Management Studies, Sep.-Oct. 2021, Vol. 9, No. 5, 355-367
doi: 10.17265/2328-2185/2021.05.002

Can Financial Shared Services Improve Business Performance? Evidence from Chinese A-share Listed Corporations*

Yanan Wen
Southwest University, Chongqing, China
Yihan Wang
Nanjing University of Finance and Economics, Nanjing, China

Taking Chinese A-share listed corporations as sample, this paper studies whether the implementation of financial shared service center, an IT-based financial management practice, can significantly improve the business performance. We conduct Wilcoxon rank sum test and OLS regression model. The results show that there is a significant difference in business performance between the corporations without financial shared service center and the matching samples which have implemented financial shared service. In addition, the positive effect of financial shared services on business performance has a time-lag. As the corporations become adept on financial shared services, their business performance such as profitability, operating ability and growth could be improved steadily. Our study provides suggestions on whether corporations' might upgrade their financial system and how to evaluate the implementation results.

Keywords: financial shared services, business performance, Wilcoxon test, OLS regression

Introduction

Modern globalized corporations are characterized as expansion in scale and dispersion in geography. However, the management of such business empires becomes more and more challenging. Contributing to new IT technologies, financial shared service center (FSSC) has become one of the important managing practice. FSSC is transforming the traditional high-cost financial model of globalized enterprise (Li, Du, & Su, 2021). Based on financial business processing, FSSC takes market-oriented perspective to improve professional production services for internal and external customers. Consequently, it would optimize organizational structure, standardize processes, improve process efficiency, and reduce operations cost and create corporate value (Janssen, Schulz, & Brenner, 2013).

According to the "Research Report on China's Shared Services Field 2020" launched through ACCA global website (https://cn.accaglobal.com), more than 54.76% of Chinese large and medium enterprises have established internal financial sharing services, and the remaining are mostly doing strategic plans in this area.

* **Acknowlegements:** This work was supported by University-Industry Collaborative Education Program by the Ministry of Education of China under Grant No. 202002314026.
Yanan Wen, College of Economics and Management, Southwest University, Chongqing, China
Yihan Wang, Ph.D., Lecturer, School of Accounting, Nanjing University of Finance and Economics, Nanjing, China
Correspondence concerning this article should be addressed to Yihan Wang, School of Accounting, Nanjing University of Finance and Economics, Wenyuan Road No. 3, Qixia District, Nanjing, China.

More than 42.86% of Chinese enterprises have already planned, and only 2.38% of medium-sized enterprises have not implemented the plan of financial sharing services, which shows that financial sharing services have been gradually introduced to Chinese enterprises. However, the practice of Chinese enterprises are still very basic. At present, most Chinese enterprises are only focusing on the primary system sharing of basic financial functions, and have not actively researched and developed high-level sharing platforms that can cover the entire financial process of the company.

The financial sharing service model is undoubtedly an effective managing tool for accelerating operating efficiency and improving operating results, however, many companies are still in a planned state and have doubts about the real value of the financial sharing model. The reason for this contradiction is that FSSC not only has a positive effect on business performance, but also has negative effects (Yang, Liu, Song, & Zhou, 2021). Due to the systemic risks brought about by the introduction of financial sharing services, it probably will cost a lot of money to build a high-quality financial shared center, and the update and iteration of the financial center system will also bring continuous follow-up investments. Undoubtedly, FSSC may increase the pressure on the operating capital of the enterprise, and if it fails to reduce the expected operating cost of the enterprise, nor achieve the expected operating efficiency of the enterprise, the business performance would be affected negatively and the operating tasks would be restricted.

According to Grant (1999), the effective implementation of financial shared services is inseparable from the comprehensive quality of the company's employees, the market environment, and the company's strategic planning. Lindvall and Iveroth (2011) denoted that dynamic reshaping capabilities, IT capabilities, and the organizational structure of supporting activities are important prerequisites for the successful implementation of FSSC. However, some scholars have discovered the limitations of financial sharing services. Financial sharing services are probably not dedicated to small businesses and group companies with complex organization and business. They are mostly suitable for multinational groups with a single business (Li, 2016). FSSC has strong intermediary nature with its information-processing functions, and a reasonable allocation of personnel is necessary for its high-quality services (Koval, Nabareseh, Klimek, & Chromjakova, 2016).

