

MMRC
DISCUSSION PAPER SERIES

No. 565

The Role of Diversification and Internationalization in Japanese
Manufacturing Amidst Environmental Disruptions


Saitama University

Jinyao Mao

Saitama University · University of Tokyo

Youngwon Park

February 2025

 MONOZUKURI 東京大学ものづくり経営研究センター
Manufacturing Management Research Center (MMRC)

Discussion papers are in draft form distributed for purposes of comment and discussion. Contact the author for permission when reproducing or citing any part of this paper. Copyright is held by the author.

<http://merc.e.u-tokyo.ac.jp/mmrc/dp/index.html>

The Role of Diversification and Internationalization in Japanese Manufacturing Amidst Environmental Disruptions

Jinyao MAO

E-mail: jinyaomao97@gmail.com

YoungWon PARK

E-mail: ywparkjp@gmail.com

Abstract : This study investigates the impact of diversification and internationalization strategies on the performance of Japanese manufacturing firms, with a particular focus on how these strategies interacted under the disruptions caused by the COVID-19 pandemic. The research utilizes panel data from 2,675 firm-year observations spanning from 2017 to 2023. Our findings reveal that internationalization positively influences firm performance, with this effect being further amplified during the pandemic. In contrast, the relationship between diversification and firm performance is negative, suggesting that the operational complexities introduced by diversification may outweigh its risk-mitigation benefits. Additionally, firms pursuing both diversification and internationalization simultaneously face increased coordination challenges, which lead to diminished returns, reinforcing the notion that such dual strategies may not yield complementary synergies as expected.

The COVID-19 pandemic acted as a critical moderating factor in these dynamics. Our analysis shows that while internationalization provided resilience, diversification did not significantly buffer firms against the crisis. Firms with a more substantial international presence were able to leverage their market diversification to mitigate the adverse effects of global supply chain disruptions, whereas diversified firms with complex operational structures found it harder to adapt quickly, leading to a reduction in performance. The study further explores how the traditional Japanese business structure, particularly the Keiretsu system, played a role in shaping these strategic responses during the pandemic. This research contributes to the literature by highlighting the differentiated impact of diversification and internationalization during crises, offering a nuanced view of corporate resilience. While diversification remains a strategy often considered for risk spreading, its effectiveness in crisis management is limited by operational inefficiencies, particularly in highly integrated manufacturing sectors. On the other hand, internationalization emerges as a more effective strategy for firms seeking

to build resilience in the face of global disruptions. The results of this study offer both theoretical and practical insights into strategic management, suggesting that firms should carefully align their strategic choices with their operational capabilities and external environmental conditions. Furthermore, the study emphasizes the importance of strategic flexibility and operational efficiency in managing the complexities associated with diversification and internationalization.

Key Words: Strategic resilience, Diversification, Internationalization, Japanese manufacturing, COVID-19 impact, Supply chain disruptions

1. Introduction

The pursuit of strategic resilience has become a central theme in corporate management, particularly in the face of increasing market volatility and global disruptions. Firms often employ diversification and internationalization as key strategic approaches to achieve long-term growth, mitigate risks, and enhance competitiveness. Diversification allows firms to expand into multiple business domains, leveraging resource complementarities, while internationalization enables firms to exploit foreign market opportunities, achieve economies of scale, and spread operational risks across geographic boundaries. However, the effectiveness of these strategies remains a subject of debate, particularly in turbulent environments where market uncertainties may amplify their complexities and trade-offs.

The COVID-19 pandemic introduced an unprecedented shock that tested the resilience of corporate strategies worldwide. Unlike financial crises, which primarily represent demand-side shocks, the pandemic triggered simultaneous supply- and demand-side disruptions, causing severe distortions in global supply chains, labor markets, and capital flows (Pujawan & Bah, 2021). In this context, firms had to reassess the risks and benefits of their strategic choices, particularly in highly integrated industries such as Japanese manufacturing, where technological capabilities, operational efficiency, and global supply chain dependencies play a critical role in shaping firm performance.

Existing literature presents mixed findings regarding the impact of diversification and internationalization on firm performance. Diversification is traditionally viewed as a mechanism for risk mitigation and synergy creation (Rumelt, 1974; Chatterjee & Wernerfelt, 1991). However, empirical studies suggest that its benefits may be offset by increased coordination costs and resource misallocation, particularly when firms expand into unrelated business areas (Berger & Ofek, 1995). Similarly, internationalization can enhance firm performance by enabling economies of scale and expanding market reach. (Hymer, 1960); However, it also introduces challenges, such as institutional barriers, higher adaptation costs, and increased managerial complexity, which can offset its benefits (Lu & Beamish, 2004). The pandemic further complicates these dynamics by introducing operational constraints and heightened uncertainty, necessitating a reassessment of these strategic interactions.

Despite growing interest in strategic resilience, research on how diversification and internationalization interact under crisis conditions remains limited. While prior studies have examined firms' adaptive responses during crises (Verbeke & Kano, 2016; Kano et al., 2022), there is a gap in understanding how these strategies jointly influence firm performance, particularly in the Japanese manufacturing sector. The traditional Keiretsu structure, which fosters resource-sharing across affiliated firms, may provide certain advantages for

diversification and internationalization (Aoki & Lennerfors, 2013). However, its effectiveness during global disruptions—such as the COVID-19 pandemic—requires further empirical examination.

This study aims to fill this gap by investigating the relationship between diversification, internationalization, and firm performance, with a particular focus on how the COVID-19 pandemic moderated these effects. Specifically, we seek to answer the following research questions:

RQ1: How do diversification and internationalization strategies impact firm performance in Japanese manufacturing firms?

RQ2: How did the effectiveness of these strategies change during the COVID-19 pandemic?

Using panel data from 2017 to 2023, we contribute to strategic management literature by providing empirical insights into the moderating role of crisis conditions in shaping the effectiveness of corporate growth strategies. Our findings offer both theoretical and practical implications, highlighting key considerations for firms aiming to build resilience and adaptability in increasingly uncertain business environments.

2. Literature review

2.1. Theoretical Foundations of Diversification and Internationalization

Diversification and internationalization represent two fundamental strategies for corporate expansion, each offering distinct opportunities and challenges for firm growth. From a resource-based perspective, diversification enables firms to leverage shared resources across business units, potentially creating synergistic benefits and mitigating market risks (Chatterjee & Wernerfelt, 1991). Early work by Rumelt (1974) provided foundational insights by categorizing diversification into related and unrelated types, demonstrating superior performance in related diversification where firms can effectively leverage existing competencies. The resource-based view (RBV) further suggests that successful diversification depends on firms' ability to align their unique strengths—both tangible assets and intangible knowledge—with expansion choices (Barney, 1991).

However, this optimistic view faces significant challenges in practice. Berger and Ofek (1995) revealed that diversified firms often underperform their focused counterparts, with market values typically 13-15% lower due to inefficiencies in resource allocation and overinvestment in weaker units. This finding is particularly relevant in industries where operational complexity and coordination demands are high. This negative relationship has been consistently observed in the Japanese manufacturing context, where Fukui and Ushijima (2007) found that diversification was generally associated with lower profitability, leading many firms to eventually refocus on their core businesses. While they noted that related diversification could partially mitigate this negative impact, the challenges of resource coordination remain significant. Helfat and Eisenhardt (2004) emphasize that in

technology-intensive industries, firms must continuously recombine resources across businesses to sustain synergies, a challenge that is especially salient in Japanese manufacturing.

Internationalization strategy has emerged as a crucial path for accessing new markets, achieving economies of scale, and enhancing competitive capabilities (Hymer, 1960; Vernon, 1992). The primary goal of internationalization lies in leveraging a firm's resources and capabilities across broader geographical boundaries to optimize resource allocation and improve performance (Contractor et al., 2003). According to Delios and Beamish (2001), the effectiveness of international expansion hinges on a firm's ability to transfer and adapt its capabilities across markets, underscoring the crucial role of organizational learning and dynamic capability development. Building on this perspective, recent research by Arbelo et al. (2024) further emphasizes that firm-specific assets (FSAs), including technological capabilities, brand strength, and managerial expertise, significantly influence internationalization success. Their findings suggest that during economic crises, firms with strong FSAs, particularly in R&D and supply chain management, are better positioned to maintain competitiveness and mitigate disruptions in international markets.

The Japanese manufacturing context provides unique insights into these strategies. The traditional Keiretsu structure — networks of cross-shareholding firms — provides inherent resource-sharing advantages but also creates organizational inertia (Aoki & Lennerfors, 2013). For example, Toyota's diversification into robotics leveraged shared R&D capabilities within its Keiretsu, yet required deliberate efforts to overcome siloed decision-making (Lincoln & Gerlach, 2004). Similarly, Ghemawat's (2001) CAGE distance framework helps explain Japanese manufacturers' internationalization patterns, particularly their success in Southeast Asian markets where cultural and administrative proximity enables smoother operations.

