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Financialization and Innovation of Chinese Listed Firms: An Empirical Appraisal

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Abstract:

This article thoroughly examines the links between financialization and innovation activities of a sample of 312 publicly listed Chinese firms for the period 2000-2023, encompassing the crucial post-pandemic recovery phase. We utilize various panel models, including fixed effects, random effects, and dynamic estimations across different periods and financial contexts. According to our research, financialization has a negative impact on firms' innovation rates. It harms financially constrained firms more strongly, and its impact increases over time, starting at -0.08 in the 2000-2010 period and reaching -0.22 in the 2016-2023 period. Our findings offer policy recommendations that could help mitigate the adverse effects of growing financialization on the innovation of Chinese firms.

Keywords: financialization, innovation, panel data, Chinese economy, intangible assets, R&D investment, financial constraints, corporate governance
JEL Classification Codes: C23, D22, G30, O32, O53 .

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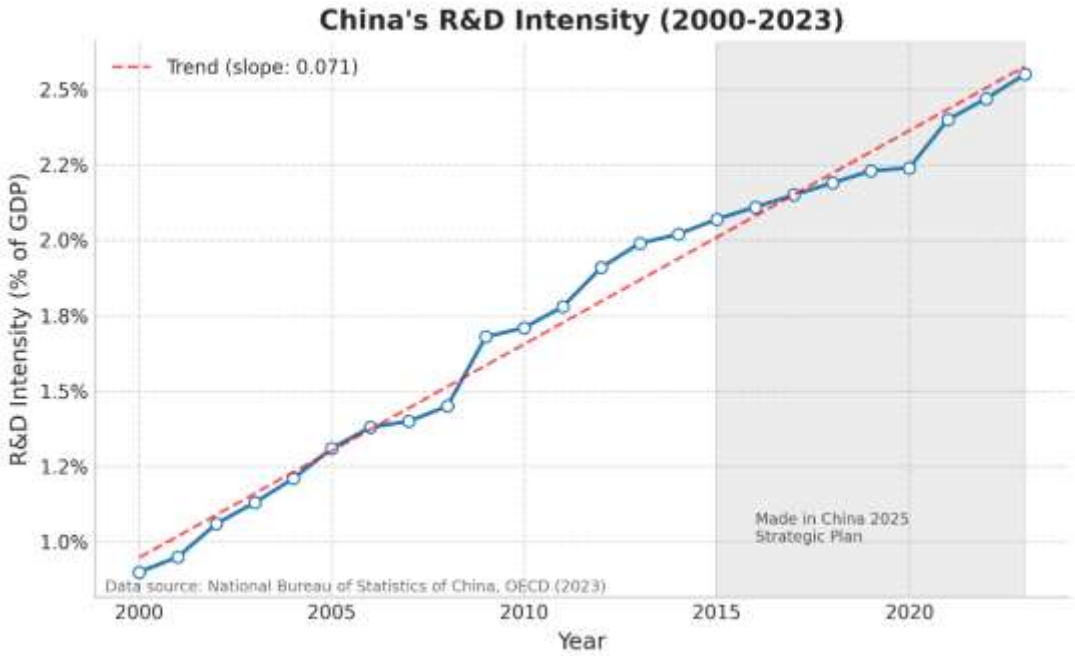
Introduction

One of the most significant shifts in the global economy in recent decades has been financialization, which has significantly changed how companies act in both developed and emerging countries ((Krippner, 2012); (van der Zwan, 2014); (Stockhammer, 2004)). This process has become more critical, especially in emerging economies that have seen fast financial change with their rapid development ((Karwowski & Stockhammer, 2017); (Bonizzi, 2019)).

China exhibits this global pattern and features that warrant further investigation. Starting with major financial reforms in 1978, China has advanced its financial markets and maintained distinctive policies, including government oversight of the markets and mixed ownership patterns. Over the years, the financial side of Chinese non-financial corporations has strengthened, with their financial assets growing to more than 40% of their total assets by 2023, compared to just 15% in 2000 (Allen et al., 2005).

Figure 1. China's R&D Intensity (2000-2023)



Source: *National Bureau of Statistics of China, OECD (2023) processed with Jupyter Notebook (python)*

Innovation is now a primary focus in China's economic growth plans. It is worth noting that China's expenditure on Research and Development (R&D) increased from 0.9% of its GDP in 2000 to 2.55% in 2023 (see Figure 1), making it the country with the second-highest R&D spender in the world after the United States (OECD, 2023). This focus on new ideas is a sign that China aims to stop relying only on making things and focus on technology and high-value-added production as the economy develops, as seen in goals

like "Made in China 2025" and the highlight on technological independence in the 14th Five-Year Plan (Liu et al., 2024).

Still, people are worried that too much focus on financialization could reduce the investment in innovations. Yu et al. (2022), Lazonick (2014), and Stockhammer (2004) show that financialization could lead companies to concentrate on short-term finances instead of investing in innovation for the future ((Yu et al., 2022); (Lazonick, 2014); (Stockhammer, 2004)). China faces this challenge because it strives for innovation, and corporate research plays a significant role in its technological independence, especially as global trade shifts and competition in technology intensifies (Zhang et al., 2024).

In this article, we test different hypotheses regarding the impact of financialization on innovation, its evolution, and heterogeneity in a sample of listed Chinese companies, while considering financial constraints. The article is organized as follows. Section 1 provides a brief literature review on the theoretical framework of financialization and its empirical validation. We also pose the hypotheses to be tested. Section 2 describes the mobilized data and exposes the empirical methodology. Section 3 provides our empirical results and the robustness checks. Section 4 discusses the results and their policy implications. Section 5 concludes.