This paper focuses on whether financial sharing services could improve business performance. Starting from the effectiveness and limitations of FSSC, the Wilcoxon rank test is used to study the differences before and after the implementation of financial sharing services, and regression analysis methods are conducted as well. Further, we study whether the implementation time has a significant impact on business performance. Specifically, taking the implementation of financial shared services and the implementation time as variables, a multiple regression fixed-effect model is constructed to explore the relationship between shared services and listed companies' operating performance. Combining the two methods to put forward corresponding suggestions for corporations based on our findings.

The purpose of our research is as follows. We predicted that the implementation of FSSC would significantly improve business performance. Recent researches on financial sharing services mainly focus on a single case, or study the large framework of shared services from a macro perspective, and rarely examine the role of financial sharing services from the operational capabilities, profitability, and growth capabilities of enterprises. Therefore, we examine the economic consequences of FSSC from the perspective of business performance, which expands the research on the effectiveness of financial shared services and financial

management models. Additionally, the company's reform measures are related to the company's immediate operating performance and prospects, and the introduction of FSSC has a high investment cost. If the financial sharing service model and the business states of the company are difficult to be compatible, then implementation of FSSC will be difficult to achieve the target and even restrict its development. Therefore, based on our empirical analysis, this paper examines the relationship between the implementation of FSSC and the changes in business performance, evaluates the economic consequences of financial shared services, and provides reasonable suggestions for companies whether to implement and how to effectively implement shared services.

Literature Review and Hypothesis Development

Traditionally, financial management is modelled as centralized, decentralized, and hybrid. Under the centralized financial management model, the entire group adopts the parent company's financial policies and gets better control of the subsidiaries' financial activities. However, it is impossible to mobilize the departments or subsidiaries because the centralization inhibits their flexibility and creativity. If the parent company is too far away, unsuitable decisions may be made due to information asymmetry, which would result in inefficient business operations and increase in cost (Willman & Morris, 2010). On the contrary, the decentralized method gives the subordinate departments a certain degree of autonomy and managing power, however, it is likely that the subsidiaries disobey the parent company's target in order to seek more benefits. Although the hybrid model can alleviate the disadvantages of these two, the hybrid management structure has certain limitations, for example, it may be difficult for parent company to coordinate. Due to the properties of the traditional models, there are restrictions for the enterprises' growth in the actual operation process, especially for those globalized enterprises.

Relying on information technology to realize financial sharing, highly integrate accounting units are constructed. According to the theory of economies of scale and information economics, the financial sharing system will gradually optimize the company's operating costs, operating capabilities, and operating results. Research on the necessity of building shared services began in the 1990s. Financial shared services were initially considered to be the centralized processing of information, personnel, and operations, with the purpose of reducing costs and improving efficiency. Gunn, Carberry, Frigo, and Behrens (1993) pointed that shared services can reduce the hierarchical structure through reasonable resource allocation and enable enterprises to obtain cost advantages. The effectiveness of its financial shared services mainly comes from three levels: first, strategic effectiveness. The refined and standardized management of financial shared services promotes a cost-leading strategy. Due to the reengineering of financial management processes and the concentration of financial functions, the improvement of financial efficiency and the release of human resources have been achieved, and the amount of business processing per person and per unit of time has increased. Operation efficiency would be significantly improved (Yu & Guo, 2020). In addition, it strengthens the management of various assets, focuses on accelerating asset turnover, and reduces the time taken up by inventory, accounts receivable and other assets, thereby saving capital costs (Chen & Bi, 2019). Strategic innovation, efficiency improvement, and strict cost control will facilitate business performance improving.

The reason why the shared service model is better than the traditional models is largely that the reorganization and continuous optimization of business processes, thereby ensuring the operational efficiency

and effectiveness of financial work. Information system and technical support are contributable to realize financial sharing and information sharing. The effective design of FSSC can guarantee the operation quality, organizational efficiency, service satisfaction, value added and other aspects of business performance. Therefore, there are reasons to believe that the implementation of financial sharing services has a positive effect on the operating ability of enterprises. Therefore, we propose the first hypothesis:

Hypothesis 1: The implementation of financial sharing services can significantly improve business performance.

