

# In The Shadow of Banks: Wealth Management Products and Bank Risk in China



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# Motivation

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- Shadow banking and financial system:
  - Common properties: ‘regulatory arbitrage’ by financial institutions
  - Not as easy to regulate and monitor
  - May increase the overall risk of the financial system
  - “Shadow always touches the feet!”
    - ▣ Shadow banking connected to banks due to regulatory arbitrage motive
- Little empirical work to examine the large shadow banking sector in China:
  - Determinants
  - Risks
  - Largest component of shadow banking is “wealth management products” (WMPs) issued by banks
  - Recently believed to have contributed to stock-market “bubble” and “crash” through margin lending [See Appendix]

# This Paper

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- Use detailed info from 24 large Chinese banks:
  - All Wealth Management Products (WMPs)
  - Information on the issuing banks
  
- Research questions:
  - Regulatory arbitrage: How do the WMPs relate to interest rate policies and other banking regulations?
    - Deposit-rate ceilings, capital requirements and loan-to-deposit ratios should give rise to off-balance-sheet deposits
    - Akin to the growth of money-market funds around Reg Q and the growth of asset-backed commercial paper around capital requirements
  - How do the WMPs relate to bank health?
    - Under-capitalized banks should engage in greater regulatory arbitrage
    - “Carry trades” that are more profitable when interest rates are low
  - How do the WMPs affect bank health?
    - Impact of a “credit” event (SHIBOR spike in summer of 2013)

# Banking Sector Regulations

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- 'Standard' banking regulations:
  - Capital requirements; macro-prudential regulations
  - Very high reserve ratios (21.5% in June 2011, part of the 'sterilization' of very large inflows of 'hot money' since 2009)
- Regulation of interest rates:
  - PBOC sets base-line interest rates (vary with business cycles and maturities) and upper and lower bounds on rates
  - Lending rates have been liberalized
  - Upper bound of deposit rates still binding (up to 1.5 times of base rates; forced transfers from savers to borrowers)
- Other lending restrictions:
  - Lending-deposit ratio (L/D; lending  $\leq$  75% of deposits)
  - Banks cannot invest in certain sectors (stock market) or conduct I-bank services (e.g., underwriting/trading)

# Regulatory ‘arbitrage’ by Chinese banks

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- Regulations give rise to growth of ‘shadow banking’:
  - Banks’ incentive to offer off-balance sheet products (not subject to Loan to Deposit ratio and capital requirements), in order to earn higher profits on illiquid, long-term assets
  - “Carry trade” pays off if rates remain low
  - See, e.g., Acharya and Plantin (2015)
- Broadest definition of ‘shadow banking’:
  - All investment products that are off-the-balance sheet of banks
  - Largest component: banks’ WMPs
    - ▣ similar products such as Yu’e’ Bao (by Alibaba);
  - Products offered by non-bank institutions: Entrusted loans
    - ▣ banks can invest in some sectors that they cannot directly do so
  - Informal credit/lending agencies

# A 'dual-track' system of intermediation

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- Regulated deposits and on-the-balance sheet lending activities:
  - Funding costs low on regulated deposits
  - Balance-sheet lending constrained by L/D ratio and capital requirements
  - Greater leverage would require unregulated deposits
- When regulated rates are (and more likely to remain) low, maturity transformation is more attractive
  - Worse-capitalized banks, seeking greater risk and leverage, are more likely to take on rollover risk by issuing WMPs
  - Greater risk should be priced as higher yields
- 'Shadow banking' activities are linked to banks' overall risks:
  - WMPs can allow banks to invest in sectors that they cannot do otherwise (through on-balance-sheet lending)
  - WMPs imply banks take on significant rollover risk
  - WMPs' returns and principal may or may not be guaranteed: different risk profiles

# Implications of the 'dual-track' system

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## Risk-taking:

- Banks with less "skin in the game" (worse-capitalized banks) have greater incentives to take risks and leverage; hence, issue more WMPs

## Taking advantage of low rate policies:

- When (regulated) rates are low, such banks take on more rollover risk by issuing WMPs
- Investors require (relatively) higher yields

Low capital, high WMPs -> Greater "rollover risk"

# Outline of the talk

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- I. Data and Summary Statistics
- II. Analysis of Yield on WMPs
- III. Analysis of WMP Balance / Equity
- IV. Guaranteed vs Floating rate WMPs
- V. Assets under Investment
- VI. Implications

Appendix [Related literature, Recent boom-and-bust in stock market, NYU Stern VLAB's SRISK]



# I. Data (for the period 2007-2014)

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- Data on WMPs from 24 large banks at quarterly frequency:
  - Balance outstanding (Dec 2011-14), Source: CBRC
  - Yield on newly issued products, by maturity (2007-14), Source: WIND
  - Return: guaranteed or not; Type of investment [partially explored]
  
- Information on the banks:
  - Ownership type (owned by central or local govt)
  - Accounting and financial figures
  - For listed banks:
    - ▣ Stock prices (some banks are cross listed in China and abroad)
    - ▣ [NOT YET EXPLORED] Standard and other risk measures (from NYU Stern V-lab)
  
- Other information:
  - Regulated interest rates set by PBOC
  - Interbank rates (SHIBOR)

# WMP variables, rates, bank condition

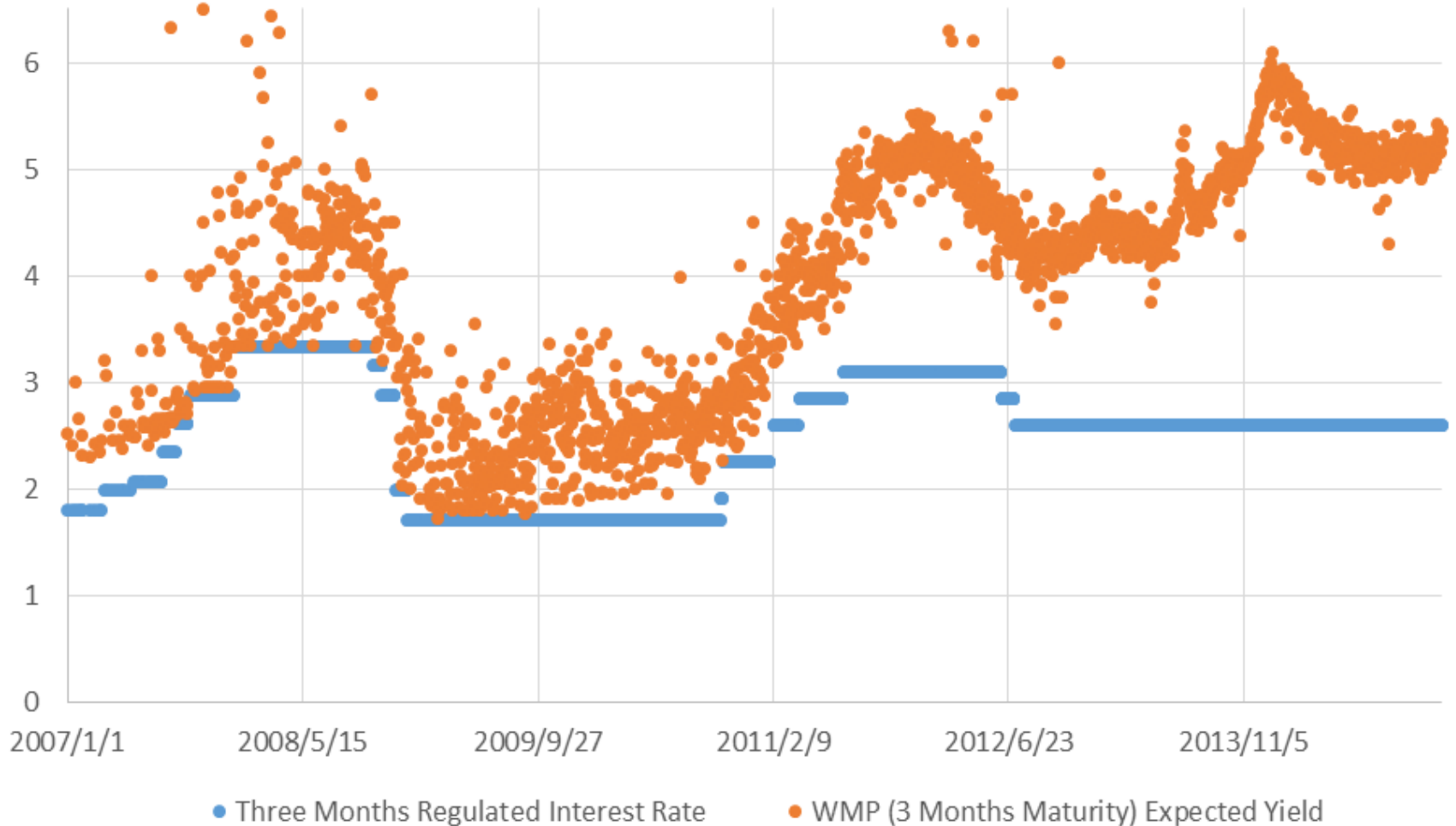
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WMP Yield (%)	Measured as the expected yield ceiling of a certain product.
WMP Maturity (months)	Measured in terms of months, from 0 to 12 months (13 groups).
WMP Total Balance	Measured as the total WMP balance at the end of each quarter.
WMP Guarantee Balance	The guaranteed yield and the guaranteed principal products make up the total guarantee balance.
WMP Floating Balance	Only the floating yield products make up the total floating balance.
Regulated Interest Rate	The PBOC (central bank) controls the regulated interest rate and sets a baseline for different terms of maturity.
SHIBOR Rate	The Shanghai Interbank Offer Rate, similar to the LIBOR, and typically used as a measure of market liquidity.
Capital Ratio	The bank's capital to risk weighted assets.
Capital Ratio Threshold	Measured as the difference between the capital ratio and the regulated threshold. Prior to 2013, all banks are regulated at threshold 8%. After 2013, for the systematically important banks, the threshold is 11.5%, and for others it is 10.5%.
Ln(Total Assets)	The natural log of the bank's total asset at each quarter.
ROA	The bank's net income divided by its total assets.
Total Deposit / Total Liability	The bank's total deposit divided by total liability.
Percentage of Floating Yield Product	The number of the floating yield product divided by the total number of WMP issued within a certain quarter.
Percentage of Risky Assets	(Trust product + Equity product + Derivatives + QDII + Other investment + Others) / Total Balance

