

How International Capability Shapes Entrepreneurs' Work Performance: An Empirical Analysis of Northeast China's Unpatented Chemical Firms

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ABSTRACT

Against the dual-circulation economic strategy and industrial revitalization of Northeast China, unpatented chemical enterprises in the old industrial base face prominent barriers to international expansion. Based on the Resource-Based View (RBV), International Entrepreneurship Theory and Dynamic Capability Theory, this study constructs a moderated mediation model to explore the influence mechanism of international capability (international production, marketing, management capability) on cross-border entrepreneurs' work performance, with competitive advantage as the mediator and entrepreneurial management attitude as the moderator. Stratified questionnaire survey data from 273 entrepreneurs of Northeast China's unpatented chemical firms are adopted, and PLS-SEM is used for hypothesis testing. The results show that three dimensions of international capability all significantly improve entrepreneurs' work performance; competitive advantage plays a partial mediating role between international capability and work performance; entrepreneurial management attitude positively moderates the indirect path from international capability to work performance via competitive advantage. This paper enriches the contextual research of international business in China's old industrial bases and provides targeted operational suggestions for chemical firms lacking independent patents to optimize international resource allocation and boost entrepreneurial output.

Keywords: International Capability; Entrepreneur Work Performance; Competitive Advantage; Management Attitude

1. INTRODUCTION

Global value chain restructuring, rising cross-border trade competition and China's dual-circulation economic layout have jointly pushed domestic traditional manufacturing industries to accelerate overseas market expansion. As the pillar heavy industry of Northeast China's old industrial base, the chemical sector undertakes critical tasks of regional economic revitalization and cross-border bulk commodity supply. However, distinct from Zhejiang, Jiangsu and Guangdong coastal high-tech chemical manufacturers with abundant independent patents, over 80% of chemical enterprises in

Liaoning, Jilin and Heilongjiang belong to unpatented resource-dependent manufacturers (Chen & Liu, 2024). These firms mainly produce basic raw chemicals, rely on foreign imported core production technologies, and lack proprietary innovative products that can form differentiated market competitiveness. Under such industrial context, even if enterprises invest heavily in cross-border equipment and overseas channel layout, the input of international resources often fails to be converted into stable overseas revenue, strategic achievements and team management performance of their international entrepreneurs, forming a prominent practical contradiction worthy of in-depth academic exploration.

From the perspective of academic research gaps, current mainstream international capability-performance empirical studies have three obvious deficiencies. First, most literature chooses developed-country multinationals or China's coastal patent-intensive high-tech enterprises as research objects (Fang & Zou, 2009; Le & Nguyen, 2024), while few scholars conduct targeted quantitative research on old industrial base unpatented manufacturing enterprises with high state-owned share and institutional path dependence. Second, early empirical models merely examine the simple linear direct relationship between international capability and overall corporate performance indicators, ignoring the intermediate transmission channel of competitive advantage formed by resource integration (Karami & Tang, 2019). Third, existing research seldom incorporates entrepreneurs' subjective management attitude as a critical moderating variable into the analytical framework, failing to explain why two enterprises with equivalent international resource endowments generate vastly different entrepreneurial work output (Roudini & Osman, 2012). For Northeast China's unpatented chemical firms, entrepreneurs' risk preference and innovation support tendency directly determine the allocation proportion of international resources to overseas market development and technical upgrading, which becomes an irreplaceable human boundary condition affecting the capability-performance transformation efficiency.

The theoretical logic of this study originates from three foundational management theories. The Resource-Based View regards heterogeneous, hard-to-replicate international resources as the source of organizational core competitiveness (Barney, 1991). Dynamic Capability Theory further supplements that enterprises need dynamic production, marketing and management capacities to continuously reconfigure global resources and adapt to changing overseas institutional environments (Teece et al., 1997). International Entrepreneurship Theory transfers the research focus from firm-level resources to individual entrepreneurs' cross-border opportunity identification and resource deployment behaviors (Oviatt & McDougall, 1994). Synthesizing the above three theoretical frameworks, this paper constructs a moderated mediation research model, taking competitive advantage as the mediator and entrepreneurial management attitude as the moderator, to systematically analyze how multi-dimensional international capability shapes cross-border entrepreneurs' comprehensive work performance.

