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REVIEW

Cultivating and Strengthening Patient Capital to Promote the Development of New Quality Productive Forces*

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Abstract

Accelerating the concentration of capital factor resources in the fields of scientific, technological, and industrial innovation is of significant importance for fostering the emergence and development of new quality productive forces characterized by high technology, high efficiency, and high quality. From the perspective of science and technology finance supporting the development of new quality productive forces, this paper first clarifies the conceptual connotation of patient capital and defines its characteristics and expansion of its scope. It then elucidates the operational mechanisms through which patient capital underpins and facilitates the development of new quality productive forces. Furthermore, this paper discusses the essential principles, requirements, and key points of comprehensive support for new quality productive forces through patient capital, including science and technology credit, venture capital, and stock financing. Finally, several policy recommendations are proposed to cultivate and strengthen patient capital under the current conditions.

Keywords patient capital; new quality productive forces; science and technology finance; scientific and technological innovation; industrial upgrading

1 Introduction

The meeting of the Political Bureau of the Central Committee of the Communist Party of China (CPC) held on April 30, 2024, called for efforts to optimize the layout of China's strategic scientific and technological resources, cultivate and strengthen emerging industries, proactively plan and build future industries, utilize advanced technologies to empower the transformation and upgrading of traditional industries, actively develop venture capital, and strengthen patient capital (Political Bureau of the CPC Central Committee, 2024). The *Resolution of the Central Committee of the Communist Party of China on Further Deepening Reform Comprehensively to Advance Chinese Modernization*, adopted at the third plenary session of the 20th CPC Central Committee, highlighted that "We will encourage and regulate the development of angel investment, venture capital, and private equity investment, better leverage the role of government investment funds, and work to promote the development

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of patient capital" (Third Plenary Session of the 20th Central Committee, 2024). It is a key measure to comprehensively advance China's scientific and technological innovation and high-quality economic development amid profound shifts in both the domestic and international economic landscapes. The transition from traditional growth drivers to new ones requires acceleration through new quality productive forces and depends on patient capital, characterized by long-term investment philosophies and value-discovery capabilities, to participate and exert its enduring role in fostering these forces, thereby further enhancing the resilience and vitality of China's economy.

Given that the term "patient capital" was first introduced in official documents relatively recently, academic research in this area remains underdeveloped. Existing studies have primarily focused on the following dimensions. Li et al. (2024) argue that the development and growth of patient capital is of great significance to promoting the high-quality economic development of China and cultivating new quality productive forces, putting forward targeted policy recommendations in response to multiple bottlenecks in the current development of patient capital in China. Fang (2024) contends that rapidly expanding patient capital requires coordinated efforts from the country, enterprises, and households. In addition, Guo and Zhang (2024) examine the dialectical relationship among patient capital, smart money, and new quality productive forces, elucidating their operational mechanisms and proposing cultivation and promotion pathways. In terms of empirical studies, researchers have investigated various subjects. Wen and Li (2024) empirically test the impact of patient capital on new quality productive forces of enterprises by examining data of China's A-share listed companies from 2011 to 2022, proving the fostering role of patient capital on new quality productive forces of enterprises. Yang et al. (2024) measure the patient capital of enterprises based on the proportions of stable equity and relational debt, discovering that the proportions have significantly improved new quality productive forces of enterprises. Jiang and Wu (2024) conduct an empirical study on the 2011–2022 data of A-share enterprises, demonstrating that patient capital effectively promotes innovation efficiency.

Previous studies have not thoroughly investigated the conceptualization of patient capital or its mechanisms in fostering new quality productive forces, nor have they provided sufficient policy recommendations for cultivating and strengthening patient capital. To address these research gaps, this paper aims to systematically examine the conceptual foundations of patient capital, with particular focus on how patient capital of science and technology credit, venture capital, and equity market collectively support the development of new quality productive forces, while proposing more comprehensive and specific policy recommendations.

2 Connotation and Expansion of Patient Capital

As a conceptual term, patient capital was introduced by the U.S. government in the 1980s to encourage financiers to assume the responsibility of leading industry by providing long-term investment funds for industrial base upgrading, constituting the original meaning of patient capital. With ongoing economic development and financial deepening, the term has evolved from its origins in long-term investment funds, becoming increasingly diversified in form and enriched in connotation. Patient capital is defined as a form of capital focused on long-term investment that does not prioritize short-term returns but rather values long-term return projects or investment activities; it typically remains unaffected by short-term market fluctuations and represents capital with longer-term return expectations and higher risk tolerance (Editorial Team of 100 Questions on Studying the Resolutions of the Third Plenary Session of the 20th CPC Central Committee, 2024). In contrast to quick in-and-out and short-term investments, patient capital refers to value and strategic investment capital with clear targets, long-cycle growth potential, and overall profitability, characterized by stable input, orderly exit, higher risk tolerance, and the ability to weather economic cycles. It emphasizes value investment and prioritizes innovation and core capability development of enterprises, serving to identify and uncover value and participate in value creation. It is necessary to determine the duration of patient capital based on specific circumstances of the invested entity rather than adhering to a uniform standard, as the time horizon represents just one dimension of assessment rather than the sole criterion. In this regard, the connotation of patient capital is further elaborated as follows.

