Does the Value-added Tax Reform Restrain Corporate Financialization? Based on the Perspective of Credit Refund Policy

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Abstract

This paper studies the impact of tax reform on corporate financialization based on the sample data of China's A-share manufacturing industry. Using the VAT credit refund policy in China as an exogenous shock to conduct a difference-in-differences estimation, we find that the credit refund policy can significantly inhibit corporate financialization. The intermediary mechanism shows that the credit refund policy has a restraining effect on corporate financialization by alleviating cash flow constraints and encouraging the investment scale of the core business. The heterogeneity test shows that the policy effect is more obvious in non-state-owned enterprises, non-eastern regions, and enterprises with higher financial constraints. These findings have important implications for promoting VAT reform and governing corporate financialization.

JEL Classification G30 H20

1. Introduction

Since the 1980s, the idea of financial liberalization has contributed to the rising status of finance in the economic system. Along with the growth of financial transactions and the innovation of financial instruments, the logic of economic operation has shifted from industrial to financial linkages, leading to a trend toward the financialization of society(Epstein, 2005; Jo & Yu, 2022). This trend is reflected not only in the expansion of the financial sector; but also in the excessive allocation of financial assets by non-financial firms, also known as corporate financialization (Ganguly, 2021; Krippner, 2005; O. Orhangazi, 2008). At the moment, there is also a noticeable phenomenon of corporate financialization in China. According to wind data, a total of 1089 listed companies in China purchased wealth management products in 2022, with a total subscription amount of 1,069.738 billion yuan[1]. Although financial assets can alleviate financial difficulties and financial pressure in the short term, in the long run, they will weaken the product supply and R&D innovation ability of enterprises, increase the risk of industrial hollowing out, and adversely affect the capital market and social demand (Y. Feng et al., 2022; Huang et al., 2023; Tori & Onaran, 2018).To this end, the Chinese government has repeatedly emphasized "enhancing the capacity of the real economy in financial services" and introduced a series of policies to support real enterprises in developing their main businesses, thus avoiding excessive capital outflows from the real economy.

Corporate financialization has also drawn growing concern in academic research. Currently, the literature pays more attention to the influencing factors of corporate financialization. Studies have shown that the factors affecting corporate financialization are multifaceted, including micro factors such as physical investment, financing constraints, and equity structure (Jiang et al., 2022; Xu & Xuan, 2021), as well as macro factors such as economic uncertainty and financial regulation(Cheng & Masron, 2023; Huang et al., 2023). However, most of the above literature develops the discussion from a financial perspective, relatively ignoring the impact of government fiscal activities. Fiscal activities are related to economic and social development, especially tax policy, as one of the crucial macro-control tools, that can profoundly

influence the production activities and investment decisions of enterprises. So, its potential impact on corporate financialization cannot be ignored (Dobbins & Jacob, 2016; Wu et al., 2021).

Like many developing countries, China's current tax system structure takes turnover tax as the main body, and value-added tax (VAT) is the most vital tax. Therefore, the government regards the adjustment of VAT as the most important tax policy tool (Peng et al., 2022). In recent years, faced with problems such as insufficient market demand and declining returns on real investment, the Chinese government has carried out several VAT reforms. The credit refund policy introduced in 2018 is an important part of the reform. The policy refers to the refund of the input VAT that is not deducted at the end of the period to the taxpayers. Different from the previous reform measures, the purpose of the credit refund policy aims to improve the tax refund link and avoid the distortion of the production and operation activities of enterprises caused by the accumulation of retained tax credits. According to the Report on the Work of the Government, the scale of the tax rebate in 2022 is 1.5 trillion yuan, which increases available cash flow for enterprises. However, can the policy effectively stimulate enterprises to strengthen their principal business while restraining excessive financial investment? There exists a lack of literature to verify it.

Based on the data of A-share-listed manufacturing companies from 2012 to 2021, this paper uses the differences-in-differences(DID) model to test the impact of the credit refund policy on corporate financialization. Firstly, the credit refund policy can reduce the level of corporate financialization, and the result is still valid after a series of robustness tests. Secondly, the economic effect of the credit refund policy is mainly achieved by reducing cash flow constraints and encouraging real investment. Finally, in terms of heterogeneity tests, we find that the credit refund policy on corporate financialization is more pronounced in the sample of non-state enterprises, non-eastern regions, and those with higher financing constraints.

Our study makes some contributions in the following ways. First, the existing literature has discussed the economic impact of policies such as replacing business tax with value-added tax and lowering tax rates. The research shows that the above reforms can reduce the tax burden of enterprises and stimulate their innovative activities (W. Zheng & J. Zhang, 2021; W. P. Zheng & J. Zhang, 2021). However, little literature has paid attention to the impact of the credit refund policy on enterprise behavior. From the perspective of corporate financialization, this paper evaluates the consequences of the credit refund policy, thus complementing the relevant research on VAT reform. Second, this paper enriches the literature on the influencing factors of corporate financialization. Currently there is a lack of literature discussing the governance role of fiscal and tax policies on corporate financialization. This paper bridges this gap by treating the credit refund policy as a quasi-natural experiment to test its intrinsic association and mechanism of action with corporate financialization. Third, it is of universal significance to explore feasible methods to govern corporate financialization. The reason is that the negative impact of corporate financialization on fixed investment rates, innovation activity, and financial stability has been fully demonstrated by scholars (Jin et al., 2022; Karwowski, 2018; Lee et al., 2020). Therefore, by evaluating the effect of the credit refund policy, this paper can provide theoretical support and policy

inspiration for optimizing the VAT system and regulating the financial investment behaviors of real enterprises.

The remaining part of the paper proceeds as follows: Section 2 describes the institutional background of China's VAT credit refund policy and puts forward the relevant theoretical hypotheses. Section 3 shows the data sources, variable meanings and model design. Section 4 reports the empirical results and a series of robustness tests. Section 5 carries out further discussion, including mechanism and heterogeneity. Section 6 is the conclusion and discussion.

