



# Analysis of Market Effect and Influencing Factors of “Replace Business Tax with VAT” —Evidence from Listed Companies in the Financial Industry

Xianping Yuan, Xiaomei Ma\*

School of Xi’an University of Science and Technology, Xi’an, China

Email: \*13209852899@163.com

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## Abstract

“Replace Business Tax with VAT” has been implemented in the financial industry, aiming at reducing the tax burden of financial enterprises. Taking listed companies in financial industry as samples, this paper empirically analyses the market response to this favorable policy and its possible influencing factors by using event study method. The results show that the market does not respond strongly to the announcement events of the “Replace Business Tax with VAT” policy in the financial industry, but strongly to the implementation of the “Replace Business Tax with VAT” policy. The average abnormal returns (1.17%) of the sample companies in the implementation day are significantly positive, and the cumulative abnormal returns (0.85%) of the event window  $[-1, 1]$  are also significantly positive. Regression analysis shows that the salary ratio, financial leverage, book-to-market value ratio, ownership concentration and property nature of sample companies are positively correlated with the abnormal return on the implementation date, while the asset size is negatively correlated with the abnormal return.

## Subject Areas

Accounting, Business Finance and Investment, Business Research Methods, Development Economics, General Management

## Keywords

Replace Business Tax with VAT, Finance, Event Study Method

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## 1. Introduction

Tax reform is a one-off process. The change from business tax to VAT (hereinafter referred to as business tax to VAT) refers to the change from taxable items

previously paid business tax to VAT. VAT pays only the value-added part of products or services, thus reducing the link of duplicate tax payment. Business tax to VAT (hereinafter referred to as “Replace Business Tax with VAT”) is an important decision made by the Chinese government in accordance with the new situation, starting from the overall deployment of comprehensive deepening reform, with the aim of reducing duplicate taxation and reducing enterprise tax burden. “Replace Business Tax with VAT” has experienced more than five years from pilot projects, gradually expanding the scope of pilot projects, full implementation to the formal withdrawal of business tax from the historical stage (marked by the decision (draft) of the State Council on Abolishing the Provisional Regulations of China on Business Tax and amending the Provisional Regulations of China on Value Added Tax adopted by the Executive Meeting of the State Council on October 30, 2017). As a “structural tax reduction policy”, “Replace Business Tax with VAT” should be a “good” policy information for the securities market, related industries and enterprises. According to the efficient market hypothesis and signaling theory, the securities market should make a positive response to the new policy information. In view of this, this paper uses the event study method, taking listed companies in the financial industry as samples, to explore the response of the stock market to the “Replace Business Tax with VAT” event, and to test the applicability of the efficient market hypothesis and signaling theory in China’s stock market.

In China, in recent years, the related theme of “Replace Business Tax with VAT” has become a hot issue in academic research. Specifically to the financial industry, many scholars have carried out relevant research. Sun Yuchen (2015) believed that the implementation of business tax burden in the financial industry was too heavy and the tax base was unreasonable. Continuing to levy VAT in the financial industry would restrict the development of China’s financial industry [1]. Gao Jun and Hong Jiajia (2017) pointed out that after the increase of financial industry, sales tax base is still based on gross interest, and the scope of tax collection is wider than before the reform, so sales tax burden is heavy. At the same time, the financial industry has a lot of manpower costs, and the amount of new fixed assets tax deductible is limited, which results in the tax burden level not falling but rising [2]. Zhang Yingming (2017) pointed out that there are some problems in the implementation of “Replace Business Tax with VAT” in the financial industry, such as “high cost, difficulty to define tax base and input tax amount, interruption of deduction chain” [3]. Cao Yue *et al.* (2016) found that the last batch of enlarged industries showed positive market reaction, but the degree of reaction of each industry was different [4]. To sum up, although the domestic academic circles have carried out extensive research on the related topics of the financial industry reform of “Replace Business Tax with VAT”, the market effect of the event still needs to be further studied. This paper uses the event study method to examine the stock price effect on the announcement day and the implementation date and the corresponding window period, taking fi-

financial listed companies as samples. At the same time, we empirically analyze the possible influencing factors that lead to different market reactions of sample companies.

