

The Internal Mechanisms and Institutional Construction of Patient Capital Driving Investment Growth in Future Industries

Tingshu Liu, Li Han *, Wanying Yang

School of Management, Qufu Normal University, Rizhao 276812, Shandong, China

Abstract: Future industries are pivotal to national technological sovereignty and international competitive advantage. Characterised by high uncertainty, capital intensity, and extended return cycles—a constellation of features often summarised as "three highs, one length, and uncertainty"—these industries confront persistent challenges, including ambiguous technological trajectories and prolonged investment horizons. Patient capital, defined by its pursuit of long-term returns and elevated risk tolerance, exhibits a pronounced structural affinity with future industries. This paper examines the core mechanisms through which patient capital drives investment growth in future industries. It proposes, from the perspectives of supply, incentives, and circulation, the establishment of a diversified capital supply system, the reshaping of investment actor behaviour, and the improvement of multi-channel exit arrangements. Efforts should be directed towards optimising the diversified supply structure of patient capital, refining institutions for risk-sharing and liability exemption, instituting a differentiated evaluation framework oriented towards the long cycle, and perfecting mechanisms for diversified exit and capital redeployment.

Keywords: Patient capital; future industries; investment growth mechanism; supply adaptation; diversified exit system

1. Introduction

The acceleration of the new round of global scientific and technological revolution has positioned future industries as the strategic high ground in great power competition. The Recommendations of the Central Committee of the Communist Party of China on Formulating the Fifteenth Five-Year Plan for National Economic and Social Development explicitly advocates for the forward-looking deployment of future industries, and the 2026 Government Work Report further underscores the imperative of establishing mechanisms for investment growth and risk-sharing in future industries. A fundamental mismatch persists between the intrinsic characteristics of future industries—namely, the triad of high technology intensity, high capital intensity, high risk, extended gestation periods, and pervasive uncertainty—and the modalities of traditional financial supply. This paper, on the basis of elucidating the conceptual contours and defining features of both future industries and patient capital, proceeds to analyse the core growth mechanisms through which patient capital empowers future industries, and concludes with a set of policy pathways and recommendations.

2. The Connotations and Characteristics of Future Industries and Patient Capital

Future industries denote emerging sectors propelled by frontier technological breakthroughs and disruptive innovations. They bear directly upon medium- to long-term socioeconomic development and national security, occupying the transitional space between laboratory prototypes and large-scale industrialisation; in effect, they constitute the strategic emerging industries of "tomorrow" [1]. Future industries are marked by their strategic significance, catalytic potential, disruptive nature, and profound uncertainty. They confront a nexus of predicaments—intensive capital requirements, protracted payback periods, and indeterminate technological and commercial pathways—that engender an acute need for patient capital to rectify extant supply-demand misalignments. The evolutionary trajectory of future industries tends to conform to the dynamics of "techno-economic paradigm" shifts, wherein each successive wave of technological revolution requires commensurate forms of financial capital to furnish sustained support [2]. Patient capital refers to that variety of capital whereby investors forgo near-term returns in favour of long-term financial commitments to enterprises. It is distinguished

* Corresponding author: Li Han

by a long-term orientation, elevated tolerance for risk, multiplicity of actors, and the attribute of value symbiosis [3]. Unencumbered by the primacy of short-term returns, patient capital is capable of channelling funds into domains of disruptive innovation that are characterised by protracted gestation and heightened risk, thereby serving overarching national strategies. Patient capital is predominantly steered by governmental and state-owned capital, which in turn mobilises participation from a spectrum of actors including social capital and financial institutions. It furnishes whole-lifecycle financial sustenance, shares risks and rewards with enterprises, and evolves from a mere provider of funds into a "strategic partner and co-creator of value".

A tripartite structural congruence obtains between future industries and patient capital. In the temporal dimension, the progression from research and development to industrialisation in future industries typically spans five to ten years, if not longer; patient capital is explicitly defined as an ultra-long-term capital form with a horizon of "a decade or more". In the risk dimension, the early-stage indeterminacy endemic to future industries is met by the enhanced risk-bearing capacity and failure tolerance characteristic of patient capital [4]. In the value dimension, future industries aspire to returns over the long cycle, whilst patient capital attends to core innovative capacity and long-term developmental potential, thereby catalysing the spillover effects that enable future industries to exert a leading role.