Three core research objectives are clarified in this paper:

Distinguish the differentiated direct influence intensity of international production, marketing and management capabilities on financial, market, strategic and team dimensions of cross-border entrepreneurs' work performance, and verify the significance of each direct hypothesis.

Examine whether competitive advantage plays a partial mediating role in the three groups of capability-performance relationships, and compare the difference of indirect effect coefficients among three capability dimensions.

Test the positive moderating effect of entrepreneurial management attitude on the whole "international capability-competitive advantage-performance" indirect chain, and compare the gap of indirect effect between high and low management attitude groups.

In terms of practical value, the research conclusions can provide operable decision-making references for three types of stakeholders: For international entrepreneurs of unpatented chemical enterprises, the study clarifies which international capability dimension should be prioritized for

resource investment, and how to adjust risk and innovation attitudes to maximize overseas work achievements. For enterprise internal operation departments, this paper offers a clear path to convert production, marketing and management resources into cost, brand and customer competitive moats. For Northeast regional industrial management departments, the empirical results can support the formulation of differentiated internationalization incentive policies for state-owned, private and joint-stock chemical manufacturers.

The structural arrangement of this paper is as follows: Section 2 conducts systematic literature sorting and theoretical deduction, putting forward five groups of research hypotheses; Section 3 elaborates sample selection rules, questionnaire design standards and all variable measurement scales, together with common method bias inspection procedures; Section 4 reports the complete PLS-SEM empirical test results including reliability and validity, direct effects, mediation effects and moderated mediation effects; Section 5 discusses theoretical innovations and multi-level practical enlightenment based on the empirical findings; Section 6 summarizes core research conclusions, states research limitations and puts forward future research directions; Acknowledgements and references are attached at the end of the full text.

2. LITERATURE REVIEW

2.1 International Capability and Entrepreneurs' Work Performance

International capability is defined as a multi-layered bundle of heterogeneous dynamic resources formed by enterprises integrating cross-border production, market expansion and transnational governance resources (Knight & Cavusgil, 2004). Different from single static resource stock such as production equipment or overseas sales channels, international capability emphasizes the organic combination of resources and organizational operation processes, representing enterprises' sustainable ability to adapt to global market rules and coordinate cross-border stakeholders.

Combined with the industrial characteristics of unpatented chemical enterprises and existing empirical literature of manufacturing internationalization, this paper divides international capability into three independent but interrelated sub-dimensions.

First, international production capability. This dimension centers on the whole overseas manufacturing and supply chain operation system, covering advanced cross-border production equipment configuration, international product quality compliance standards, global raw material procurement coordination and cross-border logistics cost control (Waqas et al., 2026). For Northeast China's unpatented chemical firms without patented core formulas, stable standardized production capacity is the basic prerequisite for them to enter overseas bulk chemical markets. Enterprises with strong international production capability can realize large-scale low-cost manufacturing, form supply-side advantages and lay a foundation for entrepreneurs to complete overseas sales and profit targets.

Second, international marketing capability. It refers the comprehensive capacity of enterprises to develop overseas customers, operate cross-border brands and carry out differentiated market positioning, including overseas distributor channel layout, cross-cultural customer communication, international exhibition operation and global demand insight (Fang & Zou, 2009). Since Northeast chemical enterprises lack patented differentiated products, market competition mainly relies on channel coverage and customer maintenance; strong marketing capability can help entrepreneurs rapidly expand overseas market share and improve customer loyalty indicators, which directly reflects their market work performance.

Third, international management capability. This construct focuses on the internal transnational governance capacity of enterprises, including cross-border talent introduction and training, overseas project risk early warning, cross-cultural team coordination and international financial resource scheduling (Le & Nguyen, 2024). Unpatented chemical enterprises in Northeast China generally face the problem of talent outflow, insufficient cross-border management experience of

middle and senior managers; sound international management capability can reduce internal operational friction, ensure the smooth implementation of overseas strategic plans and improve entrepreneurs' team governance performance.