2. Institutional Background and Hypothesis

2.1 Institutional Background

The VAT implements a chain deduction mechanism. So taxpayers will determine the taxable amount based on the balance of the current output tax deducted from the input tax. When the input tax is greater than the output tax, the non-deductible input tax forms the remaining tax credit. The reasons for its occurrence are complex. On the one hand, the existence of multiple VAT rates may cause the sales tax rate applicable to the enterprise to be lower than the input tax rate. On the other hand, changes in external factors such as the macro environment and business cycle may affect the sales situation of enterprises, resulting in output tax being less than the input tax generated by fixed assets and raw material procurement[2].

The remaining tax credits will crowd out the cash flow of enterprises and affect normal business decisions. Therefore, in order to improve the tax refund mechanism and maintain the principle of tax neutrality, the Chinese government has implemented the credit refund policy, which means that the tax credits carried forward to the next period are refunded in the current period. This policy can be traced back to 2011 when the Ministry of Finance and the State Administration of Taxation stipulated that the retaining tax credits generated by integrated circuit enterprises' equipment purchases should be refunded. In 2016, taxpayers who develop and manufacture large passenger aircraft and new regional aircraft were also included in the application of the policy. However, the above policies are applied to a few enterprises and have a limited impact. In contrast, the "Notice on Value-Added Tax Credit Refund Policy for Certain Industries in 2018" (hereinafter referred to as the Notice) issued in 2018 covers a wide range of industries. It stipulated that the remaining tax credits for 18 categories of industries, such as the pharmaceutical and automobile manufacturing industry, would be refunded. The Notice not only alleviates the financial pressure on enterprises but also provides conditions for quasi-natural experiments for academic research. Therefore, this paper uses DID method to test the impact of tax credit refund policy on corporate financialization.

2.2 Theoretical hypothesis

Corporate financialization is the micro manifestation of economic financialization, which can be understood as the process of increasing the proportion of financial assets or income in real enterprises(Shu et al., 2020). Theoretically, scholars generally agree that enterprises will engage in financial investment activities according to the "reservoir" motivation or "investment substitution" motivation (Liu et al., 2019; Tori & Onaran, 2018).

The "reservoir" motivation can be traced back to Keynes' "precautionary demand" based on the "liquidity preference" problem, where people choose to hold a certain amount of money to cope with uncertainties. Along with the financial development, the quasi-monetary function of financial products has also been valued. Compared with other assets, financial assets have advantages in liquidity and conversion costs, making them suitable as liquidity storage tools to smooth the capital fluctuations of enterprises (Brown & Petersen, 2011). Especially when financial institutions raise the credit threshold, enterprises have more incentives to hold easily liquidated financial assets to reduce external funding dependence and ease cash flow constraints. The "investment substitution" motivation is usually explained in the "principal-agent" framework (Ganguly, 2021). The modern corporate system with the separation of ownership and control leads to general information asymmetry between shareholders and managers. Managers may adjust investment decisions based on the rate of return and risk of different assets. Compared to the real economy, which has a poor investment environment and low yields, the financial and real estate sectors have maintained high-profit margins for a long time, resulting in a "scissors gap" between real income and financial income(Demir, 2009).To obtain high returns and improve business performance, managers may have short-sighted behaviors and invest more funds to purchase financial assets (Jo & Yu, 2022). This paper argues that the credit refund policy can inhibit the motivation of corporate financialization, and then achieve the ultimate goal of guiding enterprises to return to the core business. The specific analysis is as follows.

The tax credit refund policy restrains the "reservoir" motivation by easing the funding constraint of enterprises. Before the policy's implementation, the retaining tax credit is only deductible until the following period. Although enterprises do not need to pay VAT in the current period, the retaining tax credit squeezes the available funds and profits, damaging the neutrality feature of value-added tax(NIE Haifeng and LIU Yi 2022). The tax credit refund policy increases the available cash flow for enterprises by refunding taxes. The improvement of liquidity conditions can meet the capital needs of enterprises and alleviate the internal financing constraint. This is consistent with the theory of financing preference order (Myers & Majluf, 1984; Sanchez-Vidal & Martin-Ugedo, 2005). Furthermore, according to the signaling theory, the credit refund policy can attract wider market attention to the favorable information of beneficiary enterprises, mitigating information asymmetry between credit institutions and enterprises. As a result, it lowers the external financing threshold and cost for enterprises (Wang et al., 2021). The easing of internal and external financial constraints will lessen the need for enterprises to allocate easily realizable financial assets based on the "reservoir" motivation.

The tax credit refund policy suppresses the 'investment substitution' motivation by encouraging enterprises to expand their real investment scale. The existence of retaining tax credits hinders the

effective transmission of value-added tax burden along the industrial chain, which means that enterprises still bear the production-related tax burden before generating sufficient output tax(De Quatrebarbes et al., 2016). The credit refund policy can improve the dilemma of insufficient core business investment for enterprises by perfecting the tax refund chain. Specifically, the refund of input tax is equivalent to reducing the cost of assets purchased by enterprises for product production or R&D innovation, indirectly stimulating the purchasing demand of enterprises. At the same time, this policy does not have universal applicability but has specific policy goals to support the development of new materials, biomedical, and other specific industries. To obtain the tax refund funds, owners and managers of enterprises need to form consistent objectives and satisfy the various conditions stipulated in the 'Notice' by improving the efficiency of fixed asset allocation and strengthening R&D innovation (Ma et al., 2020). In addition, both product production and technological innovation often have characteristics such as large investment scale and long return cycles. Therefore, when the business environment is highly uncertain, enterprises tend to allocate more funds to the financial sector, resulting in crowding out of real investment (Leng et al., 2023). The introduction of the credit refund policy reduces the actual tax burden level for enterprises and encourages them to form positive operating expectations, thereby reducing investment behavior in financial assets. Therefore, under the condition that the available capital is limited, the credit refund policy can inhibit the 'investment substitution' motivation.

