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Tax neutrality and firm performance of value-added tax: A study based on the reform of "credit rebate"

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Abstract: *Based on the data of Shanghai and Shenzhen A-share listed companies, this paper uses the method of differential difference (DID) to study how the reform of "withholding tax refund" affects enterprise performance based on the implementation of the tax refund policy of Finance and Taxation [2018] No.70. The study found that compared with the control group enterprises, the pilot enterprises significantly improved the performance during the promulgation of the VAT withholding tax refund policy; The heterogeneity analysis shows that the reform of VAT retention and tax refund has a more significant promoting effect on the performance of enterprises with higher capital expenditure. The research conclusion of this paper provides the basis and reference for the subsequent VAT tax reform.*

Keywords: *VAT tax neutrality; Enterprise performance; Tax credit*

1. Introduction

The VAT tax system reform must always carry out the principle of tax neutrality, and an unimpeded tax refund chain is an important prerequisite for carrying out the tax neutrality of VAT. From the theoretical point of view, value-added tax has the characteristics of tax neutrality. However, an important prerequisite for the implementation of tax neutrality is that VAT can achieve complete deduction and refund. At present, there is a large amount of VAT credit in China. According to the calculation of the China Economic 50 Forum in 2018, China's VAT tax credit has exceeded one trillion yuan. The withholding of tax credits seriously undermines the neutrality of VAT revenue. The withholding of tax credits is a kind of occupation of enterprise funds by the government. In the long run, this occupation may increase the financing cost of enterprises, and further reduce the investment capacity and operation capacity of enterprises, thus affecting their performance. At present, only a few articles have studied the impact of tax neutrality of VAT on enterprise value based on the perspective of the reform of "withholding tax refund". Wu Yili et al. [1] (2021) believe that the reform of "withholding tax refund" can enhance the value of enterprises by increasing the internal financing of enterprises. Then, can the reform of "reserving tax refund" improve enterprise performance? Based on this background, this paper examines the impact of tax neutrality on enterprise performance from the perspective of the reform of "withholding tax refund".

2. Theoretical analysis and research hypothesis

First of all, the reform of VAT "retention tax refund" reduces the cost of enterprises to obtain funds and eases the financing constraints of enterprises. Before the introduction of the policy of "withholding tax refund", the final withholding tax credit of enterprises was only allowed to be deducted in the next period, and the government deprived enterprises of the right to allocate production factors, which destroyed the tax neutrality of VAT. After the reform of "withholding tax refund", the right to use the retained tax credit funds occupied by the government was returned to the enterprises, reducing the institutional transaction cost and improving the tax neutrality of VAT. Under the institutional arrangement of "reserving tax credits", enterprises will refund the tax credits retained at the end of the period in proportion, improving the cash flow of enterprises in the current period and increasing the internal funds of pilot enterprises. The reform of "withholding tax refund" increases the endogenous funds of enterprises, which is in line with the financing preference theory led by the endogenous financing of enterprises (Myers and Majluf, 1984), reduces the capital cost of enterprises and relieves the financing constraints faced by enterprises. Secondly, the reform of "retention and tax refund" increases the long-term funds of enterprises, alleviates the financing constraints of enterprises, stimulates the vitality of enterprises and improves their performance. For the retained tax credit, whether it is retained in the next period or

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refunded in the current period, the amount of capital investment of enterprises is fixed. Therefore, the retained tax credit belongs to the enterprise's "accounts receivable" in essence. Under the system arrangement of "tax credit retention", the government will refund the final tax credit in proportion to shorten the collection time of the "accounts receivable", directly increase the cash flow of the enterprise in the current period, and the funds will not affect the operating costs, operating profits and corporate income tax payable in the current period, and improve the cash flow of the enterprise in the current period. Alleviate the financing constraints faced by the pilot enterprises, increase the scale of enterprise value investment, and improve enterprise performance. In summary, hypothesis 1 is proposed in this paper:

H1: After the reform of "withholding tax refund", compared with the enterprises in the control group, the pilot enterprises can improve the enterprise performance more.

3. Research Design

3.1 Sample selection with data sources

The A-share listed companies in Shanghai and Shenzhen from 2013 to 2021 are selected as research samples. According to Document No. 70 of Finance and Taxation (2018) issued on June 27, 2018, this paper takes 2018-2021 as the policy impact period. The treatment group of this paper is the pilot industries and power grid enterprises in the article No. 70 of Finance and Taxation [2018], and the control group is the listed companies except the pilot industries and power grid enterprises mentioned above. According to No. 70 document structure Treat this variable, the rest of the data are from the source of National Tai 'an.

