Correlation between Business Process Reengineering and Operation Performance of National Commercial Banks

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Abstract The business process reengineering is an important strategy for the national commercial banks in recent years, which not only promote the customer satisfaction of the commercial banks, but also raise its operation performance. The balance score card is a kind of valid tool to measure operation performance of commercial banks. The structure equation model may execute the empirical analysis for related effect between business process reengineering and operation performance, then disclose the micro-economic effect and provide valid theory identification for national commercial banks to promote the efficiency of business process reengineering.
Keywords Commercial banking; Business process reengineering; Balance score card; Research and development (R&D) of employee; Structure equation model

1 Introduction

The earliest BPR theory issued from the United States. The numerous scholars have made a great contribution to the formation and development of BPR theory. Hamer and Ciampi held that BPR has three distinct features [1]. Firstly, the fundamental purpose of BPR is to pursue the marked improvement of operating performance. Secondly, the key to reengineering method is to redesign business processes. Thirdly, the ultimate request completely is to break the original business framework. Because enterprise reengineering is initiated from the business process, it is called business process reengineering.

The business process reengineering (BPR) is a series of management activities which breaks the traditional section boundary and establish reasonable business process by means of organization optimization, employee authorization, customer direction and application of information technique [2]. This management behavior regards the enterprise increase as core content and regards long-term development strategy as beginning spot to help the enterprise adapt the dynamic market environment. The BPR break the traditional theory system of labor division and emphasize to act for "working direction" by "process direction" to provide a kind of new management principle for business enterprise. Bank BPR is a kind of management behavior through which commercial executes reform the traditional business process and organization structure for commercial banks to adapt market change, make the management model to improve service quality, decline operation cost and strengthen risk control [3]. Therefore, the banking BPR in essence is a kind of radical operation revolution of whole management mechanism transformation, relying on information technique and exterior resources, whose purpose lies in lowering bank cost and promoting bank activity value. The bank BPR has great difference from other management reformation model, whose essence is process optimization and process revolution. Based on roles or functions of these activities in the value chain, the commercial BPR can be divided into both the direct value creation processes and the support processes aiming at service for the direct value creation [4].

The United States had equally 13 big banks to implement the BPR annually since 1986, which drew the distance of management layer and customer layer shorter and promotes the service quality obviously. Theirs stock price had better performance: the average property rate of return rise from 1.0% to 1.5%, and the average rate of the capital income rate rise too.

The national commercial banks has tried to execute the BPR strategy for years and has acquired great achievements, which makes bank business process adjusted, combined and optimized, data concentration, vertical business and flat organizational structure [5], then has raised the customer satisfaction, strengthened the domestic and international market competition ability of commercial markets, thus raised the operation performance of commercial banks.

The paper discloses the tiny view path mechanism to provide valid theory identification for China's commercial banks to implement the BPR strategy and raises the operation performance by the empirical analysis of BPR management behavior and by the detailed data inquisition and collections.

2. Study Suppose

2.1 Components of BPR system

According to the research results of papers [6] [7], the BPR system of commercial banks is divided into three elements in the paper: BPR program(ξ1), BPR behavior(ξ2) and BPR platform(ξ3). The BPR program means the design of BPR project of commercial banking; the BPR behavior means the implement and performance of business program; the BPR platform means the environment construction of BPR. These three elements constitute an integrity system of BPR, among which BPR platform is a premise, which can provide beneficial prior condition for process design and process behavior. BPR design is foundation, which can affect the efficiency of process behavior to a large extent and BPR behavior is a kind of valid method to finish the target of BPR strategy.

2.2 The element choice of operation performance

The performance measurement method has continuously changed the approach of knowledge-based economic society and rapid development of information technique. Traditional performance measurement system based on finance index can't adapt the creative demand of management model of modern commercial banks, then the balance score card (BSC) emerge with the tide of the times[8].

The BSC is a kind of tools to measure enterprise performance, whose core thoughts is that the enterprises have to study constantly, keep on the improvement of internal process and maximize the customer satisfaction, then can acquire ideal financial income. The BSC point out that the financial income of enterprise is related with the innovation, internal process and exterior process, therefore scientific performance measure must seek indexes form four constitutions including finance, customer, internal operation and study and development of employee.

The BSC system of our commercial bank can be divided into four elements: finance element (η1), customer element (η2), inner operation element (η3) and study and development of employee element. The finance element measures the enterprise performance with traditional finance index; the customer element measures the enterprise performance from the corner of customer service quality; the inner operation element measures the enterprise performance from the corner of efficiency improvement of internal process; the study and development of employee measures the enterprise performance from the corner of personal surmount of employees.

2.3 Putting forward the assumption

The research assumption is given in Table 1 according to the theory analysis and element choice.