3. Analysis of the Mechanisms Through Which Patient Capital Drives Investment Growth in Future Industries

Schumpeter observed that complete economic cycles comprise long, medium, and short waves, and that the interval from initial venture capital investment in a technology through to its industrial application customarily spans approximately one decade—a full "Schumpeterian cycle". The tenure of capital must align with the innovation cycle; failure to do so results in forced exit before technological maturation, which constitutes the deep-seated source of the structural mismatch between traditional venture capital and future industries [5]. Building upon this premise, the present paper constructs three overarching mechanisms—supply, incentives, and circulation—with the aim of forging a growth mechanism that resonates synchronously with Schumpeterian innovation cycles.

3.1 Supply Adaptation: A Diversified Capital Supply System Anchored in Term Structure

Financial growth cycle theory posits that the financing structure of an enterprise undergoes dynamic transformation in tandem with its developmental stage [6]. Given that the capital typologies requisite for future industries vary across the continuum from technological research to industrial deployment, it is essential to establish a diversified capital supply system that

lubricates the entire lifecycle. At the discovery stage, "incubation" capital—principally government-backed angel investment and private angel investment—is matched. At the cultivation stage, "growth" capital—chiefly venture capital and government guidance funds—is deployed. At the growth and maturity stages, "expansion" capital—including private equity funds, industrial capital, and long-term bank finance—assumes prominence. Scholarly research indicates that, although the catalytic effects of government guidance funds on early-stage technology firms may exhibit variance across institutional milieus, the "certification effect" they confer can effectively attract follow-on investment from private capital [7]. The ultimate objective is to construct a diversified supply system in which governmental and state-owned capital provide the guiding impetus, social and private capital participate actively, and coverage extends across the entire lifecycle.

3.2 Incentive Compatibility: The Remoulding of Investment Actor Behavioural Logic

The reluctance, apprehension, and perceived incapacity of capital to invest—summarised as "unwilling, afraid, and unable"—constitute urgent practical challenges that demand resolution. Patient capital surmounts the "unwilling" hurdle by reconfiguring the temporal logic underpinning value accretion in technology-intensive enterprises; it surmounts the "afraid" hurdle by optimising the cooperative game between financial institutions and technology-intensive enterprises; and it surmounts the "unable" hurdle by dismantling the predicament of "disembedding" that afflicts such enterprises. In so doing, it fosters an organic alignment between the research and development cycle and the capital return cycle [8]. First, a long-cycle value assessment mechanism must be instituted, thereby redirecting investment decisions from a posture of reluctance towards one of "accompanying growth". Second, a framework of risk-sharing and benefit-sharing between governmental and social capital should be erected—for instance, through the establishment of risk compensation pools—so as to avert the scenario wherein risks are socialised while rewards are privatised, a dynamic that underlies much investment aversion. The design of risk-sharing compacts between fiscal authorities and private capital directly influences early-stage investment propensity; an appropriate level of governmental backstopping can strike a balance between risk mitigation and the preservation of incentives [9]. Third, an "assessment–resources–market" model should be constructed to redress the information asymmetries that engender market failures and institutional lacunae, thereby enabling the virtuous co-development of financial institutions and technology-intensive enterprises.

3.3 Unobstructed Circulation: The Closed-Loop Mechanism of Value Realisation and Reinvestment for Patient Capital

The venture capital process encompasses four core phases: fund-raising, project investment, post-investment management, and exit. Exit functions as the "valve" of the entire circuit. When exit channels are congested, fund-

raising is impeded and investment contracts, rendering the supply of capital unsustainable [10]. It is therefore imperative to construct well-functioning exit pathways, transitioning from an over-reliance on initial public offerings towards a diversified exit architecture comprising "IPO + mergers and acquisitions (M&A) + secondary funds + share transfers". Such a system would surmount the impediments of "unclear visibility, inaccurate valuation, and obstructed exit". Cross-national comparative studies reveal a robust positive correlation between the efficiency of venture capital exits and subsequent fund-raising capacity; active M&A markets and secondary share markets constitute critical infrastructural underpinnings for sustaining liquidity within the venture capital ecosystem [11]. A vibrant secondary market alleviates exit bottlenecks and completes the circuit of "investment–exit–reinvestment". M&A activities generate synergistic gains, reduce the elevated risks associated with excessive reliance on IPOs, shorten the return cycle of patient capital, galvanise front-end investment appetite, and facilitate industrial consolidation alongside capital recirculation.