The process of implementing financial sharing requires long-term strategic plan, and organizational structure, staffing as well as business activities also needs to be continuously improved to adapt to new changes (Herbert & Seal, 2012). The longer the time, the more the enterprise can adapt to the financial shared service model, and the more significant role of financial shared service can be played. With the process of adaptation, financial sharing services could be gradually transformed into a flexible and expandable working model to meet more differentiated management needs. Therefore, as FSSC has implemented successfully, the longer the running time, the more stable the effectiveness of the financial sharing service. Based on the above, we proposes the second hypothesis:

Hypothesis 2: The longer the running time of financial sharing services, the more significant the improvement of the company's operating performance.

Research Design

Data Source and Sample Selection

In order to make comparisons of companies that have implemented and have not implemented financial sharing services, we collect financial data of listed companies between 2007 and 2020. Some listed companies that are difficult to obtain complete financial data are excluded. Based on the standards of same industry, similar total assets or business income, we select 15 pairs of corporations. In our sample, 15 companies have implemented shared services, 15 have not implemented. We collect data for 5 years after their implementation year. The initial number of samples is 150 firm-year. In order to reduce the impact of mergers and acquisitions or reorganizations on the business performance of the company, samples with an asset-liability ratio greater than 100% and samples with a total asset growth rate greater than 150% are deleted. The sample eventually consists of 82 firm-year observations.

The reason why we choose 2007 as the starting year of the data sample is as follows. Firstly, in 2007, the China Securities Regulatory Commission implemented the "Administrative Measures on Information Disclosure of Listed Companies" to ensure the accuracy of information disclosure by listed companies. Secondly, FSSC was first introduced to China by a multinational group ZTE in 2005. In the following 10 years, the introduction of a shared financial service model has gradually became an important practice of corporate group management and control innovation. Up to now, there are few Chinese listed companies that have not implemented FSSC. Therefore, we choose 2007 as a starting point to collect more samples of companies implementing financial sharing services.

There are two methods to determine the specific time of the sample companies that have implemented FSSC. The first one is based on the ACCA published China shared service field survey reports each year, which would list the implementation time of companies. The second method is through the company's official

website or report which discloses information about the establishment of FSSC. The financial data of listed companies are downloaded from China Stock Market and Accounting Research (CSMAR) database.

Variables Definitions

Characteristics of financial shared services. This paper explores whether to implement financial sharing services and the impact of the duration of the implementation of financial sharing services on business performance. Therefore, this paper takes whether the listed company implements shared services and the time for implementing shared services as two variables to measure the characteristics of financial shared services. The implementation of financial sharing services starts with the establishment of a financial sharing service center. Therefore, whether a listed company implements sharing services is based on whether the company establishes a financial sharing service center or not. We use a dummy variable FSS with establishing a financial sharing service center equals 1, otherwise is 0. The implementation time (TIME) is counted as 0 in the year of implementation, 1 in the first year, and so on.

Measurements of business performance. The evaluation of the business performance of a company is mainly based on the profitability, operating capability and growth of listed companies.

Profitability. It usually refers to the ability of an enterprise to make profits in a certain period. From the perspective of an enterprise, the direct purpose of an enterprise engaged in business activities is to maximize profits and maintain stable operation and development of the enterprise. Therefore, the economic effect of implementing financial sharing services can be tested by examining the profitability of the enterprise. This article uses two indicators, namely the return on net assets (ROE) and the net sales margin (NPM), to reflect the business capability of the enterprise.

Operating capability. It is actually the operating efficiency and benefits of the total assets of the enterprise and its various components. The financial sharing service will realize the process reengineering and process optimization of the enterprise, improve the coordination of each process, and improve the decomposition process. Therefore, the economic effect of the implementation of financial sharing services can be tested by examining the operational capabilities of the enterprise. The operating capability of an enterprise can be expressed by indicators of accounts receivable turnover (RTR) and total asset turnover (TAT).

Growth. Enterprise growth ability refers to the future development trend and development speed of an enterprise, including the expansion of enterprise scale, the increase of profit and net assets. At the same time, it is also affected by the joint effect of market environment and macro policies, reflecting the scale of enterprise assets and market share. The application of financial shared services is beneficial for the growth of enterprises, so the increase or decrease in the growth capacity of enterprises can be tested to reflect the quality of shared services. This article will use the growth rate of net profit (NPG) and the growth rate of total assets (TAG) to reflect the growth potential of the company.