First, patient capital represents visionary strategic investment capital. It constitutes long-term investments made by strategically-minded investors who align with the CPC Central Committee’s fundamental policies and national strategic arrangements. Such investments conform to national development objectives and modern industrial advancement directions, representing scientifically-grounded, long-term tracking investments. It is thus demonstrated that not all long-term investment capital qualifies as patient capital, nor do all long-term investors merit designation as patient capital investors. Only those investors who possess patriotic dedication, long-term strategic vision, and a profound understanding of financial market rules and investment methodologies can develop sustainable strategic investment capabilities and be rightfully recognized as patient capital investors.

Second, patient capital constitutes socially responsible investment (SRI) capital, which emphasizes real implementation. Also known as ethical investment, green investment, or sustainable investment, SRI seeks financial returns while actively addressing environmental, social, and governance (ESG) issues, advocating for corporate operations that are sustainable, responsible, and ethical to achieve long-term sustainable development. To realize stable long-term returns, patient capital investors should prioritize the sustainable development of invested entities, the core objective of SRI. Therefore, patient capital inherently represents a form of SRI capital that targets enterprises with existing or transformable social responsibility. Its investment focus naturally aligns with green industries, elderly care sectors, and technology industries, which are precisely the domains emphasized by the green finance, elderly care finance, and technology finance initiatives of the Chinese government.

Third, patient capital constitutes proactive capital with positive contributions. Proactive capital refers to investment that contributes to invested enterprises and projects and facilitates knowledge achievement incubation, technology achievement commercialization, and mass production of products. Distinct from passive investors who merely seek returns, patient capital investors establish long-term partnerships with invested enterprises. Beyond supplying sustained funding, they leverage domain expertise to offer strategic guidance throughout extended innovation and industrial upgrading cycles. Their active engagement in operation and management activities manifests through multiple channels: serving as financial advisors, incentivizing management, constraining major shareholders' short-termism, strengthening board independence, and enhancing governance efficacy. Such engagement accelerates the transformation and upgrading of enterprises, fosters their innovation, and fortifies their core competitiveness. Hence, the "patience" in patient capital transcends temporal longevity, embodying deliberate cultivation and symbiotic growth with invested enterprises.

Fourth, patient capital is rational investment capital that balances risk-return relationships. Rational investment refers to prudent decision-making based on comprehensive due diligence of invested enterprises, coupled with integrated analysis of global technological and economic trends. Distinct from traditional short-term speculative capital, patient capital prioritizes long-term growth potential and value-creation capacity of enterprises, while maintaining an equilibrium between risk exposure and investment returns. By pursuing long-term objectives and adhering to extended evaluation cycles, patient capital effectively navigates economic cyclical fluctuations and withstands temporary setbacks faced by enterprises. Such rational investment behavior enables patient capital to function as a market stabilizer, playing an irreplaceable role in maintaining financial market stability, fostering scientific and technological innovation and entrepreneurship, and advancing new quality productive forces.

Fifth, patient capital represents a scarce, high-quality, and unique form of risk capital. As a distinguished form of venture capital in the capital domain, patient capital is characterized by scarcity, relying on a specific group of investors who possess substantial financial resources, long-term strategic foresight, and resilience to endure prolonged high risk and fund precipitation. Such investors are increasingly rare in market environments that favor short-term profit pursuits. They predominantly engage in investments targeting emergent sectors with high risk and extended return cycles, further intensifying their scarcity. The excellence of patient capital is manifested through its contribution of sustained and stable funding to enable enterprises to transcend developmental phases, its in-depth involvement in enterprises' strategic planning and operational refinement, and its role in fostering enterprise innovation and growth potential. Furthermore, it facilitates industrial transformation and upgrading, economic sustainability, and ultimately cultivates a virtuous cycle where capital synergizes with enterprises, industries, and the economy at large.

It should be particularly noted that patient capital and long-term capital are distinct yet interrelated. Generally, patient capital is a form of long-term capital. However, not all long-term capital qualifies as patient capital. Only long-term capital that possesses strategic investment vision and social responsibility in investment, and actively engages in the operation and management activities of invested enterprises, is regarded as rational and proactive patient capital. Therefore, patient capital encompasses objective characteristics, such as longevity and stability, and subjective characteristics, like initiative, foresight, and mindset, making it a uniquely multidimensional form of capital with specific attributes.