Based on the above analysis, this paper proposes the following hypotheses:

H_1: The credit refund policy can effectively restrain corporate financialization.

H_{2a}: The credit refund policy inhibits corporate financialization by easing cash flow constraints.

H_{2b}: The credit refund policy inhibits corporate financialization by increasing the level of real investment.

3.Research Design
3.1 Data sources

The manufacturing industry is the foundation of the real economy, so this paper selects A-share listed manufacturing companies from 2012–2021 as the research object. Enterprise-level data is retrieved from the CSMAR database, and region-level data is obtained from the China City Statistical Yearbook.

To ensure the accuracy of the empirical analysis, we processed the sample data as follows:(1) Enterprises that terminate their listing without considering delisting risk warnings; (2)Samples with severe data missing were deleted;(3) Continuous variables were subjected to a 1% two-sided tailing process to avoid potential interference of extreme values on the results. As a result, 7580 valid sample observations were obtained, involving 758 companies. The subsequent data processing and empirical analysis come from Stata16.

3.2 Variables

3.2.1 Dependent Variable

Referring to existing research, this paper utilizes the ratio of financial assets to total assets (*fin*) to measure the degree of corporate financialization (Demir, 2009; Ö. Orhangazi, 2008). The higher the fin value, the more significant the trend of corporate financialization. Financial assets include trading financial assets, derivative financial assets, the net amount of repurchase agreements, net financial assets available for sale, net loans and advances, net held-to-maturity investments, investment real estate, and long-term equity investments in the balance sheet.

3.2.2 Independent Variable

This paper designs the independent variable according to the research paradigm of the DID model. Firstly, $treat_i$ is defined as a policy dummy variable. If the manufacturing enterprise belongs to the industry list in the Notice, the value is 1[3]; otherwise, it is 0. Secondly, the dummy variable of policy time ($time_t$) is constructed. With the policy introduction time as the node, the variable in 2018 and subsequent years is 1; otherwise, it is 0. The independent variable (*did*) consists of the interaction term of $treat_i$ and $time_t$.

3.2.3 Mediating variable

According to the theoretical analysis, the credit refund policy may affect corporate financialization by improving the cash flow and promoting real investment. Therefore, this paper selects the cash flow level (*cfo*) and the proportion of real investment (*fai*) as mediating variables to test the effect of the credit refund policy on "reservoir" and "investment substitution" motivation.

3.2.4 Control variables

Whether an enterprise allocates financial assets depends not only on the production and operation but also on the macroeconomic environment. So this paper selects control variables from two dimensions. On the one hand, there are firm-level data including firm size (*lnsize*), leverage ratio (*cl*), return on assets (*roa*), proportion of independent directors (*indir*), and equity concentration (*onegd*). On the other hand, there are city-level data including economic development level (*lnpgdp*) and regional financial conditions (*fiscal*). The definitions of the main variables are shown in Table 1.

Table 1

Variable definitions. This table presents the specific meaning of the main variables used in our analysis. The dependent variable is the proportion of financial assets to total assets. The main independent variable is a dummy variable that has a value of one in the treatment group for the reform year and subsequent years, and zero otherwise.

Types of variables	Variable Symbol	Meaning of variables
Dependent Variable	*fin*	financial assets/total assets
Independent Variable	*treat*	In the "Notice", the value of the industry is 1, otherwise 0
	time	In 2018 and subsequent years, take 1, otherwise take 0
Mediating variable	*cfo*	Operating cash flow / operating income
	fai	(Fixed assets + construction in progress + intangible assets) / Total assets
Control variables	*lnsize*	The total assets are taken as logarithmic values
	cl	Total debt/total assets
	roa	Net profit/total assets
	indir	Number of independent directors/number of directors
	onegd	The shareholding ratio of the largest shareholder
	lnpgdp	GDP per capita taken as the logarithm
	fis	Loan balances of financial institutions /GDP

3.3 Model setting

In order to test the effect of VAT credit refund policy on corporate financialization, this paper establishes the DID model as follows:

$$fin_{i,t} = \alpha_0 + \alpha_1 did_{i,t} + \sum_j \gamma_j control_{i,t} + \sigma_i + \tau_t + \epsilon_{i,t}$$

1

In Model (1), *i* represents the enterprise, *t* represents the year, and α_1 represents the policy effect of the credit refund policy. According to the theoretical hypothesis, we expect the estimated coefficient α_1 to be significantly negative. α_0 is the constant term, $control_{i,t}$ represents the control variables. $\epsilon_{i,t}$ is the random disturbance term. Additionally, to control the unpredictable corporate heterogeneity factors and the macroeconomic impact that is inconsistent with corporate behaviors, this paper includes individual

fixed effect and time fixed effect in model (1), expressed as σ_i and τ_t. Therefore, $treat_i$ and $time_t$ are no longer controlled separately in the model to avoid absorption by fixed effects.

Secondly, to investigate the influence mechanism of the credit refund policy on corporate financialization, this paper constructs the intermediary effect model as follows. $Med_{i,t}$ denotes the mediator variable. Model (2) is used to test the impact of the credit refund policy on the cash flow level or core business investment scale of enterprises. Then, the effect of the credit refund policy and intermediary variables on business financialization is tested by Model (3). ∂_1 and ∂_2 denote the direct and indirect effects, respectively.

$$Med_{i,t} = \theta_0 + \theta_1 did_{i,t} + \sum_j \gamma_j control_{i,t} + \sigma_i + \tau_t + \epsilon_{i,t}$$

2

$$fin_{i,t} = \partial_0 + \partial_1 did_{i,t} + \partial_2 Med_{i,t} + \sum_j \gamma_j control_{i,t} + \sigma_i + \tau_t + \epsilon_{i,t}$$

3

4. Empirical Results

4.1 Descriptive statistics

Table 2 presents the descriptive statistics of the main variables. In terms of the indicator of corporate financialization, the average value of "*fin*" is 0.198, with a minimum of 0.002 and a maximum of 0.637. It shows that financialization is becoming more prevalent among manufacturing enterprises, but there are significant differences in the level of financial investment between different enterprises. The average value of "*did*" is 0.4, with a standard deviation of 0.49, indicating that 40% of the sample of companies were affected by the quasi-natural experiment. The results of the control variables are generally consistent with existing literature, so further description is not provided.