From the perspective of RBV and Dynamic Capability Theory, the three dimensions of international capability constitute the core resource foundation supporting entrepreneurs' overseas business activities. Sufficient production, marketing and management resources can provide comprehensive support for entrepreneurs to complete financial, market, strategic and team work tasks, thus significantly boosting their overall work performance. Therefore, the following three direct hypotheses are proposed: H1: International production capability has a significant positive direct effect on cross-border entrepreneurs' work performance. H2: International marketing capability has a significant positive direct effect on cross-border entrepreneurs' work performance. H3: International management capability has a significant positive direct effect on cross-border entrepreneurs' work performance.

2.2 Mediating Role of Competitive Advantage

Different from most existing studies that take aggregate firm financial indicators as dependent variables, this paper takes individual cross-border entrepreneurs' work performance as the explained variable, which conforms to the micro human research perspective of International Entrepreneurship Theory. Cross-border entrepreneurs refer to enterprise general managers, international division directors and other senior executives who are fully responsible for all overseas business layout and decision-making. Their work performance is a multi-dimensional composite indicator rather than single profit data, containing four core measurement layers. Financial performance: Overseas business profit growth rate, return on cross-border invested assets, overseas product gross profit margin, which reflects entrepreneurs' achievement of short-term economic goals;

Market performance: International market share growth, number of newly signed overseas customers, customer repeat purchase rate, measuring entrepreneurs' market expansion effectiveness;

Strategic performance: Completion rate of international layout plans, overseas cooperative project landing quantity, cross-border resource integration progress, representing long-term strategic output;

Team performance: Retention rate of overseas core technical and sales talents, cross-border team operation efficiency, staff satisfaction of international departments, embodying entrepreneurs' internal governance achievements.

Existing research has confirmed that sufficient international resources can provide comprehensive support for entrepreneurs to realize multi-dimensional performance goals (Morais & Ferreira, 2020). For unpatented chemical enterprises lacking technical differentiation barriers, the three major international capabilities become the core resource guarantee for entrepreneurs to achieve all four types of work outcomes, which further supports the rationality of H1-H3.

2.3 Moderating Role of Entrepreneurial Management Attitude

Competitive advantage originates from the differentiated resource allocation effect brought by enterprises' international capabilities (Teece et al., 1997). Without forming sustainable competitive barriers, even abundant international production, marketing and management resources cannot be converted into stable entrepreneurial work performance in fierce global homogeneous chemical product competition. Combined with the industry characteristics of unpatented chemical manufacturers, competitive advantage is divided into three types: cost competitive advantage formed by large-scale international production, brand and customer loyalty advantage brought by global marketing layout, and operational efficiency advantage generated by standardized transnational management.

The transmission logic of mediating path is as follows: Enterprises' three-dimensional international capability first integrates scattered global resources to form cost, brand and operational competitive advantages in overseas markets; relying on these unique competitive barriers, entrepreneurs can more smoothly capture overseas orders, implement cross-border investment projects and retain core international teams, thus comprehensively improving financial, market, strategic and team work performance. That is, competitive advantage acts as an indispensable intermediate transmission channel between international capability and entrepreneurs' work output, and plays a partial mediating role (the direct effect of international capability still exists after controlling the mediator). On this basis, this paper puts forward the fourth research hypothesis: H4: Competitive advantage partially mediates the positive relationships between international production/marketing/management capability and cross-border entrepreneurs' work performance respectively.

2.4 Moderating Effect of Entrepreneurial Management Attitude

Entrepreneurial management attitude is the stable subjective tendency of senior executives when making overseas business decisions, which is divided into two core sub-dimensions: innovation support tendency and risk-taking willingness (Covin & Slevin, 1989). Innovation-oriented entrepreneurs are more willing to allocate international resources to overseas market development and production process upgrading; risk-taking entrepreneurs can tolerate uncertain overseas market returns and actively expand emerging regional markets. In contrast, conservative, risk-averse entrepreneurs tend to compress cross-border resource input, restrict overseas business expansion, and weaken the efficiency of converting international capabilities into competitive advantages and final work performance.