2.2. Strategic Adaptation During Economic Crises

Economic crises provide unique contexts for examining how diversification and internationalization strategies influence firm performance. The strategic value of diversification becomes particularly apparent during periods of economic uncertainty. During the 2008 – 2009 financial crisis, firms with diversified business portfolios demonstrated greater resilience compared to single-business firms, highlighting the stabilizing effect of diverse revenue streams (Kuppuswamy & Villalonga, 2016). This resilience stems from diversified firms' ability to reallocate resources across business units and access internal capital markets when external financing becomes constrained.

However, the COVID-19 pandemic introduced distinct challenges that differentiate it from previous economic crises. Unlike financial crises, which primarily represent demand-side shocks, the COVID-19 pandemic caused both demand and supply-side disruptions, significantly affecting global supply chains. These

disruptions included semiconductor shortages, supply chain discontinuities, and logistical constraints, which forced companies to rethink their sourcing strategies and resilience measures (Pujawan & Bah, 2021). This required firms to develop not just financial risk-spreading capabilities but also operational redundancy across businesses. For instance, Mitsubishi Heavy Industries successfully mitigated pandemic disruptions by reallocating engineers between aviation and energy divisions—a capability rooted in their diversified yet related portfolio.

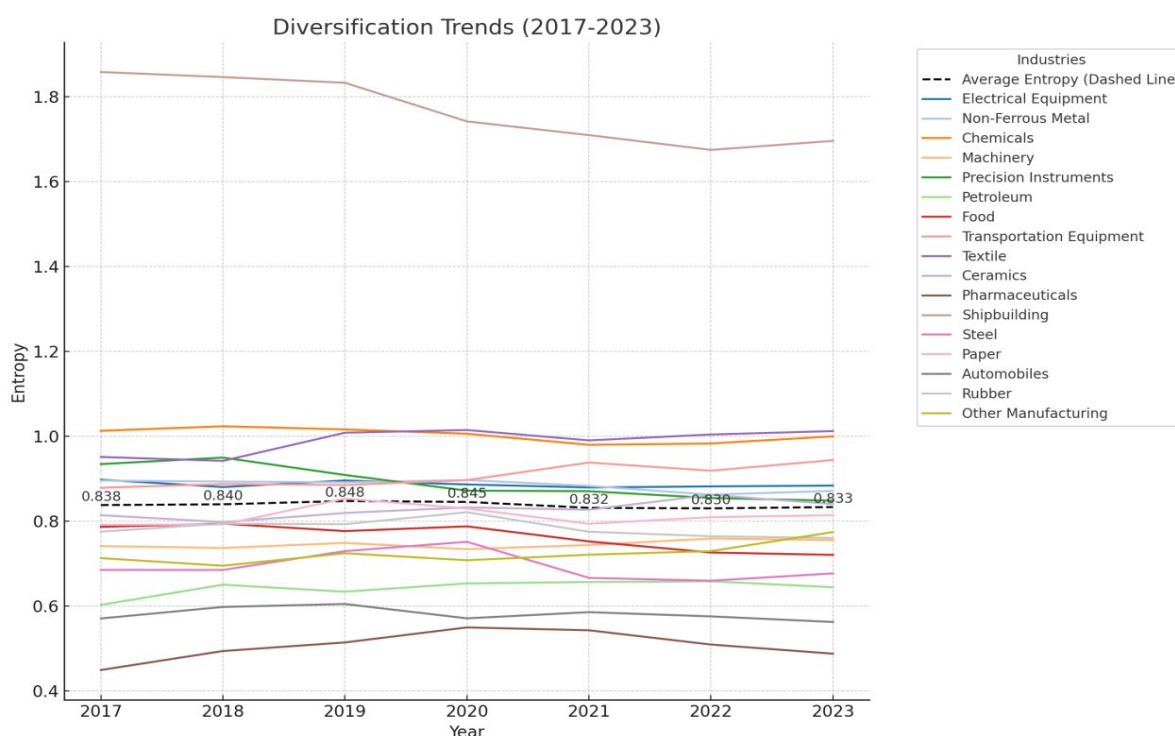
The effectiveness of internationalization strategies during crises also merits careful consideration. Verbeke and Kano (2016) emphasize that firms' ability to manage international operations during turbulent periods depends heavily on their regional integration and operational flexibility. The pandemic particularly highlighted the importance of regional resilience, as firms with regionally concentrated value chains demonstrated a stronger ability to withstand global shocks. Rather than relying on globally dispersed operations, many multinational enterprises (MNEs) have increasingly emphasized regional integration and strategic governance adaptations to enhance supply chain resilience (Kano et al., 2022). Within this context, Belderbos et al. (2020) further emphasize that multinational firms with well-configured affiliate portfolios can enhance their operational flexibility, allowing them to shift operations across countries in response to labor cost fluctuations and demand volatility. This balanced approach, combining regional concentration with strategic flexibility, proved particularly valuable during the COVID-19 crisis, as firms could mitigate disruptions while avoiding the risks of excessive geographical dispersion.

Over the last decade, more than 50% of organizations worldwide have annually experienced a supply disruption due to factors such as geopolitical instability and transportation failure (Matsuno et al., 2021). Disasters like Hurricane Katrina (2005), the Great East Japan Earthquake (2011), Thailand Flood (2011), Kumamoto Earthquake (2016), and the COVID-19 pandemic (2020) have led to severe disruption to many manufacturers. Japanese manufacturers face unique challenges in managing international operations during crises. Banalieva and Dhanaraj (2019) discuss the concept of knowledge decomposability, emphasizing that firms with highly complex, tacit knowledge may struggle to modularize their operations for global deployment while maintaining quality standards. However, firms that effectively integrate regional networks and adapt their governance structures to leverage local capabilities can enhance their operational resilience. This is particularly relevant for Japanese firms with strong trade ties and institutional familiarity in Southeast Asia, which enables them to navigate supply chain disruptions more effectively.

2.3. Evolution of Strategic Adaptation in Japanese Manufacturing: 2017-2023

The Japanese manufacturing sector provides a distinctive context for examining diversification and internationalization strategies, particularly given its historical evolution and response to recent challenges. Building upon the historical analysis of Japanese corporate strategies, empirical evidence from 2017-2023 reveals how the manufacturing sector adapted its strategies in response to external disruptions and industry-wide shifts.

Figure 1: Trends in Business Diversification (Entropy Index) Across Japanese Manufacturing Industries, 2017-2023

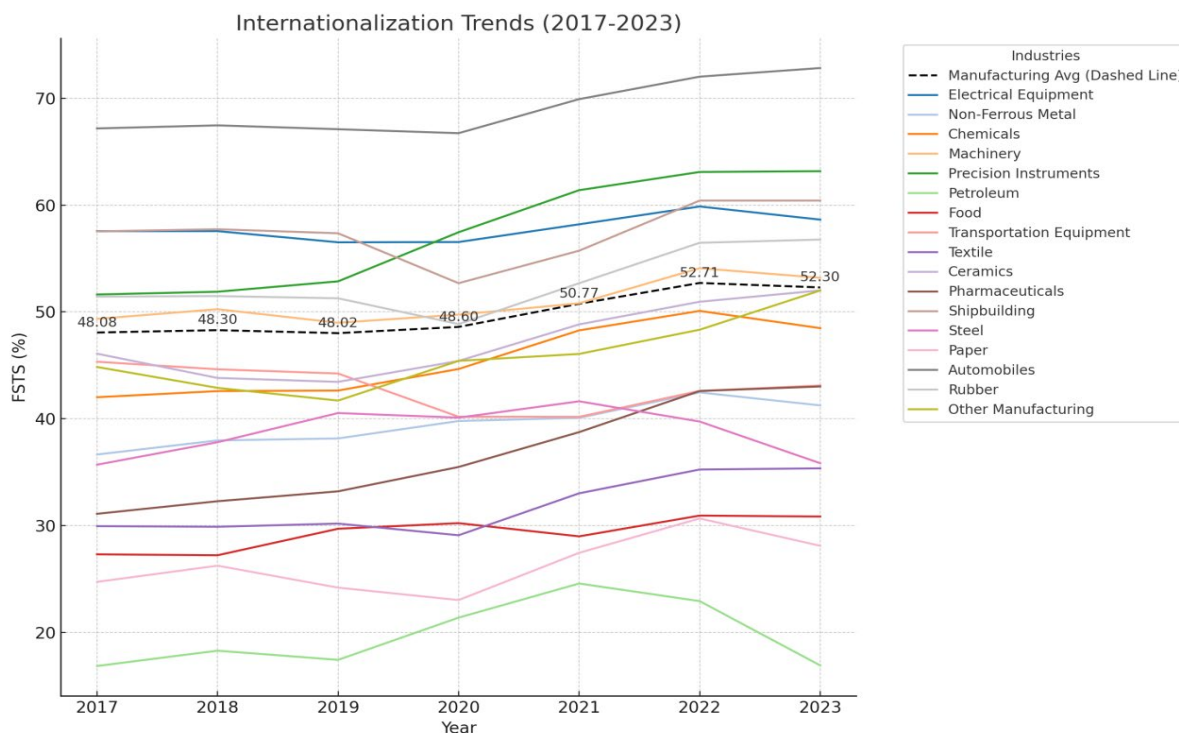


The Japanese manufacturing sector exhibits varied patterns across different industries. As shown in Figure 1, while the sector's average diversification index remained relatively stable within the range of 0.83-0.85, individual industries demonstrated distinct trajectories. Some industries, particularly electrical equipment and chemicals, maintained higher levels of diversification throughout the period, leveraging their technological capabilities across multiple product domains - a pattern consistent with historical observations of Japanese manufacturing firms (Aoki, 2009). This ability to maintain diversified operations has been largely facilitated by Japan's institutional structure, particularly the Keiretsu system, which enables effective resource sharing and technological synergies across business units. Notable examples include Toyota's successful expansion into robotics and Honda's evolution from motorcycles to automobiles.