Moreover, to avoid the potential multicollinearity problem, the VIF test was also conducted in this paper. The results are shown in Table 3. The VIF values of explanatory and control variables are less than 10, indicating that the collinearity problem does not exist. Therefore, the model construction is reasonable.

Table 2

Statistical description of variables. This table presents summary statistics for the main variables used in our analysis, including the number of samples, mean, standard deviation, minimum and maximum.

variable	N	mean	sd	min	max
fin	7580	0.198	0.141	0.002	0.637
did	7580	0.400	0.490	0	1
inside	7580	22.23	1.170	19.53	26.83
le	7580	0.398	0.190	0.0110	2.459
roa	7580	0.037	0.0580	-0.242	0.187
indir	7580	0.374	0.0570	0.182	0.800
onegd	7580	2.785	8.731	0.029	82.44
lnpgdp	7580	4.945	0.192	4.072	5.239
fiscal	7580	0.106	0.039	0.005	0.214

Table 3
VIF test. This table reports the test results of variance inflation factors for each variable. If the VIF value is greater than 10, there is an obvious multicollinearity problem.

Variable	VIF	1/VIF
did	1.38	0.722
roa	1.27	0.788
le	1.6	0.626
lnsize	1.48	0.675
onegd	1.15	0.872
indir	1.01	0.990
lnpgdp	1.61	0.621
fiscal	1.47	0.681
Mean VIF	1.37	

4.2 Benchmark regression

We utilizes a progressive strategy for empirical testing. Table 4 presents the baseline regression results. In column (1), we independently examine the relationship between the credit refund policy and corporate financialization. The coefficient of *did* is -0.08, which passes the significance test at the 1% level, indicating that the credit refund policy reduces the level of financial asset allocation by enterprises. Columns (2) and (3) show the regression results after introducing control variables and controlling for individual and time effects, respectively. It can be observed that the *did* coefficient still remains significantly negative, with only numerical changes occurring. These results confirm H_1, which states that the carryover refund policy can suppress the trend of corporate financialization and guide them to focus on their core business operations.

Regarding the control variables, firm size (*lnsize*) is negatively significant at the 1% level in relation to the degree of financialization. The possible reason is that small and medium-sized enterprises have weak anti-risk abilities. When there are fluctuations in the internal and external environment, they tend to hold financial assets. Equity concentration (*onegd*) also exhibits a significant negative relationship with the level of corporate financialization, possibly due to the problem of conflicting interests arising from a dispersed ownership structure. Compared to large shareholders with a higher proportion of equity, small shareholders usually pay more attention to the amount of profit distribution and relatively ignore the

source of profit. Therefore, investing funds in the financial sector to obtain high returns aligns more with their demands. In the subsequent regression tests, the estimation results of the control variables remain consistent and are not repeatedly explained.

Table 4
Baseline regression results. This table reports the DID regressions results. Column (1) indicates the results without control variables. Columns (2), (3) sequentially report the regression coefficients with the addition of control variables and fixed effects Significance at the 1%, 5%, and 10% level is indicated by [***], [**], and [*], respectively.

	(1)	(2)	(3)
	fin	*fin*	*fin*
did	-0.080[***]	-0.039[***]	-0.159[***]
	(0.003)	(0.003)	(0.009)
lnsize		-0.014[***]	-0.013[***]
		(0.002)	(0.003)
le		-0.210[***]	-0.173[***]
		(0.012)	(0.012)
roa		0.095[***]	0.054[**]
		(0.026)	(0.023)
indir		-0.047	0.018
		(0.030)	(0.028)
onegd		-0.003[***]	-0.000[**]
		(0.000)	(0.000)
lnpgdp		-0.064[***]	-0.029
		(0.015)	(0.024)
fiscal		0.442[***]	0.015
		(0.069)	(0.091)
_cons	0.230[***]	0.900[***]	0.829[***]
	(0.002)	(0.080)	(0.135)
individual effect	No	No	Yes
time effect	No	No	Yes
N	7580	7580	7580

	(1)	(2)	(3)
R^2	0.074	0.247	0.437

4.3 Robustness tests

1.Parallel trend test. The DID model is used only if the parallel trend assumption is satisfied (Zhou et al., 2020). We used the following methods to test. First, the temporal trends of the mean fin values for the experimental and control groups were plotted, as shown in Fig. 1. It can be observed that before the implementation of the credit refund policy in 2018, the financialization levels of the experimental group and control group basically maintained a synchronized change trend. Secondly, this paper also conducts a dynamic effect test. Specifically, we take 2018 as the base period and construct period dummy variables. These dummy variables are multiplied by $treat_i$ and included in Model (1) for regression analysis. Figure 2 describes the time trend of the coefficient of the dummy variables within a 95% confidence interval. Before 2018 (current), the coefficient tends to be 0, while after 2018, the estimated coefficient is significantly less than 0, indicating that the credit refund policy has a restraining effect on corporate financialization. Taking the above analysis together, the model is consistent with the assumption of common trends.