## 2. Sample Selection and Research Methods

### 2.1. Sample Selection

This paper takes the financial listed companies that implement the policy of “Replace Business Tax with VAT” as an example. After excluding the companies whose stock returns and financial indicators are incomplete, there are 53 research samples. Sample companies and market data are collated according to the data from CSMAR, Wind database and Oriental Wealth Network. Wind database mainly provides real-time quotations, information and data-based analysis and extraction tools for various types of transactions in the domestic financial securities market. At the same time, it provides nearly 1000 latest financial news at home and abroad and various financial securities regulations since the establishment of the domestic securities market. CSMAR database is an economic and financial research database with large scale, accurate information and comprehensive data in China. It is developed by Guotai an Company from the academic research needs, drawing on the professional standards of CRSP, Standard & Poor’s Compustat and other well-known international databases of the University of Chicago.

### 2.2. Research Method

This paper uses the event study method to analyze the market effect of the financial industry’s implementation of the “Replace Business Tax with VAT” event, and uses regression analysis to explore the possible influencing factors of the market effect. The basic idea of event study method is to measure the market reaction to events by abnormal returns of sample companies’ stocks, and to measure the degree of market reaction by abnormal returns and cumulative abnormal returns deviating from zero. The formulas for calculating the related variables are as follows:

Stock Return Rate ( $R_{it}$ ) and Market Return Rate ( $R_{mt}$ ) of Sample Companies:

$$R_{it} = \frac{P_{it} - P_{it-1}}{P_{it-1}} \quad (2-1)$$

$$R_{mt} = \frac{I_{mt} - I_{mt-1}}{I_{mt-1}} \quad (2-2)$$

$R_{it}$  is the stock return rate of sample company  $i$  on  $t$  day;  $R_{mt}$  is the market daily return rate;  $P_{it}$  is the closing price of stock  $i$  on  $t$  day;  $P_{it-1}$  is the closing price of stock  $i$  on  $t-1$  day;  $I_{mt}$  is the closing index of financial index on  $t$  day;  $I_{mt-1}$  is the closing index of financial index on  $t-1$  day.

Normal Return Rate:

At present, most scholars use market model, index adjustment model and

mean adjustment model to estimate the normal rate of return (Yuan Xianping and Kodagang, 2006) [5]. This paper uses the market model to calculate, that is:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \xi_{it} \quad (2-3)$$

Among them, alpha I and beta I are obtained by regression between the stock returns of sample companies in the estimation window and the daily returns of corresponding financial sector indices. It is a regression residual term, *i.e.* the abnormal return on the T-day of the first stock.

Abnormal rate of return and cumulative abnormal rate of return:

$$AR_{it} = R_{it} - \alpha_i - \beta_i R_{mt} \quad (2-4)$$

$$CAR_t = \sum_{t=n}^n AR_{it} \quad (2-5)$$

Event Date and Event Window Selection:

This paper selected March 24, 2016 (Policy Announcement Day) and May 1, 2016 (Implementation Day) as event days. Based on previous research experience (Yuan Xianping and Kedagang, 2008) [6], the estimation window is set to  $[-200, -61]$ , and the event window is set to  $[-1, 1]$ . In order to further investigate the market effect, windows such as  $[-20, -2]$ ,  $[-10, -2]$ ,  $-1$  day,  $0$  day,  $1$  day,  $[0, 1]$ ,  $[2, 10]$ ,  $[2, 20]$  are also set up.

### 3. Empirical Results and Analysis

#### 3.1. The Announcement Effect of the Policy

**Table 1** shows the average abnormal rate of return or the average cumulative abnormal rate of return of the event window corresponding to the announcement day of the financial industry implementing the policy of “Replace Business Tax with VAT”. The data in **Table 1** show that on the day of announcement, the average abnormal return is negative ( $-0.49\%$ ) but not significant; on the day before and after announcement, the average abnormal return is positive but not significant; and on the event window  $[-1, 1]$ , the average cumulative abnormal return is  $-0.39\%$ , which is significant at the confidence level of 10%. The average

**Table 1.** Abnormal returns (or cumulative abnormal returns) and test results of windows on the announcement day of the “Replace Business Tax with VAT” event in financial industry.

