

Asia's Demographic Changes and Infrastructure Needs

—How Can the Financial Sector Address These Challenges



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Outline



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- Two main challenges facing Asia
 - Demographic changes
 - Financing gaps to meet infrastructure needs
- **Financial sector's role in addressing these challenges**
 - Empirical evidence on how demography could affect savings
 - Model simulations on the macroeconomic impact of financial development
- Policy Implications

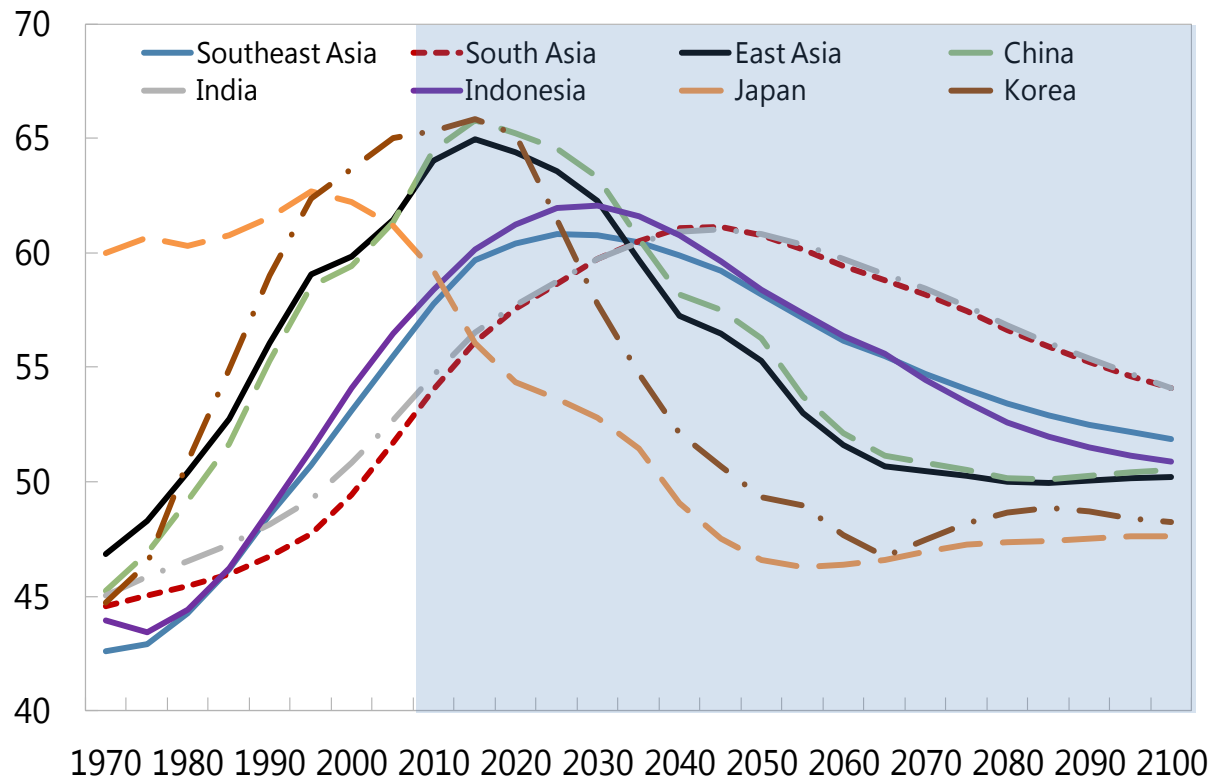
Asia's Changing Demographics



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Figure 8.1 Working-Age Population Ratio in Asia

(in percent)