2. Placebo test. This study used random sampling to conduct a placebo test to rule out the interference of other regulations or random factors (Lv & Gao, 2023). Specifically, we construct a virtual policy experimental group by random sampling and then re-estimate the model (1). This process was repeated 500 times. If the estimated coefficients are mostly clustered around 0, the placebo test is passed. Otherwise, it indicates that the baseline regression results lack credibility. The results of the placebo test are shown in Fig. 3, where the distribution of the estimated coefficients approximates a normal distribution and is centered around zero. It shows that the decrease in corporate financialization is indeed caused by the credit refund policy, indicating that the benchmark conclusion is reliable.

3. Replace the dependent variable. Currently, the measurement of corporate financialization has not formed a unified standard. To ensure the stability of the results, we change the measurement method of corporate financialization for re-estimation. Referring to existing research, *fin* is replaced by the proportion of investment income, fair value change profit and loss, and other comprehensive income in operating profit (*fin1*) (Liu et al., 2019; Li & Zhang, 2023). Column (1) in Table 3 reports the regression results, and the *did* coefficient maintains the original sign direction and significance.

4. Replace the independent variable. The credit refund policy is a significant part of China's tax reduction policy in recent years. It aims to reduce the real tax burden of enterprises and encourage enterprises to engage in production and business activities by returning the tax credit. The change in corporate tax burden is a focused representation of the policy's success. Therefore, this part switches the research perspective and indirectly reflects the effect of policy implementation by the proportion of income tax expense, taxes and surcharges in operating income (*tax*). The lower the tax value, the lower the tax

burden faced by the enterprise. According to column (2), the regression coefficient of *tax* is 0.394, which is significant at the 1% level. It shows that the reduction of the tax burden does help to weaken corporate financial investment propensity, so the benchmark result is credible.

5. Sub-sample regression. To eliminate the effect of external factor shocks on model results, this paper re-conducts the regression test after removing the sample data from 2015 when the stock market crash occurred, and 2020 when the COVID-19 epidemic occurred. After the above treatment, column (3) shows the conclusion consistent with the benchmark test.

6.PSM-DID: To avoid potential sample selection bias, this paper uses the propensity score matching method to process and retest samples. On the basis of setting all control variables as covariates, the logit regression was carried out with whether to experience the impact of the credit refund policy as the dependent variable, so as to obtain the propensity score. Then, caliper matching within the 0.01 range was performed according to the propensity score. Finally, the DID regression is re-run using the matched samples. The result in Column (4) shows that the coefficient of *did* is still significantly negative.

Table 5
Results of the robustness test. This table reports the results of a series of robustness tests to guarantee the validity of the regression results.

	(1)	(2)	(3)	(4)
	fin1	*fin*	*fin*	*fin*
did	-0.586*		-0.020***	-0.024***
	(0.348)		(0.008)	(0.003)
tax		0.394***		
		(0.060)		
_cons	-10.430	0.830***	0.911***	1.897***
	(6.867)	(0.135)	(0.161)	(0.102)
control variable	Yes			
individual effect	Yes			
time effect	Yes			
N	4852	7559	6064	7580
R^2	0.004	0.440	0.221	0.300

Standard errors in parentheses* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

5 Mechanism and heterogeneity analysis

5.1 Mechanism tests

To answer whether this result is in line with the theoretical hypothesis and achieved through the pathways of cash flow and core business investment, we conducted relevant tests using the mediation effects model. The empirical results are shown in Table 6. Column (1) shows the impact of the tax credit refund policy on enterprises' cash flows. The *did* coefficient is 0.056, which is significant at the level of 1%, indicating that enterprises enjoying preferential treatment improve their cash flow constraints by receiving tax credits. Column (2) reports the joint impact of the credit refund policy and cash flow on corporate financialization, and the coefficients of *did* and *cfo* are significantly negative. Meanwhile, the Z-score of the Sobel test is -2.607, which is significant at the 1% level. The above results demonstrate the existence of the "cash flow" path, that is, the credit refund policy can weaken the "reservoir" motivation to inhibit t corporate financialization, which verifies H_{2a}.

Columns (3) and (4) sequentially report the regression results of the core business investment channel. There is a positive correlation between *did* and *fai*, which passes the significance test of 10%. It indicates that the VAT policy helps to stimulate the development of enterprises' main business, which is consistent with the research conclusion of Yu and JL (2022). The coefficients of *did* and *fai* on *fin* are − 0.171 and − 0.369 respectively, both of which are significant at the level of 1%. The Z-value of the Sobel test is positively significant. Therefore, the credit refund policy can encourage enterprises to increase the investment of fixed assets and intangible assets and reduce the scale of financial investment. H_{2b} is verified.

Table 6
Regression results of mechanism test. This table verifies the influence path of VAT credit refund policy on corporate financialization. Columns (1) and (3) report the effects of the independent variable on cash flow(*cfo*) and real investment(*fai*). Columns (2) and (4) indicate the impact of mechanism variables on corporate financialization.

	(1)	(2)	(3)	(4)
	cfo	*fin*	*fai*	*fin*
did	0.056***	-0.168***	0.013*	-0.171***
	(0.006)	(0.009)	(0.007)	(0.009)
cfo		-0.084***		
		(0.006)		
fai				-0.369***
				(0.016)
_cons	1.271***	0.654***	1.052***	0.890***
	(0.190)	(0.137)	(0.102)	(0.135)
Sobel-Z		-2.607***		2.434***
		(0.000)		(0.000)
control variable	yes			
individual effect	yes			
time effect	yes			
N	7580	7580	7580	7580
R^2	0.037	0.414	0.084	0.441

Standard errors in parentheses* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

5.2 Heterogeneity analysis

Taking into account heterogeneity can help to gain a more comprehensive and in-depth understanding of the impact of the credit refund policy on corporate financialization. This section discusses the impact of the nature of property rights, the level of regional development, and differences in financing constraints on the regression results.