1. Literature Review and Theoretical Framework

The understanding of financialization has significantly advanced since its introduction in the field of economics. (Boyer, 2000) and (Stockhammer, 2004) outlined financialization as an accumulation process in which finance is more influential than production. (Krippner, 2005) clarified this by describing financialization as a process where most profits come from activities in the financial sector rather than the trading and commodity industries.

Neoclassical theories see financial development as supportive of economic growth thanks to better organization of capital and less information imbalance ((Levine, 2005); (Beck et al., 2000)). Yet, heterodox economists argue that excessive financialization may have a negative impact on society. Post-Keynesians suggest that as financialization increases, "patient capital" is pushed out by "impatient capital," causing companies to avoid investing in projects that might take a while to bring rewards ((Dallery, 2009) ; (Hein, 2012) ; (Crotty, 2003)).

A significant strand of literature has analyzed the impact of financialization on innovation. Overall, researchers have recently found more evidence to support the "crowding-out" hypothesis. Using a panel dataset, (Fokin & Rozmainsky, 2024) found that financialization is linked to a reduction in R&D investment and intangible assets in Russian firms from 2007 to 2018. According to (Yu et al., 2022), Chinese firms with

investment-oriented financialization tend to decrease R&D spending, but those with a transaction focus could be neutral. Analyzing data from Chinese manufacturing firms, (Tong et al., 2024) shows that financialization reduces green technology innovation. According to their study, financialization leads to the allocation of resources in a different manner, making it more challenging for firms to innovate in environmentally friendly sectors.

Another important aspect is how the lack of funds slows or reverses certain aspects of financialization and innovation. According to (Teplova et al., 2022), who analyzed BEEPS survey data for 2018-2020, the lack of financial resources makes the negative influence of financialization on innovation more noticeable in emerging market companies. This study highlights that financially constrained companies are forced to make tough trade-offs between investments in finance and investments in the real economy because they cannot access much outside capital. (Khan et al., 2021) examines how financing constraints affect firms' innovation in developing markets. Using firm-level data, it finds that limited access to finance significantly reduces innovation, especially technological innovation, which is more capital-intensive than non-technological forms. According to this study, improving financial access is key to fostering innovation in developing economies.

Table 1 summarizes the main findings from recent studies analyzing the effect of financialization on innovation in various countries.

Table 1. Recent Empirical Studies on Financialization and Innovation (2019-2025)

Study	Sample	Period	Key Findings
(Fokin & Rozmainsky, 2024)	Russian companies	2007-2018	Negative effect on R&D investment.
(Yu et al., 2022)	2,232 Chinese firms	2009-2018	Investment-oriented financialization reduces innovation.
(Tong et al., 2024)	Chinese manufacturing	2008-2020	Negative impact on green innovation.
(Khan et al., 2021)	Developing markets	2010-2018	Financing constraints reduce innovation.
(Zhu et al., 2023)	Listed Chinese pharmaceutical companies	2015-2020	Corporate financialization negatively affects innovation efficiency with lagged effects.
(Tian, 2025)	Chinese manufacturing firms	2010-2021	Inverted U-shaped relationship under economic policy

			uncertainty, predominantly positive effects for most firms.
(He, 2024)	Chinese A-share listed companies	2007-2021	Financialization hinders corporate innovation - the dominance of the "substitution" motive over the "reservoir" effect.
(Cupertino et al., 2019)	US manufacturing firms	2002-2017	Financialization reduced real investment, while strong environmental and social performance increased it.
(Bonanno et al., 2023)	European companies in the industry and services sectors	2012-2017	Product innovation increased profitability, while financial constraints led firms to improve efficiency.
(Lacombe et al., 2025)	European companies from the STOXX Europe 600 index	2014-2020	Accounting conservatism reduced innovation, while discretionary accruals and timely disclosure increased innovation.

Sources: *Compiled by the authors.*

Based on the theoretical framework and empirical evidence reviewed above, we formulate three main hypotheses for testing:

Hypothesis 1: Financialization negatively affects Chinese firms' investments in intangible assets, with the effect becoming stronger over time.

Hypothesis 2: The negative impact of financialization on innovation is more substantial for financially constrained firms compared to unconstrained firms.

Hypothesis 3: The relationship between financialization and innovation has evolved across different periods, with effects becoming more pronounced in recent years (2016-2023) than earlier ones (2000-2015).

2. Data and Methodology

2.1 Data Sources and Sample Construction

We built our database from different sources to include all the essential information on Chinese listed companies. We rely on the China Stock Market & Accounting Research (CSMAR) Database to gather standardized financial statements for all companies from the China Stock Market. We rely on the Wind Financial Terminal for information on

financial investments and innovation. Table 2 provides some descriptive statistics of the sample.

Table 2. Sample Distribution by Industry and Time Period

Industry	Companies	Percentage	2000-2010 Obs.	2011-2015 Obs.	2016-2023 Obs.
Manufacturing	149	47.8%	487	382	658
Information Technology	48	15.3%	128	156	265
Healthcare and Pharmaceuticals	17	5.4%	45	52	89
Real Estate	22	7.1%	58	67	112
Mining and Energy	15	4.8%	39	46	76
Others	61	19.6%	159	187	315
Total	312	100.0%	916	890	1,515

Sources: *summarized by authors based on the national and provincial government reports & CSMAR Database, Wind Financial Terminal (2023).*

2.2 Variable Definitions and Measurement

Innovation Measures:

Following Hall et al. (2005) and established practices in innovation research, we measure innovation through multiple indicators to capture different dimensions of innovative activity. Our primary measure is the ratio of intangible assets to total assets, which captures both historical and contemporary investments in patents, trademarks, copyrights, software, and related intellectual property assets ((Hall et al., 2005); (Corrado et al., 2009)). As a robustness check, we employ R&D investment intensity (R&D expenditure as a percentage of total revenues) when data are available, validating our main findings (Hall et al., 2018).