Between 2017 and 2019, the sector's average diversification index increased from 0.838 to 0.848, reflecting a period of exploration into new business areas during relative economic stability. However, the COVID-19

pandemic marked a turning point, with the diversification index declining to 0.831 in 2021 and further to 0.830 in 2022, indicating strategic consolidation as firms reassessed their business portfolios. In 2023, however, the index rebounded slightly to 0.833, suggesting a possible recovery in diversification efforts.

Figure 2: Trends in Foreign Sales to Total Sales (FSTS) Ratio Across Japanese Manufacturing Industries, 2017-2023



Japanese manufacturers have demonstrated a consistent commitment to global market expansion, though with significant variation across industries. Figure 2 reveals a general upward trend in the sector’s Foreign Sales to Total Sales (FSTS) ratio, increasing from an average of 48.075% in 2017 to 52.713% in 2022. However, 2023 saw a slight decline to 52.296%, suggesting potential adjustments in overseas sales strategies.

Notably, certain industries, such as precision instruments, exhibited a particularly strong international presence, with FSTS ratios exceeding 60% from 2021 onwards. In contrast, the transportation equipment sector maintained more moderate levels of international engagement, with FSTS ratios consistently ranging between 40% and 45%. These variations reflect different industries’ capabilities in managing global operations, with technologically advanced sectors achieving higher levels of international sales.

The internationalization trends also highlight the sector’s strategic response to both opportunities and challenges. Japanese firms have particularly excelled in Asian markets, where cultural and administrative proximity enables more effective knowledge transfer and operational integration (Ghemawat, 2001). However,

this international expansion has not been without challenges. Tacit knowledge transfer remains a significant hurdle, as Japanese manufacturing excellence often relies on implicit routines, such as kaizen continuous improvement practices, which are difficult to codify for foreign subsidiaries.

3. Methodology

This study examines the impact of internationalization and diversification on firm performance, with a particular focus on how the COVID-19 pandemic moderates these relationships. We employ panel data analysis using a sample of Japanese manufacturing firms from 2017 to 2023, which allows us to compare firm performance across both pre-pandemic and pandemic/post-pandemic periods. Given the industry-specific nature of corporate strategies, we incorporate industry fixed effects to control for unobserved heterogeneity, ensuring robust estimations.

3.1. Sample and Data Sources

Our sample consists of all manufacturing firms listed on the Tokyo Stock Exchange Prime Market. The manufacturing sector was chosen because it plays a key role in Japan's international trade and exhibits relatively standardized financial reporting, making it suitable for cross-sectional analysis.

The financial and operational data used in this study were obtained from the Nikkei NEEDS Financial Database, a well-established source for corporate financial information in Japan. To ensure data consistency, firms with missing financial details or those without substantial international operations were excluded. After applying these criteria, the final dataset includes 2675 firm-year observations over the seven-year period (2017–2023).

3.2. Variables and Measurement

To analyze firm performance, we define the following key variables:

Dependent Variable

Return on Assets (ROA): Measured as net income divided by total assets, ROA is a widely used indicator of firm profitability and operational efficiency.

Independent Variables

Diversification (ENTROPY):

$$\text{ENTROPY} = \sum_{i=1}^N P_i \ln\left(\frac{1}{P_i}\right), \quad \text{where } P_i = \frac{\text{Revenue of Segment } i}{\text{Total Firm Revenue}}$$

N represents the number of business segments, and P_i is the revenue share of segment i .

This entropy-based index accounts for both the number and relative importance of business segments, providing a comprehensive measure of diversification by incorporating revenue distribution across segments. A higher entropy value indicates a more diversified firm, whereas a lower value suggests higher concentration in fewer business areas.

Internationalization (FSTS):

$$\text{FSTS} = \frac{\text{Foreign Sales}}{\text{Total Sales}}$$

The Foreign Sales to Total Sales (FSTS) ratio measures the extent to which a firm depends on international markets for revenue generation. A higher FSTS value indicates greater reliance on foreign markets, reflecting a firm's degree of internationalization. Conversely, a lower FSTS suggests a stronger focus on the domestic market. This metric is widely used to assess a firm's global market engagement and strategic orientation in international business.

Moderating Variable

COVID-19 Dummy (COVID_DUMMY): A binary variable set to 1 for 2020–2023 and 0 for 2017–2019, allowing us to assess how the pandemic influenced firm performance.

Control Variables

To minimize omitted variable bias, we include:

Firm Age (AGE): Years since establishment, capturing the effect of experience and legacy structures.

Firm Size (LOG_REVENUE): The logarithm of total revenue, representing firm scale. Logarithmic transformation is applied to reduce heteroscedasticity and the influence of extreme values.

Equity Growth Rate (EQUITY GROWTH): Percentage change in equity, reflecting firm expansion and financial stability.

Leverage (DEBT_RATIO): Ratio of total liabilities to total assets, indicating financial risk.

3.3. Model Specification and Estimation Method

To examine the effects of internationalization and diversification on firm performance, we employ a panel regression model with industry fixed effects to control for unobserved heterogeneity. Given the nature of our dataset, we estimate models using heteroskedasticity-robust standard errors to address potential variance

inconsistencies across firms. Our estimation strategy is divided into four stages, progressively incorporating interaction effects to test the moderating role of the COVID-19 pandemic.

The first stage assesses the direct impact of internationalization (FSTS) and diversification (ENTROPY) on firm performance, measured by return on assets (ROA). The model specification is as follows:

$$ROA_{i,t} = \beta_0 + \beta_1 FSTS_{i,t} + \beta_2 ENTROPY_{i,t} + \beta_3 AGE_{i,t} + \beta_4 LOG_REVENUE_{i,t} + \beta_5 EQUITYGROWTH_{i,t} + \beta_6 DEBT_RATIO_{i,t} + \gamma_{industry} + \epsilon_{i,t}$$

Where:

$\gamma_{industry}$ denotes industry fixed effects, which account for sectoral heterogeneity.

$\epsilon_{i,t}$ is the error term.

This model is estimated using the areg command in Stata, which absorbs industry fixed effects.

To evaluate whether the pandemic influenced the impact of internationalization and diversification, we introduce an interaction with the COVID-19 dummy variable:

$$ROA_{i,t} = \beta_0 + \beta_1 FSTS_{i,t} + \beta_2 ENTROPY_{i,t} + \beta_3 COVID_DUMMY_t + \beta_4 (FSTS_{i,t} \times COVID_DUMMY_t) + \beta_5 (ENTROPY_{i,t} \times COVID_DUMMY_t) + \beta_6 AGE_{i,t} + \beta_7 LOG_REVENUE_{i,t} + \beta_8 EQUITYGROWTH_{i,t} + \beta_9 DEBT_RATIO_{i,t} + \gamma_{industry} + \epsilon_{i,t}$$

where $COVID_DUMMY_t$ is set to 1 for 2020–2023 and 0 for 2017–2019, capturing potential shifts in strategic effectiveness during the pandemic.

Next, we examine whether internationalization and diversification interact, testing if firms benefit from pursuing both strategies simultaneously:

$$ROA_{i,t} = \beta_0 + \beta_1 FSTS_{i,t} + \beta_2 ENTROPY_{i,t} + \beta_3 (FSTS_{i,t} \times ENTROPY_{i,t}) + \beta_4 AGE_{i,t} + \beta_5 LOG_REVENUE_{i,t} + \beta_6 EQUITYGROWTH_{i,t} + \beta_7 DEBT_RATIO_{i,t} + \gamma_{industry} + \epsilon_{i,t}$$

To mitigate multicollinearity, the interaction term (FSTS \times ENTROPY) is mean-centered before estimation.

Finally, we test whether the pandemic further influenced the relationship between internationalization and diversification by including a three-way interaction term:

$$ROA_{i,t} = \beta_0 + \beta_1 FSTS_{i,t} + \beta_2 ENTROPY_{i,t} + \beta_3 (FSTS_{i,t} \times ENTROPY_{i,t}) + \beta_4 COVID_DUMMY_t + \beta_5 (FSTS_{i,t} \times COVID_DUMMY_t) + \beta_6 (ENTROPY_{i,t} \times COVID_DUMMY_t) + \beta_7 (FSTS_{i,t} \times ENTROPY_{i,t} \times COVID_DUMMY_t) + \beta_8 AGE_{i,t} + \beta_9 LOG_REVENUE_{i,t} + \beta_{10} EQUITYGROWTH_{i,t} + \beta_{11} DEBT_RATIO_{i,t} + \gamma_{industry} + \epsilon_{i,t}$$

This model allows us to assess whether firms pursuing both internationalization and diversification experienced different performance trends due to the pandemic.

