Housing, Household Debt, and the Business Cycle
An Application to China and Korea

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Learning from History

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- Will history repeat? Rhyme? Or perhaps a story with a happier ending?

The Credit-Driven Household Demand Channel

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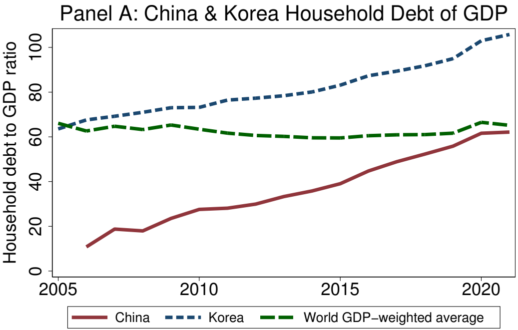
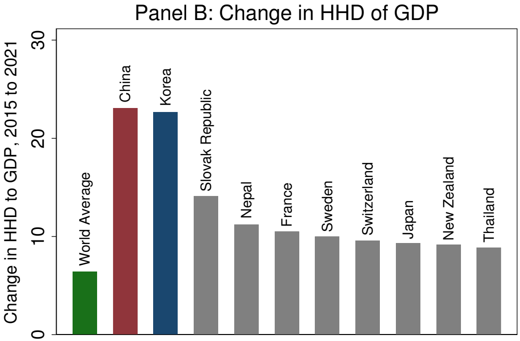
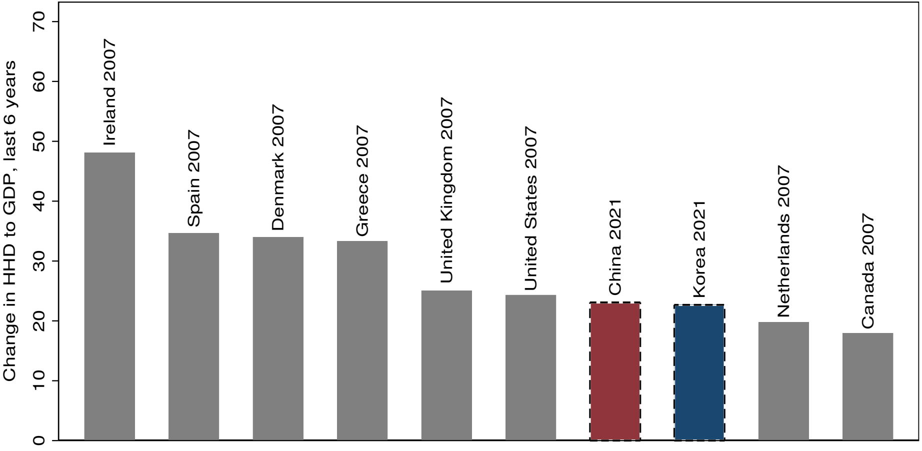
- Three pillars:
    1. An expansion in the supply of credit initiates the boom
    2. The supply of credit boosts real estate and household demand in particular
    3. The boom typically ends badly, with an unforecasted decline in economic activity
- Original research shown to be robust out-of-sample, for emerging markets, and for case study of Brazil

Household Debt to GDP in China and Korea





Debt Booms in China and Korea: Comparison with 2001 to 2007



Application to China and Korea

1. Start with a **"naive"** forecast based on simple empirical model from the research
2. Discuss the lessons of history on the **mechanism**: why do booms end badly?
3. **Compare and contrast** China and Korea to historical episodes in order to assess whether underlying mechanisms are present

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- Goal: Augment current analyses of China and Korea with the rich historical record

The "Naive" Forecast

Basic Prediction: Mian, Sufi, Verner 2017

- Expanded Sample from IMF: Unbalanced panel of 70 countries from 1962 to 2015; almost 966 country-year observations, many emerging markets included

- Specification:

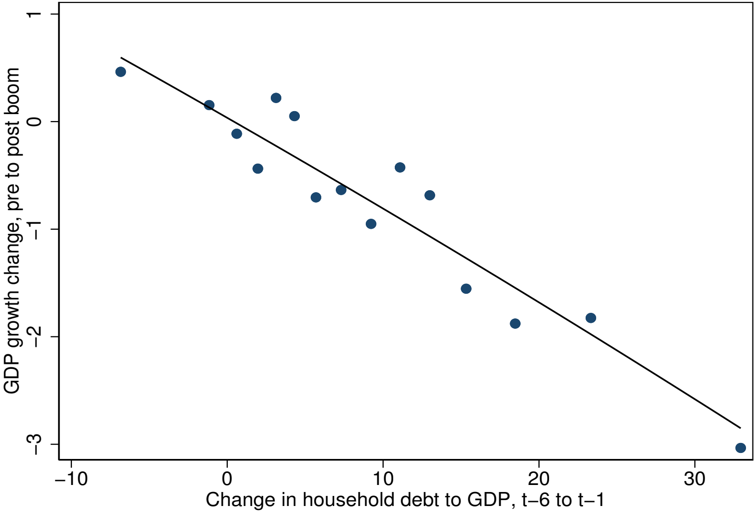
$$\Delta_{pre,post} y_{it} = \alpha + \beta_{HH} \Delta_6 d_{it-1}^{HH} + \beta_F \Delta_6 d_{it-1}^{F} + \epsilon_{it}$$

- How does a rise in the household debt to GDP ratio affect real GDP growth from during to after the boom?

Household Debt Expansion predicts lower subsequent growth

	Dependent variable: $\Delta_{pre,post} y_i^{growth}$					
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta_6 d_{it-1}^{private}$	-0.01*			-0.03**		
	(0.01)			(0.01)		
$\Delta_6 d_{it-1}^{HH}$		-0.09**			-0.07**	
		(0.02)			(0.01)	
$\Delta_6 d_{it-1}^{F}$			-0.01^{+}			-0.03**
			(0.00)			(0.01)
R-squared	0.03	0.09	0.01	0.08	0.11	0.03
Number of observations	966	966	966	966	966	966

Household debt booms and GDP growth: The core relationship



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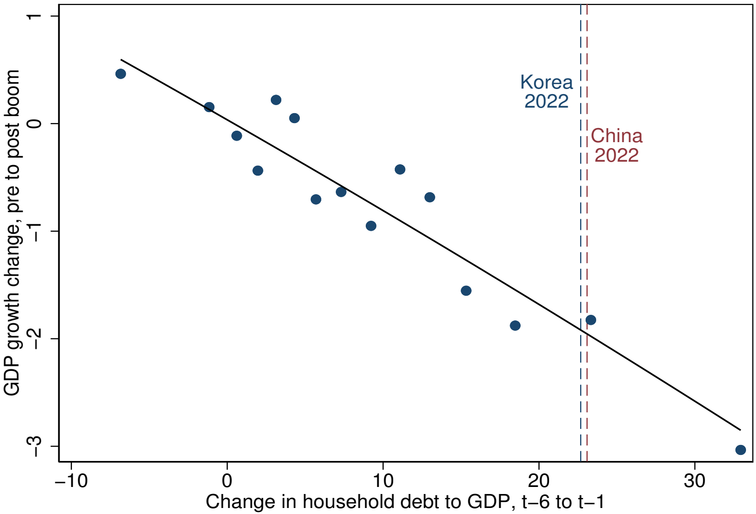

China & Korea Prediction Results

Country	$\Delta_{15,21} \frac{HHD}{GDP}$	Coefficient	Prediction	$\text{Growth}_{15,21}$	Predicted $\text{Growth}_{23,25}$	IMF $\text{Forecast}_{23,25}$
China	23.08	-0.09	-2.00	6.61	4.61	4.60
Korea	22.68	-0.09	-1.97	2.75	0.78	2.09

Mechanisms

Why Are Booms Followed by Contraction?

- Link between **consumption, household debt burdens, and house prices**
- **Imbalances within production sector**: excessive real estate and construction
- Booms often lead to **financial crises**, which impair economic activity
- Household debt cycles are often **global**, leading to world-wide slowdown
- **Open economy frictions** prevent needed adjustment