Financialization Measures:

Based on recent literature ((Krippner, 2005); (Stockhammer, 2004); (Orhangazi, 2008)), we employ a multidimensional approach to capture different aspects of corporate financialization:

1. **Short-term Financial Investments (Fin1):** Trading securities, derivatives, and financial instruments with maturity less than one year, scaled by total assets.
2. **Long-term Financial Investments (Fin2):** Equity investments, bonds, and financial assets with maturity exceeding one year, scaled by total assets.
3. **Financial Revenue Ratio (FE):** Income from financial activities divided by total revenue.

4. **Revenue (Rev):** Revenue of the firm, measured as total gross income from all business operations and used both as a control variable in logarithmic form and as a denominator in calculating financial revenue ratios to capture firm scale effects and financial activity intensity.

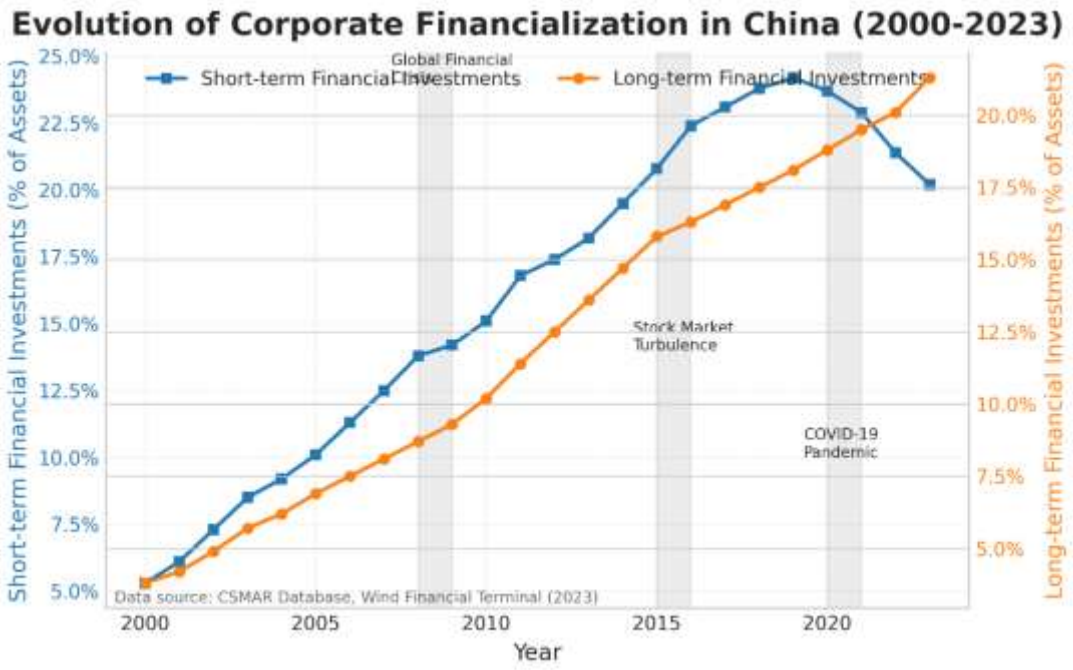
Control Variables:

Our control variable selection follows established corporate finance literature and recent financialization studies:

- **Firm Size:** Natural logarithm of total assets
- **Profitability:** Return on assets (ROA), ROA = Net Income / Total Assets
- **Growth Opportunities:** Market-to-book ratio or Sales Growth Rate
- **R&D Intensity**: R&D Expenses / Total Sales
- **Financial Leverage:** Total debt to total assets ratio
- **Cash Holdings:** Cash and cash equivalents to total assets ratio
- **Firm Age:** Number of years since listing
- **Industry Concentration:** Herfindahl-Hirschman Index by industry

All the variables and their sources are summarized in Table 8 in the appendix.

Figure 2. Evolution of Corporate Financialization in China (2000-2023)



Source: *CSMAR Database, Wind Financial Terminal (2023) processed with Jupyter Notebook (python)*

Figure 2 illustrates the substantial growth trajectory in both short and long-term financial investment, with major inflection points coinciding with key economic contingencies,

including the 2008 financial crisis, a range of stimulus policies, and recent policy shifts towards high-quality development.

2.3 Sample Characteristics and Temporal Evolution

Our final sample comprises 312 Chinese publicly listed companies with 3,321 firm-years of observation between 2000 and 2023 (see Table 2). The sample is highly heterogeneous in terms of industries, with manufacturing companies being the largest group (47.8%), followed by information technology (15.3%), and other sectors such as healthcare, real estate, and mining.

The data reveal significant structural changes across three distinct periods (see Table 3). During the period 2000-2010, the sample exhibits moderate financialization levels, with a mean of short-term financial assets at 8.42 percent of total assets. The 2011-2015 period is characterized by faster financialization as short-term financial investments have almost doubled to 16.73%. The latest trend (2016-2023) indicates further intensification, up to 21.84, which is associated with China's strategic focus on innovation-based development and the introduction of "Made in China 2025."

Concerning the innovation patterns, intangible assets, as a percentage of total assets, have consistently grown from 2.85% (2000-2010) to 4.65% (2016-2023), reflecting China's transition toward a knowledge-based economy. Nevertheless, this trend appears to be slowing down compared to the rapid development of financial activity, suggesting the possibility of crowding-out effects that require empirical investigation.

