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Practical Strategies for Patient Capital to Empower the Development of Sci-Tech Innovation Enterprises

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Abstract: Against the background of fostering new productive forces, patient capital serves as a critical financial force to ease financing constraints for sci-tech innovation enterprises. Different from short-term speculative capital, it features long holding cycles and risk-sharing mechanisms, which can better match the long-cycle R&D and high-risk operational traits of hard-tech firms. This paper sorts out the financing bottlenecks faced by domestic sci-tech enterprises under traditional financing frameworks, such as maturity mismatch and insufficient qualified collateral. It further analyzes the adaptive logic between patient capital and innovative enterprises, and explores practical empowering paths from capital supply innovation, post-investment value-added services, and risk-exit system optimization. Combined with relevant policy tools and ecological supporting conditions, this study puts forward targeted suggestions for expanding patient capital sources and improving supporting institutional arrangements. The findings can offer practical references for alleviating the financing pressure of sci-tech enterprises and stimulating technological innovation vitality

Keywords: Patient capital; Sci-tech innovation enterprises; New productive forces

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1. Introduction

1.1. Research background and significance

A new round of technological revolution and industrial transformation is gathering momentum worldwide, making scientific and technological innovation the core driver of economic and social development. China is in a critical stage of economic restructuring and upgrading. Cultivating new productive forces and realizing sci-tech self-reliance have become key national strategies. As main innovation carriers, sci-tech enterprises play an irreplaceable role in technological breakthroughs, industrial upgrading, and high-quality economic growth.

However, such enterprises feature long R&D cycles, massive capital input, high risks, and slow returns [1]. Traditional financing models can hardly meet their demands, and financing difficulties and high costs have long constrained their growth.

Against this backdrop, **patient capital**, which pursues long-term value and tolerates short-term risks, has become a vital support for sci-tech enterprises. The 2026 Government Work Report explicitly called for vigorous development of venture capital and angel investment, and guided government funds to act as patient capital, lifting its development to a national strategic level. Patient capital provides long-term stable funding, shares innovation risks, and fits well with the development rules of sci-tech enterprises. It helps solve financing problems, accelerates the commercialization of research achievements, and fosters new productive forces [2]. Thus, studying its practical supporting strategies carries important theoretical and practical significance for China's sci-tech development and high-quality economic growth.

1.2. Definition of core concepts

1.2.1. Patient capital

Patient capital refers to investment focusing on long-term value creation. It accepts the long R&D cycles and high uncertainties of sci-tech enterprises, accompanies their whole growth process, and gains appreciation through long-term shareholding. Its core features include long and flexible investment cycles, risk-profit sharing, and a value-oriented investment philosophy. Different from short-term speculative capital, it prioritizes enterprises' core technologies, innovation capabilities, and long-term potential, and delivers both financial support and comprehensive value-added services.

1.2.2. Sci-tech innovation enterprises

These enterprises mainly engage in R&D, production, and services of high-tech products, with prominent characteristics of knowledge intensiveness, technology intensiveness, high growth, and high risks [3]. They are widely distributed in artificial intelligence, integrated circuits, biomedicine, high-end equipment manufacturing, and other emerging strategic industries. Their development relies on continuous R&D and technological breakthroughs, with sustained and phased capital needs.

1.2.3. Practical strategies

Practical strategies are targeted approaches for patient capital to support sci-tech enterprises, covering capital supply innovation, post-investment value-added service system building, risk control and exit mechanism design, as well as policy environment optimization. The ultimate goal is to build a systematic, efficient, and sustainable support system.

1.3. Research ideas and framework

This paper first analyzes the matching relationship between patient capital and sci-tech enterprises, then sorts out financing pain points of sci-tech enterprises and corresponding solutions of patient capital [4]. It further explores specific implementation paths, and finally puts forward suggestions on policy optimization and ecological construction.

The framework includes six parts: Introduction; Adaptation logic between patient capital and sci-tech enterprises; Financing dilemmas and solutions; Practical supporting paths; Policy optimization and ecological construction; Conclusion and prospect. Combined with theoretical analysis and typical cases, this paper forms a complete set of supporting strategies.

2. Adaptation logic between patient capital and sci-tech innovation enterprises

2.1. Attributes of patient capital

2.1.1. Long-term shareholding and flexible investment cycles

Long-term shareholding and flexible cycles are the most notable traits of patient capital. Its holding period usually exceeds five years, even ten years or more [5]. A 10-billion-yuan market-oriented parent fund in Nanjing sets a 20-year investment term, fully covering the whole life cycle of hard-tech enterprises from R&D to commercialization. The long-term model helps enterprises stick to long-term strategies without pressure from short-term performance [6].

