Empirical Research on China's Securities Company Net Capital Regulatory Effectiveness

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Abstract. Herein by reference partial adjustment model combines securities company's operating characteristics to build a research net capital regulation and risk behavior of simultaneous models, research methods panel data for our different capital adequacy of securities firms net capital regulation effect of empirical analysis. The results show that: Net capital constraints effective but not sufficient, limited net capital replenishment channels, market economy, with significant impact on the level of net capital, risk level and adjust the speed. This paper argues that strengthening external supervision, securities companies need to optimize internal risk control, multi-level dynamic net capital complementary approaches and to take "counter-cyclical" capital adjustment policies.

Introduction

From the available literature, the impact of regulations on capital securities firms capital levels and there is no uniform conclusion. Ball and Stoll (1998) found that because the net capital rule the division of the Securities asset classes and innovative financial instruments cannot be synchronized, resulting in distorted investment decisions and securities firms capital allocation behavior. Herring and Schuermann (2003) as leading securities firms in the capital make decisions depends on market forces, rather than the minimum regulatory capital requirements. Ba et al. (2004) believe that the current net capital as the core of the implementation of the risk monitoring system in our country is still in the development stage. Regardless of theoretical research and empirical research, the impact of capital regulations for securities firms risk behavior is also no uniform conclusion (Calem, Rob 1999; Cuoco, Liu, 2006; Tu Yan Yan, 2013). But the document does not currently have the following problems faced by China's securities companies to explain the analysis: First, how the level of net capital adequacy of securities firms different impact on their business structure effect? Second, the net capital regulation alone can also fully cover and exactly match the risk to become a securities company effective protection of defense? The third is whether the change in the cyclically adjusted stock market a substantial impact on the securities company's net capital and risk? In this paper, partial adjustment model and panel data methods to set up simultaneous equations on the basis of 36 securities companies to collect data on the empirical analysis to answer these questions later.

The Data Source and Variables Selection

Sample Data. Randomly selected from the 109 securities companies in a total of 36 1/3 sample of securities companies, 36 securities companies selected 13 (conduct all business) class A, 4 (to carry out only brokerage business) class C, the remaining 19 (to carry out the four traditional business but cannot carry out margin trading, direct investment and other innovative class of business) to study for a class B.

Select Variable. Using net capital/business overall size as capital index (CAP); risk capital reserve/business overall size as a risk index (RISK); the natural logarithm of total assets represents the horizontal scale (SIZE); to net operating income from securities trading agency/operating income (BRO) as a brokerage business contribution; net income securities underwriting business/revenue (UW) as a contribution to the underwriting business; the entrusted client asset

management business net income/operating income (AM) as an asset management business contribution; to (net investment income + net change in fair value -associates, joint venture investment income)/operating income (OWN) as self-service contribution; the impairment of assets/total assets (AI) included simultaneous equations; the a-share market average daily turnover (TR) as the market boom of the quantitative indicators (if turnover is higher than the past decade year a-share market average daily turnover 3.98%, compared with the market economy represents a value of 1; on the contrary that the market downturn than the value of 0); to TR • △RISK and TR • △CAP showing the relationship between different activity in the securities market and the company's risk capital between; to TR • CAPt 1 and TR • RISKt-1 represents the speed of adjustment in different securities market activity and risk capital companies.

Empirical Analysis

Stationary Test. Looking at the results from the inspection, AM variables are not stable, so the following regression process excluded other variables this variable is reserved.

Table 1 summarizes the results of the unit root test

Testing Method Variable	LLC	Breitung	IPS	ADF-Fisher
△CAP	-118.76 （0.00）	-6.00 （0.00）	-2.E+155 （0.00）	100.44 （0.01）
△RISK	-20.84 （0.00）	-6.41 （0.00）	-7.E+154 （0.00）	106.96 （0.00）
CAP_{t-1}	-7.77 （0.00）	3.63 （0.99）	-5.E+154 （0.00）	73.38 （0.43）
$RISK_{t-1}$	-6.22 （0.00）	4.14 （1.00）	-1.E+153 （0.00）	89.59 （0.10）
SIZE	-9.28 （0.00）	-4.27 （0.00）	-5.E+154 （0.00）	55.49 （0.92）
AI	-53.72 （0.00）	-2.10 （0.01）	-8.E+154 （0.00）	82.92 （0.10）
BRO	-18.41 （0.00）	-2.36 （0.00）	-3.E+156 （0.00）	85.77 （0.12）
UW	-2.71 （0.00）	-1.29 （0.09）	-4.E+154 （0.00）	95.63 （0.00）
AM	0.74 （0.77）	-1.52 （0.06）	2.E+156 （1.0000）	54.74 （0.37）
OWN	-37.29 （0.00）	-1.06 （0.14）	-4.E+156 （0.00）	156.08 （0.00）

Note: P-values in brackets

Model Selection Process. The following first to class A securities company data for the sample return on capital model to explain the selection process model (Table 2). Comparison can be found, Hausman test in individual fixed effects model is superior to the individual random effects model (Chi^2 value of 26.4891, P value 0.0017), redundant fixed effects likelihood ratio test in the individual fixed effects model is superior hybrid model (Chi^2 values 32.9533, P value 0.0010), individual time fixed effects model is more than double hybrid model (Chi^2 value of 43.4386, P value 0.0001). In addition, R^2 value double the highest individual time fixed effects model is 0.8214,

and explain the effect of this model is the best fit. To sum up the reason, A securities firm's capital model selected individual time dual fixed effects model.