Table 1 Research Assumption

Assumption	Path	Assumption Significance
H1a	ξ1→η1	The BPR program has improved the growth of finance performance of commercial bank
H1b	ξ1→η2	The BPR program has improved the growth customer performance of commercial bank
H1c	ξ1→η3	The BPR program has improved the growth inner operation performance of commercial bank
H1d	ξ1→η4	The BPR program has improved the growth of study and development of employee performance of commercial bank
H2a	ξ2→η1	The BPR behavior has improved the growth of finance performance of commercial bank
H2b	ξ2→η2	The BPR behavior has improved the growth of customer performance of commercial bank
H2c	ξ2→η3	The BPR behavior has improved the growth of inner operation performance of commercial bank
H2d	ξ2→η4	The BPR behavior has improved the growth of study and development of employee performance of commercial bank
H3a	ξ3→η1	The BPR platform has improved the growth of finance performance of commercial bank
H3b	ξ3→η2	The BPR platform has improved the growth of customer performance of commercial bank
H3c	ξ3→η3	The BPR platform has improved the growth of inner operation performance of commercial bank
H3d	ξ3→η4	The BPR platform has improved the growth of study and development of employee performance of commercial bank

3 Research Design

3.1 The system resolving of BPR

The paper may realize the system resolving of BPR according the BPR theory and practice experiment of China's commercial banks.

The BPR program element can be divided into three indexes: diverse(X1), which means the BPR of commercial bank can satisfy various demand of different customer; core process identification(X2), which means the BPR project may show the outstanding position of core process; the risk control principle(X3), which means the BPR project is highly related with the risk control of bank.

The BPR behavior element can be divided into three indexes: process performance(X4), which means the commercial banks can strive to perforce the BPR project; encouragement means(X5), which means the commercial banks may raise the implement efficiency by drawing up reasonable regulation; feedback and revising(X6), which means the commercial banks can constantly summarize the BPR operation experiment to raise its running quality.

The BPR platform element can be divided into three indexes: IT application(X7), which means the commercial banks can make use of information technique in the process of BPR; organization structure optimization(X8), which means the commercial banks can optimize theirs organization structure constantly to support the BPR strategy; using exterior resource(X9), which means the commercial banks can make use of exterior resource to raise the BPR implement efficiency.

3.2 The system resolving of operation performance

The paper can resolve the operation performance of commercial bank based on BSC according to theory analysis of BPR and practice experiment of performance management.

The finance elements can be divided into three indexes: loan scale growth rate (Y1), which means the growth of average loan total amount of commercial banks for continuous three years; growth rate of middle business amount (Y2), which means the growth of average middle business amount of commercial banks for continuous three years; credit card growth rate (Y3), which means the growth of credit card trade amount of commercial banks for continuous three years.

The customer factors can be divided into three indexes: customer satisfaction growth (Y4), which means the growth of customer satisfaction of commercial banks; big customer sale rate(Y5), which means the rate growth of big customer sale amount in total sale amount; new customer exploration(Y6), which means the growth rate of new customer group of commercial banks.

The inner operation elements can be divided into three indexes: the exaltation of inner management ability (Y7), which means the management ability improvement of all management levels of commercial banks; performance ability exaltation (Y8), which means the performance efficiency improvement of operation levels for management instruction; moderating ability exaltation (Y9), which means the improvement of moderating function among every department of commercial banks.

3.3 The establishment of researcher model

The paper has established the structure equation model as shown in Figure 1 according to research assumption and element resolving. The model includes 3 outside sources variables (ξ1,ξ2,ξ3), 9 outside source indexes(from X1 to X9), 4 inner variable（η1、η2、η3、η4）, 12 inner indexes(from Y1 to Y12), 12 cause and effect paths and 3 related paths.

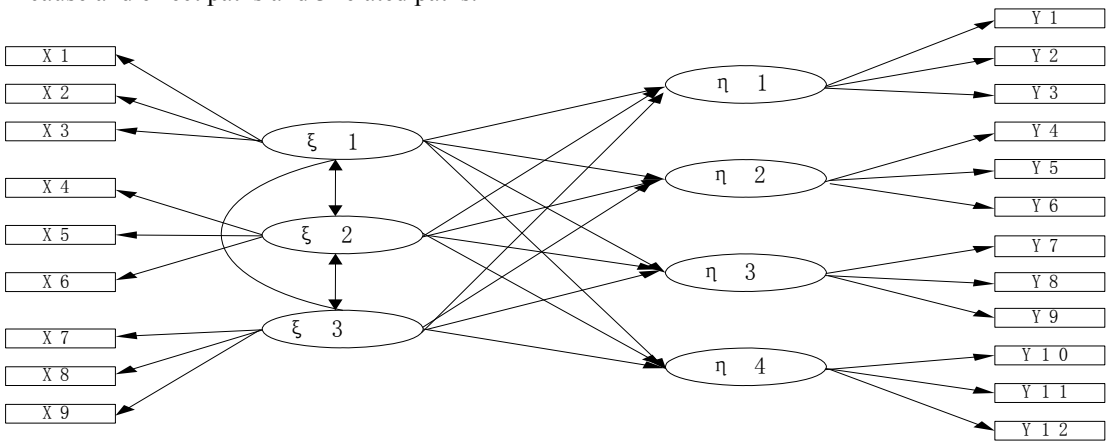

Figure 1 Structure Equation

4. Model Certification

4.1 The data collection

The paper adopts 7 points measure form to collect data for 21 observe indexes, and choose 200 sample in the four bigger state-owned commercial banks in the national scope. All investigation objects are the highest manager of each unit. The totality includes 50 samples of China Industry and Business Bank, 50 sample of China Construction Bank, 50 sample of China Agriculture Bank and 50 sample of China Bank. This inquisition totally takes back 180 valid samples, and the valid recovery rate is 90%.