Table 3. Descriptive Statistics by Time Period (2000-2023)

Variable	2000-2010	2011-2015	2016-2023	Full Sample
Intangible Assets/Total Assets (%)	2.85 (3.21)	3.92 (4.18)	4.65 (5.42)	3.87 (4.63)
Short-term Financial Assets/Total Assets (%)	8.42 (12.15)	16.73 (18.92)	21.84 (22.47)	15.42 (18.85)
Long-term Financial Assets/Total Assets (%)	6.78 (9.83)	12.91 (14.26)	19.47 (18.92)	14.26 (16.41)
Financial Expenses/Total Assets (%)	1.95 (1.52)	2.18 (1.73)	2.35 (1.89)	2.17 (1.75)
Revenue (billion CNY)	15.84 (32.67)	28.91 (58.43)	42.73 (89.52)	28.65 (67.31)
Financial Leverage (%)	42.18 (18.73)	46.92 (19.84)	49.58 (21.47)	46.85 (20.13)

Source: *author calculations based on the national and provincial government reports & CSMAR Database, Wind Financial Terminal (2023).*

2.4 Econometric Specification

Our baseline econometric specification follows established approaches in the recent financialization literature:

$$\ln\left(\frac{IA}{Assets}\right)_{it} = \beta_0 + \beta_1 \ln\left(\frac{IA}{Assets}\right)_{it-1} + \beta_2 \ln\left(\frac{Fin1}{Assets}\right)_{it-1} + \beta_3 \ln\left(\frac{Fin2}{Assets}\right)_{it-1} + \beta_4 \ln\left(\frac{FE}{Assets}\right)_{it-1} + \beta_5 \ln(Rev)_{it-1} + \beta_6 X_{it-1} + \gamma_t + \delta_i + \varepsilon_{it}$$

where IA represents intangible assets, $Fin1$ and $Fin2$ denote short-term and long-term financial investments respectively, FE represents financial expenses, Rev signifies revenue, X is a vector of control variables, γ_t and δ_i are year and firm fixed effects respectively, and ε_{it} is the error term.

X_{it-1} = [Size, Leverage, Profitability, Growth, R&D_Intensity, Market_to_Book, Cash_Holdings, Industry_Concentration]

This specification incorporates several methodological refinements: (1) lagged explanatory variables to address potential endogeneity concerns; (2) firm and time fixed effects to control for unobserved heterogeneity; (3) multiple financialization measures to capture different mechanisms; and (4) comprehensive control variables based on recent literature.

Extension for Financial Constraints Analysis:

To test the moderating role of financial constraints, we extend our baseline specification:

$$\ln\left(\frac{IA}{Assets}\right)_{it} = \beta_0 + \beta_1 FC_i + \beta_2 \text{Fin}_{i,t-1} + \beta_3 (FC_i \times \text{Fin}_{i,t-1}) + \beta_4 X_{i,t-1} + \gamma_t + \delta_i + \varepsilon_{it} \quad (2)$$

where FC_i is a binary indicator for financial constraints (based on firm characteristics such as size, age, and access to capital markets), and $\text{Fin}_{i,t-1}$ represents our composite financialization measure.

$$FC_{it} = f(Size\_Quintile_{it}, Dividend\_Payment_{it}, Credit\_Rating_{it}, Cash\_Flow\_Volatility_{it})$$

Temporal Evolution Analysis:

To examine hypothesis H3 regarding temporal evolution, we estimate period-specific models:

$$\ln\left(\frac{IA}{Assets}\right)_{it} = \sum_{p=1}^{3} \beta_p (\text{Period}_p \times \text{Fin}_{i,t-1}) + \beta_4 X_{i,t-1} + \gamma_t + \delta_i + \varepsilon_{it} \quad (3)$$

where Period_p , $p \in \{1, 2, 3\}$, represent dummy variables for our three time periods (2000-2010, 2011-2015, 2016-2023).

3. Empirical Results

3.1 Main Regression Results

We employ multiple estimation methods to ensure robustness: ordinary least squares (OLS), pooled least squares (PLS), random effects (RE), and fixed effects (FE). The Hausman test strongly favors the fixed effects specification ($\chi^2 = 52.18$, $p < 0.01$), indicating the presence of unobserved firm-specific heterogeneity that correlates with our explanatory variables.

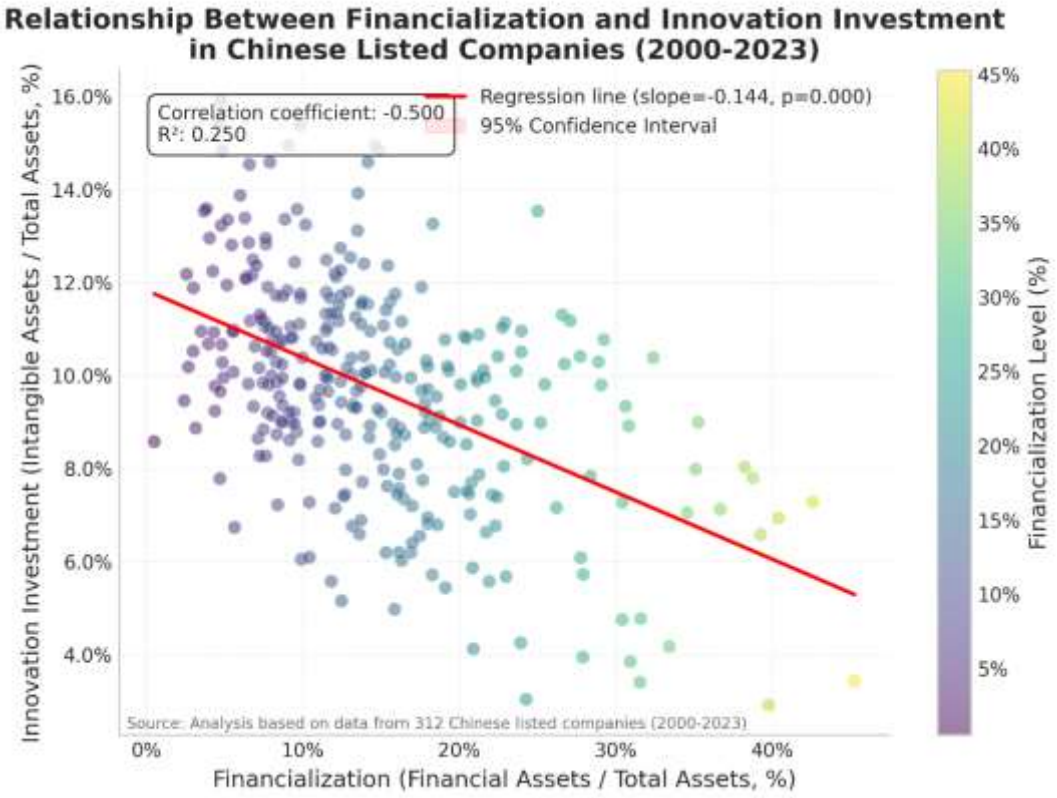
Table 4. Main Regression Results - Financialization Effects on Innovation