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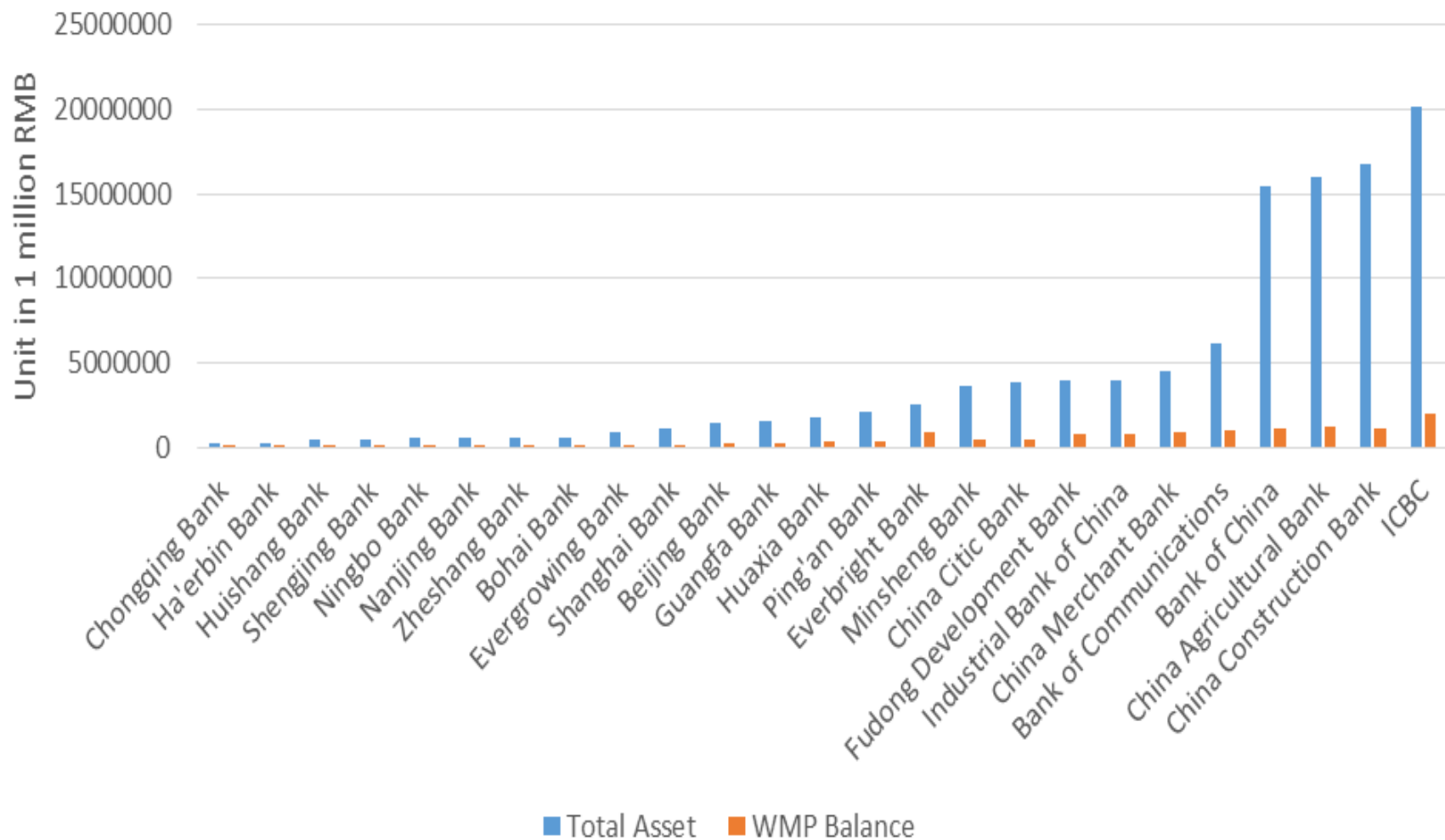
# WMP rates and regulated rates

Relationship Between 3 Months Regulated Interest Rate and The 3 Months WMP Product Expected Yield



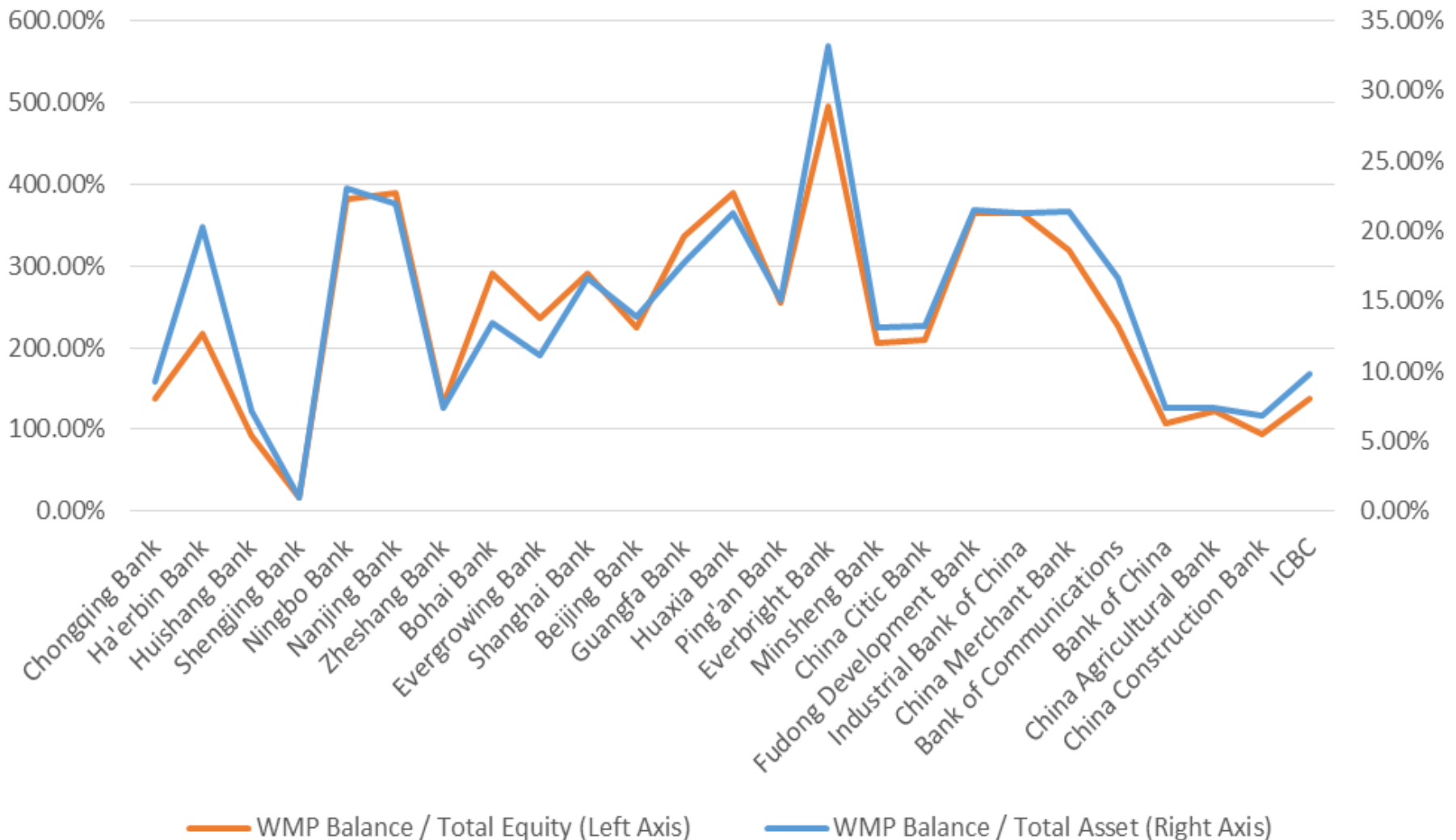
# WMP Issuance and Bank Size (Top 4!)

WMP Total Balance and Bank Asset as of 2014-12-31



# WMP balances large relative to equity

WMP Balance Percentages as of 2014-12-31



# Summary Statistics I

As of 2014-12-31	# Products	Total Size (mil RMB)	Mean by Bank (mil RMB)	S.d. (by bank)
<b>All WMP</b>	29,598	12,909,432	516,374	512,632
<b>All WMP (Big Four)</b>	11,717	6,470,000	1,290,000	388,209
<b>Risk Transfer</b>				
Guarantee Yield	13,396	4,046,374	168,599	168,190
Floating Yield	16,152	8,858,301	369,096	371,185
<b>Duration</b>				
T+0	230	2,085,579	83,423	96,576
7d	155	435,313	17,413	42,978
7d-1m	830	418,540	16,742	26,111
1m-3m	7,322	3,261,624	130,465	147,999
3m-6m	7,581	2,703,998	108,160	125,443
6m-12m	10,368	2,852,610	114,104	102,700
12m	3,112	1,151,678	46,067	71,819
<b>Clientele</b>				
Individual	13,833	7,585,077	303,403	322,542
Private Banking	2,502	1,185,493	47,420	79,081
Institution	13,263	4,138,772	165,551	151,717

# Summary Statistics II

## Overall 24 Banks

	Mean	Median	Std.	Min	Max
<b>Panel A: WMP-related Variables (2007-2014, with Balance-related variables 2011-2014)</b>					
WMP Yield (%)	4.64	4.80	1.14	1.40	30.00
WMP Maturity (months)	3.52	3.00	3.15	0	12.00
WMP Total Balance (mil RMB)	335,735	192,196	374,960	4,412	2,038,467
WMP Balance / Total Asset	11%	10%	5%	2%	33%
WMP Balance / Total Equity	183%	170%	90%	28%	494%
WMP Guarantee Balance (mil RMB)	115,985	57,152	154,258	0	837,378
WMP G. Balance / Total Asset	3%	3%	3%	0	13%
WMP G. Balance / Total Equity	58%	47%	46%	0	252%
WMP Floating Balance (mil RMB)	219,750	113,899	258,383	0	1,487,336
WMP F. Balance / Total Asset	7%	7%	4%	0	24%
WMP F. Balance / Total Equity	125%	114%	75%	0	374%
Percentage of Risky Assets	38%	36%	22%	0%	100%