Source: United Nations *World Population Prospects 2012*

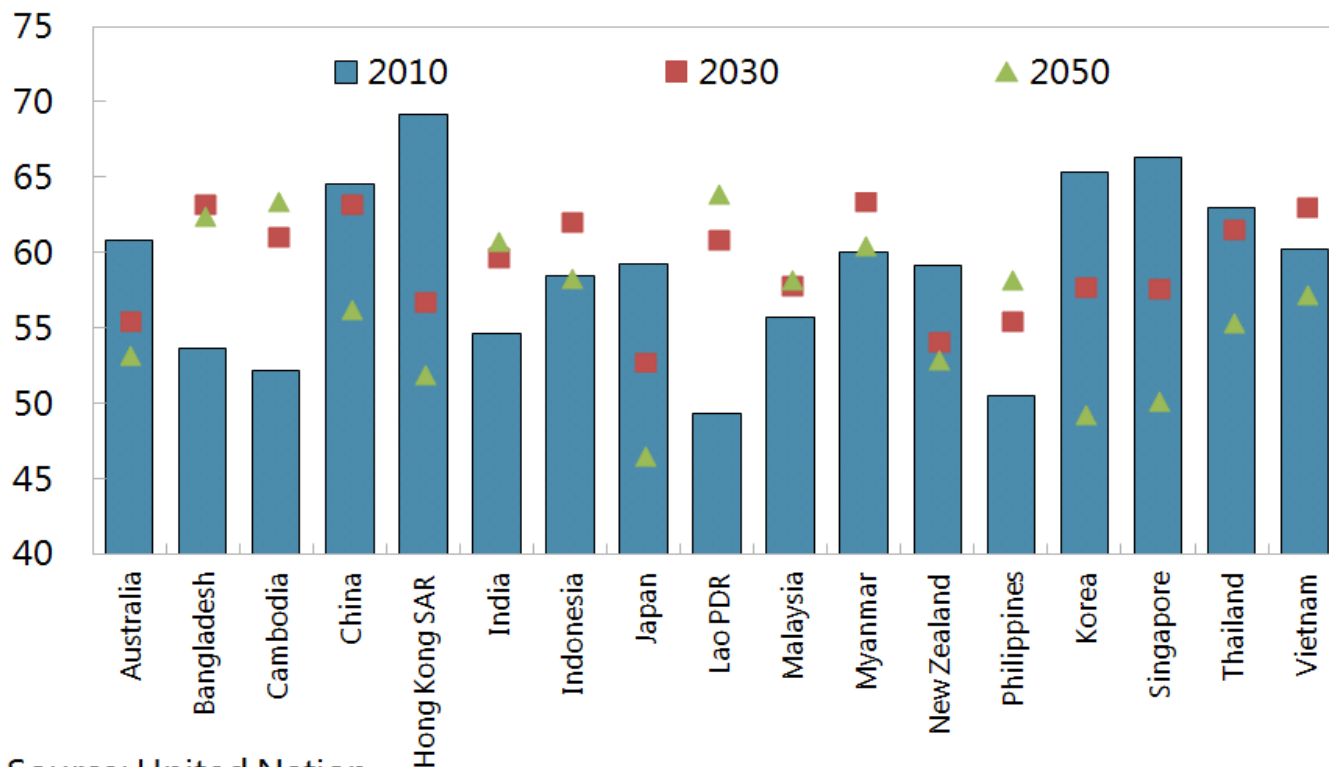
Asia's Changing Demographics



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Working Age Population Ratio

(in percent of the population)