Meanwhile, patient capital adopts phased investment based on enterprises' development stages and actual demands, providing targeted funding at key nodes. This mode reduces investment risks and improves capital utilization efficiency.

2.1.2. Risk-sharing and profit-sharing mechanism

Patient capital and sci-tech enterprises form a sound risk-profit sharing system. Sci-tech innovation faces huge technological, market, and management risks, and patient capital undertakes such risks together with enterprises via equity investment. Chengdu High-tech Zone sets differentiated loss tolerance ratios for various funds: 30–80% for policy-oriented funds and 20% for market-oriented funds, easing institutional restrictions for state-owned capital to invest in high-risk sci-tech fields.

When enterprises grow and realize value appreciation, patient capital obtains returns through equity transfer, IPO, and other ways [7]. This mechanism motivates capital to continuously support innovation and guides enterprises to focus on long-term value, achieving win-win development.

2.1.3. Value-oriented investment philosophy

Patient capital focuses on enterprises' core technologies, R&D strength, team quality, and market prospects, rather than short-term profits. Sequoia Capital China Seed Fund invested in Unitree Robotics in 2019, recognizing its long-term potential in humanoid robots despite the company's years of losses. Besides capital injection, patient capital also participates in corporate governance and strategic planning, and empowers enterprises by integrating various resources.

2.2. Financing demand characteristics of sci-tech enterprises

2.2.1. Long R&D cycles and sustained capital needs

Technological R&D is time-consuming and requires continuous capital input throughout basic research, technical development, and product commercialization [8]. As a typical hard-tech track, humanoid robots need steady funds for core component development, prototype debugging, and algorithm iteration. Unitree Robotics spent 237 million yuan on R&D from 2022 to the first three quarters of 2025. Such long-lasting capital demands conflict with the short-term nature of traditional financing, bringing heavy capital pressure to sci-tech enterprises.

2.2.2. High uncertainty and risk tolerance requirements

Technology transformation from laboratories to industrial application faces many uncertainties, including failed technical routes and market changes. Fuchuang Precision, a semiconductor equipment firm, made breakthroughs in core technologies with the support of state-owned patient capital and became a model of domestic high-end

manufacturing. Such innovation requires investors to bear high risks. However, traditional capital is risk-averse and chases steady short-term returns, resulting in many promising sci-tech projects being stranded due to capital shortage.

2.2.3. Differentiated capital demands at various stages

Sci-tech enterprises have varied capital needs in different growth periods: seed-stage enterprises need funds for technical verification and prototype development; start-up-stage ones require capital for product R&D and market testing; growth-stage enterprises need funds to expand production and market channels; mature enterprises raise capital for restructuring and technological upgrading [9]. Chengdu High-tech Zone built a full-lifecycle investment system to meet differentiated demands, while traditional financing fails to provide targeted support and easily causes capital bottlenecks.

3. Financing pain points of sci-tech enterprises and solutions of patient capital

3.1. limitations of traditional financing models

3.1.1. Conflict between short-term return orientation and development rules

Bank loans and ordinary bonds require short-term principal and interest repayment, which runs counter to the long-cycle, low short-term profit features of sci-tech enterprises. Short-term capital is reluctant to invest in such projects, or imposes strict performance pressure after investment. Many enterprises have to cut long-term R&D spending for immediate profits, damaging their sustainable development capacity. This contradiction is the root cause of financing difficulties.

3.1.2. Collateral rules contradict asset-light operation

Traditional financing requires fixed asset collateral, while most sci-tech enterprises are asset-light, taking patents, intellectual property, and talent teams as core assets. Their intangible assets cannot be used as valid collateral in most cases, so numerous small and medium-sized sci-tech enterprises are excluded from traditional financing channels.

3.1.3. Financing barriers from information asymmetry

Sci-tech businesses involve highly specialized technologies and innovative models. Ordinary investors lack professional knowledge to assess enterprise value and risks, leading to severe information asymmetry. This raises financing costs and even triggers financing failures, and traditional models cannot effectively solve this problem.

3.2. Solutions of patient capital

3.2.1. Long-term and stable financial support

Patient capital provides long-cycle funding matching the whole development process of sci-tech enterprises [10]. Sequoia Capital kept investing in Unitree Robotics for years to support its R&D and expansion. Phased investment is widely adopted to release funds according to development progress, satisfying capital needs while controlling risks. Freed from short-term capital pressure, enterprises can concentrate on technological innovation and market exploration.