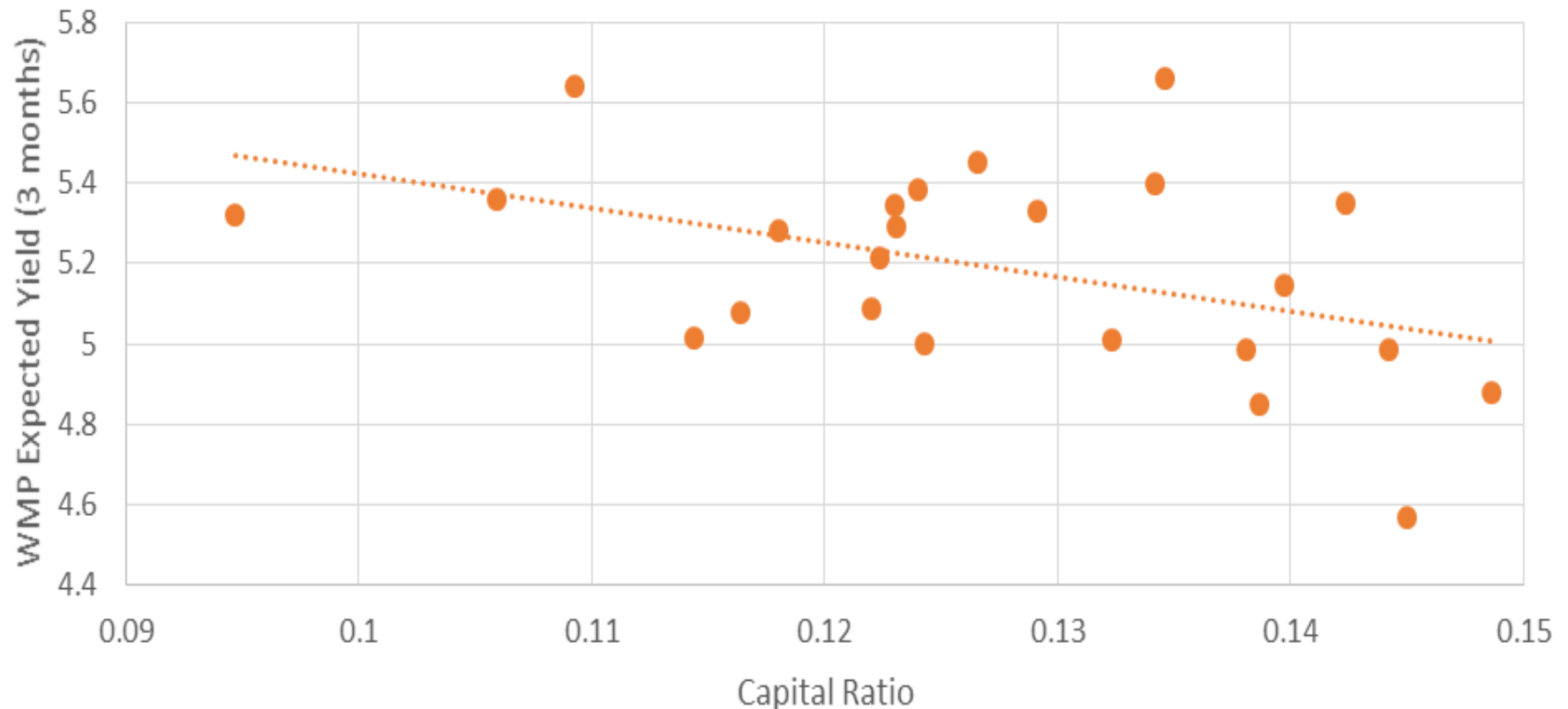
# Summary Statistics II (cont'd)

<b>Overall 24 Banks</b>					
	Mean	Median	Std.	Min	Max
<b>Panel B: Regulated Interest Rate (2007-2014)</b>					
Demand Deposit Rate (%)	0.58	0.63	0.18	0.35	0.81
<i>Corresponding WMP Yield</i>	<i>3.45</i>	<i>3.50</i>	<i>1.17</i>	<i>1.40</i>	<i>20.00</i>
Three Months Deposit Rate (%)	2.53	2.60	0.49	1.71	3.33
<i>Corresponding WMP Yield</i>	<i>4.72</i>	<i>4.80</i>	<i>0.91</i>	<i>1.71</i>	<i>15.00</i>
Six Months Deposit Rate (%)	2.88	2.88	0.50	1.98	3.78
<i>Corresponding WMP Yield</i>	<i>4.92</i>	<i>5.00</i>	<i>1.10</i>	<i>1.99</i>	<i>20.00</i>
One Year Deposit Rate (%)	3.19	3.25	0.53	2.25	4.14
<i>Corresponding WMP Yield</i>	<i>5.38</i>	<i>5.19</i>	<i>2.12</i>	<i>2.25</i>	<i>30.00</i>
<b>Panel C: Bank-related Variables (2007-2014)</b>					
Capital Ratio	12%	12%	1%	9%	16%
Ln(Total Assets)	28.12	28.11	1.36	25.53	30.64
ROA	0.75%	0.76%	0.31%	0.18%	1.40%
Total Deposit / Total Liability	73%	74%	9%	48%	90%
Percentage of Floating Products	83%	98%	24%	0%	100%



## II. Yield greater for worse capitalization

WMP Expected Yield vs. Capital Ratio as of 2014-12-31



● WMP Expected Yield vs. Capital Ratio as of 2014-12-31

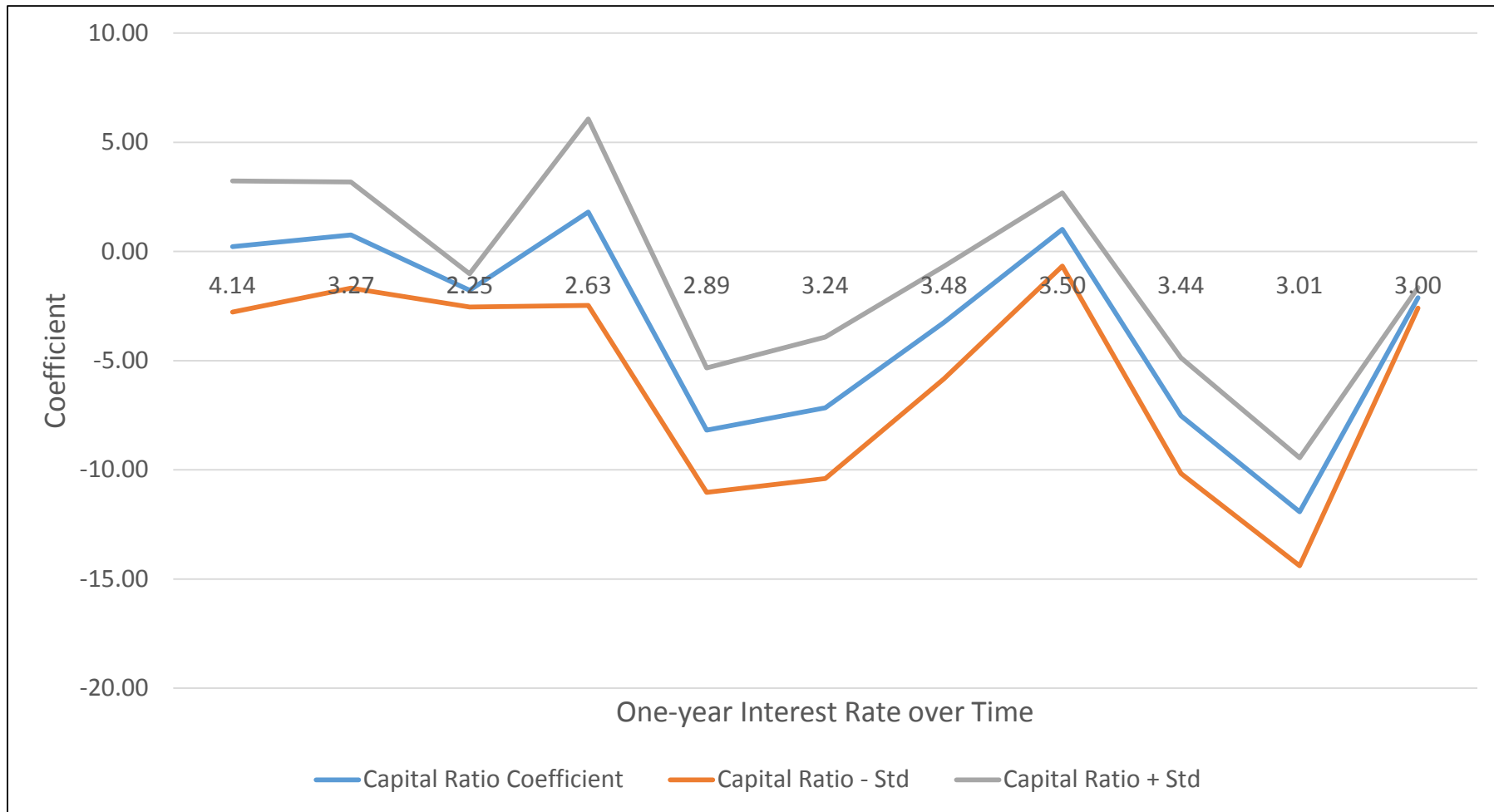
..... Linear (WMP Expected Yield vs. Capital Ratio as of 2014-12-31)