4. Hypotheses

4.1. The Effect of Diversification on Firm Performance

Diversification strategy has been widely recognized as a crucial pathway for corporate growth and value creation (Rumelt, 1974; Chatterjee & Wernerfelt, 1991). The resource-based view (RBV) suggests that firms can achieve competitive advantages through effectively deploying and sharing resources across different business units (Barney, 1991). In the context of manufacturing firms, diversification can create value through several mechanisms.

First, diversification enables firms to leverage their core technological capabilities across different product markets. As Helfat and Eisenhardt (2004) argue, in technology-intensive industries, firms must continuously recombine resources across businesses to sustain synergies. This is particularly relevant for Japanese manufacturing firms, where the traditional Keiretsu structure provides inherent advantages for resource sharing (Aoki & Lennerfors, 2013). For example, Toyota's successful diversification into robotics leveraged shared R&D capabilities within its Keiretsu network, demonstrating how related diversification can enhance technological synergies (Lincoln & Gerlach, 2004).

Second, diversification offers significant risk mitigation benefits. Kuppuswamy and Villalonga (2016) demonstrate that diversified firms showed greater resilience during the 2008-2009 financial crisis, as diverse business portfolios provided internal capital markets that helped buffer external financing constraints. This risk-spreading effect becomes particularly valuable in volatile market conditions. Recent research by Lin et al. (2021) provides further evidence that business diversification significantly strengthens firms' resilience during crisis periods.

Third, the Japanese manufacturing context presents unique advantages for diversification. The success of diversification depends on technological relatedness and firms' core-technology competence. Kim, Lee, and Cho (2016) show an inverted U-shaped relationship between technological diversification and firm growth, where excessive diversification, especially into unrelated fields, can be detrimental. However, firms with strong core-technology competence can mitigate these risks. This aligns with Japan's historical success in sectoral diversification, as seen in Honda's transition from motorcycles to automobiles. Additionally, established business group networks in Japan facilitate knowledge sharing and resource reallocation, further enhancing diversification benefits (Aoki & Lennerfors, 2013).

Moreover, recent studies have highlighted the dynamic resource management perspective in diversification strategies. Helfat and Eisenhardt (2004) emphasize that in technology-intensive industries, firms must continuously reconfigure their resource portfolios to maintain competitive advantages. Japanese manufacturers

have demonstrated particular capability in this regard, leveraging their strong operational capabilities across related business domains (Aoki & Lennerfors, 2013).

The empirical evidence from Japanese manufacturing sector data supports these theoretical arguments. Between 2017 and 2022, the sector maintained a stable diversification index range of 0.83-0.85, indicating consistent pursuit of balanced diversification strategies. This stability, even during periods of market volatility, suggests that firms recognize the strategic value of maintaining diversified operations.

However, it's important to note that successful diversification requires careful alignment with firm capabilities. Berger and Ofek (1995) warn that diversified firms can underperform when they fail to achieve proper resource allocation or overextend into unrelated areas. Nevertheless, the Japanese manufacturing context, with its emphasis on related diversification and strong institutional support through business group networks, provides favorable conditions for realizing diversification benefits.

Based on these theoretical arguments and empirical evidence, we propose:

Hypothesis 1: The degree of business diversification is positively associated with firm performance in Japanese manufacturing firms.

4.2. The Effect of Internationalization on Firm Performance

Internationalization strategy has long been recognized as a pivotal approach for corporate growth and competitiveness. The theoretical foundation for a positive relationship between internationalization and firm performance is built upon several key mechanisms that are particularly relevant to Japanese manufacturing firms.

First, from a resource-based view, internationalization enables firms to leverage their firm-specific advantages across broader geographical markets (Hymer, 1960; Vernon, 1992). For Japanese manufacturers, this typically involves extending their superior manufacturing capabilities, quality management practices, and technological innovations to new markets. This expansion allows firms to achieve greater economies of scale and scope, potentially leading to improved performance (Contractor et al., 2003).

Second, international expansion provides access to diverse resources and knowledge pools. Delios and Beamish (2001) emphasize that successful internationalization depends on a firm's ability to transfer and adapt its core capabilities across markets while simultaneously absorbing new knowledge. Japanese manufacturing firms, particularly those operating in Southeast Asia, have leveraged historical trade relationships and integrated supply chains to enhance operational resilience and efficiency.

The Japanese manufacturing sector continues to exhibit strong international engagement. The Foreign Sales to Total Sales (FSTS) ratio increased from 48.075% in 2017 to 52.713% in 2022, reflecting firms' strategic focus on global markets to mitigate domestic market constraints and capitalize on international demand.

Furthermore, Japanese manufacturers benefit from strong institutional support and established business networks in key international markets. Ghemawat's (2001) CAGE distance framework helps explain this advantage: firms find it easier to expand into markets with similar quality management standards and supply chain norms. For example, Panasonic's ASEAN subsidiaries achieved profitability faster than their European counterparts, demonstrating the benefits of cultural and administrative proximity.

Recent research further supports the role of intangible assets in enhancing international performance. Wang et al. (2022) highlight that firms with strong technological capabilities and brand reputation achieve greater success in global markets by leveraging these assets as competitive differentiators. Additionally, Du et al. (2023) emphasize that internationalization fosters innovation capabilities by exposing firms to diverse market demands and technological advancements, which, in turn, drive performance improvements.

Based on these theoretical arguments and empirical insights, we propose:

Hypothesis 2: The degree of internationalization is positively associated with firm performance in Japanese manufacturing firms.

4.3. The Moderating Effect of COVID-19 on Strategic Choices

4.3.1. COVID-19's Moderation of the Diversification-Performance Relationship

The COVID-19 pandemic represents an unprecedented external shock that may fundamentally alter the relationship between diversification and firm performance. During periods of environmental turbulence, diversification's benefits as a risk management strategy become particularly salient through several mechanisms.

First, diversified firms possess greater flexibility in resource allocation. Kuppuswamy and Villalonga (2016) demonstrate that during the 2008-2009 financial crisis, diversified firms showed enhanced resilience due to their ability to leverage internal capital markets. This advantage becomes even more critical during the COVID-19 pandemic, where external capital markets faced significant disruption.

Second, portfolio diversification provides strategic flexibility during crisis periods. Lin et al. (2021) find that diversified business portfolios enhance firms' ability to reallocate resources and maintain stability during market disruptions. This is particularly relevant for Japanese manufacturers, where diversified operations allowed firms to shift resources between business units as different sectors experienced varying levels of pandemic impact.

Third, the pandemic created opportunities for diversified firms to leverage their capabilities across business units. For example, companies with flexible supply chain strategies and diversified operations were able to reallocate resources and expertise across different divisions to mitigate disruptions. This adaptability was particularly crucial as certain industries faced severe supply chain constraints and workforce shortages, requiring firms to adjust their operations dynamically (Pujawan & Bah, 2021).

Based on these theoretical arguments and empirical evidence, we propose:

Hypothesis 3: The COVID-19 pandemic strengthens the positive relationship between business diversification and firm performance in Japanese manufacturing firms.

4.3.2. COVID-19's Moderation of the Internationalization-Performance Relationship

The pandemic introduced unique challenges to international operations, potentially altering the benefits of internationalization. Several mechanisms suggest a weakening effect of COVID-19 on the internationalization-performance relationship.

First, the pandemic disrupted global supply chains and cross-border operations in unprecedented ways. Kano et al. (2022) emphasize that firms with highly dispersed global value chains faced significant coordination challenges, as border restrictions, local lockdowns, and supply chain bottlenecks created major obstacles to international business activities. These disruptions forced firms to reconsider their reliance on geographically fragmented operations and explore more resilient governance strategies.

Second, COVID-19 simultaneously affected both supply and demand patterns across markets. Unlike previous crises that primarily impacted demand, the pandemic created supply-side disruptions that particularly affected manufacturing firms with global operations. Prior research has highlighted the significant impact of the pandemic on supply chain discontinuities and logistical constraints (Pujawan & Bah, 2021).

Third, the pandemic highlighted the vulnerabilities of complex international operations. Japanese manufacturing data reveals that while the sector's FSTS ratio continued to rise during the pandemic (from 48.60% in 2020 to 52.71% in 2022), firms faced increased operational costs and coordination challenges. The traditional advantages of international diversification were offset by increased coordination costs due to travel restrictions, supply chain vulnerabilities, varying recovery rates across markets, local market volatility. Based on these theoretical arguments and empirical evidence, we propose:

Hypothesis 4: The COVID-19 pandemic weakens the positive relationship between internationalization and firm performance in Japanese manufacturing firms.