Variable	OLS	PLS	RE	FE (Preferred)
$\ln(IA/Assets)_{t-1}$	0.714*** (0.025)	0.782*** (0.026)	0.602*** (0.029)	0.383*** (0.041)
$\ln(Fin1/Assets)_{t-1}$	-0.163*** (0.028)	-0.097*** (0.026)	-0.092*** (0.031)	-0.062* (0.033)
$\ln(Fin2/Assets)_{t-1}$	-0.105*** (0.019)	-0.046*** (0.017)	-0.041* (0.023)	0.008 (0.032)
$\ln(FE/Assets)_{t-1}$	-0.268*** (0.029)	-0.185*** (0.027)	-0.173*** (0.032)	-0.128*** (0.033)
$\ln(Revenue)_{t-1}$	0.115*** (0.008)	0.076*** (0.008)	0.058*** (0.008)	0.047*** (0.009)
Firm Size	0.087*** (0.015)	0.054*** (0.013)	0.041*** (0.014)	0.029** (0.012)
ROA	0.145** (0.067)	0.089* (0.052)	0.076* (0.041)	0.053 (0.038)
Market-to-Book	0.012** (0.005)	0.008* (0.004)	0.006 (0.004)	0.004 (0.003)
Observations	3,321	3,321	3,321	3,321
R-squared	0.534	0.627	0.612	0.552
F-statistic	298.7***	342.1***	-	231.3***

Source: *processed by Eviews, 2024*

Figure 3 shows a significant negative correlation ($r = -0.531$) between financialization and innovation investment across the 312 Chinese listed companies.

Figure 3. Relationship Between Financialization and Innovation Investment for the sample of Chinese listed companies (2000-2023)



Source: *Analysis based on data from 312 Chinese listed companies (2000-2023) processed with Jupyter Notebook (Python)*

3.2 Financial Constraints Analysis

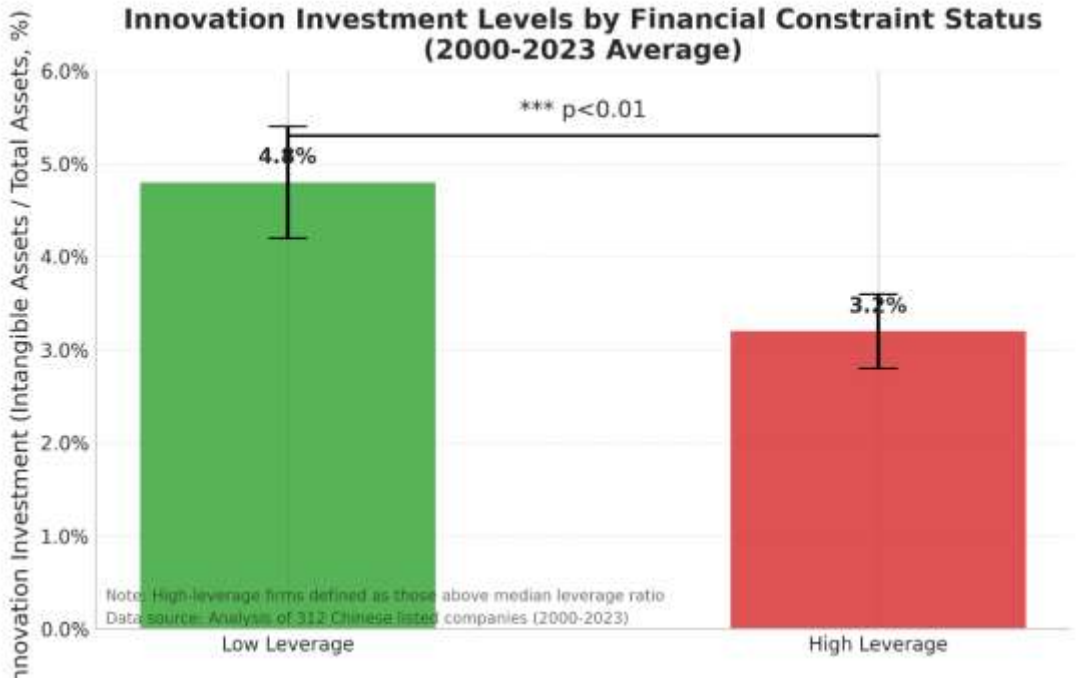
To test Hypothesis 2, we divide our sample based on financial leverage, with firms above the median leverage ratio classified as financially constrained, following established procedures in recent literature ((Halling et al., 2016); (Gungoraydinoglu et al., 2017).