(1) Ownership differences: Differences in ownership nature may affect the financing difficulty and investment decisions of enterprises. Therefore, this study divides the sample enterprises into state-owned enterprises (SOEs) and non-state-owned enterprises (NSOEs) for grouped regression. The results in Table 6, columns (1) and (2), show that the SOE group does not pass the significance test, while the NSOEs group has a *did* coefficient of -0.043, significant at the 1% level. It indicates that the credit refund policy does not significantly interfere with the financialization behavior of SOEs, but it exhibits a suppressive effect on the financialization level of NSOEs. One possible reason is that SOEs have comparative advantages in resource endowment and policy support, which reduce their sensitivity to financing costs and urgency to engage in the financial sector to benefit from higher returns. In contrast, NSOEs have smaller asset sizes and rely on a single financing channel, making them rely more on financial assets to meet liquidity needs. Therefore, when the credit refund policy brings additional cash flows to enterprises, the suppressive effect on the "reservoir" motivation of NSOEs becomes more pronounced.

(2) Regional differences. We divide the sample enterprises' geographical regions into eastern regions (ER) and non-eastern regions (NER)

[4]based on different levels of economic development. The results in columns (3) and (4) show that the estimated coefficients of *did* are both negative and significant. Among them, the credit refund policy has a more pronounced suppressive effect on corporate financialization in the sample from non-eastern regions. One possible reason is that these regions have a lower degree of marketization, making firms more sensitive to changes in tax policies due to altered behavior.

(3) Financing constraints differences. The tendency of financialization is closely related to the constraints by the financing link of enterprises (Tao et al., 2021). Different degrees of financing constraints will cause diverse enterprise behaviors and market reactions (Y. M. Feng et al., 2022). Compared with enterprises with low financing constraints, enterprises with high financing constraints usually have higher thresholds and costs of external financing due to the lack of collateral guarantee ability. As a result, they need to rely more on internal funds and financial assets, thus deepening the level of financialization. The refund of tax credits can not only relieve the financial pressure, but also reduce the information asymmetry between enterprises and financial institutions, and enhance the willingness of external investors to supply funds. Therefore, this paper argues that the credit refund policy will produce differentiated results in samples with different levels of financing constraints. We introduce the FC index (*FC*) to measure the level of financing constraints of enterprises. The larger the *fc* is, the more serious the financing constraints of enterprises are (Fee et al., 2009). According to the median of *FC*, we divide the high financing constraints (*HFC*) and low financing constraints (*LFC*) groups and then run the regression separately. The results show that the coefficients all pass the 1% significance test, but the influence coefficients are − 0.184 and − 0.091, respectively. It shows that the effect of credit refund policy is more apparent in enterprises with higher financing constraints.

Table 7

Results of the heterogeneity test. This table sequentially reports the test results under different property rights, different regions, and different degrees of financing constraints.

	(1)	(2)	(3)	(4)	(5)	(6)
	fin	fin	fin	fin	fin	fin
	SOE	NSOE	ER	NER	HFC	LFC
did	0.015	-0.043***	-0.018***	-0.027***	-0.184***	-0.091***
	(0.010)	(0.011)	(0.004)	(0.006)	(0.014)	(0.012)
_cons	0.925***	0.793***	2.296***	1.315***	1.222***	0.930***
	(0.202)	(0.236)	(0.135)	(0.166)	(0.217)	(0.188)
control variable	yes					
individual effect	yes					
time effect	yes					
N	2245	3754	5457	2123	3908	3481
R^2	0.201	0.253	0.312	0.273	0.426	0.476

6 Conclusion and Discussion

Taking China's A-share listed manufacturing enterprises from 2012 to 2021 as research samples, this paper empirically explores the effect and action path of VAT credit refund policy on corporate financialization by using DID and intermediary models. The results show that the credit refund policy can restrain the trend of corporate financialization. This conclusion is still valid after a series of robustness tests. Specifically, the credit refund policy weakens the financial asset allocation behavior of enterprises mainly by relieving the cash flow constraints of enterprises and increasing the investment scale of the core business. In terms of heterogeneity, the policy effect of the credit refund is more obvious in non-state-owned enterprises, non-eastern regions, and samples with high financing constraints.

The research results of this paper have strong practical significance for the government to continue to promote VAT reform and guide real economy enterprises to return to their main businesses. Based on the above conclusions, the following policy recommendations are proposed: Firstly, the scope of application of the credit refund policy should be expanded to provide liquidity for more enterprises. Currently, real economy enterprises still face practical problems such as difficulties in main business operations and increasing cost pressures. Therefore, the government needs to continue advancing tax system reforms to alleviate the burden on enterprises and encourage them to expand the scale of real investment (Huang et

al., 2023). Secondly, improving the financing environment can reduce the degree of corporate financialization. Thus, the government should introduce relevant financial and industrial policies to support enterprises in purchasing fixed assets and developing cutting-edge technology. Among them, it is necessary to focus on solving the funding shortages of non-state-owned enterprises, non-eastern region enterprises, and enterprises with high financing constraints (Liu et al., 2022). Finally, enterprises should adjust their capital structure and investment direction, reduce the degree of financialization and achieve sustainable development by directing funds toward core operations and R&D innovation.

Declarations

Acknowledgments

Statements and Declarations

Conflict of interest statement: All authors disclosed no relevant relationships

Data availability statement

The original data we collected mainly comes from the CSMAR database: http://www.gtarsc.com.bbb.a.jitui.me/. And then, we processed and analyzed the data. The data and the code that support the findings of this study are available from the corresponding author upon request.