4.4. The Interactive Effect between Diversification and Internationalization

The relationship between diversification and internationalization strategies represents a complex interplay that can significantly impact firm performance. From a resource-based perspective, firms pursuing both strategies can potentially create unique synergies through resource complementarity and knowledge integration across different domains. In the context of Japanese manufacturing firms, where strong technological capabilities and operational expertise form the backbone of competitive advantage, the simultaneous pursuit of product and geographical expansion may create distinctive opportunities for value creation.

The theoretical foundation for this interaction stems from both resource-based view and organizational learning perspectives. Chatterjee and Wernerfelt (1991) demonstrate that successful strategic expansion depends on firms' ability to leverage unique resources across different domains. Building on this, Helfat and Eisenhardt (2004) emphasize the importance of dynamic resource recombination - particularly relevant for firms operating across both product and geographic boundaries. Japanese manufacturers, with their strong emphasis on continuous improvement and knowledge integration, are potentially well-positioned to benefit from such resource recombination opportunities.

The Japanese institutional context provides additional support for the positive interaction between these strategies. Traditional Keiretsu structures facilitate both product diversification and international expansion through established business networks (Aoki & Lennerfors, 2013). For instance, Toyota's success in leveraging its operational excellence across both automotive and robotics markets while expanding globally demonstrates the potential benefits of this dual-expansion approach.

However, the COVID-19 pandemic has introduced significant complications to this strategic interaction. While diversification and internationalization may generally create positive synergies, the unprecedented challenges of the pandemic - including travel restrictions, supply chain disruptions, and varying regional recovery rates - have likely strained firms' ability to effectively coordinate across both product and geographic dimensions. The simultaneous management of diverse product portfolios and international operations during crisis periods increases organizational complexity and resource demands, potentially weakening the benefits of this strategic combination.

Based on these theoretical arguments and the empirical context of Japanese manufacturing firms, we propose:

Hypothesis 5: The interaction between diversification and internationalization has a positive effect on firm performance, but this positive interaction effect is weakened during the COVID-19 pandemic period.

5. Results

5.1 Descriptive Statistics and Correlation Analysis

Before testing our hypotheses through regression analysis, we first examine the descriptive statistics and correlation coefficients for the key variables in our study. Table 1 presents the means, standard deviations, and correlation coefficients for all variables used in our analysis.

Table 1: Descriptive Statistics and Correlations

Variables	Mean	SD	1	2	3	4	5	6	7	8
1 ROA (Return on Assets)	6.396	4.6	1							
2 Diversification	0.873	0.418	-0.099*	1						
3 Internationalization (FSTS)	47.838	22.507	0.141*	-0.115*	1					
4 Equity Growth Rate	7.187	12.531	0.391*	-0.024	0.095*	1				
5 Leverage (Debt Ratio)	2.084	1.017	-0.294*	0.152*	-0.005	0.047*	1			
6 Firm Age	77.839	24.677	-0.103*	0.201*	-0.117*	-0.059*	0.006	1		
7 Firm Size (log of revenue)	12.331	1.459	-0.015	0.223*	0.234*	0.056*	0.300*	0.098*	1	
8 COVID (Dummy Variable)	0.585	0.493	-0.055*	-0.021	0.076*	0.196*	-0.016	0.056*	0.016	1

* $p < 0.05$

The descriptive statistics reveal several noteworthy patterns in our sample of Japanese manufacturing firms. The average return on assets (ROA) is 6.396% (SD = 4.6), reflecting the general profitability level of the manufacturing sector during the study period. The mean diversification level, measured by the entropy index, is 0.873 (SD = 0.418), indicating that firms in our sample maintain a moderate level of business diversification. Meanwhile, the degree of internationalization, measured by the Foreign Sales to Total Sales (FSTS) ratio, averages 47.838% (SD = 22.507), suggesting that Japanese manufacturing firms have a substantial presence in international markets.

The correlation analysis provides preliminary insights into the relationships between key variables. ROA exhibits a positive correlation with internationalization ($r = 0.141$, $p < 0.05$), offering initial support for Hypothesis 2, which suggests that firms with a greater international presence tend to achieve higher financial performance. However, diversification shows a weak negative correlation with ROA ($r = -0.099$, $p < 0.05$). While this appears to contrast with Hypothesis 1, this relationship may be influenced by industry-specific effects or non-linear interactions, which we will explore further in regression analysis.

Among the control variables, firm size exhibits a positive correlation with both diversification ($r = 0.223$, $p < 0.05$) and internationalization ($r = 0.234$, $p < 0.05$), suggesting that larger firms are more likely to pursue

extensive strategic expansion. This relationship likely stems from their greater financial and managerial resources, enabling them to explore new business opportunities while mitigating expansion risks.

Additionally, leverage is found to be negatively correlated with ROA ($r = -0.294$, $p < 0.05$). This indicates that firms with higher debt levels tend to experience lower profitability, potentially due to the financial constraints imposed by debt servicing requirements. These findings suggest that while leverage may provide firms with capital for expansion in the short term, its long-term implications for profitability warrant careful consideration.

5.2. Main Effects of Diversification and Internationalization

Table 2: Main Effects of Diversification and Internationalization on ROA

Variables	Model 1 (ROA)
	0.015***
Internationalization (FSTS)	(3.70)
	-0.806***
Diversification	(-3.83)
	-0.017***
Firm Age	(-5.28)
	0.295***
Firm Size (log of revenue)	(3.99)
	0.141***
Equity Growth Rate	(10.34)
	-1.408***
Leverage (Debt Ratio)	(-9.52)
	5.950***
Constant	(7.64)
R ²	0.31
F-statistic	40.44
Observations	2675

Significance Levels * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

The values in parentheses represent the t-statistics.

Table 2 presents the regression results examining the effects of diversification and internationalization on firm performance (ROA) among Japanese manufacturing firms. The following sections analyze these

relationships in detail, addressing the effects of diversification, internationalization, and various control variables respectively.

5.2.1. The Effect of Diversification on Firm Performance

Hypothesis 1 posits that the degree of diversification is positively associated with firm performance in Japanese manufacturing firms. However, the regression results indicate that the coefficient for diversification is -0.806, with a t-value of -3.83, which is statistically significant at the 1% level ($p < 0.01$). This suggests that firms with higher levels of diversification tend to have significantly lower ROA.

These findings suggest that diversification strategies may have an adverse impact on firm profitability within the sample. This negative relationship aligns with previous empirical evidence from the Japanese manufacturing sector. Fukui and Ushijima (2007) documented a similar pattern, finding that diversification was generally associated with lower profitability among Japan's largest manufacturers, leading many firms to eventually refocus on their core businesses. One possible explanation is that firms expanding into multiple business areas may face challenges such as resource dispersion and increased management complexity, leading to a decline in profitability. Furthermore, if firms overextend into unrelated business domains, they may struggle to achieve synergies, ultimately affecting overall performance.

In the context of Japanese manufacturing firms, although the Keiretsu structure can facilitate resource sharing and internal capital market operations, excessive diversification beyond a firm's managerial capabilities or core competencies may impose additional operational burdens. Therefore, the results of this study suggest that diversification may have a negative impact on ROA.

Based on these findings, Hypothesis 1 is not supported.

5.2.2. The Effect of Internationalization on Firm Performance

Hypothesis 2 states that the degree of internationalization is positively associated with firm performance in Japanese manufacturing firms. The regression results indicate that the coefficient for internationalization (FSTS) is 0.015, with a t-value of 3.70, which is statistically significant at the 1% level ($p < 0.01$). This suggests that firms with a higher level of internationalization tend to have significantly higher ROA.

These findings support the notion that international expansion can enhance firm performance. Expanding into international markets may provide firms with broader growth opportunities, enabling them to achieve economies of scale while mitigating market risks. Additionally, Japanese manufacturing firms often leverage their strengths in quality management, technological innovation, and supply chain efficiency to gain a competitive advantage in overseas markets.

Given the upward trend in the FSTS ratio from 2017 to 2022, it can be inferred that Japanese manufacturing firms have been progressively deepening their global market presence. This expansion may create additional growth opportunities and contribute positively to profitability. Therefore, the results of this study support the positive impact of internationalization on ROA.

Based on these findings, Hypothesis 2 is supported.

5.2.3. The Effects of Other Control Variables

The regression results also reveal the significant influence of control variables on firm performance (ROA).

First, the coefficient for firm age is -0.017, which is statistically significant at the 1% level ($p < 0.01$), indicating a significant negative correlation between firm age and ROA. This result suggests that as firms mature, factors such as increasing historical asset burdens, rising costs of technological renewal, and intensified market competition may constrain profitability. Moreover, older firms may face greater organizational inertia and innovation challenges, which could reduce their performance in dynamic market environments.

Second, the coefficient for firm size is 0.295, which is statistically significant at the 1% level ($p < 0.01$), suggesting that larger firms tend to have higher ROA. This may be attributed to the ability of larger firms to integrate resources more efficiently, enhance market influence, and establish competitive advantages in supply chain management, production efficiency, and brand positioning. Additionally, larger firms typically have stronger bargaining power and can leverage economies of scale to reduce unit costs, thereby improving overall profitability.