Control variables. Based on the prior research, this article includes the following control variables: company size (SIZE); leverage (LEV); age of the enterprise (AGE); economically developed area (DEVP), refers to the economically developed area such as Beijing, Shanghai, Tianjin, Liaoning, Hebei, Shandong, Jiangsu, Zhejiang, Fujian, and Guangdong where the company is registered, take 1, otherwise take 0; property right (STATE), refers to the state-owned property rights to take 1, otherwise it is 0. The definitions of all variables are shown in Table 1.

Table 1

Definition of Variables

Variables	Definitions
Dependent variables	
Return on equity (ROE)	net profit/average net assets
Net sales margin (NPM)	net profit/net sales revenue*100%
Accounts receivable turnover rate (RTR)	net credit sales income/average accounts receivable balance
Total assets turnover rate (TAT)	operating income/average total assets
Net profit growth (NPG)	(current net profit-last period net profit) / last period net profit
Growth rate of total assets (TAG)	growth of total assets at the end of the year/total assets at the beginning of the year
Independent variables	
Implement FSSC (FSS)	The establishment of the financial shared service center is 1, otherwise it is 0
Implementation time (TIME)	The implementation time is counted as 0 in the year of implementation and 1 in the first year and so on.
Control variables	
Company size (SIZE)	Natural logarithm of total assets
Leverage (LEV)	The ratio of total liabilities to total assets at the end of the period
Age of the company (AGE)	Current year minus the year of company establishment plus 1
Economically developed regions (DEVP)	Companies are registered in economically developed regions take 1; otherwise 0
Nature of property rights (STATE)	State-owned property rights take 1, otherwise take 0

Model Design

Difference test. To explore whether the implementation of financial sharing services has a significant impact on business performance, this paper adopts the difference test, that is, the comparison between listed companies that have implemented financial sharing services and those that have not implemented financial sharing services. Specifically, this paper uses the Wilcoxon rank-sum test method to compare the financial data indicators of 15 listed companies that have implemented shared services for 5 consecutive years since the year when they were launched, with those of 15 companies that have not implemented shared services. The data to determine whether there is a significant difference between the pairs, whether the difference is positive or negative.

Although the Wilcoxon rank sum test can determine whether there is a significant change in the performance of the company before and after the implementation of the financial sharing service, it cannot effectively explain the specific changes in a certain time of the company after the implementation due to the comparison between the implementation and the non-implementation.

To explore the impact of the length of time to implement the financial sharing service on the business performance of the enterprise, this article adopts the difference test to compare the listed companies that implement the financial sharing service before and after the implementation. The Wilcoxon rank sum test method is also used, based on the year before the implementation of the financial sharing service (-1), and the current year (0), the first year (1) and the implementation of the financial sharing service are used respectively. After the second year (2), the third year after the implementation (3), and the fourth year (4) and the fifth year (5) after the implementation, the performance indicators are matched with the performance indicators of the base period, and the R software is used for pairwise comparison and analysis in order to illustrate the specific situation of the company in the time series.

Empirical model. This article notes that changes in business performance are not the only reflection of financial shared services, but a comprehensive result affected by many factors. Therefore, on the basis of the

difference test, this article adopts OLS regression to test hypotheses. The model is set as equations (1) and (2). In the model, whether to implement the financial shared service (FSS) and the implementation time (TIME) are independent variables. POE are indicators to evaluate the financial performance of the enterprise, that is, ROE, NPM, RTR, TAT, NPG and TAG as stated in Table 1. The control variables are company size (SIZE), leverage (LEV), age of the enterprise (AGE), economically developed area (DEVP), and property rights (STATE). By adding control variables, it can improve the fitting degree of the regression model, to be able to more comprehensively, accurately and intuitively investigate the impact of financial sharing services on the business performance of enterprises. This article uses a fixed-effects model that controls industry and year for regression analysis.

$$POE = \alpha + \beta_1 FSS + \beta_2 SIZE + \beta_3 LEV + \beta_4 AGE + \beta_5 DEVP + \beta_6 STATE + \omega \quad (1)$$

$$POE = \alpha + \beta_1 FSS + \beta_2 TIME + \beta_3 SIZE + \beta_4 LEV + \beta_5 AGE + \beta_6 DEVP + \beta_7 STATE + \omega \quad (2)$$

Descriptive Statistic

Table 2 shows the descriptive statistics of the variables in this article. The samples consist of the financial data of 30 listed companies for several consecutive years (up to 5 years). As we are making pairs, half of the selected samples implement financial sharing services, and half do not implement financial sharing services. There are big differences in the operating performance of different companies and the same company in different years. On average, in the selected samples, the natural logarithm of the total assets of the enterprise is 15.44, the age of the enterprise is 18.68 years, the financial leverage is 58.67%, and state-owned enterprises account for 40%, while private or foreign companies account for 60%. Additionally, more than two-thirds of enterprises are located in economically developed areas.