The financial deepening process increasingly diversifies the forms of financial capital, and the scope of patient capital accordingly expands. It is necessary to expand its scope beyond capital in the secondary stock markets, such as pension funds and insurance funds, encompassing bank credit and venture capital[1], primary stock markets, corporate bonds, industrial investment funds, government guidance funds (GGF), and other forms of capital. Conceptualizing patient capital as a broad form rather than restricting it to a specific type or source significantly expands its scope and boundaries, enabling it to better serve as a stabilizer and booster for developing new quality productive forces. Given China's current focus on promoting new quality productive forces, the concept of patient capital should be defined with certain investment limitations. Specifically, it should prioritize investments in technological and industrial innovation within the real economy rather than the virtual economy.

3 Mechanism for Patient Capital to Promote the Development of New Quality Productive Forces

The core element of developing new quality productive forces is scientific and technological innovation, with the main direction being industrial upgrading, which is based on scientific and technological innovation and technological progress. Scientific and technological innovation requires new knowledge discovery, creativity, and technological R&D. This process is inseparable from the investment and support of capital, especially for realizing and commercializing achievements of leading and disruptive technologies, which require significant financial resources. Accordingly, it represents a distinctive combination of knowledge-intensive and capital-intensive efforts. As technology progresses toward high-end and international frontier domains, financial investment will inevitably increase instead of diminishing. In particular, the commercialization and application of scientific achievements, along with subsequent market promotion and industrialization, demand substantial financial backing.

Beyond direct financial support, finance serves as a risk-sharing mechanism that provides essential risk dispersion and allocation for technological innovation, thereby offering risk management solutions for the development of new quality productive forces. Indeed, the entire chain of scientific and technological innovation is fraught with risks. In case of failure, prior investments may be largely wasted, particularly in the R&D phase, where repeated trials may ultimately prove unsuccessful. Original, critical, and disruptive technological innovations carry even higher risks, necessitating effective risk-sharing mechanisms and channels. The efficient risk-dispersing function of finance precisely meets this risk-mitigation demand inherent in scientific and technological innovation.

[1] "Venture capital" here refers to equity investment behaviors led by private venture capital firms.

President Xi Jinping pointed out that new quality productive forces are driven by revolutionary technological breakthroughs, innovative allocation of production factors, and deep industrial transformation and upgrading (Xi, 2024). The necessary innovations include original and disruptive technologies at the international forefront, while the corresponding industries represent emerging sectors demonstrating global competitiveness (Hong, 2024). This necessitates financial capital investments to align with contemporary scientific and technological innovation directions, accommodating characteristics like high output uncertainty in breakthrough projects, substantial R&D investment scales, and extended investment return cycles, thus creating an urgent demand for patient capital. Investment practices consistently demonstrate that mismatches in financial capital investment methods, maturity terms, and risk typically fail to facilitate investee development, and may even yield counterproductive outcomes. From this perspective, patient capital involvement serves as the only solution to provide long-term, stable financial support for scientific and technological innovation and industrial upgrading while optimally dispersing risks. Therefore, patient capital is a critical element for technological and industrial innovation, serving as both a fundamental prerequisite and driving force for developing new quality productive forces (Editorial Team of 100 Questions on Studying the Resolutions of the Third Plenary Session of the 20th CPC Central Committee, 2024).

Similar to the development of all forms of productive forces throughout history, the evolution of new quality productive forces cannot be accomplished overnight. It inevitably involves undergoing a prolonged process of gradual growth. Alongside the enhancement of new quality productive forces, patient capital plays a vital role in guiding and promoting the innovative allocation and synergy of other production factors. Meanwhile, it promotes the integration and efficiency improvement of new production factors with traditional ones, advancing the transformation and upgrading of traditional industries as well as the flourishing of emerging industries. Furthermore, only patient capital is capable of enduring the fluctuations of economic cycles and ultimately realizing substantial investment returns. Throughout history, rounds of venture capital and James Watt's advancements in the steam engine, equity financing alongside canal, highway, and railway construction, and Silicon Valley's risk investment fostering advancements in information technology, have exemplified patient capital's role in advancing productive forces. These instances illustrate that financial capital has critically facilitated the progress of scientific and technological innovation and its commercialization. In essence, the fuel that powered the development of the steam engine was not coal, but rather capital, particularly patient capital.

4 Role of Various Forms of Patient Capital in Supporting New Quality Productive Forces

Patient capital represents a category of financial capital characterized by patience. In economic and financial operations, it manifests in various concrete forms, including patient bank loans, venture capital, government funds, long-term corporate bonds, and perpetual bonds. This paper focuses on elucidating how innovative applications of patient capital instruments, particularly science and technology credit, venture capital, and equities, contribute to developing new quality productive forces.