Furthermore, the coefficient for equity growth rate is 0.141, which is statistically significant at the 1% level ($p < 0.01$), indicating that firms with higher equity growth rates tend to have higher ROA. This result suggests that firms with strong equity financing capabilities can more effectively attract investment and utilize additional capital to expand operations and optimize asset allocation, thereby enhancing profitability. Firms with high equity growth rates are also often perceived as having strong growth potential, which may further drive improvements in financial performance.

Lastly, the coefficient for leverage is -1.408, which is statistically significant at the 1% level ($p < 0.01$), indicating a significant negative correlation between leverage and ROA. This result suggests that firms with higher debt levels may face increased financial costs, which could erode net profits. Additionally, firms with heavy debt burdens may experience greater financial risk and liquidity constraints, limiting their ability to respond to market fluctuations and ultimately affecting profitability.

5.3. The Moderating Effect of COVID-19 on Strategic Choices

Table 3: Moderating Effects of COVID-19 on Strategic Choices and ROA

Variables	Model 2 (ROA)	Model 3 (ROA)
	0.018***	0.013**
Internationalization (FSTS)	(4.42)	(2.90)
	-0.842***	-0.729***
Diversification	(-4.06)	(-3.04)
	-1.378***	-1.610***
COVID (Dummy Variable)	(-8.45)	(-7.13)
		0.011*
COVID × Internationalization	-	(1.84)
		-0.253
COVID × Diversification	-	(-0.84)
	-0.014***	-0.014***
Firm Age	(-4.50)	(-4.44)
	0.287***	0.290***
Firm Size (log of revenue)	(3.93)	(3.97)
	0.151***	0.151***
Equity Growth Rate	(9.85)	(9.84)
	-1.422***	-1.429***
Leverage (Debt Ratio)	(-9.40)	(-9.46)
	6.511***	6.600***
Constant	(8.49)	(8.66)
R ²	0.33	0.33
F-statistic	36.59	29.08
Observations	2675	2675

Significance Levels * p < 0.1, ** p < 0.05, *** p < 0.01

The values in parentheses represent the t-statistics.

Table 3 presents the regression results examining how COVID-19 moderates the relationships between strategic choices (diversification and internationalization) and firm performance. The following sections analyze these moderating effects in detail, focusing on how the pandemic period influenced the impact of both diversification and internationalization strategies on ROA.

5.3.1. COVID-19's Moderation of the Diversification-Performance Relationship

Hypothesis 3 posits that the COVID-19 pandemic strengthens the positive relationship between business diversification and firm performance in Japanese manufacturing firms. However, the empirical results do not support this hypothesis.

The interaction term COVID \times Diversification has a coefficient of -0.253, with a t-value of -0.84, and is not statistically significant. This suggests that COVID-19 did not significantly alter the relationship between diversification and firm performance in this sample.

Additionally, the main effect of Diversification remains negative across both models (Model 2: -0.842, $p < 0.01$; Model 3: -0.729, $p < 0.01$), further reinforcing the negative impact of diversification on firm performance, regardless of the pandemic period. While prior research suggests that diversification may serve as a risk mitigation strategy during crises, the results of this study indicate that Japanese manufacturing firms did not experience a significant buffering effect from diversification during COVID-19.

One possible explanation is that while diversified firms might have the ability to reallocate resources across business units, the widespread and simultaneous disruptions across industries may have limited their ability to capitalize on this flexibility. Additionally, if firms engaged in diversification without strong synergies between business units, they may have faced increased management complexity and inefficiencies, exacerbating performance declines during the pandemic.

Thus, Hypothesis 3 is not supported. The results indicate that the COVID-19 pandemic did not significantly alter the diversification-performance relationship for Japanese manufacturing firms.

5.3.2. COVID-19's Moderation of the Internationalization-Performance Relationship

Hypothesis 4 posits that the COVID-19 pandemic weakens the positive relationship between internationalization and firm performance in Japanese manufacturing firms. However, the regression results contradict this hypothesis.

The interaction term COVID \times Internationalization has a coefficient of 0.011, with a t-value of 1.84, and is statistically significant at the 10% level ($p < 0.1$). This suggests that, contrary to the initial hypothesis, internationalization had an even stronger positive effect on firm performance during the pandemic, rather than a weakened effect.

The regression results indicate that the main effect of internationalization remains positive across both models, suggesting that Japanese manufacturing firms with a higher level of internationalization have consistently

experienced better financial performance. Specifically, in Model 2, the coefficient for internationalization is 0.018 ($p < 0.01$, $t = 4.42$), while in Model 3, the coefficient remains positive at 0.013 ($p < 0.05$, $t = 2.90$).

These results indicate that Japanese manufacturing firms with higher levels of internationalization continued to experience better financial performance, even during the pandemic. While previous studies have highlighted the risks associated with international operations during crises, the findings of this study suggest that Japanese firms may have successfully navigated these challenges, possibly by leveraging their strong global supply chain networks and adaptive capabilities.

One potential explanation is that while internationalized firms faced operational difficulties due to supply chain disruptions and travel restrictions, they benefited from both geographical revenue diversification and operational flexibility. As Belderbos et al. (2020) argue, firms with well-configured international portfolios can effectively shift operations across countries in response to regional disruptions. This ability to reallocate resources and adjust operations across different markets allowed Japanese manufacturers to offset losses in severely impacted regions with gains in recovering markets. The increase in the FSTS ratio (from 48.60% in 2020 to 52.71% in 2022) suggests that firms recognized these advantages and continued to expand their international presence during the pandemic, possibly to enhance their strategic resilience against future disruptions.

The empirical analysis reveals that COVID-19 did not significantly moderate the diversification-performance relationship, contradicting Hypothesis 3. Diversification continued to exhibit a negative impact on firm performance, and the pandemic did not enhance or mitigate this effect.

Conversely, the internationalization-performance relationship remained positive and was slightly strengthened during the pandemic, contradicting Hypothesis 4. This suggests that Japanese manufacturing firms with a stronger international presence were able to adapt to global disruptions and leverage international market diversification to maintain profitability.

5.4. The Interaction between Diversification and Internationalization

Table 4 presents the regression results examining the interaction effects between diversification and internationalization, as well as how COVID-19 moderates these interactive relationships. The analysis explores both the direct interaction between these two strategic choices and how this interaction may have been affected during the pandemic period.

Table 4: Interactive Effects of Diversification and Internationalization Under COVID-19

Variables	Model 4 (ROA)	Model 5 (ROA)
Internationalization (FSTS, Mean-Centered)	0.013** (2.13)	0.011** (2.37)
Diversification (Mean-Centered)	-0.848*** (-3.30)	-0.741*** (-3.08)
Internationalization × Diversification (Mean-Centered)	-0.026** (-2.17)	-0.024* (-1.79)
COVID (Dummy Variable)		-1.620*** (-7.22)
COVID × Internationalization		0.010* (1.71)
COVID × Diversification		-0.191 (-0.66)
COVID × Internationalization × Diversification (Mean-Centered)		-0.013 (-0.70)
Firm Age	-0.011** (-2.76)	-0.014*** (-4.52)
Firm Size (log of revenue)	0.369** (2.64)	0.299*** (4.11)
Equity Growth Rate	0.244*** (6.68)	0.150*** (9.87)
Leverage (Debt Ratio)	-2.039*** (-8.80)	-1.418*** (-9.41)
CONSTANT	4.144* (2.45)	6.465*** (7.66)
R ²	0.31	0.34
F-statistic	22.29	24.04
Observations	2675	2675

Significance Levels * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

The values in parentheses represent the t-statistics.

5.4.1. Empirical Analysis of the Interaction Between Diversification and Internationalization

Hypothesis 5 posits that the interaction between diversification and internationalization positively influences firm performance, but this positive effect is expected to weaken during the COVID-19 pandemic. However, the regression results do not support this hypothesis.

The interaction term Internationalization × Diversification has a coefficient of -0.024, with a t-value of -1.79, and is statistically significant at the 10% level ($p < 0.1$). This suggests that the combined effect of diversification and internationalization is negative rather than positive, contradicting the hypothesized synergy. In other words,

firms that simultaneously pursue both strategies tend to experience lower ROA compared to firms that focus on either diversification or internationalization independently.

This result challenges the assumption that diversification and internationalization create complementary synergies. Instead, it suggests that Japanese manufacturing firms may struggle to efficiently manage both dimensions simultaneously. One possible explanation is that resource dispersion and operational complexity increase when firms attempt to expand both geographically and across product lines. While diversification requires internal resource allocation to support multiple business units, internationalization necessitates additional managerial efforts to navigate foreign market uncertainties. The combined pressure from both strategies may lead to inefficiencies, diluting their potential benefits.

These findings highlight the managerial challenges associated with simultaneously implementing diversification and internationalization strategies. Japanese manufacturing firms, despite their strong technological capabilities and well-established business networks, may face increased coordination costs and operational burdens when attempting to leverage both strategic directions at once. As a result, instead of generating synergistic advantages, the combination of diversification and internationalization appears to impose additional constraints on firm performance.