In order to make the conclusion of this paper more convincing, the following processing is carried out on the samples: (1) The samples of financial industry and insurance industry are excluded; (2) Remove the samples of companies with financial problems such as ST. (3) Indentation of all continuity variables at 1% and 99% level.

3.2 Variable definition

(1)Dependent variable

Business Performance (ROA). Referring to the research of Li Jing and Fu Mingchen [2] (2023), this paper selects return on assets (ROA) to measure enterprise performance, which can better reflect the profit level of enterprises.

(2)Independent variable

The effect of "Treat x Reform". Treat is an individual virtual variable, when the enterprise belongs to the 70 document proposed to stay tax rebate industry and power grid enterprises, make Treat equal to 1, no equal to 0. Reform is a time dummy variable, after the Reform (2018 and subsequent years) Reform is equal to 1, otherwise equal to 0. The interaction term (Treat×Reform) of the reform of VAT "reserving tax refund" reflects the promoting effect of the reform on enterprise performance.

(3)Control variables

Refer to the practice of Wu Yili et al. (2021), The control variables in this paper are set as cash flow (Cfo), asset-liability ratio (Lev), total asset turnover (Ato), number of directors (Board), independence of board of directors (Indep), Dual, whether state-owned enterprise (Soe), Age of enterprise (Age), ownership concentration (Top1) and industry (Ind)) and the dummy variables of Year.

3.3 Model design

With reference to the mainstream practice of tax policy evaluation in recent years, this paper constructs a differential differential model (DID) to test the impact of VAT reform on corporate performance. With reference to Liu Qiren et al. [3] (2019), the setting model is shown in (1) :

$$ROA = \alpha_0 + \alpha_1 Treat_i \times Reform_t + \alpha_2 Controls_{i,\ t} + \sum Ind + \sum Year + \varepsilon \quad (1)$$

Where: Dependent variable represents the degree of enterprise performance. $ROAT\ reat_i$ is a policy dummy variable that represents whether enterprise i is affected by the "reserved tax refund" value-added tax policy. If it is affected by the policy, it is 1, and if not, it is 0; It is a time dummy variable, with the

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year after the enterprise is affected by the policy being 1 and the year before the policy being 0; The coefficient of the interaction term is the average promotion effect of the value-added tax "withholding and tax refund" reform on corporate performance; As mentioned above, a series of control variables have been defined.

4. Empirical results

4.1 Main empirical results

(1)Descriptive statistics

Table 1 shows the results of descriptive statistics. Among them, the minimum and maximum values of ROA are -0.388 and 0.228 respectively, which indicates that there are relatively large differences in corporate performance among the sample enterprises. The mean value of Treat×Reform variable of the effect of VAT "reserving tax refund" reform is 0.309, indicating that about one-third of the sample enterprises are affected by the policy. In terms of control variables, the average values of asset-liability ratio (Lev) and total asset turnover ratio (Ato) of sample enterprises are 41.4% and 64.6%, respectively, which are in line with normal levels, indicating that the selection of sample scope is reasonable. In addition, the average Soe of the nature of enterprise ownership is 0.328, indicating that 32.8% of the sample enterprises are owned by Chinese enterprises.

Table 1: Descriptive statistical analysis

Variable	N	Mean	SD	Min	p25	p50	p75	Max
ROA	24281	0.040	0.068	-0.388	0.0140	0.039	0.072	0.228
Treat×Reform	24281	0.309	0.462	0	0	0	1	1
Treat	24281	0.613	0.487	0	0	1	1	1
Reform	24281	0.489	0.500	0	0	0	1	1
Cfo	24281	0.055	0.077	-0.203	0.006	0.050	0.096	0.354
Lev	24281	0.414	0.198	0.046	0.256	0.405	0.559	0.914
Ato	24281	0.646	0.423	0.074	0.376	0.553	0.791	2.777
Board	24281	2.118	0.196	1.609	1.946	2.197	2.197	2.708
Indep	24281	0.377	0.054	0.308	0.333	0.364	0.429	0.600
Dual	24281	0.285	0.451	0	0	0	1	1
Soe	24281	0.328	0.470	0	0	0	1	1
Age	24281	2.916	0.311	1.792	2.708	2.944	3.135	3.555
Top1	24281	0.338	0.146	0.083	0.225	0.316	0.433	0.750

(2)Benchmark regression results

Table 2 is based on the empirical test results of "Tax credit Reform - Corporate Performance". In the regression results, columns (1) and (2) control the fixed effect of industry and year. From the results in the table, the coefficients of Treat×Reform are 0.011 and 0.012 respectively, which are significantly negative and both pass the significance test at the 1% level, indicating that after the implementation of the VAT "credit rebate" reform. Compared with non-pilot enterprises, the effect of pilot enterprises on promoting corporate performance is significantly better than that of non-pilot enterprises, which initially provides empirical evidence for hypothesis 1 of this paper.