	$[-20, -2]$	$[-10, -2]$	$-1$	$0$	$1$	$[-1, 1]$	$[0, 1]$	$[2, 10]$	$[2, 20]$
Sample size	51	51	51	51	51	51	51	51	51
Average (%)	0.75	1.45	0.08	$-0.49$	0.02	$-0.39^*$	$-0.47$	$-0.24$	$-0.58$
t	0.79	1.27	0.34	$-1.47$	0.17	$-1.82$	1.52	$-0.55$	$-0.92$

Note: \*Significant at 10% confidence level.

cumulative abnormal returns of  $[-20, -2]$ ,  $[-10, -2]$  windows before the announcement date are positive, but not significant; while the average cumulative abnormal returns of  $[2, 10]$ ,  $[2, 20]$  windows after the announcement date are both negative and insignificant. This shows that the announcement event of “business to increase” policy did not arouse the reaction of market investors. The reason may be that the “business to increase” policy has been piloted in other industries, and the market has sufficient experience in policy announcement events, so there is a phenomenon of market weakness.

At the same time, other windows of announcement events are also examined, such as  $[-60, -2]$ ,  $[-30, -2]$ ,  $[2, 30]$ ,  $[2, 60]$ ,  $[-60, 60]$ ,  $[-30, 30]$  and  $[-20, 20]$ . The results show that there are - 12.95%, - 2.25% and - 6.76% average cumulative abnormal returns on  $[-60, -2]$ ,  $[2, 60]$  and  $[-60, 60]$  event windows, respectively, which are significantly non-zero at the level of 10%.

### 3.2. The Implementation Effect of the Policy

**Table 2** shows the average abnormal returns or the average cumulative abnormal returns of each window corresponding to the implementation date of the “Replace Business Tax with VAT” policy. The data in **Table 2** show that on the day of announcement, the average abnormal return is positive (1.17%) and significant at the 1% confidence level; on the day before and after announcement, the average abnormal return is negative but not significant; the average cumulative abnormal return corresponding to event window  $[-1, 1]$  is 0.85%, and significant at the 1% confidence level. The average cumulative abnormal returns of  $[-20, -2]$ ,  $[-10, -2]$  windows before the announcement date are negative and significant at 10% and 1% confidence levels respectively, while those of  $[2, 10]$ ,  $[2, 20]$  windows after the announcement date are -1.91% and 0.92%, respectively. The former is significant at 5% confidence level, while the latter is not significant.

Other windows to implement events were also examined, namely  $[-60, -2]$ ,  $[-30, -2]$ ,  $[2, 30]$ ,  $[2, 60]$ ,  $[-60, 60]$ ,  $[-30, 30]$ ,  $[-20, 20]$ ,  $[-10, 10]$ . The results show that there are 5.51%, 4.42%, 4.65%, 11%, 5.77% and -3.51% average cumulative abnormal returns on event windows of  $[-60, -2]$ ,  $[-30, -2]$ ,  $[2, 60]$ ,  $[-60, 60]$ ,  $[-30, 30]$ ,  $[-10, 10]$ , respectively, and they are significant at the confidence level of 5% or 1% (**Table 3**).

Based on the data and analysis of **Table 1** and **Table 2**, the market did not

**Table 2.** Abnormal income (or accumulated abnormal income) and test results of expansion window on the announcement Day of “Business Change Increase” incident in financial industry.

	$[-60, -2]$	$[-30, -2]$	$[2, 30]$	$[2, 60]$	$[-60, 60]$	$[-30, 30]$	$[-20, 20]$	$[-10, 10]$
Sample size	51	51	51	51	51	51	51	51
Average (%)	-12.95*	1.36	-1.54	-2.25*	-6.76*	0.47	0.74	0.82
t	-1.93	0.97	-1.40	-1.70	-1.95	0.23	0.46	0.77

**Table 3.** Abnormal returns (or cumulative abnormal returns) and test results of windows on the implementation day of the “Replace Business Tax with VAT” event in financial industry.