5.4.2. The Moderating Effect of COVID-19 on the Interaction Between Diversification and Internationalization

To test whether the COVID-19 pandemic weakened the interaction effect between diversification and internationalization, the three-way interaction term $\text{COVID} \times \text{Internationalization} \times \text{Diversification}$ is included in the model. However, its coefficient is -0.013, with a t-value of -0.70, and is not statistically significant. This indicates that the pandemic did not significantly alter the relationship between diversification, internationalization, and firm performance.

Although prior studies suggest that external crises may exacerbate the challenges of managing complex strategic portfolios, the results do not provide strong empirical support for this hypothesis in the case of Japanese manufacturing firms. This may be due to firm-specific resilience mechanisms, such as strong supply chain management, well-integrated business networks, or sectoral advantages that allowed firms to mitigate pandemic-related disruptions.

The regression results do not support Hypothesis 5. Instead of finding a positive interaction effect between diversification and internationalization, the results indicate a weakly negative interaction effect, suggesting that firms attempting to pursue both strategies simultaneously may face increased operational complexity, resource dispersion, and managerial inefficiencies, which ultimately diminish firm performance.

Additionally, the moderating effect of COVID-19 on this interaction is not significant, meaning that the pandemic did not substantially alter the relationship between diversification, internationalization, and firm performance. This suggests that while the external crisis affected overall firm profitability, it did not fundamentally reshape the way diversification and internationalization interact.

These findings highlight the challenges associated with managing complex strategic expansions. For Japanese manufacturing firms, the simultaneous pursuit of diversification and internationalization may require stronger coordination mechanisms, enhanced resource integration strategies, and improved managerial capabilities to fully capitalize on potential synergies.

6. DISCUSSION AND IMPLICATIONS

This study explores the impact of diversification and internationalization on firm performance in Japanese manufacturing firms, particularly during the COVID-19 pandemic. The findings suggest that internationalization enhances performance, even in times of crisis, while diversification poses managerial challenges that may reduce profitability. These results challenge traditional views on diversification and highlight the strategic importance of global market engagement for resilience.

6.1. Theoretical Implications of Strategic Choices and Performance

Our empirical findings contribute to strategic management theory by providing new insights into the diversification-performance and internationalization-performance relationships in manufacturing firms. The results challenge conventional resource-based view (RBV) arguments regarding diversification while reinforcing international business theories on the benefits of global expansion.

Reevaluating the Strategic Value of Diversification

Contrary to traditional RBV arguments that firms can achieve competitive advantages through resource sharing across diversified business units (Rumelt, 1974; Chatterjee & Wernerfelt, 1991), our findings indicate a strong negative relationship between diversification and firm performance (coefficient = -0.729, $p < 0.01$). This suggests that the anticipated synergies from diversification may not materialize in Japanese manufacturing firms due to substantial coordination costs, operational complexity, and resource misallocation.

This finding extends Berger and Ofek's (1995) work by demonstrating that diversification inefficiencies are particularly pronounced in manufacturing settings, where the integration of disparate business units requires significant managerial effort. While previous research has highlighted potential benefits from risk diversification

and internal capital markets (Kuppuswamy & Villalonga, 2016), our results suggest that these advantages may be outweighed by the burden of managing heterogeneous operations across product domains.

Additionally, our study contributes to the organizational structure debate in the Japanese manufacturing sector. The traditional Keiretsu system, which theoretically supports resource sharing across affiliated firms (Aoki & Lennerfors, 2013), may actually exacerbate organizational rigidity, making it more difficult for firms to adapt their diversified operations efficiently. This aligns with studies suggesting that Japanese firms often encounter bureaucratic inertia when coordinating complex business portfolios (Lincoln & Gerlach, 2004).

Strengthening International Business Theory on Global Expansion

Our findings on internationalization provide strong empirical support for its positive effect on firm performance (coefficient = 0.013, $p < 0.05$). This reinforces classic international business theories that suggest firms benefit from expanding into foreign markets by leveraging firm-specific advantages, achieving economies of scale, and accessing diverse revenue streams (Hymer, 1960; Vernon, 1992; Contractor et al., 2003).

Moreover, our results contribute to the ongoing debate on the shape of the internationalization-performance relationship. While some scholars propose a U-shaped or S-shaped curve (Lu & Beamish, 2004), our findings indicate a positive linear trend in the manufacturing sector. However, we acknowledge that our study did not explicitly test for non-linearity, and future research should examine whether the benefits of internationalization eventually plateau or reverse at higher levels of foreign market exposure.

Japanese manufacturing firms appear to possess distinct competitive capabilities in international markets, particularly in effectively transferring their firm-specific advantages across different institutional contexts (Delios & Beamish, 2001). While our study does not examine the geographic distribution of internationalization, previous research suggests that firms may experience varying degrees of success depending on institutional and cultural proximity (Ghemawat, 2001). The CAGE distance framework highlights that firms often achieve better operational integration in regions where cultural and administrative similarities facilitate knowledge transfer and supply chain coordination. Future research could explore whether Japanese manufacturers derive greater performance benefits from expansion into specific regions, such as Southeast Asia, compared to markets with greater institutional and cultural distance.

6.2. Crisis Response and Strategic Resilience

The COVID-19 pandemic provided a unique opportunity to examine how external shocks moderate the effects of diversification and internationalization on firm performance. Our empirical findings offer valuable insights into firms' strategic resilience and the differential impact of growth strategies during crises, contributing to both crisis management theory and strategic management literature.

Reevaluating the Impact of Diversification During a Crisis

Contrary to expectations, our findings indicate that COVID-19 did not significantly alter the negative relationship between diversification and firm performance. The interaction term $\text{COVID} \times \text{Diversification}$ is statistically insignificant (coefficient = -0.253, $p > 0.10$), suggesting that diversification remained detrimental to firm performance even during the crisis. While previous studies suggest that diversification may act as a risk-mitigation strategy during crises (Lin et al., 2021), our findings indicate that Japanese manufacturing firms did not experience a buffering effect from diversification during the pandemic.

A possible explanation is that, although diversified firms might theoretically be able to redistribute resources across business units, the simultaneous global disruptions in supply chains and demand patterns may have limited the effectiveness of such adjustments. Additionally, if diversification lacked strong synergies between business units, firms may have faced increased operational inefficiencies and managerial challenges, exacerbating performance declines during the crisis.

Internationalization as a Source of Resilience

In contrast, our results reveal that internationalization continued to positively impact firm performance during the COVID-19 pandemic, with the interaction term $\text{COVID} \times \text{Internationalization}$ being statistically significant and positive (coefficient = 0.011, $p < 0.10$). This suggests that internationalized firms were more resilient to the disruptions caused by the pandemic, contradicting the conventional wisdom that international operations become riskier in times of crisis due to supply chain disruptions, travel restrictions, and market volatility.

A potential explanation for this unexpected resilience is that internationalized firms had access to diverse revenue streams, allowing them to offset losses in severely affected regions with gains in recovering markets. The increase in FSTS ratio from 48.60% in 2020 to 52.71% in 2022 further supports this argument, indicating that firms actively expanded their global operations despite pandemic-induced uncertainties.

The Complexity of Managing Both Strategies During Crisis

The coefficient for $\text{Internationalization} \times \text{Diversification}$ is -0.024 ($p < 0.10$), indicating a marginally significant negative relationship between pursuing both strategies simultaneously and firm performance (ROA). This suggests that firms that engage in both diversification and internationalization tend to have slightly lower profitability compared to firms that focus on either strategy alone. However, the small magnitude of the effect suggests that the disadvantages of combining these strategies are limited rather than severe.

During stable periods, firms may attempt to leverage both product and geographic diversification to achieve complementary benefits such as market expansion, risk mitigation, and enhanced resource utilization. However, the slightly negative coefficient suggests that the complexities of managing both dimensions simultaneously may outweigh potential synergies.

6.3. Managerial Implications

Our findings provide crucial insights for managers in manufacturing firms, particularly those navigating the complexities of international expansion and business diversification in an increasingly uncertain global environment. The relationship between strategic choices and firm performance revealed in this study offers practical guidance for corporate decision-making, especially during crisis periods such as the COVID-19 pandemic.

Strategic Caution in Business Diversification

The persistent negative relationship between diversification and firm performance suggests that managers must carefully assess the risks and benefits of diversification before expanding into multiple business areas. While the resource-based view (RBV) argues that diversification enhances firm competitiveness through resource sharing and internal capital markets, our results indicate that Japanese manufacturing firms face significant coordination costs and operational complexities when managing diverse business portfolios.

One key challenge is the lack of synergies and resource misallocation. Firms that expand beyond their core competencies may struggle to integrate new business units effectively, leading to diminished operational efficiency and increased costs. Without strong synergies between diversified business units, firms may encounter higher managerial burdens and inefficiencies, ultimately affecting overall profitability.

Additionally, the traditional Keiretsu structure, a defining characteristic of Japanese business networks, may further exacerbate the challenges of diversification. While inter-firm networks can facilitate resource sharing and access to capital, they may also introduce bureaucratic inefficiencies and rigidity, making diversified firms less adaptable to rapidly changing market conditions. This structural constraint can hinder firms' ability to reallocate resources efficiently across business units, limiting the intended benefits of diversification.