4.2 The credit certification and validity certification

(1) The model analysis of BPR system

The α coefficient is 0.9050 and the cent half degree of model is 0.7129 by exploration factor analysis while total explanation amount is 88% for the BPR system. The inside consistency coefficient of 3 index is 0.7222 while the relativity and α coefficient have no bigger fluctuation for BPR program element, so the 3 indexes can reflect the element character. The inside consistency coefficient of 3 index is 0.7091 while the relativity and α coefficient have no bigger fluctuation for BPR behavior, so the 3 indexes can reflect the element character. The inside consistency coefficient of 3 index is 0.7454 while the relativity and α coefficient have no bigger fluctuation for BPR platform, so the 3 indexes can reflect the element character.

The minimum of load is 0.61 and the biggest value is 0.92 for these 9 indexes of BPR measure system while the minimum T is 2.09, the RMSEA is 0.045, the NNFI is 0.9120, the CFI is 0.9271. It is clear that the measure system has better credit and validity.

Table 2 Effect Matrix

Out Resource Variable	Inner Variable	Path	Coefficient	Standard Error	T Value
BPR Program	Finance	ξ1→η1	0.25	0.07	3.43
BPR Program	customer	ξ1→η2	0.21	0.09	2.35
BPR Program	Inner operation	ξ1→η3	0.14	0.11	1.31
BPR Program	R &D of employee	ξ1→η4	0.71	0.08	8.89
BPR Behavior	Finance	ξ2→η1	0.30	0.08	3.76
BPR Behavior	customer	ξ2→η2	0.17	0.09	1.87
BPR Behavior	Inner operation	ξ2→η3	0.31	0.12	2.77
BPR Behavior	R &D of employee	ξ2→η4	0.26	0.11	2.43
BPR Platform	Finance	ξ3→η1	0.17	0.16	1.03
BPR Platform	customer	ξ3→η2	0.27	0.08	3.32
BPR Platform	Inner operation	ξ3→η3	0.69	0.09	7.51
BPR Platform	R &D of employees	ξ3→η4	0.21	0.09	2.43

(2) The model analysis of BSC

The α coefficient is 0.7936 and the cent half degree of model is 0.7109 by exploration factor analysis while total explanation amount is 76% for the BSC. The inside consistency coefficient of 3 index is 0.8013 while the relativity and α coefficient have no bigger fluctuation for finance element, so the 3 indexes can reflect the element character. The inside consistency coefficient of 3 index is 0.7887 while the relativity and α coefficient have no bigger fluctuation for customer element, so the 3 indexes can reflect the element character. The inside consistency coefficient of 3 index is 0.7012 while the relativity and α coefficient have no bigger fluctuation for inner operation element, so the 3 indexes can reflect the element character. The inside consistency coefficient of 3 index is 0.7853 while the relativity

and α coefficient have no bigger fluctuation for study and development of employee element, so the 3 indexes can reflect the element character.

The minimum of load is 0.54 and the biggest value is 0.90 for these 12 indexes of BSC system while the minimum T is 2.17, the RMSEA is 0.053, the NNFI is 0.9320, the CFI is 0.9010. It is clear that the measure system has better credit and validity.

4.3 The model certification

The paper adopts the SPSS11.5 and LISREL8.7 to certificate the whole model, and acquires the effect matrix of outside variable to inner variable, which is shown in Table 2. The path coefficient in shadow part lack notation.

The match index is shown in Table 3.

Table 3 Match Index Table

Match Index	DF	CHI-Square	RMSEA	NNFI	CFI
Current Value	153	217	0.043	0.908	0.923
Superior Value	—	—	<0.08	>0.9	>0.9

So the match effect is better and has no need to continue correction.

5 Conclusions

(1) The BRP design of China's commercial banks has promoted the improvement of finance elements, customer elements and R&D of employee elements, but it has no valid improvement functions for the inner operation elements.

(2) The BRP behavior of China's commercial banks has promoted the improvement of finance elements, inner operation elements and R&D of employee elements, but it has no valid improvement functions for customer elements.

(3) The BRP platform of China's commercial banks has promoted the improvement of customer elements, inner operation elements and R&D of employee elements, but it has no valid improvement functions for finance elements.

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