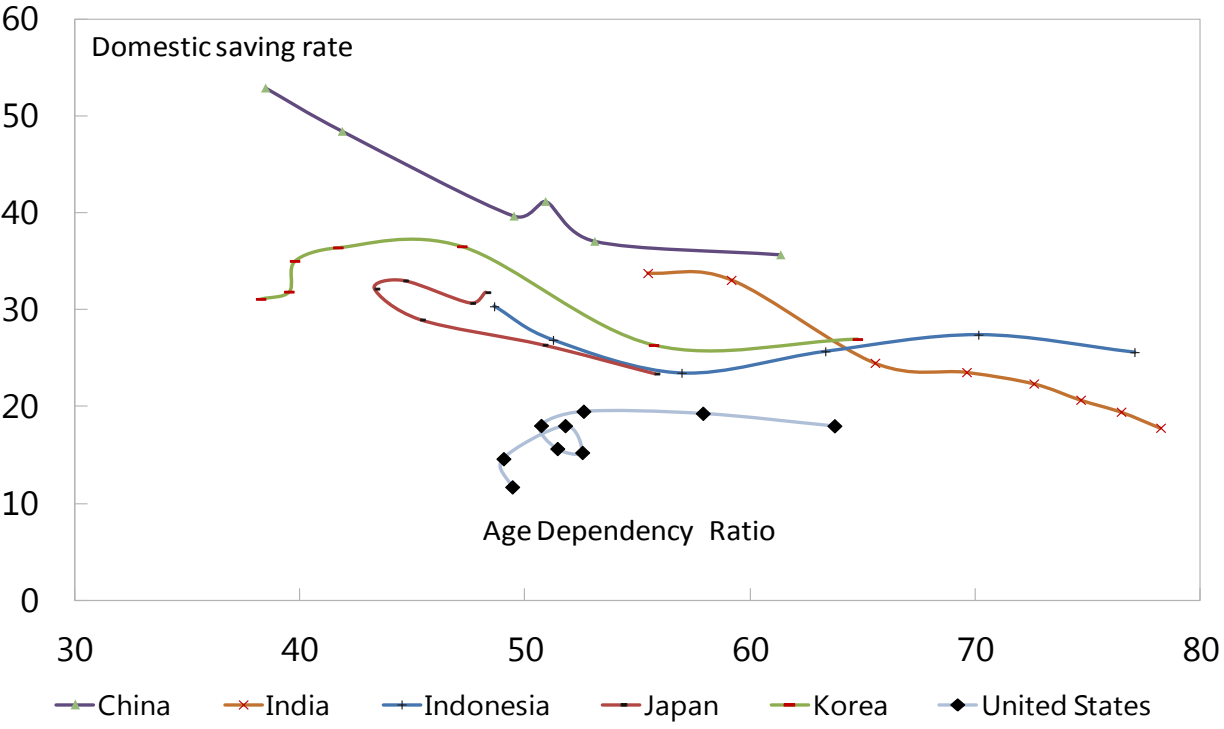


Source: United Nation.

1/ Ranked by working age population ratios in 2010.

How Do Demographic Changes Affect Savings?

Figure 8.5. Correlation of Domestic Savings and Dependency Ratios (in percent)

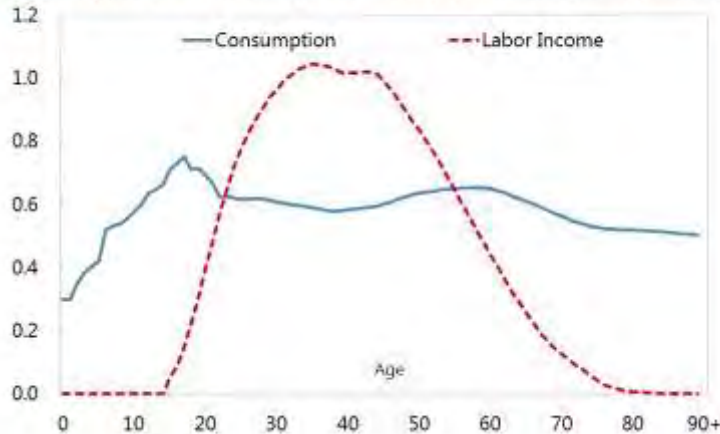


Source: WDI

How do Demographic Changes Affect Savings?

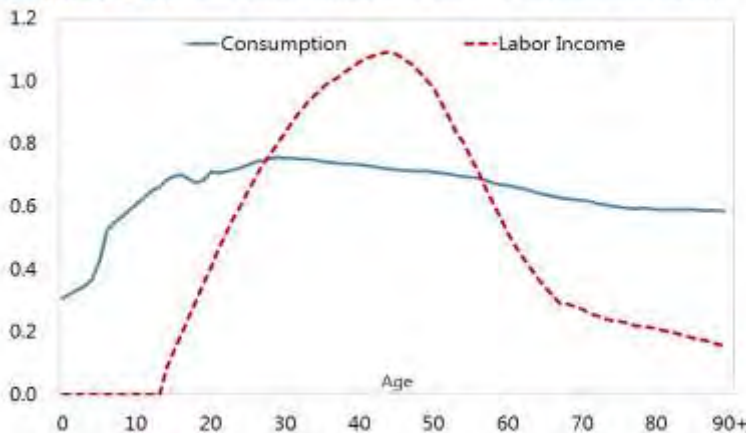
6

Advanced Asia: Per-Capita Value of Consumption and Income Profile (Ratio relative to average labor income for individuals, 30-49 years old)



Sources: National Transfers Accounts and staff estimate.