# WMP yield vs bank capital, reg rates

Dep: WMP Mean Yield	Reg1	Reg2	Reg3	Reg4	Reg5	Reg6
<b>24 Banks</b>						
Capital Ratio	-2.112***	-6.252***		-1.823***	-11.43***	
t-stats	(-2.904)	(-3.146)		(-3.003)	(-6.600)	
Capital Ratio*Regulated Rate		1.598**			3.815***	
t-stats		2.238			5.92	
Capital Ratio Threshold (Percent)			-0.512***			-0.826***
t-stats			(-3.119)			(-5.070)
Capital Ratio Thr.*Regulated Rate			0.129**			0.261***
t-stats			2.202			4.285
Controls	√	√	√	√	√	√
Maturity*Time Fixed Effect	√	√	√	√	√	√
Observations	4999	4999	4999	4819	4819	4819
Adjusted-R Square	0.759	0.760	0.760	0.851	0.853	0.852
Regression Method	OLS	OLS	OLS	WLS	WLS	WLS

Weight in WLS based on Total WMP balance for each bank

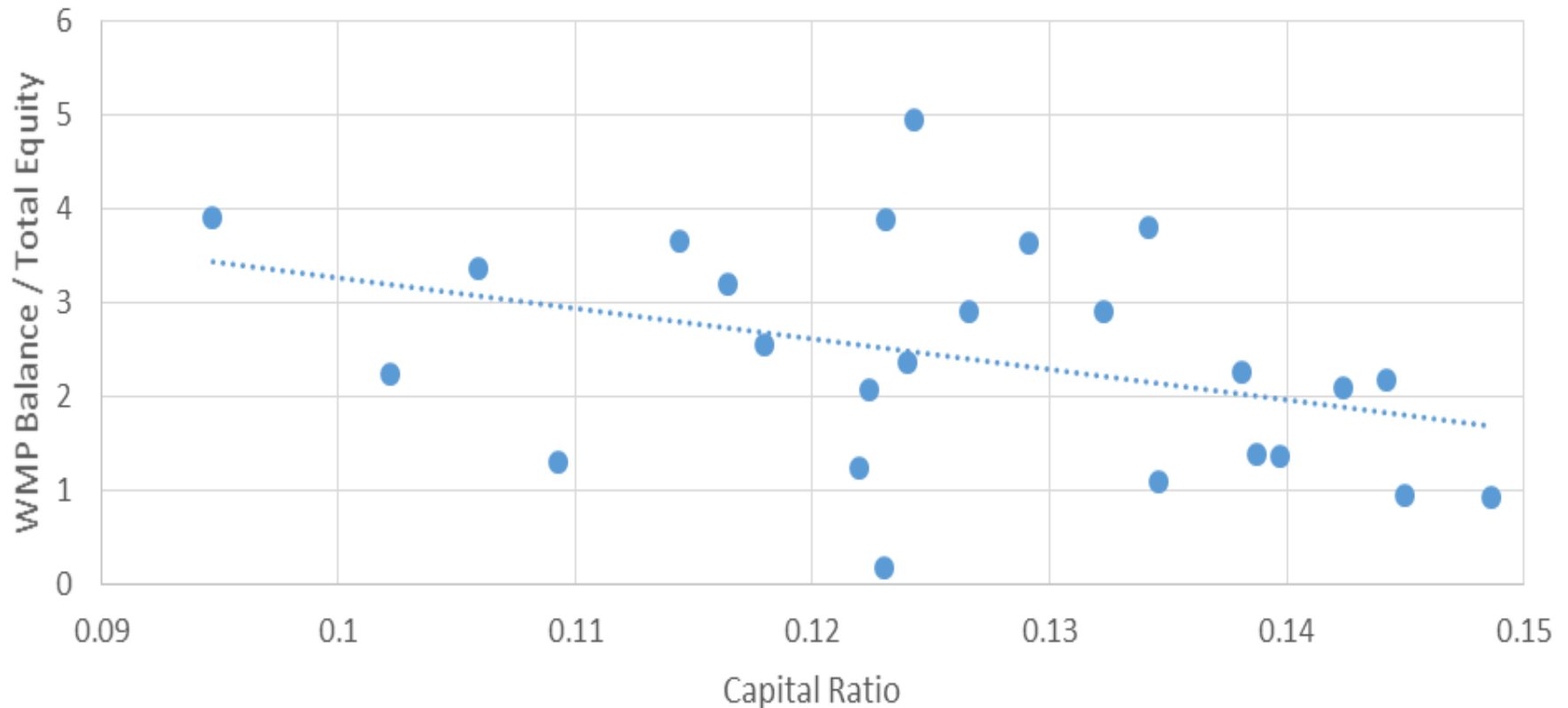
# Capital Ratio Coefficient over Time



Results from the Yield Spec (quarter by quarter), but combining all the groups where the regulated interest rate doesn't change.

# III. WMP risk greater for worse capitalization

WMP Balance / Total Equity vs. Capital Ratio as of 2014-12-31

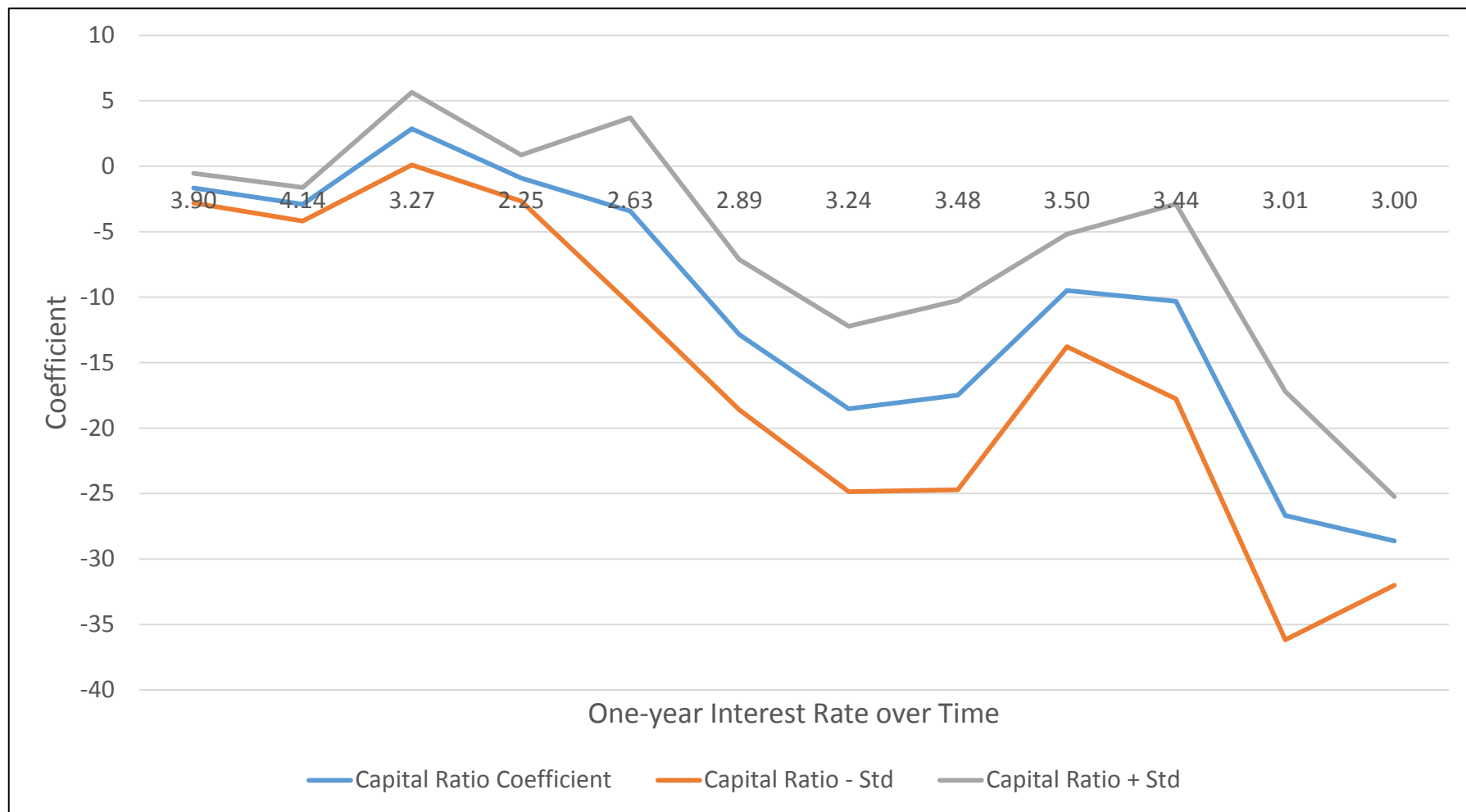


- WMP Balance / Total Equity vs. Capital Ratio as of 2014-12-31
- ..... Linear (WMP Balance / Total Equity vs. Capital Ratio as of 2014-12-31)

# WMP balance vs bank capital, reg rates

Dep: WMP Mean Yield	Reg1	Reg2	Reg3	Reg4	Reg5	Reg6
<b>24 Banks</b>						
Capital Ratio	-5.219***	-16.23***		-24.60***	-52.63***	
t-stats	(-5.635)	(-3.240)		(-10.98)	(-3.504)	
Capital Ratio*Regulated Rate		3.019**			9.017*	
t-stats		2.236			1.888	
Capital Ratio Threshold (Percent)			-0.939**			-2.900**
t-stats			(-2.271)			(-2.206)
Capital Ratio Thr.*Regulated Rate			0.159			0.481
t-stats			1.437			1.169
Controls	√	√	√	√	√	√
Maturity*Time Fixed Effect	√	√	√	√	√	√
Observations	638	638	638	638	638	638
Adjusted-R Square	0.694	0.696	0.690	0.739	0.74	0.707
Regression Method	OLS	OLS	OLS	WLS	WLS	WLS

# Capital Ratio Coefficient over Time



Results from the Balance/Equity Spec (quarter by quarter), but combing all the groups where the regulated interest rate doesn't change.

# Subsample Regression of Yield and Balance

Category	Yield		Balance/Equity	
	Reg1 (B)	Reg2 (A)	Reg3 (B)	Reg4 (A)
<b>24 Banks</b>				
Capital Ratio	-3.085***	0.807	-11.423***	-3.149***
t-stats	(-4.8)	0.54	(-5.43)	(-3.73)
Controls	✓	✓	✓	✓
Time Fixed Effect	✓	✓	✓	✓
Observations	3278	1721	400	238
Adjusted-R Square	0.8713	0.5912	0.6995	0.5157

Note that from 2007-03-31 to 2014-12-31, median 1-year reg rate is 3.00%. Break the sample into two groups, below median (median included) and above median. (B) means below median group, (A) means above median group.