3.2.2. Matched risk-return mechanism

Mainly adopting equity investment, patient capital shares R&D and market risks with enterprises and gains returns from value growth. The differentiated loss tolerance policies in Chengdu High-tech Zone provide institutional guarantees for risk bearing. Flexible equity and valuation adjustment mechanisms balance interests of both sides, making patient capital more willing to invest in high-risk, high-potential sci-tech projects.

3.2.3. Resource integration and value-added services

Beyond funding, patient capital integrates industrial resources and delivers all-round services. Bank of China launched a full-cycle sci-tech enterprise cultivation program combining investment and banking services. Chengdu High-tech Zone adopted the "Platform + Fund" model to accelerate the industrialization of research achievements. Such services effectively enhance enterprises' core competitiveness and growth speed.

4. Practical paths for patient capital to empower sci-tech enterprises

4.1. Innovate capital supply mechanisms

4.1.1. Government-guided Funds

Government-guided funds are a major source of patient capital, mostly operating under the "parent fund + sub-fund" model to leverage fiscal capital and attract social capital. The national venture capital guidance fund has a fiscal contribution of 100 billion yuan, with regional funds covering major economic circles [11]. Jiangsu also launched two 10-billion-yuan special sci-tech funds. These funds amplify fiscal leverage and guide social capital to focus on early-stage sci-tech projects.

4.1.2. Strategic investment by industrial capital

Leading industrial enterprises conduct strategic investment in upstream and downstream sci-tech firms to optimize industrial chain layout. Unitree Robotics has received investment from Meituan and Ant Group, which provide both funds and industrial resources. China Life Investment also deployed capital in multiple sci-tech enterprises via special funds. Industrial capital connects finance with real industries and promotes industrial ecosystem integration.

4.1.3. Long-term companion of angel investment and venture capital

Angel investment and venture capital are key supports for early-stage enterprises. Chengdu High-tech Zone has over 23 billion yuan of early-stage capital, supporting more than 340 projects. Angel institutions serve seed and start-up enterprises with funds and entrepreneurial guidance; venture capital backs growth-stage enterprises for scale expansion. A long-term companion mechanism helps enterprises get through early difficulties and realize industrialization.

4.2. Build post-investment value-added service system

4.2.1. Strategic and management support

Patient capital's professional teams assist enterprises in formulating development strategies, optimizing organizational structures, and improving management efficiency. Professional consulting and training services help sci-tech enterprises standardize operations and strengthen decision-making capacity.

4.2.2. Industrial resource docking and market expansion

Relying on extensive industrial networks, patient capital connects enterprises with suppliers, clients, and partners. After receiving investment, autonomous driving firm WeRide gathered supporting enterprises and formed a complete industrial cluster [12]. Regular investment and financing events in Chengdu also accelerate the market application of new technologies.

4.2.3. Talent and technological services

Patient capital introduces high-end talents and promotes industry-university-research cooperation. The Zijinshan International Sci-Tech Fund Block cooperates with many universities in Nanjing, transporting talents and technical achievements to enterprises, and sustaining their technological advantages.

4.3. Optimize risk control and exit mechanisms

4.3.1. Phased investment and risk diversification

Funds are released by development milestones to avoid losses from underperforming projects. Diversified portfolio investment across different industries and stages also disperses risks. Chengdu's industrial funds have invested in over 3,500 enterprises, realizing effective risk control.

4.3.2. Diversified exit channels

China has formed a multi-channel exit system including IPO, M&A, secondary funds (S Funds), and equity repurchase. IPO brings high returns; the review cycle of M&A projects has been greatly shortened. S Funds also create new liquidity channels. Diversified exits guarantee capital recycling and operational efficiency.

4.3.3. Valuation Adjustment and Interest Balance Mechanism

Valuation adjustment agreements based on performance commitments protect investors' rights, while equity incentives reward outstanding operations. The mechanism restrains and motivates enterprise management, maintaining stable long-term cooperation.

5. Policy optimization and ecological system construction

5.1. Institutional safeguards

5.1.1. Preferential taxation and financial subsidies

China improves tax incentives for patient capital investing in early-stage sci-tech enterprises. Local governments offer subsidies for R&D, venue, and talent introduction, cutting operating costs for enterprises and investment costs for capital, and guiding more funds into innovation fields.

5.1.2. Risk compensation and sharing mechanism

Governments set up risk compensation funds to share investment losses. Banks and insurance companies cooperate with patient capital via investment-loan and investment-insurance linkage to diversify risks [13]. China Life Property & Casualty Insurance provided over 850 million yuan of risk protection for domestic high-end technological equipment.

