the industry to integrate the capital chain while also improving the counter-guarantee system for both upstream and downstream enterprises. Moreover, establishing and enhancing the relevant regulatory system is vital in order to mitigate the potential disruptions caused by a breakdown in the capital chain. Additionally, strengthening industrial linkages between various chain links is crucial, fostering close cooperation and cultivating the development of a robust supply chain.

If an enterprise is in the early stages of development and is just entering the industry, with low asset specialization and without a mature and stable management system, it is recommended to temporarily suspend integration efforts or reduce the degree of integration. It is crucial not to expand the enterprise's presence in the industry chain solely for the purpose of pursuing a monopoly. New entrants typically have weaker competitiveness compared to industry-leading enterprises. The most suitable approach for these enterprises is to focus on solidifying their position within the industry chain, emphasizing their unique characteristics, and seizing their market positioning. This entails ensuring product quality and quantity, reducing costs through key technology development, and focusing on low-technology content aspects with limited value-added space. It may be necessary to divest certain cost-intensive management aspects and invest in more effective areas, while strengthening the existing core business. Although vertical integration development may not be feasible in the short term, consideration should be given to future vertical integration layout. This

includes appropriately reserving specialized talents and developing a clear staff incentive mechanism to align rewards with staff contributions. These measures will facilitate the further profitability and growth of the enterprise in the future.

References

[1] Coase R H. The Nature of the Firm [J]. Economica, 1937, 4(16):386-405.

[2] Perry M K. Vertical integration: Determinants and effects [J]. Handbook of Industrial Organization, 1989, 1(89):183-255.

[3] Porter, M. Competitive Strategy: Techniques for Analyzing Industries and Competitors[M]. NewYork:Free Press, 1980.

[4] Tirole, Jean. The Theory of Industrial Organization[M]. The MIT Press, 1988.

[5] Rui Mingjie, Liu Mingyu. A Literature Review about Integration of Industry Chain[J]. Industrial Economics Research, 2006, (03):60-66.

[6] Shang Yaohua, Jin Weixing. Research on Strategy of Construction Enterprises of China—Based on Value Chain Analysis [J]. Construction Economy, 2005(10):5-10.

[7] Hu Qiuguang, Li Pinglong, Wang Wenyu. Study on Impacts of Vertical lntegration on Chinese Fishery Enterprise Performance [J]. Issues in Agricultural Economy, 2015, 36(04):87-93+112.

[8] Peyrefitte J., Golden P. A. & Brice Jr. J., Vertical integration and economic performance: A managerial capability framework [J]. Management Decision, 2002(3):217-226.

[9] Yuan Chun, Xiao Tusheng, Geng Chunxiao, Sheng Yu. Digital Transformation and Division of Labor between Enterpris Specialization or Vertical Integration [J]. China Industrial Economics, 2021, (09):137-155.

[10] Bloom N, Bond S, Reenen J V. Uncertainty and Investment Dynamics [J]. Review of Economic Studies, 2007, 74(2): 391-415.

[11] Zeng Mingang, Zhu Jia. The influence of environmental uncertainty and government support on supply chain integration [J]. Science Research Management, 2014, 35(09):79-86.

[12] Daft, R. L., Weick, K. E. Toward a model of organizations as interpretation systems [J]. Acad. Manage. Rev, 1984, 9 (2):284–295.