### III. Differential Result for Guaranteed and Floating (SUR)

<b>Dep: WMP Mean Yield</b>	Reg1	Reg2	Reg3	Reg4	Reg5	Reg6
	<b>Panel A: 24 Banks with Guar. Return</b>			<b>Panel B: 24 Banks with Float. Return</b>		
Capital Ratio	-2.831**	-6.720***		-3.736**	-8.826***	
t-stats	(-2.472)	(-3.420)		(-2.154)	(-2.964)	
Capital Ratio*Regulated Rate		1.716**			2.246**	
t-stats		2.432			2.1	
Capital Ratio Threshold (Percent)			-0.855***			-1.264***
t-stats			(-4.354)			(-4.248)
Capital Ratio Thr.*Regulated Rate			0.262***			0.424***
t-stats			3.465			3.709
Controls	√	√	√	√	√	√
Maturity*Time Fixed Effect	√	√	√	√	√	√
Observations	1121	1121	1121	1121	1121	1121
Adjusted-R Square	0.743	0.744	0.746	0.685	0.686	0.689
Regression Method	OLS	OLS	OLS	OLS	OLS	OLS



# Differential Result for Guarantee and Floating (SUR)

Dep: WMP Balance/Total Equity	Reg1	Reg2	Reg3	Reg4	Reg5	Reg6
	<b>Panel A: 24 Banks with Guar. Balance</b>			<b>Panel B: 24 Banks with Float. Balance</b>		
Capital Ratio	-1.507***	-2.602		-3.447***	-14.30***	
t-stats	(-2.933)	(-0.955)		(-4.238)	(-3.328)	
Capital Ratio*Regulated Rate		0.301			2.982**	
t-stats		0.409			2.572	
Capital Ratio Threshold (Percent)			-0.035			-0.972***
t-stats			(-0.157)			(-2.759)
Capital Ratio Thr.*Regulated Rate			-0.0153			0.199**
t-stats			(-0.255)			2.11
Controls	√	√	√	√	√	√
Time Fixed Effect	√	√	√	√	√	√
Observations	665	665	665	665	665	665
Adjusted-R Square	0.42	0.42	0.416	0.549	0.553	0.549
Regression Method	OLS	OLS	OLS	OLS	OLS	OLS

# IV. Assets under Investment - Summary

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As of 2014-12-31

Big Four Banks

Other 20 Banks

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Summary Stats

Mean

Median

Std

Mean

Median

Std

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Bond and money market instrument

41.82%

39.18%

25.22%

49.37%

53.21%

22.55%

Deposit

26.26%

28.94%

16.30%

21.75%

21.36%

16.08%

Trust product

22.53%

20.44%

8.18%

14.45%

14.00%

10.36%

Equity product

8.76%

7.37%

7.09%

9.10%

3.49%

11.33%

Percentage of Risky Assets

31.51%

31.16%

12.43%

27.76%

28.82%

14.69%

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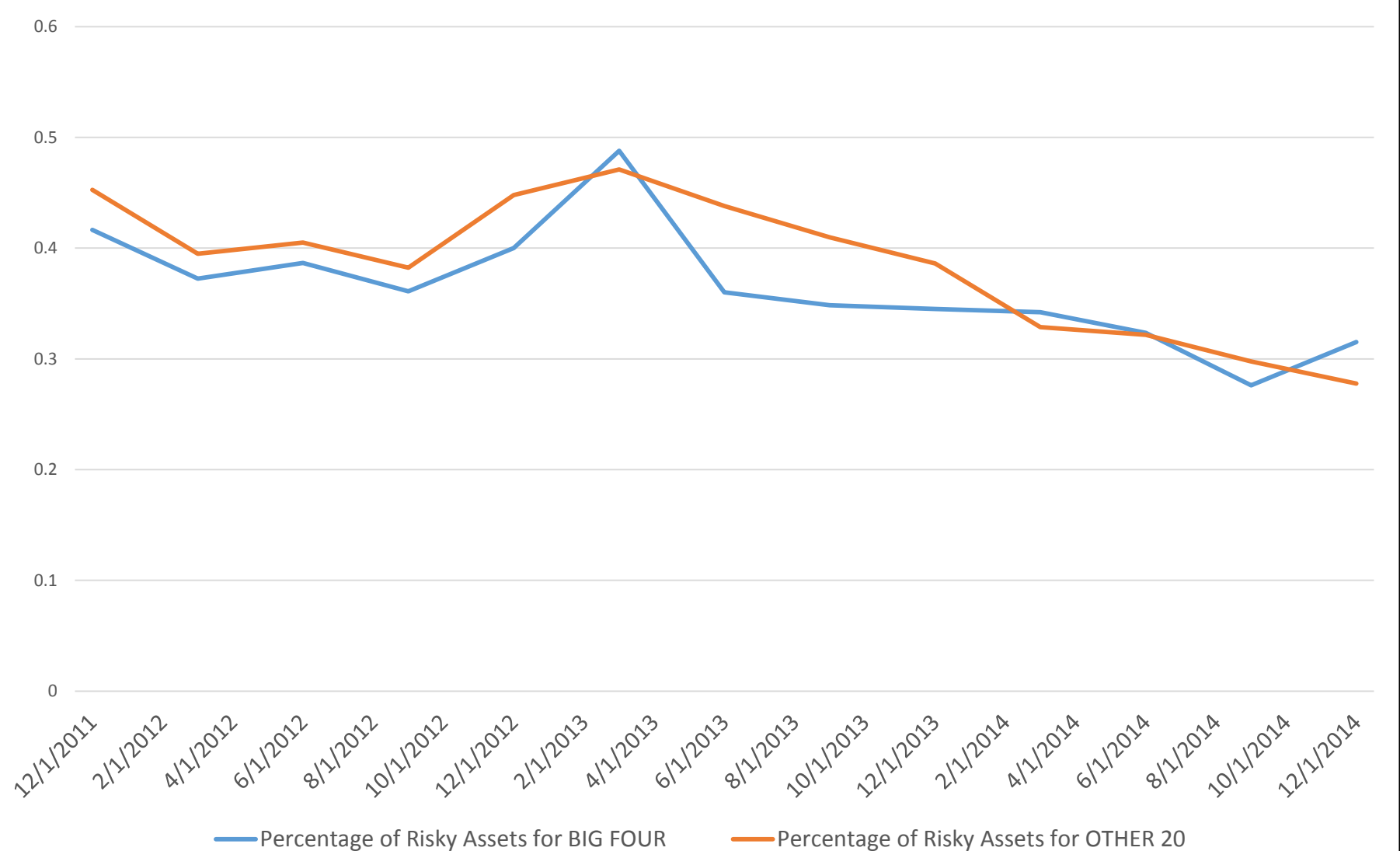
Percentage of Risky Assets is defined as:

(Trust product + Equity product + Derivatives + Qualified Domestic Institutional Investors (large mutual fund) investments + Other investment + Others) / Total Balance

NOTE: asset categories considered to be safe may not be safe at all, because of margin lending in China. E.g., lending category (stock-market lending?).

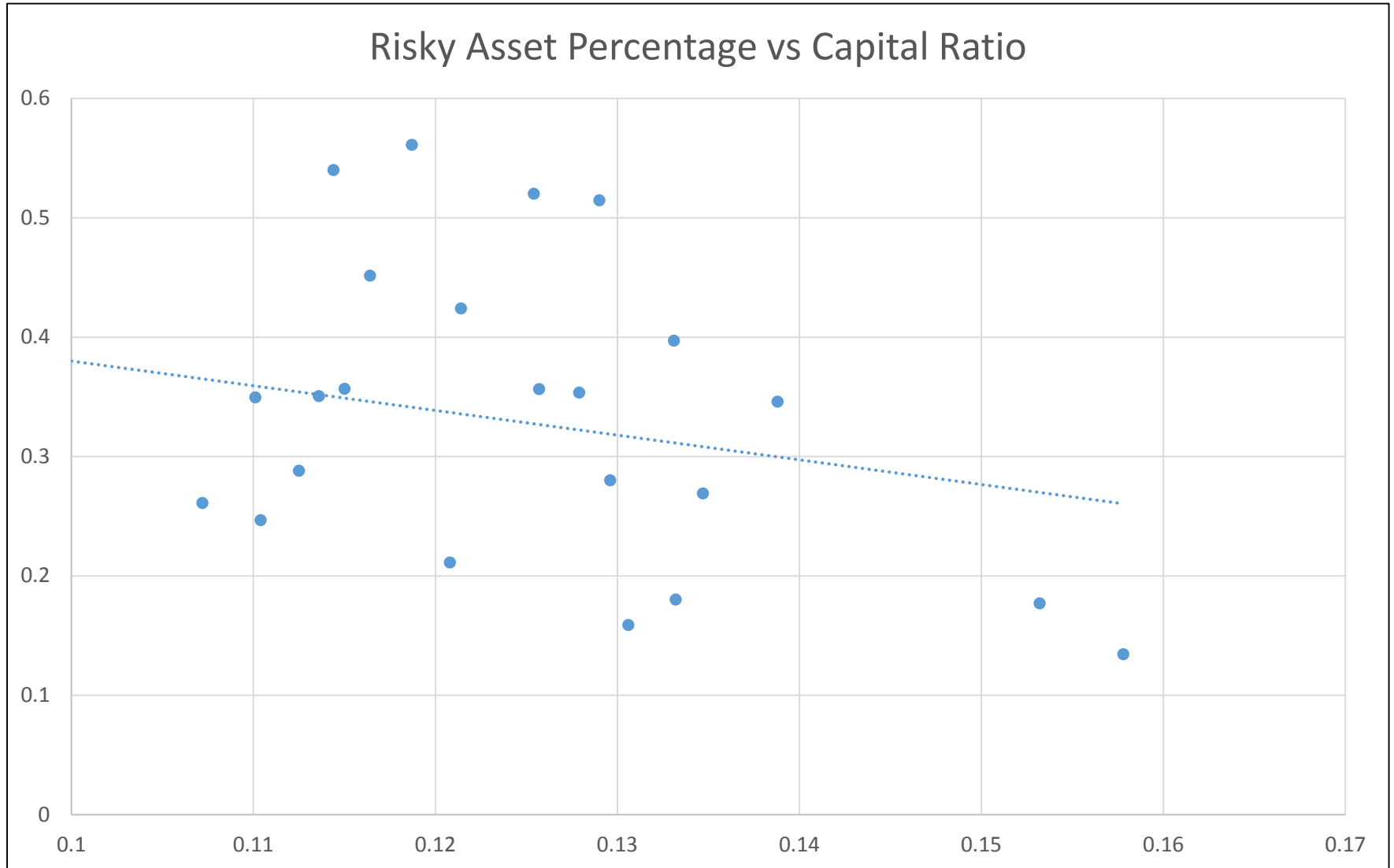
# Percentage of Risky Assets over Time

Percentage of Risky Assets over Time



# Exploring Percentage of Risky Assets

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# V. Rollover risk: SHIBOR “Event”