Given these challenges, firms should prioritize strategic coherence over excessive expansion. The statistically significant negative impact of diversification on ROA (coefficient = -0.729, $p < 0.01$) suggests that firms must ensure alignment between diversification efforts and core competencies rather than pursuing diversification solely as a risk-mitigation strategy.

Leveraging Internationalization for Growth and Resilience

In contrast to diversification, internationalization remains a key driver of firm performance for Japanese manufacturing firms. Our empirical findings confirm that higher levels of international market expansion are positively associated with profitability, even in times of crisis. This underscores the importance of global market participation as a strategy for enhancing resilience and sustaining long-term growth.

One of the primary benefits of internationalization is its role as a buffer against domestic economic downturns. The statistically significant positive effect of internationalization on ROA (coefficient = 0.013, $p < 0.05$) suggests that firms with greater foreign market exposure are better positioned to offset local economic fluctuations. By operating in multiple international markets, firms can diversify their revenue streams and mitigate risks associated with domestic economic volatility, industry downturns, or policy changes.

Moreover, internationalization has proven to be a resilient strategy even during crisis periods. The positive interaction between COVID-19 and internationalization (coefficient = 0.011, $p < 0.10$) indicates that firms with a stronger international presence were better equipped to navigate the disruptions caused by the pandemic. This finding challenges the conventional assumption that global market exposure increases risk during crises, instead suggesting that geographic diversification can serve as a protective mechanism. Firms with international operations were able to leverage opportunities in recovering markets, adapt to shifting supply chain dynamics, and capitalize on regional demand variations, allowing them to sustain performance despite the broader economic slowdown.

For managers, these findings highlight the importance of continued investment in global market expansion. To maximize the benefits of internationalization, firms should focus on building supply chain resilience, strengthening relationships with global partners, and maintaining agility in response to market shifts. By strategically managing international operations, firms can enhance adaptability and sustain profitability in the face of economic uncertainties.

Managing the Challenges of Combining Diversification and Internationalization

While both diversification and internationalization are widely adopted growth strategies, our findings indicate that pursuing both simultaneously presents managerial complexities. The negative but weakly significant interaction between internationalization and diversification (coefficient = -0.024, $p < 0.10$) suggests that firms engaging in both strategies at the same time tend to experience slightly lower profitability than those focusing on just one strategy.

One of the key challenges of managing both strategies is balancing resource allocation. Firms attempting to diversify their product lines while expanding internationally must carefully manage resources, ensuring that neither strategy dilutes the effectiveness of the other. Expanding across multiple dimensions simultaneously can strain financial, managerial, and operational capabilities, leading to suboptimal resource utilization and increased complexity.

Furthermore, firms must avoid excessive strategic complexity. While some firms may successfully leverage synergies across product and geographic markets, the additional managerial burden can outweigh these potential benefits, particularly in volatile and uncertain environments. Managing both diverse business portfolios and

international subsidiaries requires strong coordination mechanisms, robust managerial expertise, and effective communication across business units.

Given these challenges, firms should carefully assess their organizational capacity before pursuing both diversification and internationalization simultaneously. Managers should consider phased implementation strategies, prioritizing one growth path at a time or gradually integrating diversification and internationalization efforts in a systematic and resource-conscious manner. This approach can help firms reduce operational strain, enhance strategic coherence, and optimize long-term performance outcomes.

7. Conclusion

This study examines the impact of diversification and internationalization on firm performance in the Japanese manufacturing sector, particularly under the moderating influence of the COVID-19 pandemic. Our findings reveal that internationalization is a strong and consistent driver of firm performance, even during crises, highlighting its role in enhancing strategic resilience and global adaptability.

In contrast, diversification negatively affects firm performance, suggesting that theoretical benefits such as risk mitigation and resource sharing are often outweighed by increased managerial complexity and coordination costs. Additionally, the interaction between diversification and internationalization shows a weakly negative effect, indicating that pursuing both strategies simultaneously may introduce additional challenges rather than synergies.

These findings contribute to strategic management theory by refining our understanding of how firms navigate growth strategies under environmental uncertainty. For practitioners, they emphasize the importance of carefully balancing diversification and internationalization efforts, ensuring that growth strategies align with organizational capabilities and external market conditions.

Future research could extend these insights by examining long-term strategic adjustments, cross-industry variations, and firm-level mechanisms that enhance resilience in global markets.

References

- Aoki, H. (2009). Changes in diversification of Japanese firms. *The Journal of Chiba University of Commerce*, 46(4), 19-39.
- Aoki, K., & Lennerfors, T. T. (2013). Whither Japanese keiretsu? The transformation of vertical keiretsu in Toyota, Nissan and Honda 1991–2011. *Asia Pacific Business Review*, 19(1), 70-84.

- Arbelo, A., Arbelo-Pérez, M., & Pérez-Gómez, P. (2024). Internationalization and individual firm performance: A resource-based view. *Eurasian Business Review*.
- Banalieva, E. R., & Dhanaraj, C. (2019). Internalization theory for the digital economy. *Journal of International Business Studies*, 50, 1372-1387.
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99-120.
- Belderbos, R., Tong, T. W., & Wu, S. (2020). Portfolio configuration and foreign entry decisions: A juxtaposition of real options and risk diversification theories. *Strategic Management Journal*, 41(7), 1191-1209.
- Berger, P. G., & Ofek, E. (1995). Diversification's effect on firm value. *Journal of Financial Economics*, 37(1), 39-65.
- Chatterjee, S., & Wernerfelt, B. (1991). The link between resources and type of diversification: Theory and evidence. *Strategic Management Journal*, 12(1), 33-48.
- Contractor, F. J., Kundu, S. K., & Hsu, C. C. (2003). A three-stage theory of international expansion: The link between multinationality and performance in the service industry. *Journal of International Business Studies*, 34(1), 5-18.
- Delios, A., & Beamish, P. W. (2001). Survival and profitability: The roles of experience and intangible assets in foreign subsidiary performance. *Academy of Management journal*, 44(5), 1028-1038.
- Du, J., Zhu, S., & Li, W. H. (2023). Innovation through internationalization: A systematic review and research agenda. *Asia Pacific Journal of Management*, 40, 1217-1251.
- Fukui, Y., & Ushijima, T. (2007). Corporate diversification, performance, and restructuring in the largest Japanese manufacturers. *Journal of the Japanese and International Economies*, 21(3), 303-323.
- Ghemawat, P. (2001). Distance Still Matters: The Hard Reality of Global Expansion. *Harvard Business Review*, 79(8), 137-147.
- Helfat, C. E., & Eisenhardt, K. M. (2004). Inter - temporal economies of scope, organizational modularity, and the dynamics of diversification. *Strategic Management Journal*, 25(13), 1217-1232.
- Hymer, S. H. (1960). The international operations of national firms: A study of direct foreign investment (Doctoral dissertation, Massachusetts Institute of Technology)
- Kano, L., Narula, R., & Surdu, I. (2022). Global value chain resilience: Understanding the impact of managerial governance adaptations. *California Management Review*, 64(2), 24-45.
- Kim, J., Lee, C. Y., & Cho, Y. (2016). Technological diversification, core-technology competence, and firm growth. *Research Policy*, 45(1), 113-124.
- Kuppuswamy, V., & Villalonga, B. (2016). Does diversification create value in the presence of external financing constraints? Evidence from the 2007-2009 financial crisis. *Management Science*, 62(4), 905-923.

- Lincoln, J. R., & Gerlach, M. L. (2004). *Japan's network economy: Structure, persistence, and change*. Cambridge University Press.
- Lin, Y., Fan, D., Shi, X., & Fu, M. (2021). The effects of supply chain diversification during the COVID-19 crisis: Evidence from Chinese manufacturers. *Transportation Research Part E: Logistics and Transportation Review*, 155, 102493.
- Lu, J. W., & Beamish, P. W. (2004). International diversification and firm performance: The S-curve hypothesis. *Academy of management journal*, 47(4), 598-609.
- Matsuno, K., Weng, J., & Shao, X. (2021). Sourcing decision with capacity reservation under supply disruption risk. *Asian Journal of Management Science and Applications*, 6(1), 49-68.
- Pujawan, I. N., & Bah, A. U. (2021). Supply chains under COVID-19 disruptions: literature review and research agenda. *Supply Chain Forum: An International Journal*, 23(1), 81–95.
- Rumelt, R. P. (1974). *Strategy, Structure, and Economic Performance*. Harvard University Press.
- Verbeke, A., & Kano, L. (2016). An internalization theory perspective on the global and regional strategies of multinational enterprises. *Journal of World Business*, 51(1), 83-92.
- Vernon, R. (1992). International investment and international trade in the product cycle. In M. Casson (Ed.), *Multinational enterprises* (pp. 190–207). Edward Elgar.
- Wang, R., Li, Y. N., & Wei, J. (2022). Growing in the changing global landscape: The intangible resources and performance of high-tech corporates. *Asia Pacific Journal of Management*, 39(3), 999-1022.