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Footnotes

1. http://finance.ce.cn/stock/gsgdbd/202212/26/t20221226_38307401.shtml
2. https://www.gov.cn/zhengce/2022-03/09/content_5678106.htm
3. Specific industry names in Appendix 1
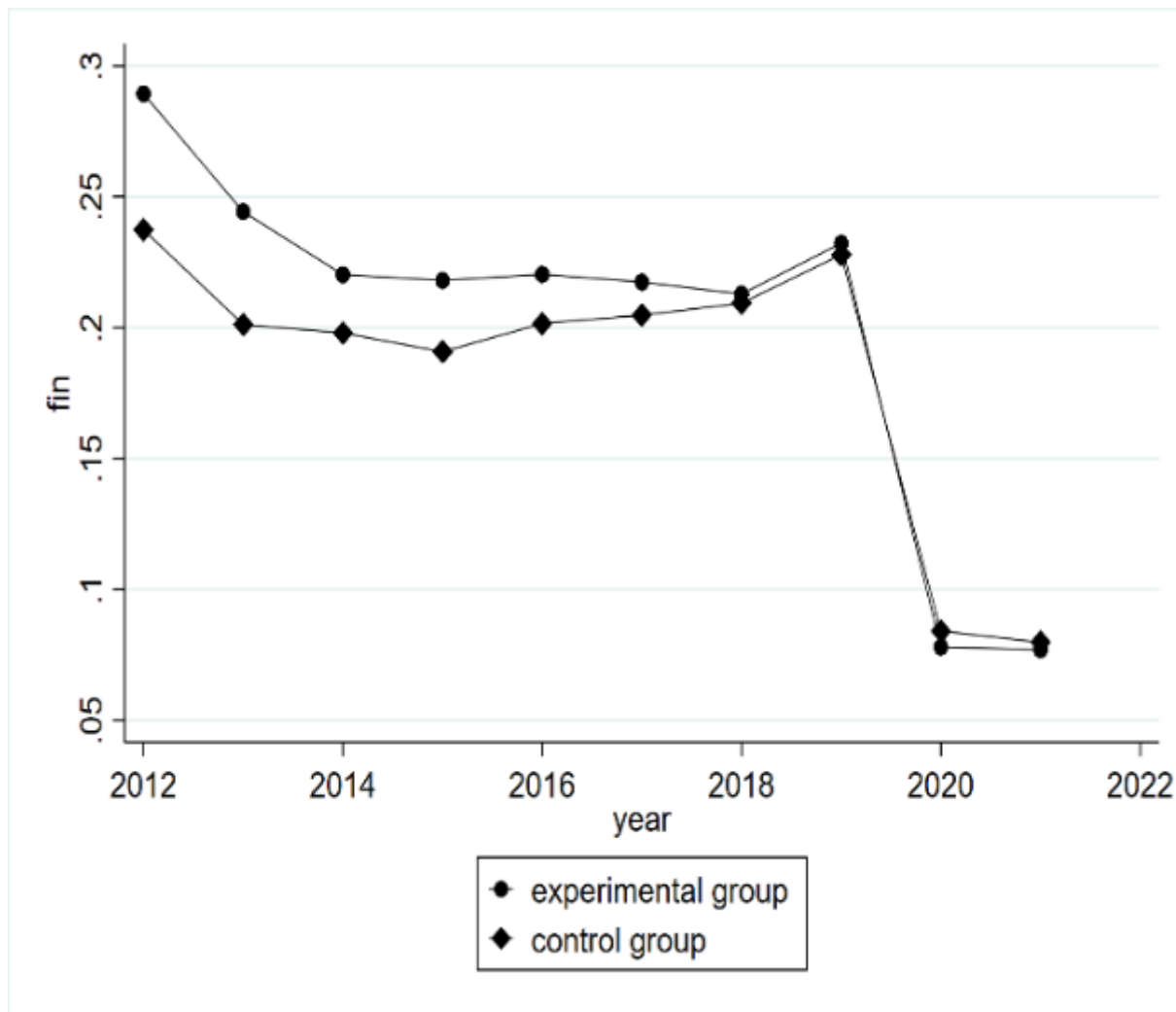4. The criteria for regional division are shown in Appendix 2

Figures

Figure 1

DID time trend graph.Note: The figure depicts the changes in corporate financialization over the sample interval. The Y-axis is the mean of the dependent variable(fin).The dot point line represents the experimental group, while the diamond line denotes the control group.
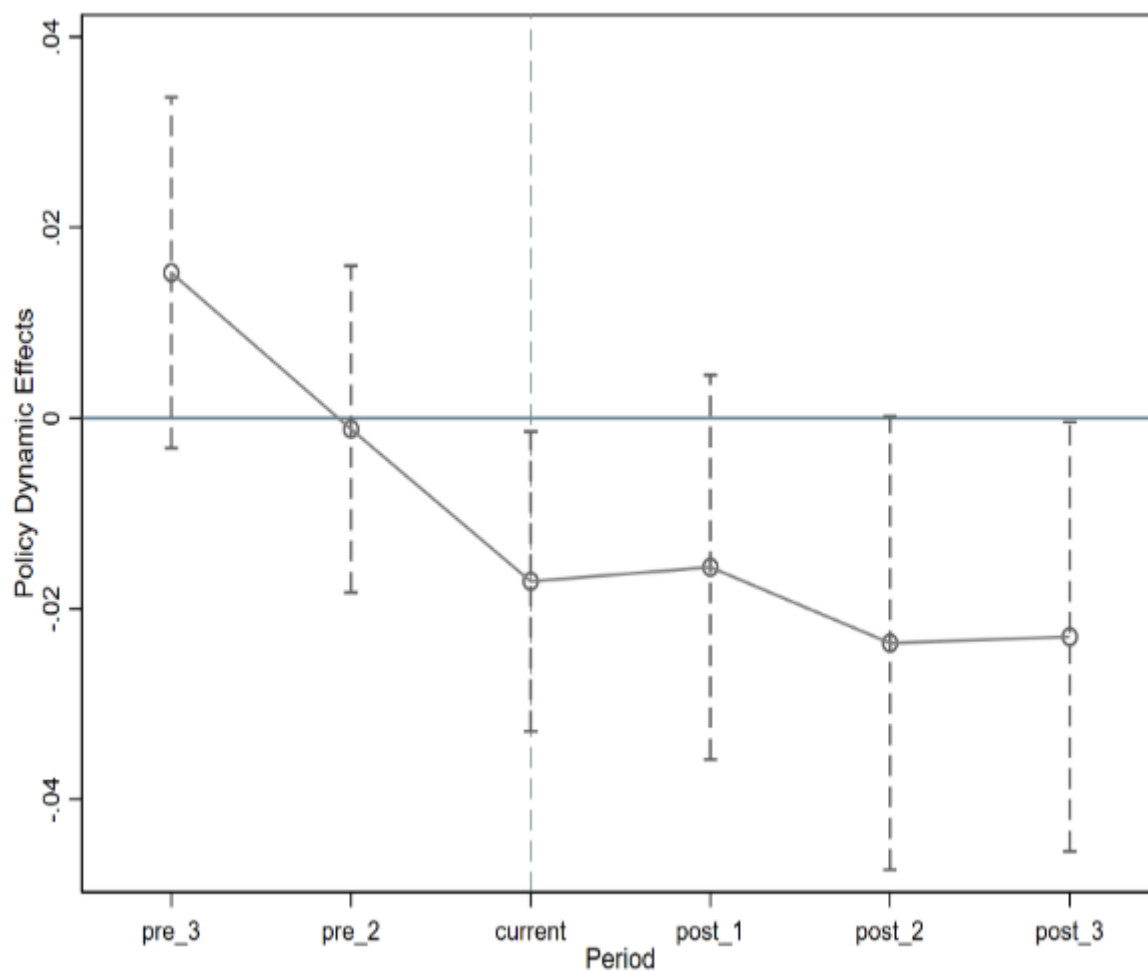
Figure 2

