

The Effect of Regional Shocks on City Commercial Bank

Performance: The Role of Local Marketization

1. Introduction

The banking sector plays an important role in the Chinese financial system. The City Commercial Bank (CCB) is an important component and special group of China's banking industry. It is of small scale totaled 3.8 trillion, and aims at providing financial services for the local economy and residents. CCBs scatter all over the nation and are most closely related to local economic development.

A lot of literature has been examining factors affecting bank profitability. Athanasoglou et al. (2008) made a popular as well as parsimonious decomposition of determinants into bank - specific, industry-specific, and macroeconomic categories. The bank-specific factors include size, capitalization, and diversification. Industry-specific factors include ownership and concentration. Macroeconomic environment factors consist of the business cycle, as approximated by real GDP growth; inflation; interest rate, the short and long - term interest rate as well as the slope of the yield curve; and monetary policy. CCBs lack attention but they are heterogeneous and important in local economic development. As Sufian and Habibullah (2009) investigating the Chinese banking sector as a whole, they found that the factor impacts are not uniform across bank types. For example, SOCBs and JSCB with higher credit risk tend to be more profitable while more business-diversified CCBs tend to exhibit higher profitability levels. This research aims at filling the vacancy of concern to the CCBs.

The local marketization as a factor of Chinese characteristics has never been mentioned in evaluating bank performance. Pan, Xia, and Yu (2008) found that when a profitable local state-owned listed company is declared to acquire a non-listed company, the excess yield of the acquiring company is negative, which is contrary to the theoretical expectation and empirical evidence of western scholars. They explained this “M&A performance Paradox” by that local governments have the motivation and ability to intervene in listed companies under their control to achieve their political promotion goals. Local government intervention on market can be measured by marketization level. And this research is going to explore the role it plays in the effect of regional shocks on CCBs performance.

The research questions are formulated as follows.

2. Problem Statement

- How local real economic shocks (employment shock/economic growth shock/exports shock) affect the performance of city commercial banks?
- Does the shock impact depend on local marketization?
- What are the potential channels that the shock affects the city commercial bank's performance?

3. Progress Made (Intermediate Results)

This research has collected and cleaned the data about the bank characteristics, marketization, and regional unemployment shocks ranging from 2008 to 2016. The Bartik instrument variable of provincial unemployment shock has been constructed to alleviate the problem of endogeneity.

In this study, OLS regression has been used to exam the primary relationship between bank profitability and other factors.

$$\pi_{ilt} = c + \sum_{m=1}^m \beta_m X_{it}^m + \gamma_1 U_{lt} + \gamma_2 M_{lt} + \theta_i + \theta_t + \epsilon_{ilt}$$

Where i, l , and t index the bank, province, and year respectively;

π_{it} is the profitability of bank i at time t , $i = 1, \dots, N$, $t = 1, \dots, T$;

c is the constant term, X_i s are bank characteristics including bank size, leverage, and business diversification level. U_{lt} is the annual change of regional unemployment rate, and M_{lt} is the provincial marketization level. θ_i and θ_t absorb the bank and year fixed effect and ϵ_{ilt} is the error term.

The primary results are as follows. The first chart shows the regression on contemporaneous variables which may endogeneities.

VARIABLES	(1) roae	(2) logroae
logasset	-0.3474 (2.1076)	0.0112 (0.1351)
loglever	6.2303*** (1.8400)	0.6128*** (0.1094)
logdiversification	0.0042 (0.5147)	0.0152 (0.0357)
mktization	-1.3411 (2.0315)	-0.0728 (0.1457)
unemploy_rate	0.0468 (0.0691)	0.0085* (0.0044)
Constant	23.0167 (50.5726)	1.3769 (3.4582)
Observations	523	521
R-squared	0.6728	0.7099

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The regression results imply that the operating leverage has a positive effect on contemporaneous bank profitability. However, the coefficient before the variable of interest, marketization, is still statistically insignificant. Even the value is negative, which is contradictory with the hypothesis. To further explore the topic, more commercial banks like rural commercial banks might be included. And the data cleaning is also needed when more characteristics are included.

The secondary regression results after incorporating Barik instrument are as follows. The data has been winsorized and therefore are free from extreme values or outliers. *employ_shock* is the Bartik instrument constructed from historical industry weight and national growth rate, which is free of endogeneity. The lever ratio is shown to have positive effect on bank's return on average equity and asse, and the effect is significant. However, the variable of interest does not show significant result.

VARIABLES	(1) roae	(2) roae	(3) roaa
lever	0.5912*** (0.1181)	0.5842*** (0.1051)	-0.0246*** (0.0065)
asset	0.0000 (0.0000)	0.0000** (0.0000)	0.0000 (0.0000)
diversification	-0.0117 (0.0207)	-0.0214 (0.0208)	-0.0005 (0.0013)
mktization	-0.6585** (0.2749)	-0.3226 (0.8501)	-0.0697 (0.0595)
employ_shock	33.7046 (35.8846)	-19.3906 (23.3712)	-2.3907 (1.5002)
Constant	14.0927*** (2.0875)	13.4749** (5.9685)	2.0565*** (0.4110)
Observations	862	862	862
R-squared	0.2711	0.6591	0.6426

Robust standard errors in parentheses
*** p<0.01, ** p<0.05,
*p<0.1

The following research is going to

- incorporate rural commercial banks because they currently have similar nature with city commercial banks
- integrate more real economic shocks like export/import shock to explore the effect more comprehensively
- engage time lag into the model and try more statistical method like GMM.

4. Research Plan & Expected outcome

Research plan	
1 st month	Preparation of data and regress the profitability on employment shock
2 nd month	Paper writing and preparation for early submission

Expected outcome

The positive local real economic shocks are hypothesized to have a positive impact on the bank's current and future performance. The shocks may affect bank performance through various

channels. Bank, industry, and macroeconomics factors are all probable. The banks located in a high marketization environment are hypothesized to be less sensitive to local real economic shocks.

5. References

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Appendix: Updated Data source and description

Categories of data	description	source
Bank performance/ profitability	ROAA (Return on average asset), ROAE (Return on average equity)	Wind
Bank-specific factors	Bank name, administrative region, bank size, leverage, non-traditional activity (non-interest income), bank age	Wind
Key factor	China Marketization Index	China Marketization Index (Gang, 2010)
Local shock	employment shock/economic growth shock/exports shock: national and provincial employment, real GDP and export	China City Statistical Yearbook/ national bureau of statistics