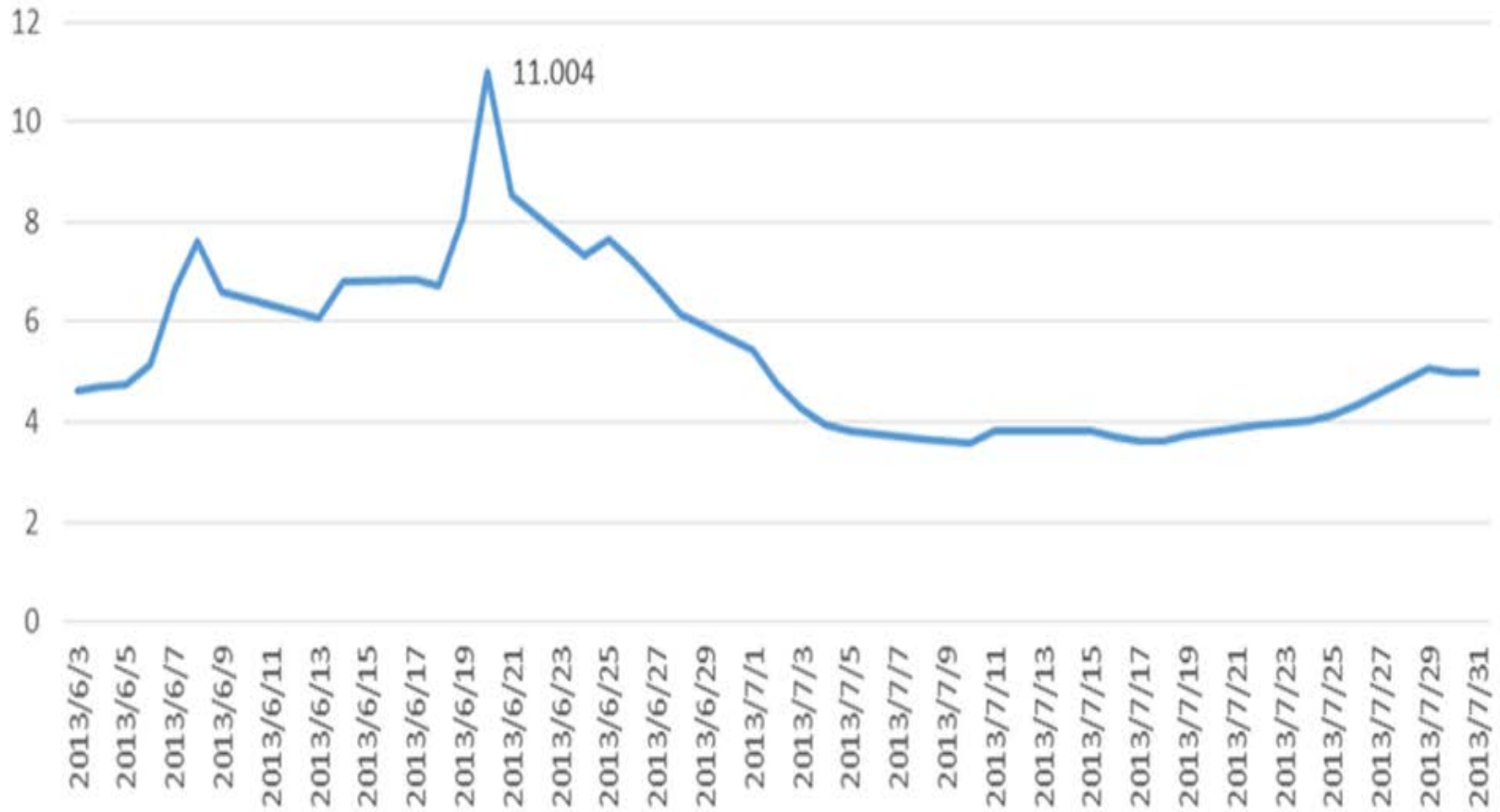
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- Due to the maturity mismatch of asset side and liability side, liquidity problems emerged in some banks. Meanwhile, banks needed to preserve more capital due to the regulation requirements at the end of half year 2013.
- The interbank lending rate began to climb in June 2013.
- Also, on 17<sup>th</sup> June-2013, PBOC issued an announcement requiring commercial banks to strengthen their liquidity management. PBOC tightened the monetary policy during this period, and didn't provide liquidity to the market.
- Then on 20<sup>th</sup> June 2013, the interbank rate spiked, with an overnight rate over 13%.

# The SHIBOR spike

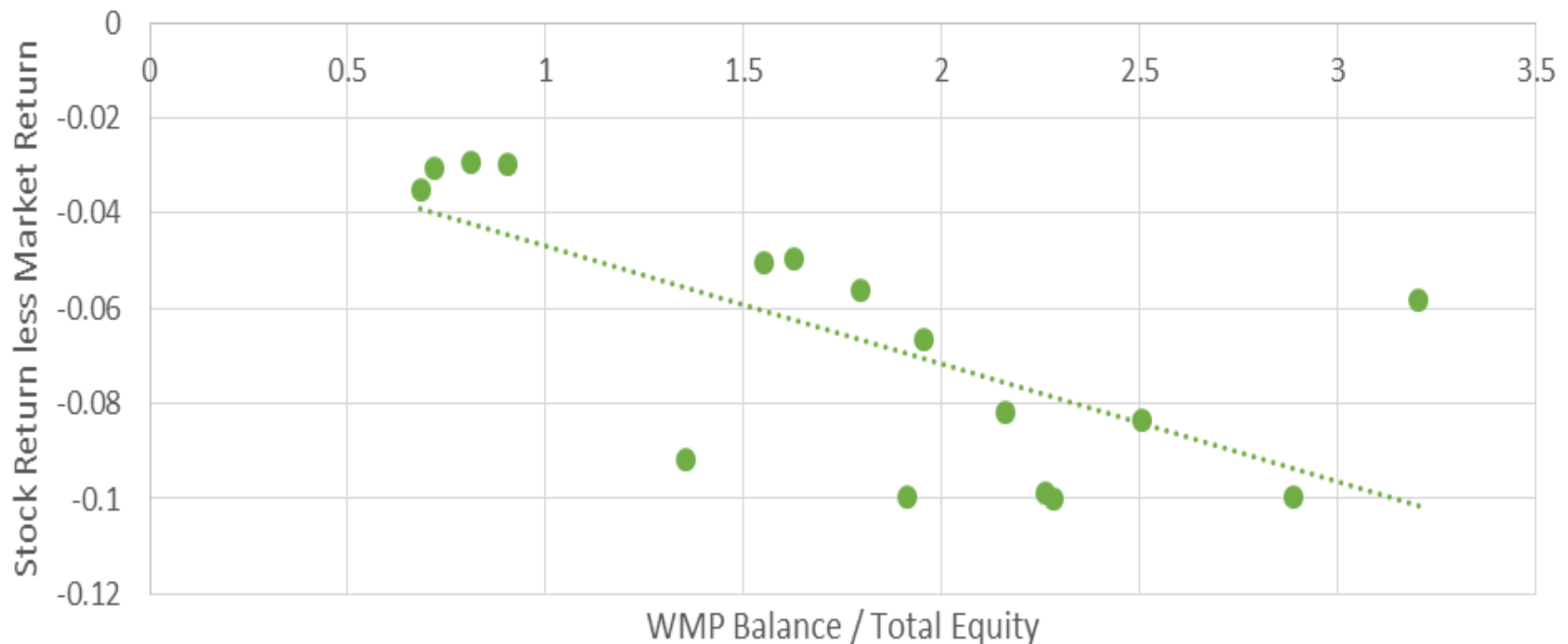
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One Week Shibor Rate over Time



# Realized shadow-banking risk vs WMP

The First Day (2013-06-21) Stock Return Less The Market Return vs. WMP Balance / Total Equity



- The First Day Stock Return Less The Market Return vs. WMP Balance / Total Equity
- ..... Linear (The First Day Stock Return less The Market Return vs. WMP Balance / Total Equity)

# Event return vs WMP balance, bank capital

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<b>Dep: Raw Return - Mkt Return</b>	<b>Reg1 (1,1)</b>		<b>Reg3 (1,1)</b>
WMP Balance / Total Equity	-0.0247***		-0.0224**
<i>t stats</i>	(-3.566)		(-2.609)
Observations	16	Controlling	16
Adjusted-R Square	0.476	For capital ratio	0.486

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# VI. Summary and Implications

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- Growth in Chinese shadow banking, in particular, Wealth Management Products, a reflection of
  - Regulatory constraints on banks
  - Leverage/risk-seeking by worse-capitalized banks
  - Exacerbated during periods of low deposit rates
- Growth similar to that of the money-market funds and especially ABCP growth and crash in the United States
- WMP magnitudes are large in absolute sense as well as relative to bank capital
- A (first!) source of vulnerability in future?