4. Pathway Optimisation and Institutional Safeguards for the Mechanism of Patient Capital Driving Investment Growth in Future Industries

Notwithstanding its potential, patient capital's capacity to empower future industries remains subject to constraints. A multi-dimensional, systematic array of institutional pathways is called for. Drawing upon the foregoing analysis, the sustainability of the investment growth mechanism must be secured through action on four fronts: optimising the diversified supply structure of patient capital; perfecting institutions for risk-sharing and liability exemption; instituting a differentiated, long-cycle-oriented evaluation framework; and refining mechanisms for diversified exit and capital redeployment.

4.1 Optimising the Diversified Supply Structure of Patient Capital

A pluralistic patient capital ecosystem—initiated by government, steered by state-owned capital, and actively engaging private equity and other forms of social capital—should be established. The long-cycle, high-risk profile of future industries cannot be adequately addressed by any single capital source. It is necessary to harness the guiding role of state-owned capital and the enabling function of the entrepreneurial state, which assumes responsibility for industrial planning and foundational investment, thereby channelling private equity and cognate resources into sectors aligned with long-term strategic orientations. Tax incentives should be deployed to encourage both technology-intensive enterprises and financial institutions to augment their commitments to frontier domains; private equity funds that actively invest in future industries ought to receive commensurate rewards. Banks, insurers, angel investors,

and venture capital funds should be guided towards active participation, thereby fully unleashing the leveraging efficacy of public capital upon private resources. In view of the chronic shortfall in long-term capital provision for technology-intensive enterprises, broadening the channels through which insurance funds, pension assets, and other sources of patient capital may partake in venture investment is widely regarded as a crucial vector of structural reform [12].

4.2 Perfecting Institutional Arrangements for Risk-Sharing and Liability Exemption

A sustainable returns model predicated on shared risk and shared reward should be consolidated. Financial institutions that commit resources to disruptive technological innovation at an early stage merit risk compensation, and governments should institute and refine robust liability exemption frameworks. A tripartite risk-sharing architecture—encompassing government, financial institutions, and insurance companies—should be erected, enabling investors to secure higher returns via more direct channels such as bond dividends and equity transfers, thereby establishing an equitable distribution between the assumption of elevated risk and the capture of superior returns. In the early phases of future industry development, technological trajectories are unsettled and business models immature; evaluating investors solely on the profitability of individual projects will inevitably induce risk-averse behaviour. The establishment of liability exemption protocols, whereby the focus of assessment shifts from outcome-based profitability to procedural compliance, empowers investors to act with decisiveness. This furnishes an institutionalised margin of tolerance—a safe harbour for committing capital to early-stage ventures, small enterprises, and hard technologies.

4.3 Instituting a Differentiated, Long-Cycle-Oriented Evaluation Framework

An evaluation architecture that aligns with the full lifecycle of investment funds should be constructed, optimising assessment around long-term value considerations. The evaluative rubric should be expanded to incorporate metrics such as the degree of technology commercialisation, the scale of industrial synergy and spillover effects, and the efficiency of patent conversion—rather than remaining narrowly fixated on short-term revenues and profits. Comprehensive capacity assessments should be reinforced, supplanting near-term revenue metrics with indicators of long-term asset returns and strategic steering capability. A differentiated evaluation system—tailored to the distinct emphases of governmental strategic guidance, on the one hand, and corporate profitability imperatives, on the other—should be put in place, thereby rendering the development of future industries more scientifically grounded and sustainable.

4.4 Refining Diversified Exit Channels and Capital Redeployment Mechanisms

To enable patient capital to realise reinvestment and value recreation, a diversified exit apparatus must be assembled, and concerted efforts must be directed towards the redeployment of patient capital. A multiplicity of exit conduits—"IPO + M&A + secondary funds + share transfers"—should be constructed. Listing requirements should be refined so as to afford support to enterprises that, while not yet profitable, evince substantial core technological potential, robust industrial synergy, and expansive market prospects. Leading firms should be encouraged to pursue M&A activity with upstream and downstream enterprises that demonstrate pronounced industrial complementarity and technological promise; M&A procedures should be streamlined. The introduction of private equity should galvanise the secondary fund market, fostering a standardised, efficient, and transparent secondary market that enhances capital liquidity and preserves options for investors compelled to exit prematurely due to liability pressures. Trading platforms for fund share transfers should be established under lawful auspices to forestall ruptures in capital chains, thereby permitting capital to effect a "relay race" across successive stages of enterprise development. The ultimate aim is to achieve a virtuous synergy of "technology supply–industrial consolidation–capital exit".

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