Table 2 Selection process of A securities firm capital model

	Hybrid Model	Individual fixed effects model	Double individual time fixed effects model	Individual random effects model
R^2	0.5842	0.7813	0.8214	0.5883
Redundant fixed effects likelihood ratio test		Cross-section F: 2.2115（0.0386） Cross-sectionChi^2: 32.9533（0.0010）	Cross-section F: 2.1026（0.0532） Cross-section Chi^2: 34.3126（0.0006） Period F: 2.0106（0.1362） Period Chi^2: 10.4853（0.0149） Cross-Section/Period F :2.3501（0.0258） Cross-Section/PeriodChi^2:43.4386（0.0001）	
Hausman test				26.4891 (0.0017)

Note: P-values in brackets

Regression Results Comparison. In accordance with the selection process of the above model, and ultimately determine: A securities company's capital and risk models were used individual time dual fixed effects model and individual fixed effects model, class B and class C securities company's capital and risk models are used in individual time double fixed effects model, the specific regression results are shown in Table 3.

Table 3 The regression results in capital model and risk model

Capital Model △CAP	A securities company	B securities company	C securities company	Risk Model △RISK	A securities company	B securities company	C securities company
C	-1.55 (0.26)	0.08** (0.02)	-0.02 (0.84)	C	-0.025 (0.89)	-0.001 (0.86)	-0.001 (0.91)
△RISK	-0.11 (0.91)	-1.75 (0.29)	6.46 (0.14)	△CAP	-0.06** (0.03)	0.10*** (0.00)	0.32** (0.03)
TR•△RISK	2.49* (0.09)	2.31* (0.08)	-3.07 (0.58)	TR•△CAP	0.17*** (0.01)	-0.06*** (0.00)	-0.33** (0.04)
CAP_{t-1}	-0.67*** (0.000)	-0.24* (0.07)	5.53 (0.31)	$RISK_{t-1}$	1.15*** (0.0007)	1.18*** (0.00)	0.25 (0.92)
$TR•CAP_{t-1}$	0.002 (0.98)	-0.76*** (0.01)	-7.37 (0.25)	$TR•RISK_{t-1}$	-1.31*** (0.0001)	-0.88*** (0.001)	-1.22 (0.62)
SIZE	0.065 (0.24)	-0.003** (0.02)	0.002 (0.35)	SIZE	0.0017 (0.82)	-0.0001 (0.77)	-0.001 (0.84)
BRO	-0.04 (0.54)	0.002*** (0.004)	-0.03 (0.46)	BRO	-0.025* (0.07)	0.0001 (0.73)	0.003 (0.61)
UW	-0.46* (0.08)	-0.002 (0.61)	——	UW	0.09*** (0.006)	0.003*** (0.0003)	——
OWN	0.067 (0.26)	0.001*** (0.01)	——	OWN	-0.01* (0.08)	0.0001 (0.54)	——

AI	-0.62** (0.02)	-0.03 (0.38)	-0.08 (0.47)	AI	0.12 (0.67)	0.018** (0.03)	0.02 (0.28)

Note: P-values in brackets, *, ** and *** respectively at 10%, 5% and 1% confidence level significantly. For Class C securities companies are engaged in the brokerage business, so the model remove UW, OWN these two variables results in the table with a "-" indicates.

Compare the regression results can be found in the capital model, A, Class B and Class C securities firms △ RISK coefficients were -1.11 (P value of 0.91), -1.75 (P 0.29) and 6.46 (P 0.14), the results are not significant, indicating when the securities company to expand the scale of business or engage in more high-risk business, profits, net assets and further net capital will not necessarily change occurs, ie the risk of changes in net capital does not significantly affect the relationship . Class A and B securities companys' TR • △RISK coefficient was 2.49 (P 0.09), 2.31 (P 0.08) respectively, at 10% confidence level significantly, indicating that the high capital adequacy of securities firms in different boom when the degree of the market, the impact on the risk of changes in net capital is significant. In addition, Class A and B securities companies' CAPt-1 coefficients were -0.67 (P 0.00), -0.24 (P 0.07), at 10% confidence level significantly, indicating that the present level of net capital change of net capital had a significant effect.

Risk model, the three securities companies △CAP coefficients were -0.06 (P value of 0.03), 0.1 (P 0.00), 0.32 (P 0.03) at 5% confidence level significantly, indicating that the level of net capital and securities companies to carry out different types of business risk is directly related to their business scale has a direct inhibitory effect. Class A, B and C securities companies' TR • △CAP coefficient was 0.17 (P 0.01), -0.06 (P 0.00) and -0.33 (P 0.04), at the 5% confidence level under significant influence of securities companies in different market boom of net capital to risk change significantly. In addition, A Class A and B securities companies' RISKt-1 coefficients were 1.15 (P 0.0007), 1.18 (P 0.00), TR • RISKt-1 coefficients were -1.31 (P 0.0001), -0.88 (P 0.001), both at 1% confidence level significantly, indicating that the risk of change is highly correlated with the previous one, in different boom markets significantly different risk-adjusted rate.

Conclusions and Recommendations

In this paper, China's securities companies' net effect of capital regulation empirical analysis, the following conclusions and recommendations: Net capital constraints effective but not sufficient, to avoid the risk of the need to strengthen the external supervision and optimize internal risk control; limited net capital to add channels, we need to a multi-level dynamic net capital complementary approaches; boom market have a significant impact on the level of net capital, risk level and adjust the speed, we need to take "counter-cyclical" capital regulation strategy.

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