

Will China's Credit Boom End in a Bust? (aka Credit Booms, Banking Crises, and the Current Account)

Scott Davis¹ Adrienne Mack Wesley Phoa Anne Vandenabeele

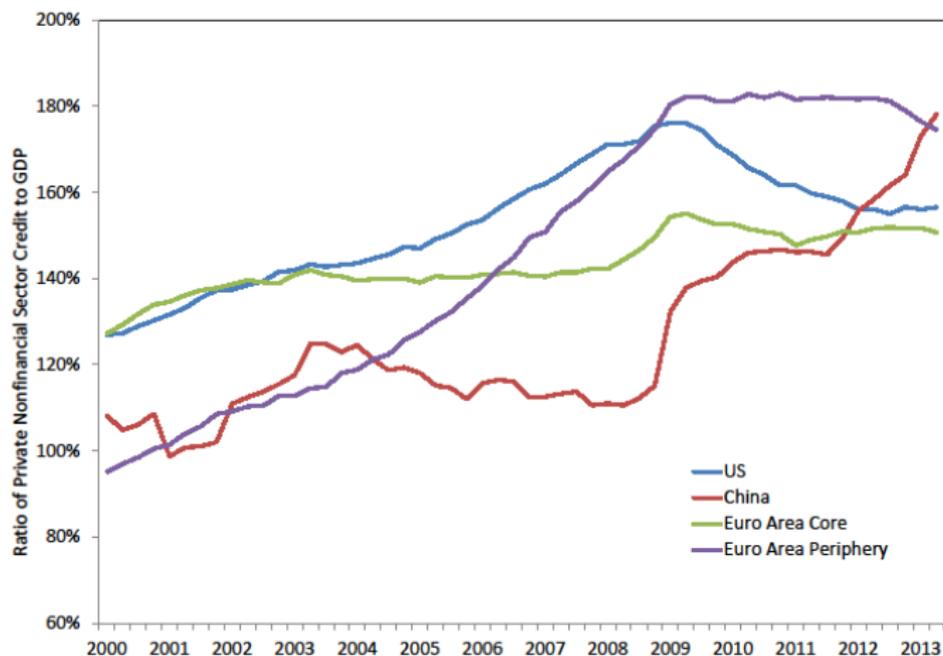
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¹The view presented here are those the the author and should not be taken to represent the views of the Federal Reserve Bank of Dallas, the Federal Reserve System, or the Capital Group Companies.

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China's Credit Boom



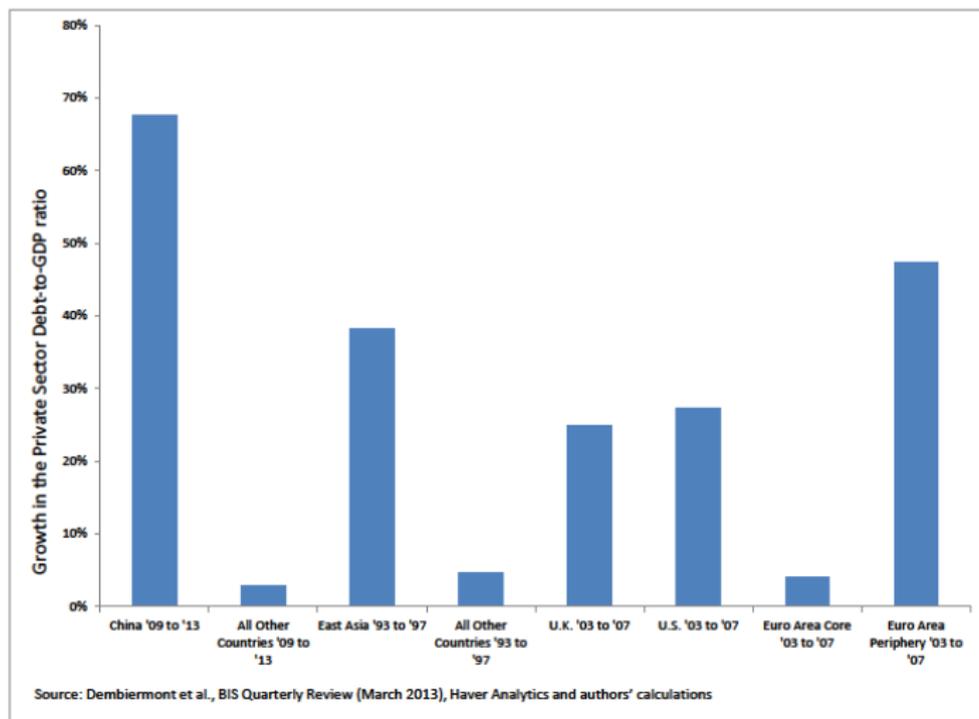
Source: Dembiermont et al., BIS Quarterly Review (March 2013), Haver Analytics and authors' calculations