	[-20, -2]	[-10, -2]	-1	0	1	[-1, 1]	[0, 1]	[2, 10]	[2, 20]
Sample size	53	53	53	53	53	53	53	53	53
Average (%)	-1.78*	-2.45***	-0.17	1.17***	-0.15	0.85***	1.01***	-1.91**	0.92
t	-1.68	-3.76	-1.45	5.38	-1.26	4.14	4.37	-2.68	1.06

Note: \*\*\*, \*\* means significant at 1%, 5% and 10% confidence levels, respectively.

respond strongly to the announcement events of the “Replace Business Tax with VAT” policy in the financial industry, that is, the average abnormal return of stock price on the announcement day was only  $-0.49\%$ , and the average cumulative abnormal return of event window  $[-1, 1]$  was  $-0.39\%$  at the 10% confidence level. As for the implementation of the “Replace Business Tax with VAT” policy in the financial industry, the market reacted strongly and was optimistic. There were significant positive average abnormal returns ( $1.17\%$ ) for the sample companies and significant positive cumulative abnormal returns ( $0.85\%$ ) for the event window  $[-1, 1]$ . The above data show that the overall listing market welcomes the implementation of “Replace Business Tax with VAT” in the financial industry, resulting in significant positive average abnormal returns on the event day. In other words, market acceptance of “Replace Business Tax with VAT” is a “structural tax reduction policy” and a “good” policy (Table 4).

### 3.3. Regression Analysis

At present, there are few relevant literatures about the market reaction brought about by “Replace Business Tax with VAT”, and no complete conclusion has been drawn about the influencing factors. Zeng Yamin and Zhang Junsheng (2005) used company size, financial leverage, profitability, growth ability, book-to-market value ratio, beta value, industry and institutional investors to examine the influencing factors of market reaction to dividend income tax reduction [7]. Cao Yue *et al.* (2017) added three indicators of fixed asset density, labor force scale and tax sensitivity to measure the market reaction brought about by “Replace Business Tax with VAT” [4]. Longyue E and Huang E Ting (2017) analyzed the nature of property rights [8]. In order to find out the possible influencing factors of abnormal returns brought about by the “replace business tax with value-added tax” incident of financial sample companies, referring to the experience of existing research results, this paper selects variables such as tax elasticity, salary ratio, asset scale, risk, book-to-market ratio, property right nature, tradable shares ratio and ownership concentration of sample companies at the end of the year before the incident, and tests the correlation between these variables and average (cumulative) abnormal returns.

**Table 4.** Abnormal returns (or cumulative abnormal returns) of the enlarged window on the execution day of the business-to-growth event in the financial sector and the test results.

	[-60, -2]	[-30, -2]	[2, 30]	[2, 60]	[-60, 60]	[-30, 30]	[-20, 20]	[-10, 10]
Sample size	53	53	53	53	53	53	53	53
Average (%)	5.51**	4.42***	0.51	4.65**	11.00***	5.77***	0.15	-3.51***
t	2.34	3.62	0.40	2.69	2.86	2.85	0.10	-3.09

The regression model is:

$$CAR_{it} \text{ (or } AR_{it}) = \alpha_0 + \alpha_1 Ln(Asset)_i + \alpha_2 (Lev)_i + \alpha_3 (T_s)_i + \alpha_4 (Rate)_i + \alpha_5 (Bate)_i + \alpha_6 (BM)_i + \alpha_7 (State)_i + \alpha_8 (Fsr)_i + \alpha_9 (Pfirs)_i \quad (2-6)$$

Among them, the explained variable  $AR_{it}$  is the abnormal return on the day of implementation (because the average cumulative abnormal return on the event window of policy announcement is low, only the factors affecting the stock price effect of policy implementation events are examined).  $T_s$  (tax elasticity):

$$T_s = \Delta NP / \Delta T \quad (2-7)$$

$\Delta NP$  is net profit rate of change,  $\Delta T$  is business tax and additional rate of change. Rate (Remuneration Ratio): Based on the fact that labor capital accounts for a large proportion of operating costs in the financial industry, the scale index of employees is redefined by using the ratio of “cash paid to employees and cash paid to employees” to operating costs. Ln (Asset): The natural logarithm of the total assets of the underlying company. Beta (risk): The annual beta value of the market. BM (book to market value ratio): The ratio of the total owner’s equity to the market value of the enterprise. State (property right nature): 1 for state-owned enterprises and 0 for non-state-owned enterprises. Fsr (proportion of circulating shares): The ratio of circulating A shares to total A shares of sample companies. Pfirs (Equity Concentration): Equity Concentration is represented by the proportion of the largest shareholder.