Table 2: Benchmark regression results

	(1)	(2)
	ROA	ROA
Treat×Reform	0.011***	0.012***
	(4.266)	(5.534)
Constant	0.030***	-0.020
	(4.172)	(-1.260)
Controls	No	Yes
Ind FE	Yes	Yes
year FE	Yes	Yes
N	24281	24281
adj. R^2	0.031	0.227

Note: In parentheses are T-values adjusted for company-level clustering; *, **, and *** indicate significance levels of 10%, 5%, and 1%, respectively. The following tables are consistent

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4.2 Robustness test

(1)Replace the explained variable

The selected return on assets (ROE) is used as the alternative index of enterprise performance for re-regression, and the estimated results are shown in Table 3. No matter what method is adopted to construct the level of enterprise performance, the regression results of VAT "retention against tax refund" policy on enterprise performance are significantly positive at the level of 1%, indicating that the reform of VAT "retention against tax refund" significantly improves enterprise performance. This indicates that the research conclusion of this paper is still robust.

Table 3: Robustness: Replacement of explained variables

	(1)	(2)
	ROE	ROE
Treat×Reform	0.018***	0.023***
	(3.852)	(5.364)
Constant	0.042***	-0.095***
	(3.360)	(-3.211)
Controls	No	Yes
Ind FE	Yes	Yes
year FE	Yes	Yes
N	24281	24281
adj. R^2	0.019	0.148

(2)VAT tax burden reduction

In the sample period from 2013 to 2021, the government has made three changes to the VAT rate. Taking the practice of Liu Jun and Liu Feng (2014) into account, the VATBurden is further controlled on the basis of model (1) to test whether the change of VAT burden during the sample period will affect the promoting effect of the reform of VAT "withholding tax refund" on enterprise performance. The regression results are shown in Table 4. After controlling the influence of VATBurden variable, the regression coefficients of Treat×Reform all pass the significance test at 1%, which further proves the robustness of the benchmark regression results.

Table 4: Robustness: Reduction of VAT tax burden

	(1)	(2)
	ROA	ROA
Treat×Reform	0.011***	0.012***
	(4.266)	(5.500)
VATBurden		0.233***
		(11.708)
Constant	0.030***	-0.020
	(4.172)	(-1.267)
Controls	No	Yes
Ind FE	Yes	Yes
year FE	Yes	Yes
N	24281	24281
adj. R^2	0.031	0.234

4.3 Heterogeneity analysis

Capital expenditure is also an important factor affecting the performance of pilot enterprises. Regression is conducted by capital expenditure group, and the regression results are shown in Table 5. In column (1), the Treat x Reform coefficient is significantly positive, that is, the reform of VAT "reserving tax refund" can significantly improve enterprise performance. In column (2), the coefficient of the variable Treat×Reform is -0.004, indicating that in enterprises with low capital expenditure and non-pilot enterprises with high capital expenditure, the reform of VAT "withholding tax refund" has no significant promoting effect on enterprise performance. It can be seen that the enterprise performance of pilot enterprises with higher capital expenditure is more sensitive to the VAT "reserving tax refund" reform. The reason is that pilot enterprises with higher capital expenditure will get more tax credits after the introduction of the VAT "retention and tax refund" policy, which will improve enterprise performance.

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Table 5: Capital expenditure heterogeneity

	(1)	(2)
	ROA	ROA
Treat×Reform	0.014***	-0.004
	(4.959)	(-1.181)
Constant	0.006	-0.027
	(0.267)	(-1.324)
Controls	Yes	Yes
Ind FE	Yes	Yes
year FE	Yes	Yes
N	5088	11099
adj. R^2	0.270	0.237

5. Research conclusions and policy recommendations

Based on the previous analysis, the following conclusions can be drawn: First, compared with the enterprises in the control group, the pilot enterprises effectively play the characteristics of tax neutrality, enhance the tax neutrality of VAT, and significantly improve the performance of enterprises during the reform of VAT "retention and refund". This conclusion has passed the robustness test. Second, from the perspective of heterogeneity analysis, the reform of VAT "withholding tax refund" can better improve the tax neutrality of VAT in enterprises with higher capital expenditure, and has a more obvious promoting effect on enterprise performance.

Based on the research conclusions of this paper, this paper puts forward the following two policy suggestions: First, to further improve the VAT "retention tax refund" system, reduce the tax refund conditions and thresholds of the "retention tax refund" policy, increase the proportion of tax rebates in general industries, and effectively reduce the tax burden pressure on enterprises. Second, shorten the time period of VAT "withholding tax refund".

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