The moderating effect of management attitude mainly acts on the front end of the mediation chain, that is, the path from international capability to competitive advantage. When entrepreneurs hold

positive innovative and risk-taking attitudes, the conversion efficiency of international resources into competitive barriers will be significantly improved, and the indirect promotion effect of international capability on work performance via competitive advantage will be amplified; when entrepreneurs maintain conservative management attitudes, the indirect transmission intensity will decline accordingly. Therefore, this study proposes the moderated mediation hypothesis: H5: Entrepreneurial management attitude positively moderates the indirect effect of international capability on cross-border entrepreneurs' work performance through competitive advantage; the indirect effect is significantly stronger for entrepreneurs with high innovation and risk-taking attitudes.

2.5 Theoretical Framework of the Research

Integrating the above literature review and hypothesis deduction, this paper constructs a complete moderated mediation theoretical model: Independent variables (international production capability, international marketing capability, international management capability) → Mediator (competitive advantage) → Dependent variable (cross-border entrepreneurs' work performance); Entrepreneurial management attitude acts as the moderator on the whole indirect chain of the model. The control variables include enterprise ownership type, enterprise scale, years of international operation and entrepreneurs' overseas working experience, to eliminate the interference of heterogeneous individual and enterprise characteristics on empirical results.

3. MATERIAL AND METHODS

3.1 Sample and Data Collection

The research population of this paper is senior cross-border management personnel of unpatented chemical enterprises registered in Liaoning, Jilin and Heilongjiang Provinces. The screening criteria

for sample enterprises are clearly defined as four items: (1) Main business belongs to basic chemical raw material, bulk chemical manufacturing industry; (2) No independent invention patents related to core production technology; (3) Have formal overseas export or cross-border investment businesses for more than two consecutive years; (4) Enterprise ownership covers state-owned, private and Sino-foreign joint ventures to ensure sample heterogeneity.

Stratified random sampling method is adopted for questionnaire distribution, with stratification standards divided by three provinces and three ownership types. The survey period lasts from March 1 to June 30, 2025. Three distribution channels are used simultaneously: industrial association offline interviews, enterprise WeChat official group electronic questionnaires and email invitation to senior executives. A total of 300 questionnaires are distributed, 296 copies are recovered, and 23 invalid questionnaires are eliminated (including incomplete filling, regular single score and contradictory logical options). Finally, 273 valid sample data are retained, and the effective response rate reaches 92.3%.

In terms of sample demographic distribution: Ownership structure: state-owned enterprises 96 copies (35.2%), private enterprises 121 copies (44.3%), joint ventures 56 copies (20.5%); Regional distribution: Liaoning 112, Jilin 87, Heilongjiang 74; Entrepreneurs' overseas working experience: less than 3 years 109 people, 3-8 years 132 people, more than 8 years 32 people; Enterprise international operation years: below 5 years 81, 5-10 years 146, over 10 years 46.

This study selects PLS-SEM as the data analysis tool for three reasons: First, PLS-SEM is suitable for medium-sized sample data (273 samples meet the standard of 10 times the maximum number of measurement items of a single latent variable); Second, this model can simultaneously test complex moderated mediation chains without strict normal distribution assumptions of sample data; Third, the algorithm is widely adopted in international business empirical research, consistent with the analysis methods of mainstream SSCI journals (Hair et al., 2017). All hypothesis testing adopts

Bootstrap 5000 times repeated resampling to judge the significance of indirect and moderated mediation effects.

3.2 Variable Measurement Scales

All measurement items in the questionnaire are revised on the basis of mature international business scales published in SSCI journals, combined with the industrial background of Northeast unpatented chemical enterprises. All items adopt 5-point Likert scoring standard: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree. The detailed setting of each latent variable is as follows.

Independent Variable: International Capability (12 items total)

International production capability (4 items): Adapted from Waqas et al. (2026), measuring production equipment internationalization, cross-border quality control, global supply chain coordination and logistics cost control;

International marketing capability (4 items): Revised based on Fang & Zou (2009), covering overseas channel layout, cross-cultural customer operation, global market demand insight and brand promotion;

International management capability (4 items): Referring to Le & Nguyen (2024), including cross-border talent training, overseas risk management, cross-border team coordination and transnational fund scheduling.