5.1.3. Optimize capital market exit environment

Regulators keep improving STAR Market and ChiNext rules, lowering listing thresholds for sci-tech enterprises. Green channels are opened for listing, financing, and restructuring of key tech firms. The STAR Market has supported 604 hard-tech enterprises to go public, raising over 1.1 trillion yuan. Continuous reform of M&A and S Fund markets further improves capital liquidity.

5.2. Ecological construction

5.2.1. Specialized service platforms

Public service platforms integrate policy, capital, technology, and legal resources to provide one-stop services. Roadshow and docking activities greatly reduce information asymmetry and transaction costs, and improve the connection efficiency between capital and projects.

5.2.2. Industry-university-research integration

Policies and fiscal funds promote cooperation among universities, research institutes, enterprises, and capital. It accelerates the transformation of scientific achievements, provides continuous technical support for enterprises, and provides high-quality projects for investors.

5.2.3. Cultivate professional capital institutions

Local governments support the development of professional angel, venture, and industrial investment institutions. Ceyuan Capital in Chengdu has set up 74 funds with a total scale of 214.3 billion yuan. Strengthening industry supervision and standardization improves the overall capability of patient capital institutions, promoting the healthy development of the whole industry.

6. Conclusion

Patient capital represents an important financial tool to support the high-quality development of sci-tech innovation enterprises and cultivate new productive forces. Compared with traditional financing channels, its long-term investment philosophy and risk-sharing mechanism can effectively make up for the defects of short-term capital in serving innovative entities [14]. This paper analyzes the adaptation logic between patient capital and sci-tech enterprises, and proposes feasible implementation paths covering capital supply, post-investment services, risk control, and exit arrangements. Nevertheless, the development of patient capital in China still faces practical constraints, including insufficient long-term fund sources and imperfect supporting ecological facilities. In the future, it is necessary to further improve supporting policies, give full play to the guiding role of government funds, activate the participation willingness of social capital, and perfect multi-level exit channels. By building a sound financial and industrial ecology, patient capital can better empower technological breakthroughs and industrial transformation of sci-tech enterprises.

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References

[1] Cremers M, Pareek A, 2016, Patient Capital Outperformance: The Investment Skill of High Active Share Managers Who Trade Infrequently. Journal of Financial Economics, 122(2): 288–306.

[2] Deeg R, Hardie I, Maxfield S, 2016, What Is Patient Capital, and Where Does It Exist? Socio-Economic Review, 14(4): 627–642.

[3] Harrison RT, Botelho T, Mason CM, 2016, Patient Capital in Entrepreneurial Finance: A Reassessment of the Role of Business Angel Investors. Socio-Economic Review, 14(4): 669–689.

[4] Lerner J, Nanda R, 2020, Venture Capital's Role in Financing Innovation: What We Know and How Much We Still Need to Learn. Journal of Economic Perspectives, 34(3): 237–261.

[5] Tian X, Wang TY, 2014, Tolerance for Failure and Corporate Innovation. The Review of Financial Studies, 27(1): 211–255.

[6] Holmstrom B, 1989, Agency Costs and Innovation. Journal of Economic Literature, 27(3): 305–327.

[7] Li Y, Huang X, Luo H, 2026, Patient Capital and Green Total Factor Productivity: Evidence from Chinese Listed Companies. PLOS ONE, 21(5): e0331262.

[8] Arnold NG, Claveres G, Frie J, 2024, Stepping Up Venture Capital to Finance Innovation in Europe. IMF Working Paper.

[9] OECD, 2025, Venture Capital Investments in Artificial Intelligence Through 2025. OECD AI Policy Observatory.

[10] Hong YX, Jiang JC, 2025, Cultivating and Strengthening Patient Capital to Promote the Development of New Quality Productive Forces. Frontiers of Economics in China, 20(3): 376–393.

[11] Zhang ZC, Yang AQ, 2025, Patient Capital, Financing Constraints and Enterprise Innovation, Proceedings of the 5th International Conference on Humanities, Social Sciences and Social Research, 412–418.

[12] Wang Q, 2025, Venture Capital Exit After Venture IPO. Strategic Entrepreneurship Journal, 19(2): 215–232.

[13] Felix J, Pires S, Gulamhussen MA, 2025, Optimizing Investment Period Length and Strategies for Later Stage Venture Capital Staged Financing Portfolio. Applied Economics, 57(32): 3689–3706.

[14] Park S, 2025, Patient Capital, Corporate Governance and Investment in Digital Innovation: What Can Japan Learn from South Korea's Experience? Global Policy, 16(2): 189–204.

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