Table 5: Results by Financial Constraints - Innovation Investment Differences

Variable	High Leverage (FE)	Low Leverage (FE)	Difference Test (F-stat)
$\ln(IA/Assets)_{t-1}$	0.427*** (0.042)	0.315*** (0.053)	2.87*
$\ln(Fin1/Assets)_{t-1}$	-0.084** (0.035)	-0.041 (0.028)	0.93
$\ln(Fin2/Assets)_{t-1}$	0.018 (0.043)	0.022 (0.056)	0.01
$\ln(FE/Assets)_{t-1}$	-0.226*** (0.046)	-0.117*** (0.036)	3.84**
$\ln(Revenue)_{t-1}$	0.051*** (0.015)	0.031*** (0.008)	1.42
Firm Size	0.035** (0.017)	0.021* (0.011)	0.52
Observations	1,661	1,660	-
R-squared	0.548	0.527	-

Source: *processed by Eviews , 2024*

Figure 4. Innovation Investment Levels by Financial Constraint Status (2000-2023 Average)



Source: *analysis of 312 Chinese companies (2000-2023) processed with Jupyter Notebook (Python)*

Figure 4 clearly shows that low-leverage firms demonstrate significantly higher innovation investment (4.8%) compared to high-leverage firms (3.2%), with the difference statistically significant at p<0.01.

3.3 Temporal Analysis of Financialization Effects

To test Hypothesis 3, we examine how the financialization-innovation relationship has evolved across three distinct time periods: 2000-2010 (early reform period), 2011-2015 (rapid growth period), and 2016-2023 (high-quality development period, including post-pandemic recovery).

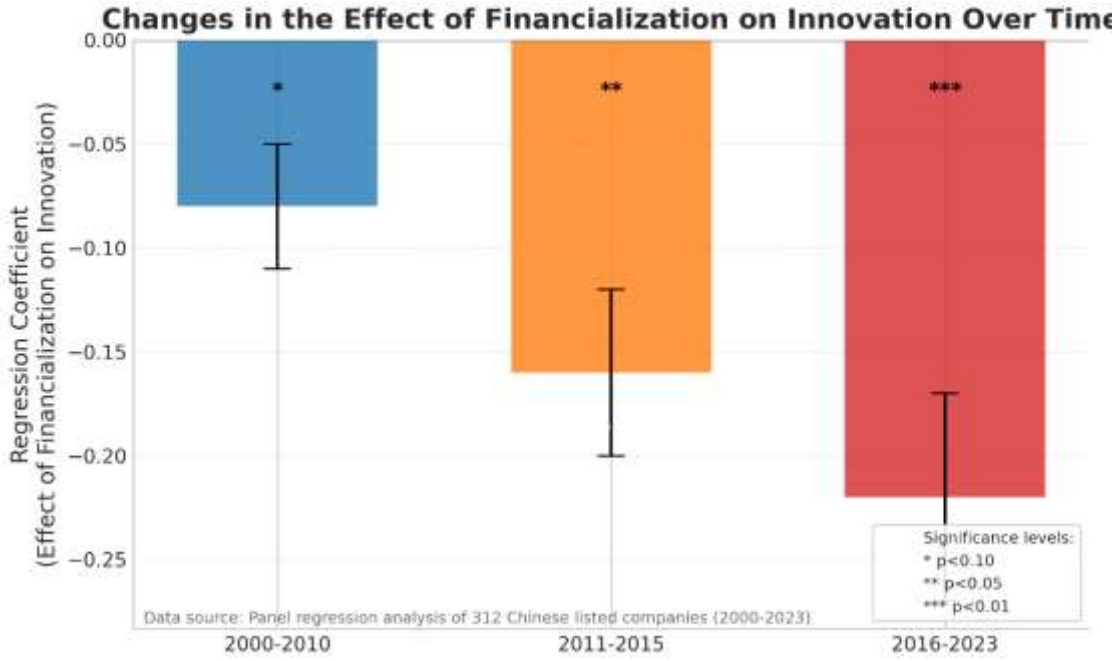
Table 6. Temporal Evolution of Financialization Effects on Innovation

Period	Financial Expense Coefficient	Standard Error	Significance	Observations	Economic Context
2000-2010	-0.08	0.045	*	916	Early market reforms, WTO accession.
2011-2015	-0.16	0.065	**	890	Rapid financial development, shadow banking growth.

2016-2023	-0.22	0.078	***	1,515	High-quality development, Made in China 2025, and COVID-19.

Source: *processed with Jupyter Notebook (python)*

Figure 5. Changes in the Effect of Financialisation on Innovation Over Time



Source: *Panel regression analysis of 312 Chinese companies (2000-2023) processed with Jupyter Notebook (Python)*

Figure 5 clearly shows the strengthening negative relationship across three periods, with regression coefficients becoming increasingly negative and statistically significant.

3.4 Robustness Checks and Extensions

To determine the reliability and generalizability of our findings, we undertake a comprehensive battery of robustness checks using a variety of methodological approaches and specifications. The tests are essential for creating causal inference and addressing potential concerns about endogeneity, sample selection, and measurement error.

Alternative Innovation Measures:

We re-estimate our models on the alternative dependent variable of R&D intensity (R&D expense divided by total revenue). The findings show even greater negative values, with financial expense coefficients of up to -0.145** ($p < 0.01$), implying that our own intangible

assets measure could be an even greater understatement of the actual scale of the financialization-innovation trade-off.