Table 2

Descriptive Statistics

Variables	Number of samples	Min	Max	Average	Standard deviation
NPM (%)	82	-20.22	53.97	11.17	10.15
ROE (%)	82	-48.63	54.46	17.561	12.26
TAT	82	0.08	2.64	0.89	0.63
RTR	82	2.78	3,205.64	89.53	379.71
TAG (%)	82	-20.88	131.87	21.51	22.21
NPG (%)	82	-50.44	1,099.91	43.36	131.77
FSS	82	0	1	0.56	0.49
TIME (YEAR)	82	0	5	1.11	1.51
SIZE	82	10.63	18.57	15.44	1.72
AGE (YEAR)	82	8	34	18.68	6.50
LEV (%)	82	7.64	89.43	58.67	20.62
STATE	82	0	1	0.40	0.49
DEVP	82	0	1	0.77	0.42

Empirical Analyses

Wilcoxon Difference Test

We use R software to perform Wilcoxon rank sum test on the paired samples to examine whether there are significant differences between the two groups. This test uses a one-tailed test and makes the following assumptions. The null hypothesis is that the business performance indicators for companies that have

implemented financial shared services in year i <= companies that did not implement FSSC. The alternative hypothesis is that these indicators for companies that have implemented financial shared services in year i > companies that did not implement FSSC. The subscript i represents the year when the shared service was implemented (for example, 0, 1, 2...).

We conduct the wilcox.test() function in the R language to calculate the *P* value. If the *P* value is bigger than the significance level, the null hypothesis is accepted, indicating that the financial sharing service did not play a positive role in the year. If the *P* value is less than the significance level, that is rejecting the original hypothesis and accepting the alternative hypothesis shows that the financial shared service in the year has a driving positive effect on the business performance of the company. The test results of *P* value are shown in Table 3.

Table 3

Wilcoxon Rank Sum Test of FSSC Implementation on Business Performance (Implemented vs. Unimplemented)

		Implementation year					
		0	1	2	3	4	5
Profitability	ROE	0.009***	0.415	0.584	0.120	0.206	0.074*
	NPM	0.288	0.232	0.415	0.350	0.415	0.350
Operating capability	TAT	0.042**	0.009***	0.038**	0.041**	0.024**	0.041**
	RTR	0.096*	0.014**	0.013**	0.005***	0.007***	0.024**
Growth	TAG	0.021**	0.160	0.232	0.103	0.073*	0.041**
	NPG	0.584	0.130	0.288	0.103	0.061*	0.034**

Notes. * Significance level 0.1; ** significance level 0.05; *** significance level 0.01.

Profitability. From the perspective of return on equity (ROE), the P value in the year 0 was lower than 0.01, indicating that ROE in the year when the financial sharing service was implemented has been significantly improved. However, the *P* value has increased to more than 0.4 in the year 1 and 2 after the implementation, indicating that follow-up expenditures and potential expenses for FSSC restrict the continuous and efficient improvement of corporate profitability. ROE of listed companies after FSSC implementation basically shows undifferentiated with unimplemented companies. Three to five years after the implementation, the *P* value dropped from 0.4 to less than 0.2, and even reached 0.07 in the fifth year, indicating that the financial sharing service gradually offset the side effects of subsequent expenditures at beginning, and exert its effectiveness till year 5. From the perspective of net sales margin (NPM), the *P* values are greater than 0.1. There is not much difference between the two samples, meaning that the cost of building a financial sharing system may be a burden on corporate profits.

Operating capability. Whether it is the turnover rate of total assets (TAT) or the turnover rate of accounts receivable (RTR), the *P* values reached below 0.05 in the year of implementation, and in the following 5 years they were still less than 0.05. Therefore, the turnover rates of listed companies that have implemented financial sharing are significantly higher than those of non-implemented listed companies, which shows that the effect of financial sharing services on improving turnover rates is significantly fast.