Dependent Variable: Cross-border Entrepreneurs' Work Performance (8 items) Divided into financial, market, strategic and team four sub-dimensions (2 items each), adjusted from Venkatraman & Ramanujam (1986), aiming to measure entrepreneurs' multi-level overseas business output comprehensively.

Mediating Variable: Competitive Advantage (6 items) Three dimensions of cost advantage, technical supply advantage and customer loyalty advantage, 2 items for each dimension, compiled according to Moraes & Ferreira (2020)'s manufacturing competitive advantage scale.

Moderating Variable: Entrepreneurial Management Attitude (5 items) Cover innovation support tendency and risk-taking willingness, revised from Covin & Slevin (1989), used to measure entrepreneurs' decision-making orientation in overseas business investment.

Control Variables: Four categorical control variables are set and coded in regression analysis:

Ownership type: 1=state-owned, 2=private, 3=joint venture;

Enterprise scale: Number of employees (1<200, 2=200-500, 3>500);

International operation years: 1<5, 2=5-10, 3>10;

Entrepreneurs' overseas experience: 1<3 years, 2=3-8 years, 3>8 years.

3.3 Common Method Bias Test

Since all questionnaire data are self-reported by the same group of respondents, there may exist common method variance (CMV) that interferes with empirical results. This paper adopts two steps to control and test CMV. First, procedural control is carried out during questionnaire design: set reverse scoring items, separate the measurement questions of different latent variables in different pages of the questionnaire, and mark that the survey results are only used for academic research without disclosing personal enterprise information to reduce respondents' consistent answering tendency. Second, post-inspection adopts Harman single-factor unrotated test: put all 31 measurement items into exploratory factor analysis, the first extracted common factor explains 29.74% of the total variance, which is far lower than the critical threshold of 40%. It proves that the

common method bias problem of this sample data is not serious and will not affect the reliability of subsequent hypothesis testing results.

4. EMPIRICAL RESULTS

4.1 Reliability and Validity Test

This paper firstly tests Cronbach's α coefficient, composite reliability (CR) and average variance extracted (AVE) of all latent variables to judge the internal consistency reliability and convergent validity of the measurement model. The test results are shown in Table 1 (abbreviated text description without table layout to save word count): All latent variables' Cronbach's α values range from 0.814 to 0.897, all higher than the 0.7 acceptable threshold; Composite reliability CR values are all above 0.82, meeting the standard of good internal consistency; Each construct's AVE value is between 0.513 and 0.586, exceeding the critical value of 0.5, which verifies that all measurement items have qualified convergent validity.

Discriminant validity test: Compare the square root of each latent variable's AVE with the correlation coefficient between this variable and other constructs. The results show that the square root of AVE of every latent variable is larger than all cross-variable correlation coefficients, which fully meets the discriminant validity standard of PLS-SEM measurement model, indicating that each construct has good independent discrimination without serious multicollinearity problem. The overall fitting indexes of the measurement model reach the acceptable range of international business empirical research standards.

4.2 Direct Effect Test (H1-H3)

After controlling four groups of control variables, the path coefficients and significance levels of the three dimensions of international capability to entrepreneurs' work performance are obtained through PLS regression:

International production capability $\rightarrow$ Entrepreneur Work Performance: $\beta=0.219$, $t=3.472$, $p<0.01$, H1 is supported;

International marketing capability $\rightarrow$ Entrepreneur Work Performance: $\beta=0.346$, $t=5.918$, $p<0.001$, H2 is supported;

International management capability $\rightarrow$ Entrepreneur Work Performance: $\beta=0.265$, $t=4.103$, $p<0.01$, H3 is supported.

The three groups of direct path coefficients are all significantly positive, which fully verifies the three direct hypotheses. Among the three capability dimensions, international marketing capability has the largest path coefficient, which is consistent with the industrial characteristic of Northeast unpatented chemical enterprises relying on overseas bulk product export business. Without differentiated patented technology, expanding global customer channels and maintaining overseas customer loyalty become the most direct way for entrepreneurs to improve market and financial performance. International management capability ranks the second in promotion intensity, and international production capability has the weakest direct effect, which is in line with the reality that regional chemical enterprises have basic production scale but lack market operation advantages.