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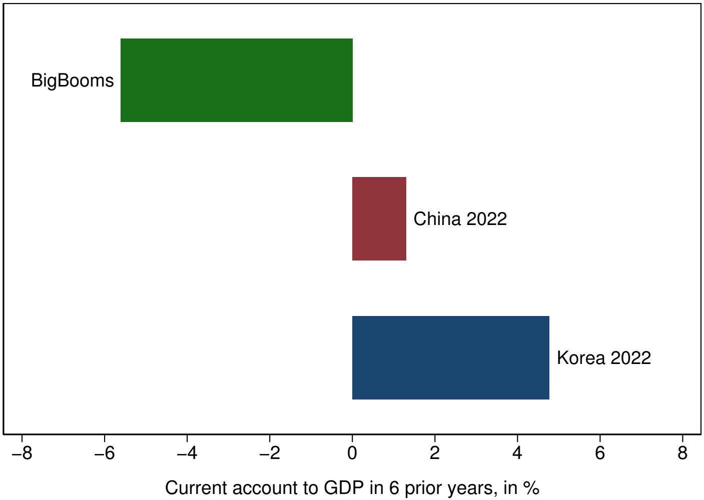
Good news: Open Economy Position and Global Economy

- The worst contractions following booms are those associated with large current account deficits (Spain 2007, Ireland 2007)
- Even countries that run current account surpluses experience a slowdown, but it is much less severe
- Global cycle not nearly as pronounced (debt rise of 6.4pp versus 15.6pp in 2007)
- Exchange rate issues could materialize, which historically is a serious issue

Comparing with previous booms: the current account position



A Financial Crisis?

- Evergrande in August 2021 and Legoland in September 2022 sent serious tremors through financial systems ...
- ... but governments in both countries have taken bold action to prevent widespread panic
- Xiong 2023: "The Chinese government's committment to financial stability and ability to mobilize local governments, state banks, and SOEs make a western-style debt crisis less likely"
- Measures of financial stress in Korea also currently subdued

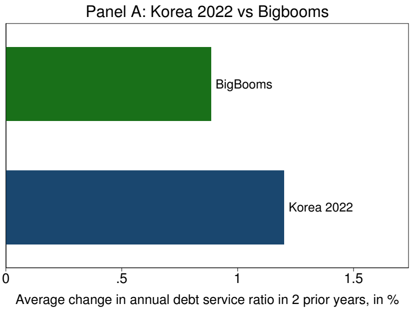
A Quiet Crisis with Local Government Debt in China?

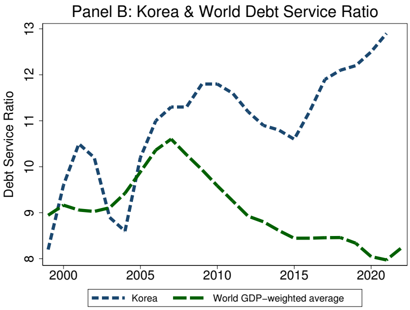
- Two classes of debt are likely to experience serious credit losses: debt of property developers and debt of local governments and their financing vehicles
- A large amount of this debt resides on bank balance sheets, and these credit losses may impair the banking sector
- Baron, Verner, and Xiong 2020: "the predictive content of bank equity declines is not simply driven by episodes with panics or bank failures and reinforces the result that episodes of non-panic bank distress are associated with substantial macroeconomic consequences"
- You don't need full blown panic to have negative real effects

Consumption, Debt Burdens, and House Prices

- Unlike historical episodes, neither China nor Korea saw a large increase in consumption to GDP ratio during the boom
- However, both countries at risk of lackluster consumption growth pulling down economic activity during the correction
- China: outsized role of housing assets for household wealth
- Korea: sharp rise in the household debt service ratio

Sharp Rise in Debt Service Ratio for Korea





- Drehmann, Juselius, and Korinek 2017: a large rise in household DSR has substantial negative impact on GDP growth