Growth. Although the total assets growth rate (TAG) reached a significant level in year 0, the *P* value reached 0.2 in 1 or 2 years. At the beginning of the implementation of the shared service stage, the profit of the company will be affected by the cost and introduction of the shared system. Constrained by subsequent expenditures, the effectiveness of shared services is also restricted. However, starting from the third year, the *P*

value drops until it drops below 0.05 again and reaching a significant level in the fifth year. It means the total assets growth rate of the listed company implemented FSSC are significantly higher than that of non-implemented listed companies. Regarding the growth rate of net profit (NPG), the *P* value reached 0.5 in the year of implementation, indicating the net profit growth rate of the sample companies did not change significantly in the year when the financial sharing service was implemented. However, the *P* value fell below 0.05 in the fifth year, which shows that the positive effect of financial sharing gradually compensates for the impact of the initial investment and subsequent funds. Compared with the non-implemented enterprises, the net profit growth rate in the implemented enterprises has achieved a significant increase.

Since the management of FSSC categorized as operating service, the measurements of operating capability achieve a significant deference between implemented samples and unimplemented samples throughout year 0 to 5. The profitability and growth indicators show that the financial sharing system was affected by the cost of establishment in the first few years, reaching a significant difference level in the fourth or fifth year. In the difference test with Wilcoxon method, it can be proved that business performance of enterprises with FSSC is significantly different from paired-enterprises without FSSC, especially in the long run. Further, we will conduct regression analysis to test hypotheses in detail.

OLS Regression

As stated above, we construct models (1) and (2) with fixed effects to test the implementation of FSSC and its running duration on business performance. We use R software to perform the following regressions.

Profitability. Table 4 shows the regression results of FSSC implementation on profitability. In Table 4 panel (A), the indicator of profitability is return on equity (ROE). After adding control variables in column (3) and (4), R^2 increased showing the fitting of regression is improved. The addition of control variables is effective. *F* value of the regression reached the significance level, indicating that the regression as a whole is effective. Specifically, in column (4), the coefficient of FSS is positive with a significant level of 0.05, indicating that the implementation of financial sharing services has a positive effect on ROE. However, the coefficient of TIME is insignificantly positive.

In Table 4 panel (B), the indicator of profitability is net sales margin (NPM). After adding the control variables in column (7) and (8), R^2 increased which indicates that the fitting of regression is improved and the addition of control variables is effective. *F* value also reached the significance level. The regression is valid. Specifically, in column (8), the coefficient of FSS is positive with a significant level of 0.01, which shows that the implementation of financial sharing services can effect the company's net sales margin positively. However, the coefficient of TIME did not reach significant levels. Although the impact of FSSC duration is not significantly positive, the implementation of FSSC itself has a significant positive impact on profitably indictors ROE and NPM.

Operating capability. Table 5 shows the regression results of FSSC implementation and running time on operating capability. In Table 5 panel (A), the indicator is turnover rate of total assets (TAT). By adding control variables in column (3) and (4), R^2 has increased, which means that the control variables is effective. *F* value has reached the significance level, so the regressions are all valid. Specifically in column (4), the coefficient of FSS is positive with a significant level of 0.05, indicating that the implementation of financial sharing services has a positive effect on the turnover rate of total assets and the longer the implementation time, the greater the total asset turnover. However, the coefficient of TIME is positive but not significant.

Table 4

Regression Analysis of Implementation of FSSC and Time on Business Performance (Profitability)

	Business performance (profitability)							
	(A) ROE				(B) NPM			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
FSS	4.534*	2.640	9.967	7.492**	3.410	3.591	8.383***	8.494***
	(1.680)	(0.740)	(3.207)	(1.994)	(1.521)	(1.207)	(3.699)	(3.070)
TIME		0.958		1.373		-0.092		0.066
		(0.815)		(1.165)		(-0.094)		(0.073)
SIZE			-1.059	-0.985			0.276	0.273
			(-1.111)	(-1.034)			(0.397)	(0.389)
AGE			0.568***	0.486**			0.585***	0.588***
			(2.420)	(1.990)			(3.416)	(3.270)
LEV			-0.064	-0.065			-0.211***	-0.211***
			(-0.964)	(-0.988)			(-4.359)	(-4.327)
STATE			-8.525**	-9.414***			-9.671***	-9.632***
			(-2.592)	(-2.795)			(-4.032)	(-3.884)
DEVP			3.444	2.932			3.851	3.874
			(0.935)	(0.793)			(1.434)	(1.423)
Year & industry	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled
Observations	82	82	82	82	82	82	82	82
R^2	0.034	0.042	0.245	0.259	0.028	0.028	0.414	0.414
F	2.822*	1.737	2.960***	3.641***	2.311	1.146	6.459***	5.663***

Notes. T value is in parentheses.* significance level 0.1; ** significance level 0.05; *** significance level 0.01.