4.1 Role of Science and Technology Credit

China currently has a large bank-dominated financial system. Historically, the allocation of credit by commercial banks was constrained by prudential safety, debt risk, and other factors. Moreover, loans that foster innovation typically involve small and dispersed amounts, higher transaction costs, and substantial uncertainties, thereby discouraging direct involvement by commercial banks in scientific and technological innovation ventures. As a result, numerous potentially revolutionary ideas that may contribute to future industries have struggled to secure necessary financing, hindering their breakthroughs and implementation. According to the *Statistical Report on the Credit Structure of Financial Institutions (2023)* issued by the People's Bank of China[2], by the end of 2023, the outstanding loan amount for small and medium technology enterprises recorded 2.45 trillion yuan, while that for high-tech enterprises recorded 13.64 trillion yuan. Together, the balances of these two types of loans accounted for 1.01% and 5.63% of the total outstanding loans.[3] Meanwhile, it is necessary to make a comparison with developed countries, such as the United States and European countries. As of the end of 2022, major banks in the United States (the top four banks by total assets) allocated 9.48% of all corporate loans to the technology, media, and telecommunications (TMT) sector, while in Germany, computer industry loans accounted for 8.19% of all corporate lending (Zhang et al., 2023). It can be observed that China still needs to enhance science and technology credit allocation to facilitate the role of banking credit in supporting scientific and technological advancements and industrial innovation, compared with leading countries in science and technology.

Although science and technology credit accounts for a relatively small proportion of total loans of commercial banks, its direct allocation to scientific and technological innovation makes its promotional effect on innovation noteworthy. Considering this, it represents the most crucial form of patient capital within the commercial banking system for supporting new quality productive forces. Therefore, the key to leveraging commercial banks as the mainstay of patient capital lies in developing and expanding science and technology credit. Primary initiatives should include encouraging commercial banks to increase the scale of science and technology credit supply, minimize interest rates on science and technology credit, reasonably extend science and technology credit terms, and enhance the quality and efficiency of science

[2] Source: official website of the People's Bank of China.

[3] According to the *Sources & Uses of Credit Funds of Financial Institutions* published by the People's Bank of China, the balance of various loans in RMB and foreign currencies of financial institutions in China was 242.24 trillion yuan at the end of 2023.

and technology credit in supporting scientific and technological innovation.

First and foremost, it is viable to enlarge the scale of science and technology credit supply of commercial banks through the following measures: (1) encouraging commercial banks to establish specialized technology finance departments and technology (specialized) branches to operate technology finance professionally; (2) providing corresponding insurance or guarantees for science and technology credit to share or disperse the risks associated with science and technology credit for commercial banks; (3) appropriately enhancing the risk tolerance for science and technology credit to prevent rigid regulatory policies from dampening the enthusiasm of commercial banks to engage; and (4) considering shifting science and technology credit products from production-oriented fields to consumer-oriented fields.

Second, credit product innovation, cost reduction, and efficiency improvement through financial technology and big data utilization, and other measures can be implemented to effectively lower the interest rates for science and technology credits. Commercial banks may develop and promote combined deposit and loan products, as well as flexible loan products, enabling tech companies to convert idle funds into wealth management products with yields exceeding those of regular deposits or to repay them as needed. Funds can be promptly withdrawn within credit limits when required, thereby reducing the actual fund occupancy time and lowering borrowing costs. The bank-tax authority, bank-government, bank-insurance, and interbank collaborations enhance information sharing and the categorized management of listings of tech companies. Utilizing big data financial platforms and FinTech approaches minimizes commercial banks' costs in pre-loan investigations and post-loan management, thereby improving operational efficiency and fundamentally controlling and reducing the cost of science and technology credit financing.

Furthermore, it is feasible to encourage commercial banks to develop long-term science and technology credit products. Measures like implementing principal-repayment-free loan rollovers for high-quality tech companies and adopting term-linked interest rates (setting progressively higher annual interest rates over time) can also incentivize lenders and borrowers to extend loan durations. Extending science and technology credit terms facilitates better capital utilization planning for tech companies, enhances fund use efficiency, and increases the success rate of technological R&D.

Fourth, the most crucial aspects in enhancing the quality and efficiency of science and technology credit in supporting scientific and technological innovation are pre-loan enterprise (project) screening and post-loan fund usage supervision. The selection of loan recipients directly determines whether the loan qualifies as a genuine science and technology credit. Technology credit shall be allocated to tech companies with demonstrated R&D capabilities and technological competence, and the funds shall be exclusively used for technology R&D, commercialization of technological achievements, and related activities. Meanwhile, post-loan supervision ensures science and technology credit funds are directed toward nationally supported projects of new quality productive forces in areas like new technologies and new energy. Strengthening pre-loan screening and identification and post-loan supervision effectively curbs the science and technology credit distortion in practice, where non-tech companies disguise themselves as tech ones, present non-tech projects as tech ones, or divert funds for tech projects to other purposes, such as real estate development. The technology credit distortion significantly degrades its supply quality, potentially explaining why science and technology credit is less effective than venture capital and equity financing in supporting new quality productive forces. Therefore, improving the effectiveness of science and technology credits in developing new quality productive forces requires rigorous control over credit allocation to ensure funds are channeled exclusively to genuine tech companies and projects.