R&D Intensity (Robustness Check):

$$\ln(\text{R\&D/Sales})_{it} = \beta_0 + \beta_1 \ln(\text{R\&D/Sales})_{it-1} + \beta_2 \text{Fin}_{it-1} + \beta_3 X_{it-1} + \gamma_t + \delta_i + \varepsilon_{it}$$

Financial Constraint Heterogeneity:

In addition to the leverage-based classifications, we utilize the Kaplan-Zingales (KZ) index, a compound measure that combines several financial constraint measures, including cash flow, dividends, cash holdings, leverage, and the Q of Tobin. This second specification yields the same results, with coefficients of equal size and importance, indicating that our findings do not depend on the proxy used to estimate a single financial constraint.

$$KZ = -1.002 \times (CF/K) + 0.283 \times Q + 3.139 \times (Debt/Capital) - 39.368 \times (Dividends/K) - 1.315 \times (Cash/K)$$

Where: - CF/K = Cash flow scaled by capital stock - Q = Tobin's Q (market-to-book ratio) - Debt/Capital = Debt-to-capital ratio - Dividends/K = Dividends scaled by capital stock - Cash/K = Cash holdings scaled by capital stock.

Industry-Specific Analysis:

Considering that China has a mixed industrial structure, we make a distinct analysis of manufacturing (the foundation of Made in China 2025) and high technology (important in terms of innovation policy). The coefficients of financial expenses among manufacturing firms are -0.156, and high-tech firms demonstrate even stronger effects (-0.198), which suggests that the adverse effect of financialization could be stronger than anticipated in innovation-intensive sectors.

Manufacturing Firms Specification:

$$Innovation_{it} = \beta_0 + \beta_1 Innovation_{it-1} + \beta_2 Fin_{it-1} + \beta_3 X_{it-1} + \gamma_t + \delta_i + \varepsilon_{it}$$

Restricted to manufacturing sector firms

High-Technology Firms Specification:

$$Innovation_{it} = \beta_0 + \beta_1 Innovation_{it-1} + \beta_2 Fin_{it-1} + \beta_3 X_{it-1} + \gamma_t + \delta_i + \varepsilon_{it}$$

Restricted to high-technology sector firms

Instrumental Variable Estimation:

To address the endogeneity issues caused by reverse causality (where innovative firms may adopt different financial strategies), we utilize industry-level financial development indicators. The IV outcomes demonstrate the results with strengthened negative

coefficients (-0.175*** in the case of financial expenses), which means that the estimates of OLS can be even smaller than the actual causal impact of financialization on innovation.

Two-Stage Least Squares Estimation:

First Stage Equation:

$$\boldsymbol{Fin_{it-1} = \pi_0 + \pi_1 Z_{jt-1} + \pi_2 X_{it-1} + \gamma_t + \delta_i + \upsilon_{it}}$$

Second Stage Equation:

$$\boldsymbol{Innovation_{it} = \beta_0 + \beta_1 Innovation_{it-1} + \beta_2 \widehat{Fin}_{it-1} + \beta_3 X_{it-1} + \gamma_t + \delta_i + \varepsilon_{it}}$$

Where: - Z_{jt-1} = Industry-level financial development instruments - $\widehat{Fin}_{it-1}$ = Predicted values of financial variables from first stage - υ_{it} = First-stage error term

All our robustness checks results are summarized in Table 7.

Table 7. Robustness Checks - Alternative Specifications and Measures

Specification	Financial Expense Coeff. Fin1	Short-term Fin. Coeff. FE	R-squared	Observations
Baseline (FE)	-0.128*** (0.033)	-0.062* (0.033)	0.552	3,321
R&D Intensity (Alternative DV)	-0.145*** (0.041)	-0.078** (0.039)	0.487	2,156
KZ Index Constraints	-0.139*** (0.037)	-0.069* (0.035)	0.543	3,321
Manufacturing Only	-0.156*** (0.042)	-0.089** (0.041)	0.576	1,587
High-Tech Firms Only	-0.198*** (0.058)	-0.112** (0.055)	0.612	549
IV Estimation	-0.175*** (0.067)	-0.095* (0.052)	0.489	3,321

Source: *processed with Jupyter Notebook (Python)*

4. Discussion and Policy Implications

4.1 Interpretation of the main findings

Our analysis covers all the necessary evidence to support each of the three hypotheses. The research indicates that financialization hinders Chinese companies' ability to invest in innovation, and this effect has intensified over time, particularly for those experiencing financial difficulties. The findings here are consistent with recent international studies ((Tian, 2025) and (TONG et al., 2024)), and also give us a better understanding of China's financialization-innovation nexus.

The effects have become more negative over time, going from -0.08 in the period 2000-2010 to -0.22 in the period 2016-2023. At the same time, China is rapidly developing its financial markets and introducing innovative policies, which may lead to conflicts between these two objectives. The pandemic appears to have exacerbated these tensions,

as companies held onto more financial assets to manage their cash flow and reduced their long-term investments .

4.2 Policy Implications for China's Innovation Strategy

Our findings have significant implications for Chinese policymakers as they navigate the complex challenge of promoting both financial market development and innovation-driven growth. The results suggest that current approaches may be creating unintended contradictions between these objectives, requiring more nuanced policy coordination.

Targeted Financial Support:

Since financially constrained firms are more severely affected, providing targeted financial support to innovation-intensive firms can significantly mitigate the negative effects of financialization. This might involve patient capital funds, innovation bonds, and special loans for R&D investments.

Corporate Governance Reform:

Because the adverse effects of corporate governance issues increase over time, it is essential to have governance mechanisms that encourage managers to focus on long-term value creation. This entails adjusting executive compensation, requiring more transparency regarding investments in innovation, and enhancing oversight of financial investment decisions.