In Table 5 panel (B), the indicator is turnover rate of accounts receivable (RTR). After adding control variables in column (7) and (8), R^2 increased indicating that the addition of control variables is effective and the fit of regression is improved. *F* value has reached significance level, so the regression is valid. Specifically in column (8), the coefficient of FSS is positive with a significant level of 0.1. It means that the implementation of financial sharing services can bring the enterprises' turnover rate of accounts receivable significant positive effect However, the coefficient of TIME is positive but not significant.

Growth. Table 6 shows the regression results of FSSC implementation and running time on growth measurements. In Table 6 panel (A), the indicator is growth rate of total assets (TAG). After adding control variables in column (3) and (4), R^2 has increased, so the control variables are effective. *F* values reached significance level indicating that the regressions are all valid. Specifically in column (4), the coefficient of FSS reached a significance level of 0.01 and the coefficient of TIME reached a significance level of 0.10. Both of them are positive. From this regression results, it can be proved that the implementation of financial sharing services has a significant positive impact on the growth rate of total assets, and as the implementation time is getting longer, the positive effect is more significant.

In Table 6 panel (B), the indicator is growth rate of net profit (NPG). After the control variables are added, R^2 rises which shows that the introduction of control variables improves the fitting degree of the regression and the addition of control variables is effective. *F* value reaches the significant level as well. Specifically in column (7), the coefficient of FSS is positive with a significant level of 0.10, indicating that it has a positive effect on the growth rate of net profit. However, the coefficient of TIME in column (8) is positive but not significant.

Table 5

Regression Analysis of Implementation of FSSC and Time on Business Performance (Operating Capability)

	Business performance (operating capability)							
	(A) TAT				(B) RTR			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
FSS	0.256*	0.315*	0.493***	0.377**	128.816	166.590	208.726**	194.091*
	(1.913)	(1.775)	(3.495)	(2.213)	(1.520)	(1.478)	(2.112)	(1.699)
TIME		-0.030		0.064		-19.014		8.119
		(-0.513)		(1.202)		(-0.512)		(0.215)
SIZE			-0.114***	-0.110**			57.846*	58.285*
			(-2.628)	(-2.549)			(1.908)	(1.906)
AGE			-0.022**	-0.026**			-3.043	-3.526
			(-2.082)	(-2.346)			(-0.408)	(-0.450)
LEV			-0.002	-0.002			-2.046	-2.054
			(-0.563)	(-0.587)			(-0.971)	(-0.968)
STATE			-0.363**	-0.407***			-273.053**	-278.312**
			(-2.447)	(-2.664)			(-2.610)	(-2.574)
DEVP			0.141	0.117			-262.842**	-265.581**
			(0.842)	(0.696)			(-2.245)	(-2.240)
Year & industry	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled
Observations	82	82	82	82	82	82	82	82
R^2	0.141	0.144	0.420	0.431	0.034	0.037	0.203	0.204
F	4.285***	3.243***	6.608***	6.070***	0.919	0.749	2.326**	2.046**

Notes. T value is in parentheses.* significance level 0.1; ** significance level 0.05; *** significance level 0.01.

Table 6

Regression Analysis of Implementation of FSSC and Time on Business Performance (Growth)

	Business performance (growth)							
	(A) TAG				(B) NPG			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
FSS	15.019***	11.938**	25.070***	18.643***	35.660	46.525	60.578*	55.820
	(3.194)	(1.913)	(4.510)	(2.803)	(1.206)	(1.183)	(1.707)	(1.289)
TIME		1.551		3.566*		-5.469		2.639
		(0.754)		(1.710)		(-0.422)		(0.194)
SIZE			0.439	0.632			10.199	10.342
			(0.258)	(0.375)			(0.937)	(0.942)
AGE			0.186	-0.026			-0.684	-0.841
			(0.443)	(-0.061)			(-0.255)	(-0.299)
LEV			-0.007	-0.011			-0.674	-0.677
			(-0.062)	(-0.095)			(-0.891)	(-0.889)
STATE			-20.730***	-23.040			-70.642*	-72.171*
			(-3.254)	(-3.865)			(-1.876)	(-1.859)
DEVP			0.540	-0.790			-83.515*	-84.499*
			(0.082)	(-0.121)			(-1.986)	(-1.982)
Year & industry	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled
Observations	82	82	82	82	82	82	82	82
R^2	0.131	0.137	0.263	0.292	0.025	0.027	0.147	0.147
F	3.923**	3.068**	3.258***	3.297***	1.572	1.383	2.256**	2.360**