In leveraging science and technology credit to support new quality productive forces, expanding the supply scale of commercial bank technology credit alleviates financing difficulties for tech companies, particularly small and medium-sized ones, as well as startups. What is more, minimizing science and technology credit interest rates is conducive to addressing high financing costs. Appropriately extending loan terms reinforces the patient nature of science and technology credit, better aligning with the long-cycle characteristics of scientific and technological innovation. Enhancing the intensity and efficiency of the support of technology credits for innovation further amplifies its unique role in developing new quality productive forces, highlighting distinctive features of China’s financial system.

4.2 Role of Venture Capital

Theoretically, any investment carries risk and thus qualifies as venture capital. Nevertheless, the term “venture capital” as explored in this paper refers to its narrower concept, signifying investment activities undertaken by venture capital firms (institutions), where equity investments are made in technology innovation enterprises with the expectation of achieving capital gains primarily through equity transfer upon the maturity or relative development of invested enterprises. While direct investments by individual investors in tech companies do exist, venture capital firms (institutions) predominantly invest with funds in practice, with individual investors typically participating as capital contributors in these established funds (usually as limited partners).

Compared with traditional bank credit and stock market financing, venture capital provides financial support for scientific and technological innovation and entrepreneurial activities while utilizing its professional expertise and resource integration capabilities to offer operational support for these activities, effectively sharing their relevant risks. Venture capitalists engage in operation and management activities of enterprises because the objectives of tech entrepreneurs, business operators, and venture capitalists are aligned. That is to say, their willingness to assume risks stems from the fact that success in a minority of multiple investment projects suffices to offset losses and generate substantial returns. Developing patient capital under venture capital primarily requires encouraging diversified entities to engage in venture capital initiatives, with the prerequisite of establishing venture capital firms with diverse ownership structures. Newly established venture capital firms and funds face two major challenges. First, it is necessary to avoid becoming risk-averse companies and boldly invest in tech startups to facilitate their entry into high-tech incubation and the consequent development of strategic emerging industries and future industries. Second, it is critical to avoid becoming mere capital providers and hands-off investors. Their market analysis capabilities shall be leveraged to proactively guide innovation and entrepreneurship toward market-oriented directions, thereby selecting and identifying technology incubation projects with commercial viability and development prospects.

In order to further strengthen the patience attribute of venture capital and give full play to its long-term role in supporting the development of new quality productive forces, special attention needs to be paid to the following four points in terms of fundraising and establishment, fund operation period, fund maturity conversion and liquidation: (1) absorbing long-term capital with asset allocation as the concept to become a source of investment for venture capital funds; (2) matching the size of a single fund with the ability and number of fund managers based on effective investment and operation; (3) appropriately extending the duration of the fund, especially to effectively cover the entire process from project incubation to success; and (4) planning and arranging in advance to ensure a smooth and orderly transformation of new and old funds where the fund expires and the invested project does not achieve the original expected results or needs additional investment.

4.3 Role of Stock Market

The core function of stock markets in supporting new quality productive forces development manifests in raising long-term social capital for technology innovation enterprises and incentivizing tech entrepreneurs to achieve appreciation through tech innovation and entrepreneurship activities. For venture capital institutions, stock markets serve as crucial transfer stations for early-stage investment exits, where venture capital makes phased exits and new social capital (such as individual investors and securities investment funds) enters. The exited venture capital achieves appreciation and proceeds to develop new investment projects. For technology innovation enterprises, going public enables raising larger-scale equity capital to further support R&D investments and market expansion expenditures. For stock investors, investing in high-tech companies with long-term growth potential allows them to share in their development dividends and achieve wealth growth. Particularly, patient capital investors adhering to value investment principles can obtain stable returns through long-term stock holding across economic cycles, thereby maintaining capital market stability. For commercial banks, the equity funds obtained by technology innovation enterprises after listing can replace the original loans. After the stock is listed, its liquidity will be greatly enhanced. Shareholders can pledge their shares to obtain new loans with lower interest rates and then invest them in the enterprise. Evidently, well-developed stock markets smooth the operational channels of the entire financial system, benefiting all market participants. Moreover, cultivating and strengthening patient capital in stock markets plays a vital role in stabilizing and developing these markets.

To attract more patient capital into and retain it in the stock market, thereby forming capital synergy to support scientific and technological innovation and promote tech industry development, financial regulators and stock exchanges shall effectively manage two critical checkpoints. First, clear and standardized listing criteria should be established for IPO candidates with rigorous review processes featuring transparent, efficient, and publicly accessible procedures, along with bilateral accountability mechanisms and enhanced penalties to minimize power rent-seeking opportunities of listing applicants. Second, listed companies failing to meet requirements or engaging in serious misconduct should be delisted promptly through strict rule-based procedures, ensuring comprehensive delisting rather than exploiting stock market rules to suspend trading for a long time in order to conduct shell resource transactions.