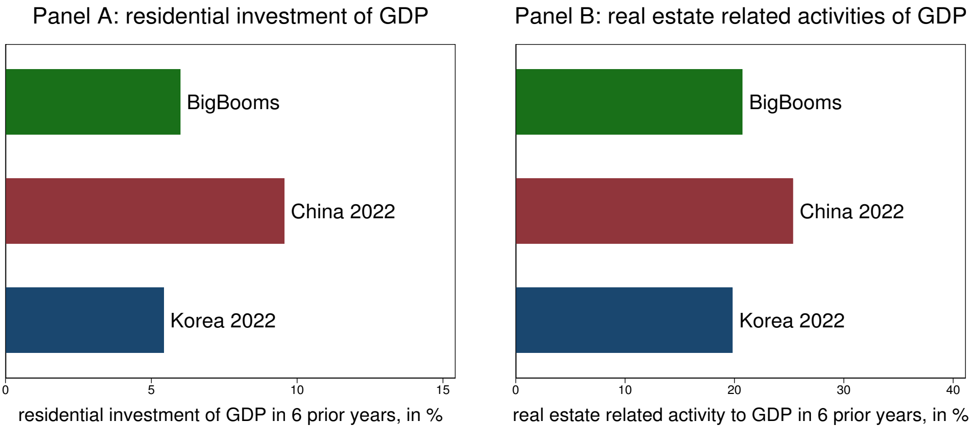
Housing, Household Debt, and Consumption in China

- Housing assets make up 60% or more of total assets for Chinese households, even in top 20% of income distribution
- Consumer sentiment closely tied to housing market in China, Shan et al 2019
- Negative relationship between household debt accumulation and subsequent consumption at both individual and regional level, Han et al 2019
- Don't want to be too sensitive to short-term news, but April/May reports are worrisome

Most Worrisome: Imbalances on Production Side in China

- By any measure, the Chinese property boom of the last decade is enormous (Glaeser et al 2017; Rogoff and Yang 2021, 2022; Tilton et al 2021)
- Shan et al 2021 estimate that peak housing demand based on demographics, urbanization, and updating housing stock already took place in 2018; demand likely to slow signficantly going forward
- Rogoff and Yang 2022: severe property imbalances in Tier 3 cities that collectively make up 60% of Chinese GDP, major price drops
- It is not easy to reallocate real resources away from property sector quickly (Rognlie, Shleifer, and Simsek 2018)

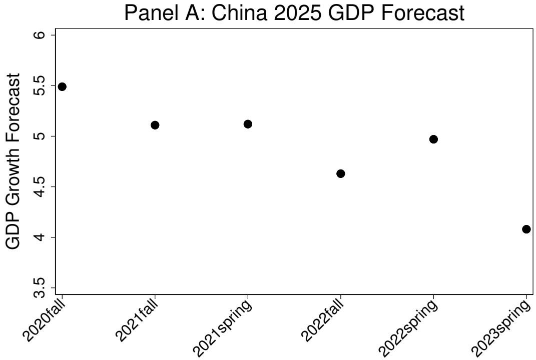
Magnitude of the housing construction boom

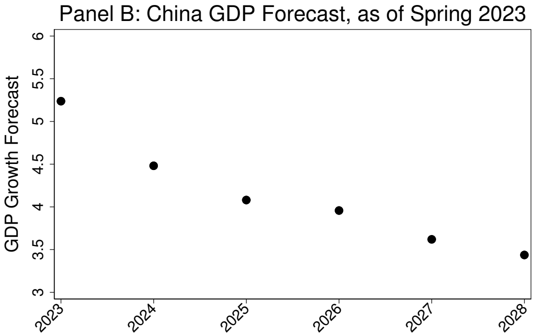


How Does Over-Investment Happen?

- In addition to standard behavioral factors, there are strong incentives of local governments to boost property development and infrastructure projects in China
  - Land sales are the key source of revenues that back local government debt – boosting land values helps soften the government budget constraint
  - Xiong's (2018) "Mandarin Model of Growth": local government officials have strong incentives to hit growth targets
- Big concern: how much of property and infrastructure development was not economically viable, debt cannot be serviced?
- If this is the case, real activity will decline even if there is no financial crisis

IMF China forecasts of growth: Due to Weak Property Market?





Broader Issue: An Imbalanced Economy

- The massive shift toward real estate in China since 2009 is part of a broader issue: the amazingly high investment to GDP ratio in China
- It seems inevitable that eventually less productive investment will be the result
- "On the demand side, without sustained rebalancing towards consumption, the saving rate will remain too high, enabling continued high investment in less productive sectors even as the real estate sector shrinks ... Lower potential growth risks worsening debt dynamics in the economy, as deleveraging through high growth becomes less likely .... The slower growth rates relative to the past decades will also weigh on growth in other countries, especially those with close trade links to China" –IMF 2023 report on China

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- China's future is crucial for the world economy: I will be paying close attention, and so should you!