4.3 Mediating Effect Test (H4)

Bootstrap 5000 resampling method is adopted to test the indirect mediating effect of competitive advantage, and 95% bias-corrected confidence interval is used to judge significance (if the interval does not contain 0, the effect is significant). The indirect effect test results of three capability dimensions are as follows:

Indirect effect of international production capability: $\beta=0.095$, 95% CI [0.043, 0.155], excluding zero, significant;

Indirect effect of international marketing capability: $\beta=0.151$, 95% CI [0.089, 0.219], excluding zero, significant;

Indirect effect of international management capability: $\beta=0.114$, 95% CI [0.059, 0.179], excluding zero, significant.

After adding the mediating variable competitive advantage into the model, the three direct paths of international capability to work performance are still significantly positive, which conforms to the judgment standard of partial mediation effect. Therefore, H4 is fully verified: competitive advantage plays a stable partial mediating role between each dimension of international capability and cross-border entrepreneurs' work performance. It can be seen that international capability can not only directly improve entrepreneurs' overseas work output, but also indirectly boost performance by building cost, brand and customer competitive barriers in global markets. Among the three indirect paths, marketing capability's indirect effect coefficient is the largest, further highlighting the core status of market operation resources for unpatented chemical export manufacturers.

4.4 Moderated Mediation Test (H5)

This paper calculates the moderated mediation index to test whether entrepreneurial management attitude significantly regulates the whole indirect transmission chain. The moderated mediation

index value is 0.089, and the 95% bias-corrected confidence interval is [0.036, 0.142], with zero not included in the interval, indicating that the moderated mediation effect is statistically significant.

To further compare the difference of indirect effect intensity under different attitude levels, the sample is divided into high management attitude group (mean +1 standard deviation) and low management attitude group (mean -1 standard deviation):

High innovation & risk-taking attitude group: Total indirect effect of international capability $\beta=0.276$;

Conservative low-risk attitude group: Total indirect effect of international capability $\beta=0.163$.

The indirect effect of the high attitude group is significantly higher than that of the low group, which proves that positive entrepreneurial management attitude can effectively strengthen the transmission efficiency of “international capability → competitive advantage → work performance”. H5 obtains full empirical support. For entrepreneurs with conservative risk aversion tendency, even if the enterprise owns abundant international production and marketing resources, they will reduce overseas investment and market expansion input, leading to low conversion efficiency of resources into competitive advantage and personal work achievements.

5. DISCUSSION

5.1 Theoretical Contributions

First, this study enriches the contextual research system of international entrepreneurship theory in China's transitional old industrial base manufacturing industry. Existing relevant empirical literature mostly selects coastal patent-intensive high-tech enterprises as research objects (Fang & Zou, 2009; Le & Nguyen, 2024), while this paper targets Northeast unpatented chemical firms with high state-owned share, institutional inertia and lack of independent innovation, filling the research blank of resource-dependent low-R&D manufacturing enterprises in regional international business research (Tochkov, 2022; Chen & Liu, 2024). The research conclusions expand the applicable scene boundary of RBV and Dynamic Capability Theory, and provide new empirical evidence for emerging market industrial internationalization research.

Second, this paper constructs an integrated three-dimensional capability moderated mediation chain model, making up the defect of separated mediation and moderating effect tests in previous literature. Most prior studies only test single linear relationship or simple mediation model without setting human moderating variables (Karami & Tang, 2019; Morais & Ferreira, 2020). This research simultaneously incorporates competitive advantage (mediator) and entrepreneurial management attitude (moderator) into one analytical framework, systematically unpacks the complete internal

black box of multi-dimensional international capability affecting individual entrepreneurial work performance, and forms a more complete theoretical analysis paradigm suitable for traditional heavy chemical industries.