The stock market is the core of the capital market and a crucial platform for fostering the development of new quality productive forces. Therefore, it is conducive to prioritizing policy support for listing applications from enterprises aligned with new quality productive forces development, including streamlined review procedures, shortened approval timelines, and appropriately relaxed listing criteria. Special attention should be given to harnessing the SSE STAR Market and SZSE ChiNext as strategic platforms to accelerate the formation of new quality productive forces. As new quality productive forces evolve, new economic models will inevitably emerge. This necessitates stock exchanges and financial regulators to continuously refine mechanisms, adjust requirements, diversify channels, and expedite processes of listing, aiming to accommodate the diversified listing needs of new economy enterprises.

5 Policy Recommendations for Cultivating and Strengthening Patient Capital

As the primary source of new quality productive forces, revolutionary and disruptive technological breakthroughs entail significant risks. Traditional investment forms focused on short-term returns can no longer match or adapt to these demands, whereas patient capital provides long-term stable financial support for technology innovation projects and financial markets, offering robust guarantees for technological and industrial innovation. Given that patient capital fulfills the new requirements of substantial investment, long cycles, and high risks, it serves as a crucial support and driving force for developing new quality productive forces. Although China’s current financial system is large in scale, irrational financing structures, insufficient supply of patient capital, and problems alike remain prominent. Abundant funds with scarce capital have resulted in low efficiency and quality of financial support for scientific and technological innovation and new quality productive forces development. To this end, concerted efforts to cultivate and strengthen patient capital, guide its flow into scientific and technological innovation sectors, encourage early-stage, small-scale, long-term, and hard-tech investments, with focused support for strategic emerging industries and future industries, constitute essential approaches to achieving mutually reinforcing development between patient capital and new quality productive forces.

5.1 Synchronized Development of Venture Capital and Stock Markets

Venture capital and equity financing exert more direct intrinsic incentive effects than indirect finance, enabling them to more efficiently fulfill the core function of finance, allocating and optimizing economic resources, thereby practically driving innovation in tech companies. Given their close interconnection with venture capital, stock markets serve as the most attractive phased exit platform for venture capital. Specifically, venture capital exiting through IPOs yields significantly higher returns than that through other methods, such as negotiated transfers or corporate buybacks. As a result, venture capital achieving high-return exits is enabled to reinvest in subsequent projects at larger scales. Arguably, the very existence of venture capital depends on stock markets, while its sustainable development hinges on stock market efficiency. The synchronized development of venture capital and stock markets is essential to enhance the efficiency and effectiveness of technology finance in supporting new quality productive forces, facilitating the inflow and retention of patient capital within the technology finance ecosystem.

The development of venture capital and stock markets is mutually reinforcing with the cultivation of patient capital. A key focus in developing venture capital and stock markets involves optimizing the proportion between short-term capital and patient capital to address the insufficient supply of patient capital, while the growth of patient capital will inevitably drive the development of venture capital and stock markets. To increase the proportion of patient capital in venture capital and stock markets, efforts should focus on the following aspects:

First, it is necessary to transform existing short-term capital into patient capital. China's current venture capital predominantly targets relatively mature enterprises that have reached a certain scale and are likely to go public in the short term, with the primary objective of their successful IPO exits at the earliest opportunity. The prevailing 3–5 year investment cycles are excessively short, providing inadequate support for corporate innovation and potentially creating counterproductive effects. Similarly, stock market funds increasingly engage in quick in-and-out speculative trading, which tends to cause significant short-term volatility and undermine long-term market health. To address these issues, regulatory authorities and industry associations should enhance investor education, establish scientific evaluation systems for institutional investors' long-term investments, encourage focus on the growth potential and long-term value of invested enterprises, promote understanding of patient capital's lasting impact on enterprises and markets, and guide the formation of long-term investment philosophies to accelerate the increase of the proportion of patient capital in financial capital.

Second, it is recommended to facilitate the market entry of incremental patient capital. Incremental patient capital serves as a crucial force in sustaining scientific and technological innovation and developing new quality productive forces. Aligned with national strategic priorities and focused on technological industry needs, proactive measures should include channeling long-term funds (including social security funds, pension funds, insurance capital, and enterprise annuities) into venture capital and stock markets, expanding pilot programs for direct equity investments of financial asset investment companies, and supporting strategic emerging industries and future industries. Such incremental patient capital functions as an economic stabilizer, securing the strategic trajectory of innovation-driven development.

Third, it is essential to foster a high-quality circulation of patient capital. Capital circulation constitutes the prerequisite for value appreciation. Patient capital, characterized by longer cycles, demands particularly smooth circulation processes and enhanced quality. A critical factor in fostering efficient circulation of patient capital is ensuring seamless operation throughout the entire fundraising-investment-management-exit value chain. Specifically, it is conducive to capitalizing on China's high household savings rate in the fundraising phase, transforming it into a key source of long-term venture capital. In addition, the investment phase should focus on early-stage, small-scale, long-term, and hard-tech investments to vigorously support technology innovation enterprises. Subsequent post-investment management should rigorously monitor fund usage for stipulated scientific and technological innovation projects. Lastly, the exit phase requires compliance not only with investor-investee agreements but also with capital market regulations and operational norms to guarantee methodical and orderly exits.