# Policy Implications

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- Market observers attribute the recent stock market gyrations, in part, to the WMP growth and crackdown
- Slowdown in real estate market; QE by the central bank
  - Further yield-seeking by investors
- Growth in margin lending in stock market; in “grey-market” margin lending, leverage can be as high as 5:1
- Money for this lending comes from WMPs and has recently been “structured” into leveraged bets on stock market

# Gabriel Wildau in FT, 25<sup>th</sup> June 2015

“With a touch of financial alchemy, trusts transform an equity investment into a structured product that yields a fixed return — that is, unless something goes wrong... In the case of umbrella trusts, banks purchase the senior tranche, which guarantees a fixed return. They then slice up this tranche and distribute it to clients as WMPs.

Hedge funds, brokerages and other institutions subscribe to the subordinate tranche, which absorbs the first losses from stock investments but also enjoys all profits once the senior tranche holders have received their fixed return...

Subordinate-tranche investors are effectively borrowing money from senior tranche-holders to make leveraged stock bets. The interest that subordinate tranche-holders pay on the margin loans comprises the fixed returns paid to the senior tranche. “

# What should regulators do?

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- Inject further liquidity in the market?
  - Likely to fuel more carry trades!
- Crack down on shadow banking?
  - OK, but interim consequences...
- Liberalize deposit rates, loan-to-deposit ratios?
  - YES, but compromise other objectives...
- Hence, why not

RECAPITALIZE BANKS ?

# Appendix



# I. China's Banking Sector

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- Financial system dominated by a large banking sector
  - Bank loans remain the most important source of financing for firms
  - Large portion of loans goes to SOEs
- Structure of banking sector:
  - Largest state-owned banks are listed (in HK and domestic exchanges) with the government as the large shareholder;
  - Entrance of non-state owned banks and non-bank FIs (including foreign FIs) in recent years
- Regulators of the banking sector:
  - PBOC (central bank); CBRC (banking sector); CSRC (listed firms)
- Other relevant facts about the financial system:
  - Few investment products: stock and real estate markets are both speculative
  - Closed capital account with limited channels of flows in and out of China

# Related Work

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- Work on shadow banking in developed markets:
- Work on financial system in China:
  - Shadow banking: a related paper is by **Song et al. (2015)**: they model the interactions between large and small banks in terms of their activities both on- and off-balance sheets
  - Empirical facts: 1) Big Four banks' loan/deposit ratios are much lower than those of smaller banks; 2) Big Four banks are also the main liquidity providers of China's interbank market
  - Two types of interactions between large and small banks:
    - In the WMPs market: high-return WMPs issued by cap-constrained banks poach deposits from the Big Four, which respond by issuing WMPs with competitive returns; this, in turn, push small banks to be even more aggressive (issuing riskier WMPs)
    - In the interbank market: most WMPs are short-term, while investment projects are much longer term, and banks rely on the interbank market to solve the maturity mismatch problem
    - Big Four's dual reaction (issuing WMPs and cut liquidity provision in the interbank market => higher rates) forces small banks to cut back on WMPs issuance

# Related Work (cont'd)

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- More on Song et al. (2015):
  - Model assumption: big banks are not constrained by the loan/deposit cap b/c they internalize the effect of their reserve holdings on the interbank market
  - Key results:
    - Effects of tighter cap: 1) pushes cap-constrained banks to issue more WMPs and fuels a credit expansion; 2) more aggressive on balance sheet lending by big banks as they try to fend the cap-constrained banks by reducing interbank liquidity. The net effect is an increase in overall credit and an increase in the equilibrium interbank rate.
    - The above findings can explain: regulators have increased liquidity standards and tightened L/D ratios yet debt-to-GDP has grown faster.
    - Another puzzle is convergence in the L/D ratios of different banks: 1) falling ratios among small banks are explained by the regulatory tightening above, 2) rising ratios among the Big Four: they put pressure on interbank markets to protect their deposit base; this helps regulators to curtail shadow banking that would have otherwise been pursued by cap-constrained banks. But in order to manipulate the interbank market, the Big Four are approaching their own L/D constraint. If this constraint becomes binding on them, then China's financial system will become more fragile.

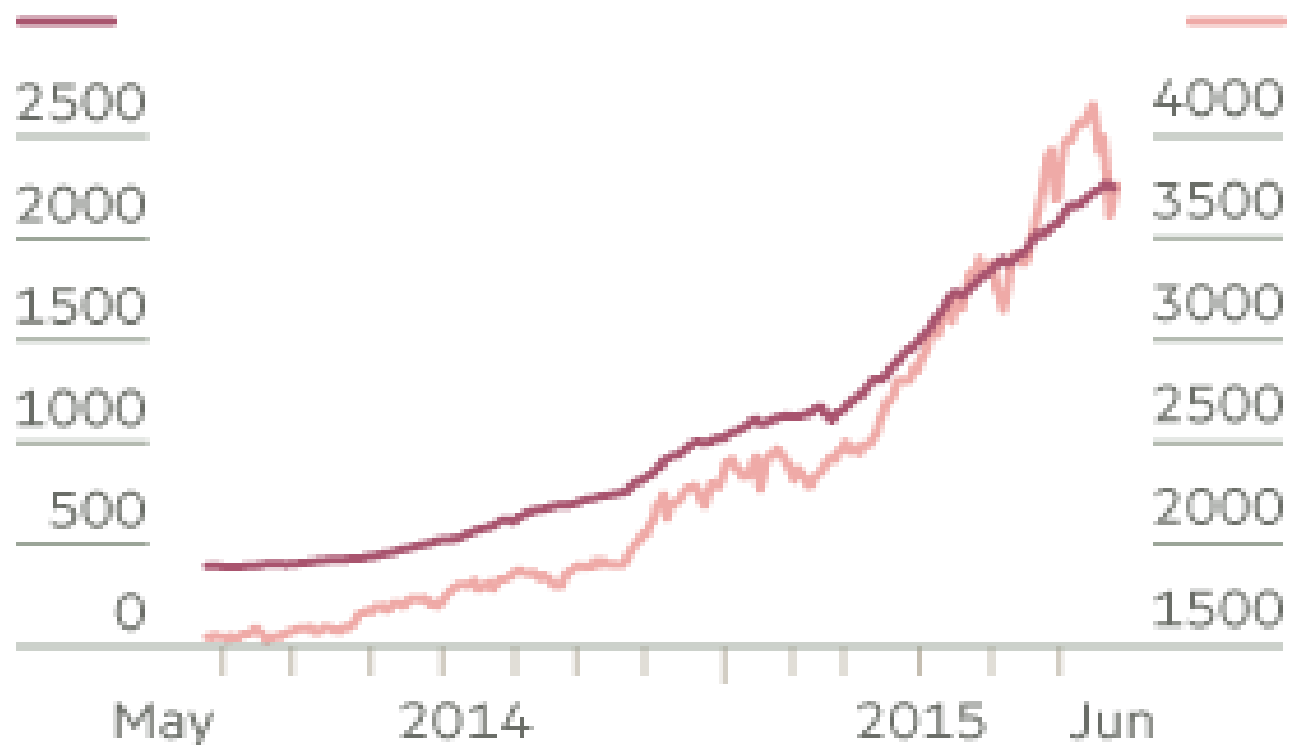


## II. Rise in margin lending in stocks

### Margin loans fuel China equity rally

Margin loans  
outstanding (Rmb bn)

Shanghai + Shenzhen  
composite (index points)



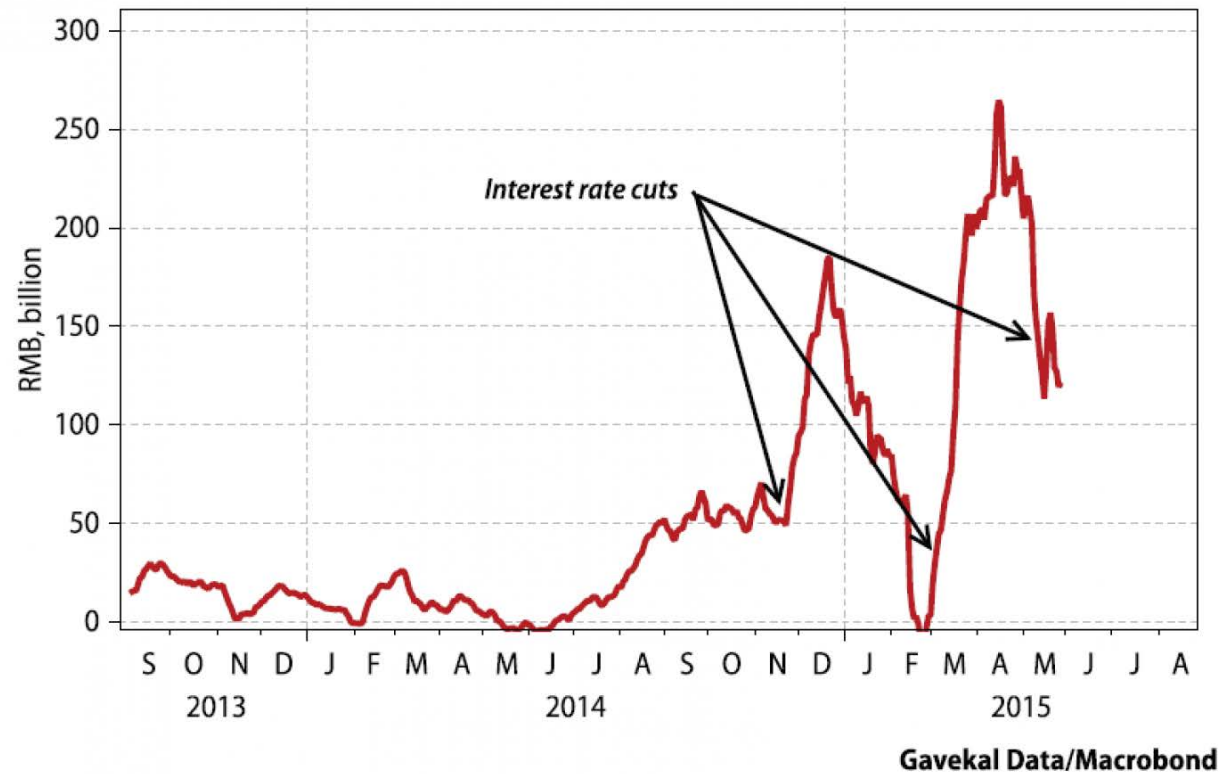
Source: Choice

FT

# Interest-rate cuts and margin lending

## China's easing cycle has encouraged risk-taking

Margin debt balances on the Shanghai Stock Exchange, MoM changes



# Gabriel Wildau in FT, 25<sup>th</sup> June 2015

<http://www.ft.com/cms/s/0/6963a7c6-1a5a-11e5-a130-2e7db721f996.html#ixzz3eDAcUR6A>

“China’s shadow banks, increasingly wary of lending into a slowing economy, have turned to the stock market, fuelling a surge in unregulated margin lending that has driven the market’s dizzying gains over the past year.