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- Between 1993 and 1997, this ratio increased by 38 p.p. in the East Asian countries
- Between 2003 and 2008, this ratio increased by 27 p.p. in the U.S. and 25 p.p. in the U.K.

China's Credit Boom



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- Will China's boom end in the same way?

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- What is the effect of credit growth on the probability of a banking crisis?
- Schularick and Taylor (AER, 2012) argue that the marginal effect of credit growth is about 0.3.
 - A 1 p.p. increase in credit growth over a 5 year period increases the probability of a banking crisis by 0.3 p.p.
- Simply comparing the Chinese credit boom to those in the past suggests that a crisis is imminent.

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- Is credit growth itself the cause of a crisis, or is it the combination of credit growth and external deficits?
- In other words, does the source of credit matter?

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- \mathbf{X}_{it} is a vector of other control variables (the output gap, inflation, the exchange rate)

Step 1

- Regress p_{it} on credit growth, the current account, and other variables:

$$p_{it} = \alpha + \beta_1 \Delta C_{it} + \beta_2 CA_{it-1} + \beta_3 \Delta C_{it} \times CA_{it-1} \\ + \beta_4 \mathbf{1}_{it}^{CA < 0} \times \Delta C_{it} \times CA_{it-1} + \beta \mathbf{X}_{it} + \varepsilon_{it}$$

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- In the third specification, estimate both β_3 and β_4
 - the marginal effect of credit growth on the probability of a crisis for a country with a current account surplus is: $\hat{\beta}_1 + \hat{\beta}_3 CA_{it-1}$
 - the marginal effect of credit growth on the probability of a crisis for a country with a current account deficit is: $\hat{\beta}_1 + (\hat{\beta}_3 + \hat{\beta}_4) CA_{it-1}$

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Dependent variable: Banking Crisis

	OLS	OLS	OLS
Credit	0.132*** (0.033)	0.161*** (0.034)	0.090 (0.049)
OG	1.442*** (0.264)	1.353*** (0.263)	1.316*** (0.264)
CPI	0.124* (0.065)	0.137** (0.064)	0.140** (0.064)
XR	-0.015 (0.014)	-0.020 (0.014)	-0.019 (0.014)
CA	-0.270** (0.135)	-0.146 (0.138)	-0.072 (0.142)
Credit*CA		-2.157*** (0.548)	-0.854 (0.843)
$I^{CA<0}$ *Credit*CA			-3.438** (1.692)

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Marginal Effect

(1) Credit for CA=0%	0.132	0.158	0.089
(2) Credit for CA=+5%		0.050	0.047
(3) Credit for CA=-5%		0.266	0.304
Wald p-value (1=3)		0.000	0.000
Wald p-value (1=2)		0.000	0.311