5.2 Improvement of Multi-Tiered Capital Market System and High-Efficiency Financial Market System

A multi-tiered capital market system is a hierarchically structured financial resource allocation mechanism designed to meet the capital requirements of various fundraising and investment entities. A well-developed multi-tiered capital market system provides differentiated financing channels. To be precise, it involves over-the-counter markets (including regional equity exchanges and high-tech property rights exchanges) for startups, the SZSE ChiNext and SSE STAR Market for growth-stage enterprises, and main boards for mature enterprises. The market structure significantly enhances the targeting precision and applicability of patient capital, thereby improving its quality and expanding its scale.

High-efficiency financial markets, encompassing both capital and monetary markets, serve as a platform for efficient fund integration and circulation and optimal resource allocation, constituting an ecosystem for nurturing patient capital at higher levels and broader scales. The sub-markets exhibit close interconnection, wherein patient capital transitions fluently across them in diverse forms. Hence, coordinating the functions of each sub-market and utilizing their effective performance to elevate the overall efficiency of the financial market system fosters an environment that supports scientific and technological innovation and industrial development in multifaceted and diverse manners. This approach expands the circulation opportunities of patient capital, opens up new exit strategies for venture capital, and steers patient capital toward greater scale and superior quality.

5.3 Promoting State-Owned Capital to serve as Patient Capital

The state-owned sector prioritizes social functionality over short-term profits, focusing investments on vital industries and strategic sectors concerning the national economy and people's livelihoods. With capital primarily state-funded, it emphasizes long-term, stable returns rather than short-term gains. Consequently, this functional orientation endows state-owned capital with intrinsic patient capital attributes.

In this regard, it is of significance to develop state-owned capital into the most substantial stabilizer in patient capital. The first measure is to deepen reforms in the management system of state-owned capital investment, clarifying the responsibilities and authorities of its contributors and operators while enhancing the market-oriented operation of its investment entities, so as to improve investment efficiency and boost the effectiveness of support for new quality productive forces. The second measure is to refine performance evaluation, incentive and punishment mechanisms, and fault-tolerant systems for state-owned capital investment funds. The rigid constraints on the preservation and appreciation of state-owned assets have greatly reduced risk appetite, resulting in state-owned funds not daring to focus on early-stage, small-scale investments and eventually causing idle funds with no substantive investment activities. In addition, performance evaluation is mostly carried out on an annual and project-by-project basis. Short-term performance pressure may easily lead to short-sighted investment behavior, which objectively obeys the 80-20 Rule in the equity investment industry. What is more, unreasonable incentive mechanisms, such as insufficient and excessive incentives, possibly lead to a lack of patience and responsibility in investment behavior. In view of that, state asset management authorities are to refine performance evaluation systems as the first step toward enabling state capital investment. The establishment of long-cycle performance assessments with medium-to-long-term incentives, including phased deferred bonuses, is required to cultivate a long-term performance orientation. A clear distinction between the responsibilities of investment decision-makers and handlers is necessary, along with corresponding systems on accountability, penalties, due diligence, compliance, and fault tolerance. For fault-tolerant mechanisms, the creation of specific provisions aligned with venture capital industry characteristics and development patterns, followed by effective implementation, serves to fundamentally deregulate state-owned venture capital investments. The third measure is to leverage government-guided funds (GGFs, predominantly state-owned capital) by balancing policy guidance with market forces to mobilize social capital for scientific and technological innovation and new quality productive forces. Similarly, GGFs are required to operate under the principle of government guidance, market-oriented operation, and professional management, strengthening various capital elements, including angel investment, venture capital, private equity, and startup investment. A comprehensive fund system covering all enterprise lifecycle stages, from seed and startup phases through growth to maturity, can be established to effectively empower the development of tech companies.

For state-owned capital that has been tied up in loss-making industries and enterprises for extended periods, active intervention and disposition through measures like mergers, reorganizations, and bankruptcy liquidations become imperative to enhance operational efficiency. Such capital cannot be neglected under the pretext of being patient capital. In fact, capital generating negative returns no longer qualifies as patient capital, but rather transforms into stranded or troubled capital, requiring proactive management and revitalization measures to restore its status as patient capital.

5.4 International Patient Capital Inflow for Domestic Capacity Expansion

Compared with domestic patient capital, international patient capital demonstrates broader global perspectives, more sophisticated project evaluation methodologies, and more efficient investment management systems. It assesses technological standards of potential investments from the global innovation frontier and anticipates future industry trends based on emerging technologies and global market dynamics. With a longer investment and development history, international patient capital has developed more mature evaluation frameworks that enable scientific project screening and higher investment success rates. Consequently, international patient capital inflow expands the scale of domestic patient capital while also introducing advanced management methods and experience, thereby strengthening the effectiveness of domestic patient capital in serving China's scientific and technological innovation and industrial upgrading.