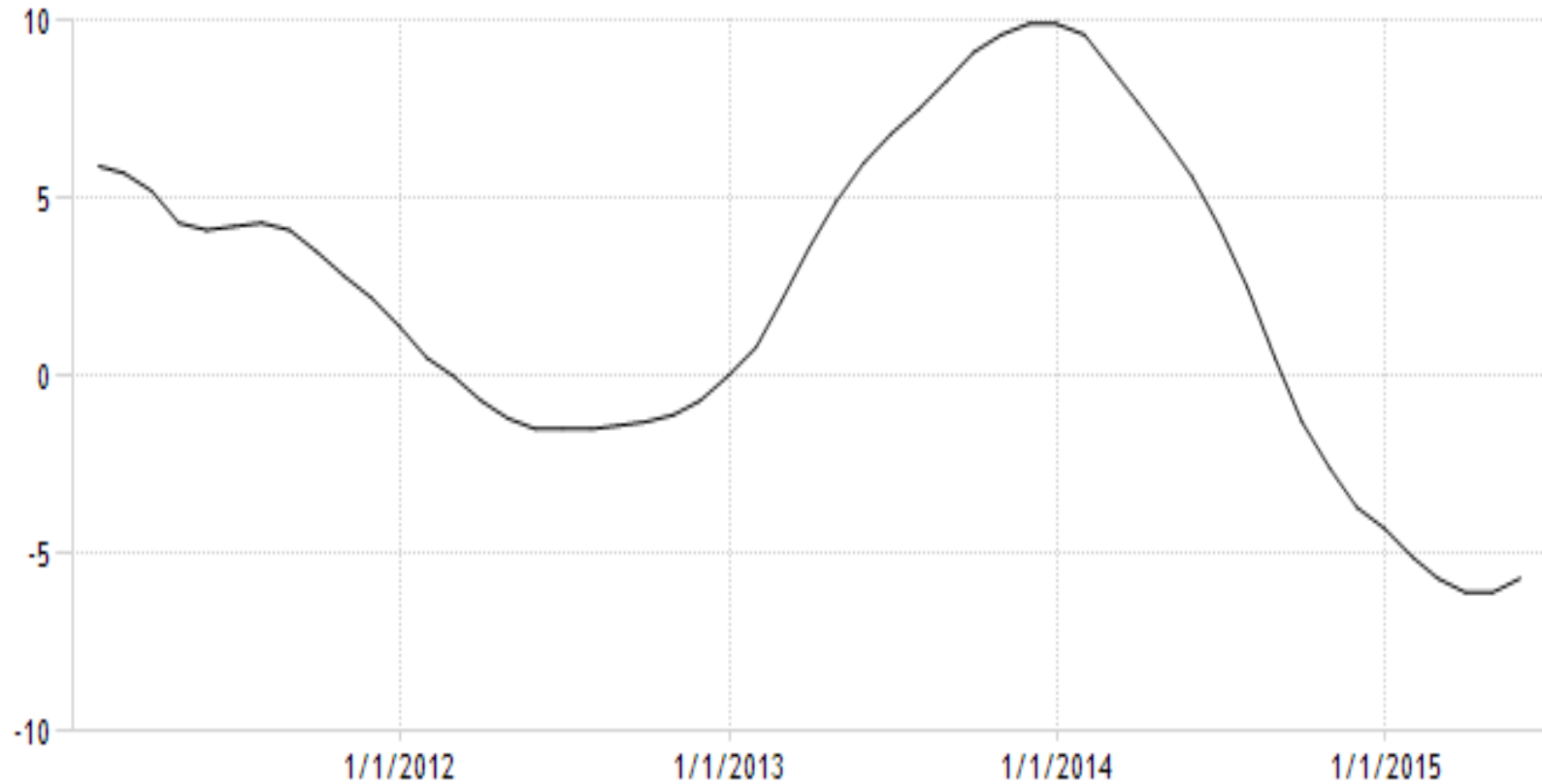
Now regulators are cracking down on shadow lending to stock investors, a campaign analysts say is partly to blame for last week’s 13 per cent fall in the Shanghai Composite Index — the largest weekly drop since the global financial crisis in 2008.”

Shanghai index was down another 7.5% today!

# Chinese real estate market

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CHINA NEWLY BUILT HOUSE PRICES YOY CHANGE



SOURCE: WWW.TRADINGECONOMICS.COM | NATIONAL BUREAU OF STATISTICS OF CHINA

# Chinese stock market (27<sup>th</sup> June '15)

6/26/2015

000001.SS Interactive Stock Chart | Yahoo! Inc. Stock - Yahoo! Finance

SSE Composite Index (000001.SS) ★ Watchlist

**4,192.87** -334.91 (-7.40%) Shanghai - As of 3:01AM EDT



# III. SRISK: A measure of bank vulnerability to future crisis

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- *How much capital would a financial institution need to raise in order to function normally if we have another financial crisis?*
- We measure this econometrically based on market data on equities and balance sheet data on liabilities. We update weekly on V-LAB for US and Global financial firms. We call this *SRISK*.
- [Vlab.stern.nyu.edu/welcome/risk](http://vlab.stern.nyu.edu/welcome/risk)

# SRISK is a market-based stress test

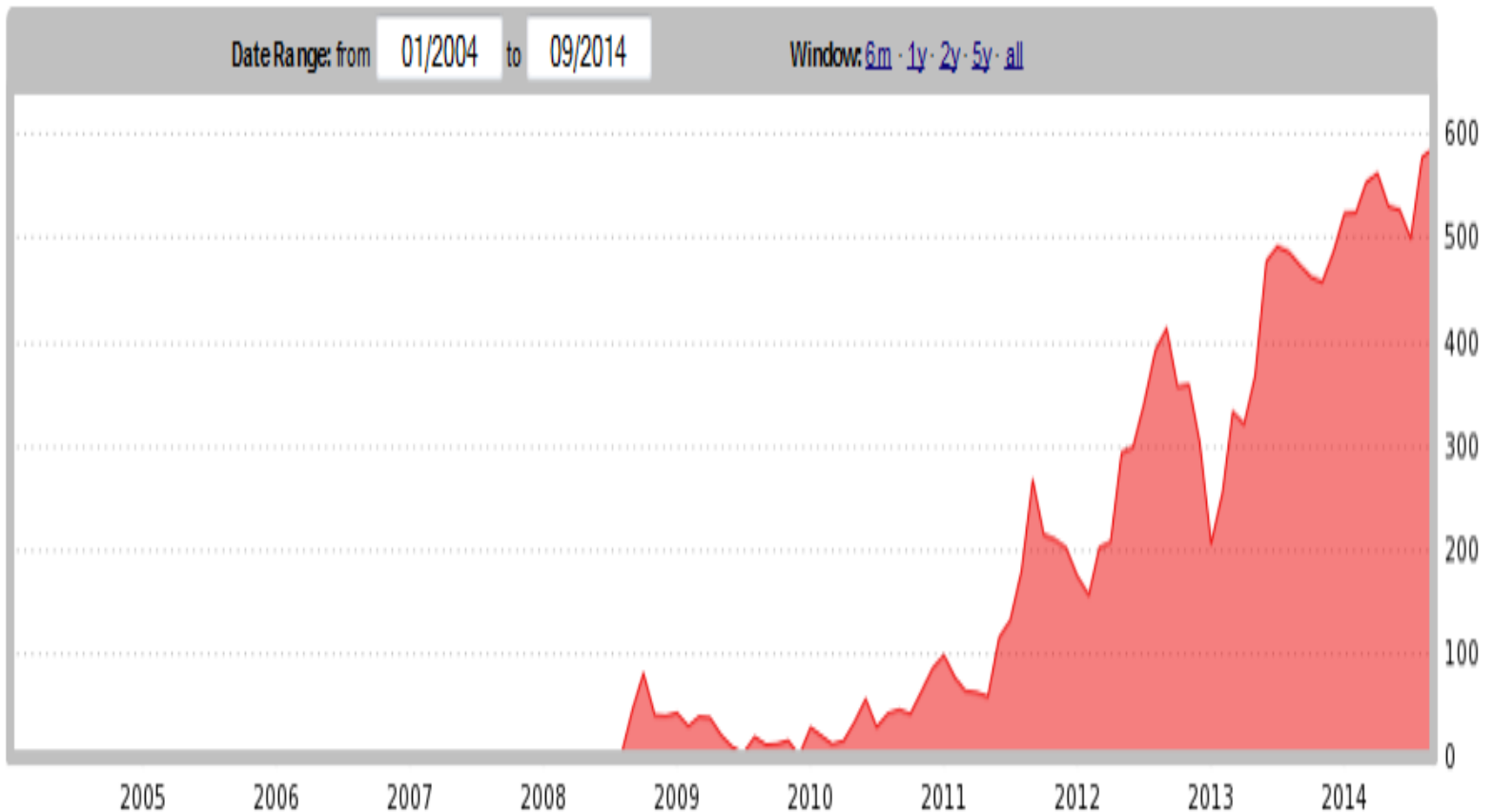
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- The stress scenario is a 40% collapse in the global equity market over six months.
- The capital requirement is that, under stress, equity exceed 8% of total assets
- Total Assets are measured as Quasi Assets which are accounting liabilities plus market equity

# CHINA SRISK rising since 2010

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Risk Analysis Overview - China Financials Total SRISK (US\$ billion)





# China SRISK Normalized by GDP

## China