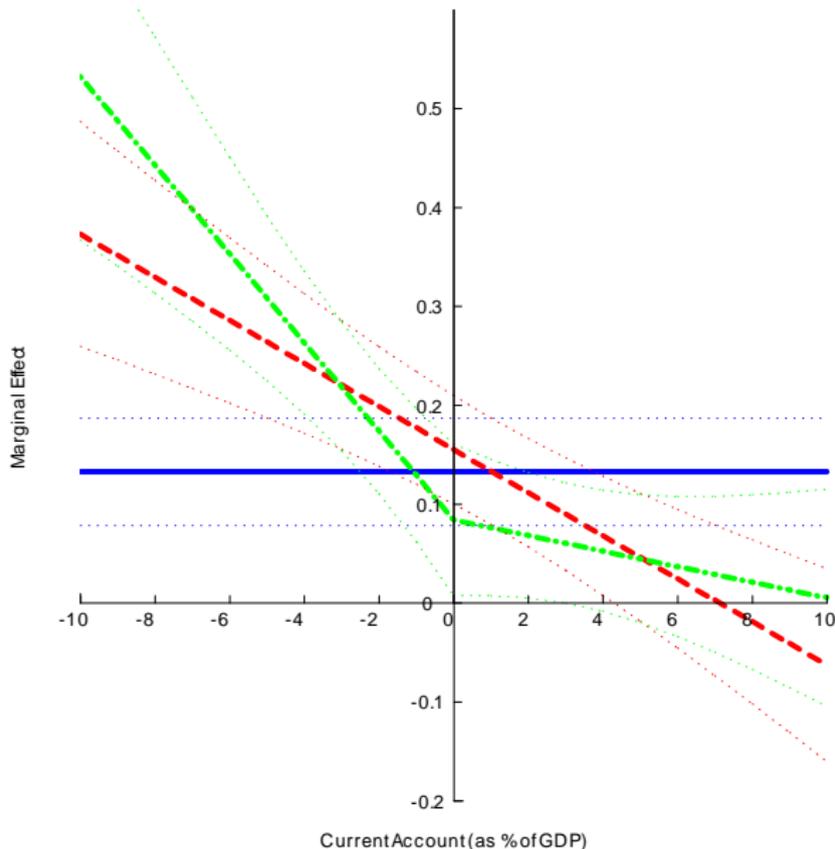
Obs.

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Marginal Effect as a Function of the Current Account



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Effect of China's Credit Growth

Country-Years	Credit Growth	Current Account
East Asia, 1993-97	38%	-4.4%
U.S., 2003-07	27%	-5.8%
UK, 2003-07	25%	-2.8%
Euro core, 2003-07	4%	3.6%
Euro periphery, 2003-07	47%	-5.2%
China, 2009-13	68%	2.6%

Effect of China's Credit Growth

- What is the marginal effect of 1 p.p. extra growth in credit-GDP ratio on the probability of a banking crisis?

Country-Years	without interaction	with interaction
East Asia, 1993-97	0.13	0.33
U.S., 2003-07	0.13	0.39
UK, 2003-07	0.13	0.26
Euro core, 2003-07	0.13	0.11
Euro periphery, 2003-07	0.13	0.37
China, 2009-13	0.13	0.11

Effect of China's Credit Growth

- What is the marginal effect of 1 p.p. extra growth in credit-GDP ratio on the probability of a banking crisis?
- The unconditional probability of a crisis in the data is 4%.

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Effect of China's Credit Growth

- What is the total effect of past 5 years of credit growth on the probability of a banking crisis? (credit growth times marginal effect)

Country-Years	without interaction	with interaction
East Asia, 1993-97	5.1%	12.7%
U.S., 2003-07	3.6%	10.8%
UK, 2003-07	3.3%	6.5%
Euro core, 2003-07	0.5%	0.4%
Euro periphery, 2003-07	6.3%	17.4%
China, 2009-13	9.0%	7.7%

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Country-Years	without interaction	with interaction
East Asia, 1993-97	5.1%	12.7%
U.S., 2003-07	3.6%	10.8%
UK, 2003-07	3.3%	6.5%
Euro core, 2003-07	0.5%	0.4%
Euro periphery, 2003-07	6.3%	17.4%
China, 2009-13	9.0%	7.7%