Notes. T value is in parentheses.* significance level 0.1; ** significance level 0.05; *** significance level 0.01.

To sum up, the regression results show that the implementation of FSSC has a significantly positive impact on business performance. H1 can be proved from the above. However, H2 fails to pass the test. Although all the coefficients of TIME are positive, it is only significant when business performance indicated by total asset growth rate. Therefore, it can be proved from Wilcoxon rank sum difference test and the OLS regressions that enterprises with FSSC delivers better business performances than those without FSSC.

Research Limitations, Suggestions and Conclusions

There are a few limitations of our study. First, the impact of market factors on business performance is not considered. For example, product price changes, national policy adjustments, and intensified competition will affect business performance. Second, the measurements of business performance are not comprehensive. The evaluation of business performance in this paper is limited to the measurements of profitability, operating ability, and growth. Third, the sample size of companies is small. Due to the limited amount of information that can be found, especially for those companies without FSSC. Only 15 pairs of groups are selected. Too small sample size may lead to deviations of results.

Based on the findings, we put forward suggestions for listed companies. In view of the delay effect of shared services, the improvement of profitability and growth ability of shared services is not a short-term goal. The overall improvement of the company's operating performance requires long-term planning. The reconstruction of financial processes requires organizational structure, personnel management, and adjustments in many aspects such as corporate culture and information communication.

In summary, this article draws the following conclusions about the changes in operating performance of Chinese listed companies after implementing financial sharing services. Financial sharing services can improve business performance, and there may be a delay effect. Additionally, there are certain deviations in the impact of financial shared services on business performance measuring with different indicators.

References

Li, X., Du, X., & Su, S. (2021). Research on the internal control problems faced by the financial sharing center in the digital economy era—An example of financial sharing center of H Co. Ltd. *Procedia Computer Science, 187*, 158-163.

Janssen, M., Schulz, V., & Brenner, W. (2013). Characteristics of shared service centers. *Transforming Government People Process & Policy*, *4*(3), 210-219.

Yang, Y., Liu, Q., Song, J., & Zhou, M (2021). The influence mechanism of financial shared service mode on the competitive advantage of enterprises from the perspective of organizational complexity: A force field analysis. *International Journal of Accounting Information Systems*, *42*(1), 100525.

Grant, D. A. (1999). Using existing modeling techniques for manufacturing process reengineering: A case study. *Computers in Industry*, *40*(1), 37-49.

Lindvall, J. & Iveroth, E. (2011). Creating a global network of shared service centres for accounting. *Journal of Accounting & Organizational Change*, *7*(3), 278-305.

Li, Y. (2016). Study on optimization of financial sharing service center. Modern Economy, *7*, 1290-1302.

Koval, O., Nabareseh, S., Klimek, P., & Chromjakova, F. (2016). Demographic preferences towards careers in shared service centers: A factor analysis. *Journal of Business Research*, *69*(11), 4798-4803.

Willman, P., & Morris, T. (2010). Financial management and financial performance in British trade unions. *British Journal of Industrial Relations*, *33*(2), 289-298.

Gunn, R. W., Carberry, D. P., Frigo, R., & Behrens, S. (1993). Shared services: Major companies are re-engineering their accounting functions. *Management Accounting*, *75*(5), 22-28.

Yu, L. Q., & Guo, F. X. (2020). Research on cost management optimization of financial sharing center based on RPA. *Procedia Computer Science*, *166*, 115-119.

Chen, X. Y., & Bi, J. Y. (2019). Research on the operation of financial shared service center model. DEStech Transactions on Social Science Education and Human Science (eiem).

Herbert, I. P., & Seal, W. B. (2012). Shared services as a new organisational form: Some implications for management accounting. *British Accounting Review*, *44*(2), 83-97.