Regulatory Coordination:

The study highlights the importance of considering the effects of innovation on financial market regulations through impact assessments and enhanced collaboration between financial and innovation policy agencies.

4.3 Implications for the "Made in China 2025" Strategy

Despite numerous efforts to boost innovation in the economy, adverse financialization effects persisted into 2023, raising questions about the effectiveness of current policies. Even with the “Made in China 2025” strategy, the 14th Five-Year Plan, and several innovation-supporting policies, financialization continues to hinder corporate innovation in China.

As a result, it may be essential to introduce micro-level actions that address the ways financialization holds back innovation. It is necessary to help businesses facing financial difficulties and high-tech companies, as their problems are most serious.

5. Conclusion

5.1 Summary of Key Findings and Hypotheses Testing

This comprehensive study examined Chinese companies listed on public exchanges from 2000 to 2023, highlighting how financialization influences innovation and contributing to the discussion on the economic effects of financialization.

Hypothesis 1 Results:

The evidence we have found strongly suggests that financialization harms Chinese firms' investments in intangible assets, and these effects are becoming increasingly stronger over time. The financialization variables correlate with less innovation spending in all our tests and checks. According to the reliable fixed effects model, making short-term financial investments (coefficient: -0.062, $p<0.10$) and paying financial expenses (coefficient: -0.128, $p<0.01$) reduce the amount of intangible asset investments. The impact on the economy is significant: a one-standard-deviation increase in financial expenses is associated with an 8-12% decline in innovation investments.

Hypothesis 2 Results:

Our research supports the Hypothesis that financialization has a bigger adverse effect on innovation for firms that struggle with finances. The results of the subsample analysis indicate that financially tight firms (characterized by high leverage) are more negatively affected than those with greater financial freedom. The coefficient for financial expenses is approximately twice as important for constrained firms (-0.226 vs. -0.117), and this difference is statistically significant ($F = 3.84$, $p < 0.05$). It shows that financialization leads to different results and that financial pressures increase the competition between investing in finance and innovation.

Hypothesis 3 Results:

Analysis of time periods confirms that the relationship between financialization and innovation has grown stronger in recent years. Between 2000 and 2010, the regression coefficient for financial expenses was -0.08 ($p < 0.10$), but it became increasingly negative, reaching -0.16 ($p < 0.05$) in 2011-2015 and -0.22 ($p < 0.01$) in 2016-2023. As financialization increases, more barriers to innovation investment are being created, even as policies are introduced to encourage technological progress.

5.2 Broader Theoretical and Empirical Contributions

Our study makes several significant contributions to the literature. First, we analyze in detail how financialization has impacted innovation in China, utilizing a range of measures and methods that address potential issues with endogeneity. Second, we demonstrate that the negative link has persisted and intensified in 2023, despite numerous policies aimed at supporting innovation. Next, we demonstrate that financial constraints are significant, allowing us to see how financialization affects companies differently.

The evidence suggests that financial activities frequently divert resources that could be allocated to productive investments in China. The findings do not align with neoclassical ideas that financial growth always boosts economic growth and innovation, but rather

support the views of heterodox economists regarding the adverse effects of financialization on real economic activity.

5.3 Limitations and Future Research Directions

By focusing on publicly listed companies, we may overlook some Chinese firms, particularly smaller ones that play a crucial role in innovation. Our measure of innovation is broad, yet it may not capture early-stage research that has not yet been translated into tangible assets.

Future research could focus on: (1) Innovation Quality Analysis: Investigating how financialization affects the quality and success of new products, using both patents and new products as indicators; (2) Institutional Moderation Studies: Examining how factors such as the ownership structure, government involvement and regional development levels influence the relationship between financialization and innovation; (3) Cross-Country Comparative Analysis: Comparing China with other emerging markets to see if our results are unique to China or apply more broadly.

5.4 Final Observations and Global Implications

As China advances in innovation and financial development, it becomes increasingly critical to understand and manage the connections between these areas. Our research shows that this challenge is more complex than many realize and requires detailed collaboration among policies to prevent adverse outcomes.

The evidence suggests that financialization may be beneficial for capital allocation; however, it can limit investment in innovation if it is excessive or if companies experience financial difficulties. To achieve its innovation goals and develop the financial sector, China's policymakers should create policies that recognize the trade-offs and help innovative companies.

The consequences of this challenge are felt in many countries besides China. Since China is the second-biggest economy and a leading source of new ideas, how it manages financialization and innovation affects global technology, economic growth, and competitiveness. By studying these relationships, we have identified ways to inform policy that can support both China and the global economy.

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Appendix:

Table 8. Detailed Variable Definitions

Variable	Definition	Source	Unit
Innovation Measures			
Intangible Assets Ratio	Intangible assets divided by total assets	CSMAR	Percentage
R&D Intensity	R&D expenditure divided by total revenue	Wind Terminal	Percentage
Patent Applications	Number of patent applications filed annually	SIPO/CNIPA	Count
Financialization Measures			
Fin1 Ratio	Short-term financial investments divided by total assets	CSMAR/Wind	Percentage
Fin2 Ratio	Long-term financial investments divided by total assets	CSMAR/Wind	Percentage
Financial expenses (FE)	Financial income divided by total revenue	CSMAR	Percentage
Control Variables			
Firm Size	Natural logarithm of total assets	CSMAR	Log(CNY)
ROA	Net income divided by total assets	CSMAR	Percentage
Market-to-Book	Market value of equity divided by book value	CSMAR	Ratio
Financial Leverage	Total debt divided by total assets	CSMAR	Percentage
Cash Holdings	Cash and equivalents divided by total assets	CSMAR	Percentage
Firm Age	Years since initial public offering	CSMAR	Years

Source: Authors' compilation