Introducing international patient capital facilitates the cultivation of long-term investment philosophies and fosters a patient financial ecosystem. Empirical evidence from Western venture capital cases demonstrates significantly longer investment-to-exit timelines, compared with domestic funds, with a greater propensity for early-stage investments. That is to say, the angel and seed rounds of investment constitute over 50% of their total venture capital. In contrast, China's venture capital remains predominantly growth-stage and mature-stage oriented. Although early-stage investments have increased recently, reflecting a gradual forward-shifting trend, growth and mature stages still account for over half of total investments, with seed-stage allocations remaining low. For instance, 2022 data shows that the total investment amount in the growth and maturity stages accounted for 57.74%, while that in the seed stage was only 8.84%.[4]

[4] Data source: China Stock Market & Accounting Research Database (CSMAR).

Ample funding proves critical for successful R&D and rapid enterprise growth, particularly for SMEs where earlier-stage companies demonstrate greater financing needs. Correspondingly, earlier venture capital investments yielded higher marginal utility for investee firms. Thus, introducing international patient capital and leveraging its early-and-small investment approach catalyzes domestic patient capital's stage-forward movement, maximizing the role of patient capital under venture capital in developing new quality productive forces.

5.5 Establishment and Improvement of a Comprehensive Support System for Patient Capital Development

Cultivating and strengthening patient capital requires more than standalone policy measures. A multidimensional support system is necessary, as it ensures policy coherence and generates synergy effects.

First, it is imperative to establish sound legal frameworks and improve the basic system of the market economy (Hong et al., 2023). Patient capital development necessitates robust legal and regulatory safeguards. Laws and regulations provide patient capital with sustained and stable expectations, while market systems create a high-standard, rule-of-law business environment for patient capital. These top-level designs are conducive to protecting the legitimate rights and interests of investors and reducing investment risks. Specifically, at the legislative level, it is essential to clarify the legality and relevant requirements for long-term funds, such as social security funds, pension funds, and enterprise annuities, to enter financial markets and to continuously improve: (1) the fundamental institutions of market economy, including capital access and exit, property rights protection, fair competition, and social credit; and (2) the fundamental institutions of the capital market, including securities issuance and listing, information disclosure, registration and settlement, trading, exits, and investor protection. This enables patient capital to operate in compliance with laws and regulations, enter and exit markets in accordance with rules, and achieve steady development and continuous expansion within a transparent, fair, and rule-of-law-based unified national market.

Second, it is advised to enhance fiscal-monetary policy coordination and increase policy support for patient capital development. The coordinated implementation of fiscal and monetary policies plays a crucial role in deepening financial reform, strengthening financial governance, and maintaining financial stability. It provides patient capital development with an accommodative macroeconomic environment and strong momentum, particularly under the current proactive fiscal policy and prudent monetary policy, which further fosters a market climate of pursuing progress while ensuring stability for cultivating patient capital. President Xi Jinping notes that it is essential to strengthen coordination and enhance the flexibility, consistency, and complementarity of policy measures, striving to achieve maximum policy effectiveness (Xinhua News Agency, 2020). Therefore, policy coordination requires effective policy combinations of fiscal and monetary measures and integrated policy packages combining macro and micro policies, reinforcing consistency in policy orientation and maximizing synergistic effects. It is beneficial to centralize macro regulation on expanding investment and stimulating consumption to facilitate patient capital scale growth, while coordinating policy instruments, including policy finance, interest subsidies, credit guarantees, and tax incentives, through micro-level management to leverage more capital for precisely serving key economic sectors and vulnerable areas, ultimately precipitating and transforming these funds into patient capital.

Third, it is necessary to intensify behavioral supervision of capital to support patient capital's compliant operations. Capital inherently pursues profits, which drives its self-expansion and economic growth, yet also causes frequent boundary-crossing and disorderly expansion. Therefore, constraints and standardization are necessary to guide the healthy development of capital. Financial regulatory authorities shall improve regulatory mechanisms, intensify behavioral regulation and continuous oversight, ensure that the entire process of investment activities of patient capital complies with legal regulations and policy requirements, strengthen the evaluation and monitoring of investment risks, promptly identify and dispose of potential risks, and guarantee the safe and stable operation of patient capital. Regarding violations identified during capital regulation, uniform administrative law enforcement standards and procedures are essential for promoting fair and impartial enforcement. While clarifying unified capital regulation, new models of differentiated regulation should also be explored. For diverse types of venture capital, differentiated policies regarding minimum duration of existence, information disclosure requirements, and tax incentives are stipulated. Within the same type of venture capital, tailored public listing support, interest subsidy grants, and dividend tax incentives are implemented, emphasizing unique preferences for patient capital to encourage and facilitate its lawful, orderly development. Nevertheless, it is significant to consider that patient capital inherently aligns with efficiency objectives and market principles with liquidity prerequisites, thus making it inappropriate for liquidity restrictions to be imposed solely under the pretext of the patient capital nature.

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