Third, this paper shifts the research dependent variable from firm-level aggregate financial performance to individual cross-border entrepreneurs' multi-dimensional work performance, expanding the micro human factor research perspective of international capability theory. Most existing literature takes enterprise overall operation indicators as explained variables, ignoring the individual differences of core decision-makers in resource conversion efficiency (Sahin, 2020). This study focuses on entrepreneurs' financial, market, strategic and team work output, and verifies the critical regulating role of their subjective management tendencies, which supplements the micro-level research of International Entrepreneurship Theory.

5.2 Practical Implications

For entrepreneurs of Northeast unpatented chemical firms: Prioritize international marketing capacity construction to expand overseas customer channels; simultaneously upgrade standardized cross-border production and risk management systems to build multi-layer competitive edges; maintain innovation and risk-taking management attitudes to maximize capability conversion efficiency. For local industrial policymakers: Launch targeted international training programs for chemical entrepreneurs; offer export channel subsidies and cross-border compliance technical support for patent-lacking manufacturing enterprises; formulate differentiated incentive policies for state-owned, private and joint chemical firms according to their international capacity gaps.

6. CONCLUSION

6.1 Main Review Conclusions

Based on the questionnaire data of 273 cross-border senior executives from Northeast China's unpatented chemical enterprises, this paper constructs a moderated mediation model integrating RBV, International Entrepreneurship Theory and Dynamic Capability Theory, and draws three core empirical conclusions:

International production capability, international marketing capability and international management capability all exert significantly positive direct effects on cross-border entrepreneurs' multi-dimensional work performance; among the three dimensions, international marketing capability has the largest marginal promotion coefficient, which is the core driving factor of entrepreneurs' overseas work output for bulk unpatented chemical exporters.

Competitive advantage plays a stable partial mediating role between each dimension of international capability and entrepreneurs' work performance. International capability can not only directly boost entrepreneurs' financial, market, strategic and team achievements, but also indirectly improve work performance by building cost, brand and customer loyalty competitive barriers in global overseas markets.

Entrepreneurial management attitude (innovation support and risk-taking tendency) positively moderates the whole indirect transmission chain of "international capability → competitive advantage → entrepreneur work performance". Entrepreneurs with progressive, risk-tolerant management attitudes can significantly raise the conversion efficiency of corporate international resources into competitive advantages and personal work performance; conservative decision-making attitudes will weaken the mediating transmission intensity of competitive advantage.

This research clarifies the complete internal action mechanism of multi-dimensional international capability shaping individual cross-border entrepreneurs' work performance under the unique industrial context of Northeast China's unpatented chemical manufacturing sector, fills the research gap of old industrial base low-innovation resource-dependent enterprises in international business literature, and provides theoretical basis and operable practical strategies for entrepreneurs, enterprises and regional industrial policy-makers

6.2 Limitations and Future Research

Two main limitations exist in this empirical study: First, the questionnaire data adopted cross-sectional static survey design (2025 single-period data), which cannot capture the dynamic evolution law of international capability, competitive advantage and entrepreneurial performance with the passage of years. Subsequent research can carry out longitudinal panel tracking surveys for 3-5 consecutive years to explore the time-varying lag effect of capability on performance. Second, the research sample is limited to chemical manufacturing enterprises in three northeastern provinces, and the research conclusion has certain industrial and regional boundary conditions. Follow-up scholars can expand the research scope to other resource-based manufacturing industries (such as non-metallic mineral processing, basic metallurgy) in Northeast China, and carry out cross-industry comparative analysis.

Future research prospects are put forward from four directions:

Introduce digital international capability as an extended dimension, incorporate cross-border e-commerce operation, digital supply chain management and other indicators into the capability measurement system, and test the influence mechanism of digital capability on entrepreneurial performance.

Add group comparison test of enterprise ownership heterogeneity, compare the difference of moderated mediation path coefficients between state-owned, private and joint chemical enterprises, and analyze institutional constraint differences of capability conversion efficiency.

Introduce external boundary variables such as overseas market institutional distance and global trade policy uncertainty into the model, build a multi-layer moderated chain framework containing dual moderators.

Adopt mixed research methods combining qualitative case interviews and quantitative questionnaires, select typical chemical entrepreneurs for in-depth case analysis to supplement and verify the statistical empirical conclusions of this paper.

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