DID dynamic effect test graph. Note: We test common trends in terms of dynamic effect. The figure depicts the evolution of corporate financialization before and after the reform of credit refund policy.
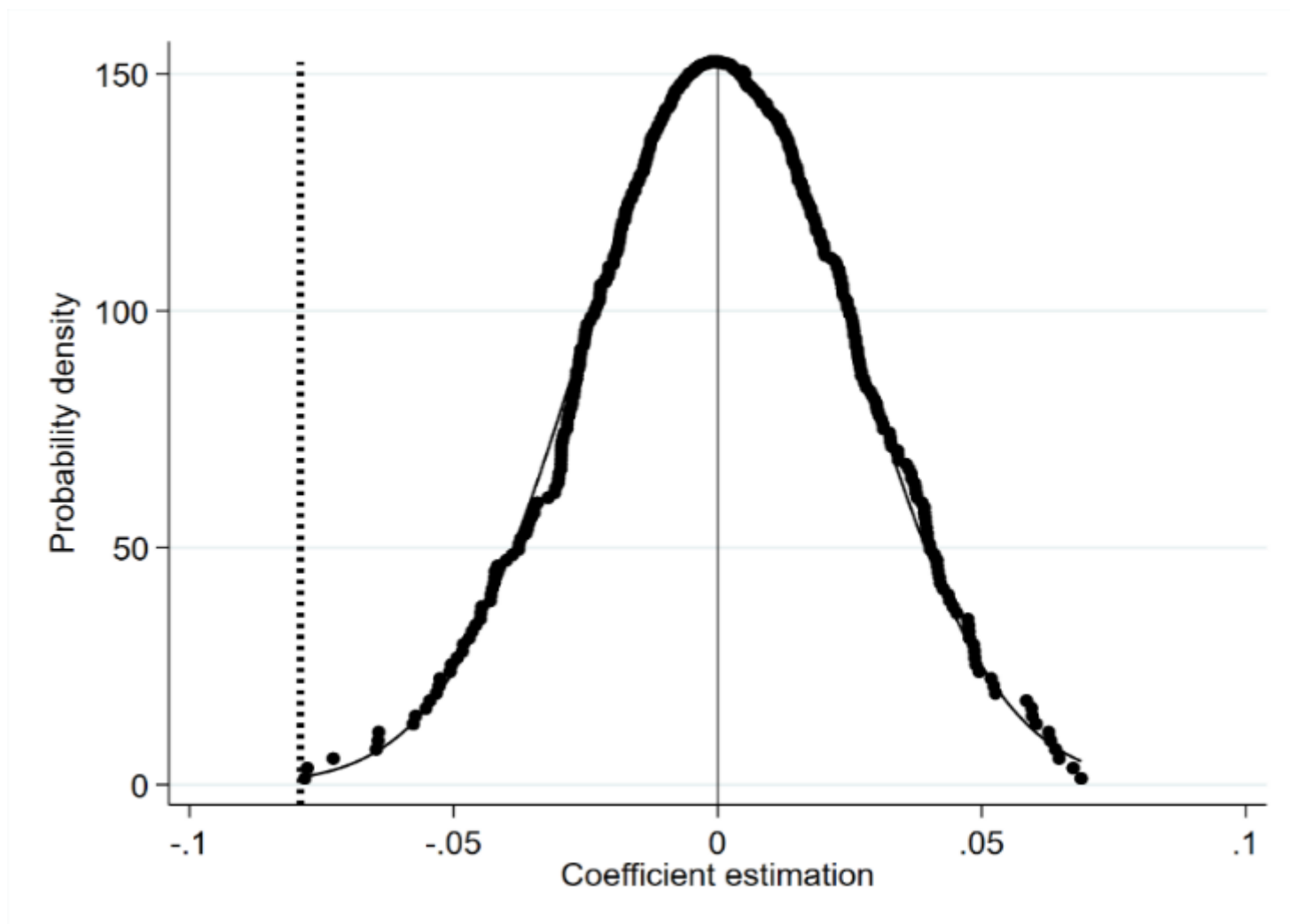
Figure 3

Placebo test. Note: The figure plots the results of the placebo test. The estimated coefficients are mostly clustered around 0 and the distribution approximates a normal distribution.

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- Appendix1and2.docx