The data in **Table 5** show that the abnormal rate of return on the implementation date is correlated with the salary ratio, asset size, financial leverage, book-to-market value ratio, ownership concentration and property nature of the sample companies. Among them, the scale of assets is negatively correlated with abnormal returns, while the salary ratio, financial leverage, book-to-market value ratio, ownership concentration and property rights are positively correlated. There was no significant correlation between the other indicators. This shows that the capital market prefers state-owned holding financial companies with high salary ratio, high financial leverage, high book-to-market value ratio and high equity concentration. Tax elasticity has no significant impact on the “Replace Business Tax with VAT”, which may be due to the fact that the index of tax elasticity is more applicable to the measurement of macro-economy. The salary ratio is positively correlated with the market reaction of “Replace Business Tax

**Table 5.** Data of regression results.

	Non-standardization coefficient		Standardization coefficient	t	Sig.
	B	Standard error	Trial version		
Constant term	15.101	6.013		2.511**	0.016
Ts	-0.478	0.318	-0.183	-1.502	0.141
Rate	4.214	1.797	0.301	2.345**	0.024
Ln(Asset)	-0.920	0.274	-1.494	-3.355***	0.002
Lev	4.805	2.080	0.657	2.311**	0.026
Betaval	-0.601	1.106	-0.091	-0.543	0.590
BM	2.475	1.320	0.522	1.875*	0.068
Fsr	1.776	1.081	0.287	1.642	0.108
Pfirs	5.827	1.364	0.532	4.273***	0.000
State	1.158	0.605	0.313	1.914*	0.063

$R^2 = 0.517$  adjustment  $R^2 = 0.411$   $F = 4.875$

Note: \*\*, \*\*\* means significant at 1%, 5% and 10% confidence levels, respectively.

with VAT”, which is also inconsistent with the existing research conclusions [8].

## 4. Conclusion and Research Limitations

### 4.1. Conclusion

This paper studies the market reaction of the financial industry after the implementation of “Replace Business Tax with VAT” by using event study method, and uses descriptive statistics and regression analysis to analyze the influencing factors. The results show that: 1) the market does not respond strongly to the announcement events of the “Replace Business Tax with VAT” policy in the financial industry. On the announcement day, the abnormal return of the average stock price of the sample companies is only -0.49%, and the average cumulative abnormal return (-0.39%) of the event window [-1, 1] is also significantly non-zero at the 10% confidence level. 2) As for the implementation of the “Replace Business Tax with VAT” policy in the financial industry, the market reacted strongly and showed optimism. There were significant positive average abnormal returns (1.17%) and significant positive cumulative abnormal returns (0.85%) in the event window [-1, 1]. 3) The abnormal rate of return on the implementation date is correlated with the salary ratio, asset size, financial leverage, book-to-market value ratio, ownership concentration and property nature of the sample companies. Among them, the scale of assets is negatively correlated with abnormal returns, while the salary ratio, financial leverage, book-to-market value ratio, ownership concentration and property rights are positively correlated.

### 4.2. Research Limitations

This paper takes listed financial companies as research samples to explore the



market reaction of “Replace Business Tax with VAT”. In fact, there are some differences among the sub-industries of the financial industry, and the policy of “Replace Business Tax with VAT” may have different effects on the sub-industries of the financial industry. Due to the limitation of sample size and length, this paper fails to further subdivide the industry and explore the market reaction of sub-banks to the “Replace Business Tax with VAT” event, which to some extent affects the accuracy of the conclusions of this study. It is hoped that future scholars will be able to subdivide financial sub-industries and make suggestions for different market reactions of sub-industries.

### Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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