Emerging Asia: Per Capita Values of Consumption and Income Profile (Ratio relative to average labor income for individuals 30-49 years old)



Sources: National Transfers Account and staff estimate.

Advanced Asia: Private Saving Aggregate Values

(Ratio relative to average aggregate labor income for individuals 30-49 years old)



Sources: National Transfers Accounts and staff estimate

Emerging Asia: Private Saving Aggregate Values (Ratio relative to average aggregate labor income for individuals 30-49 years old)



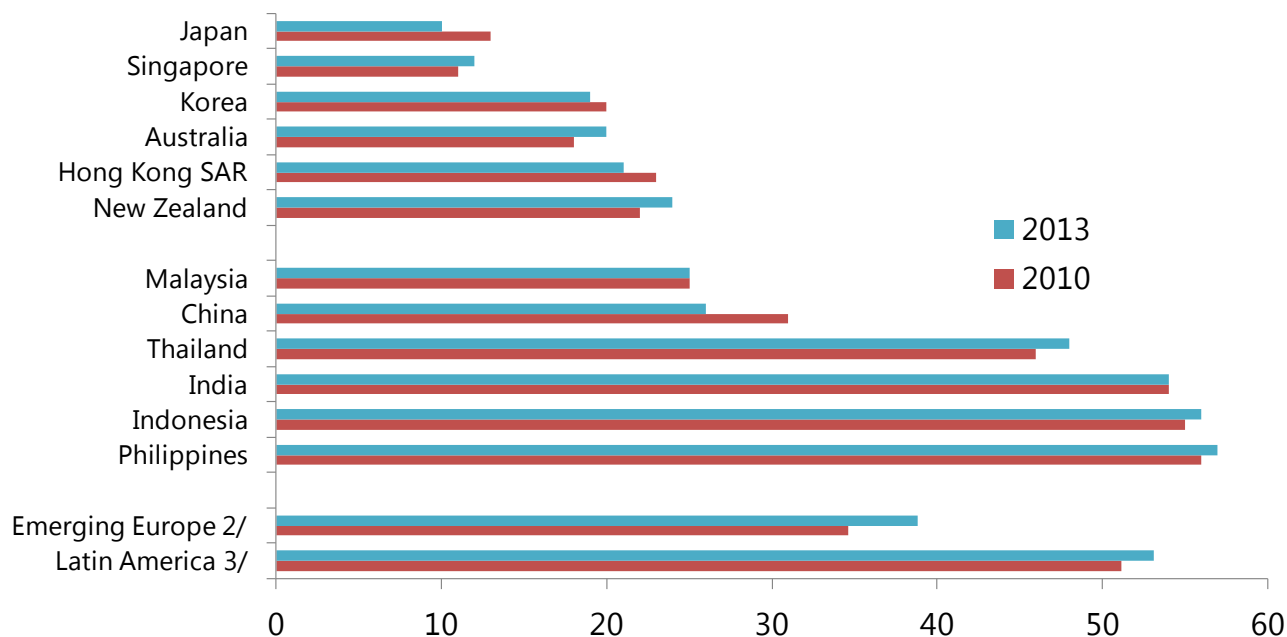
Sources: National Transfers Account and staff estimate.

Sizeable Infrastructure Needs in Asia



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Figure 8.2. Infrastructure Ranking 1/



Source: IMD *World Competitiveness Online*.

1/ A lower ranking indicates a better score out of sample countries. There are 58 countries in 2010 and 60 countries in 2013.

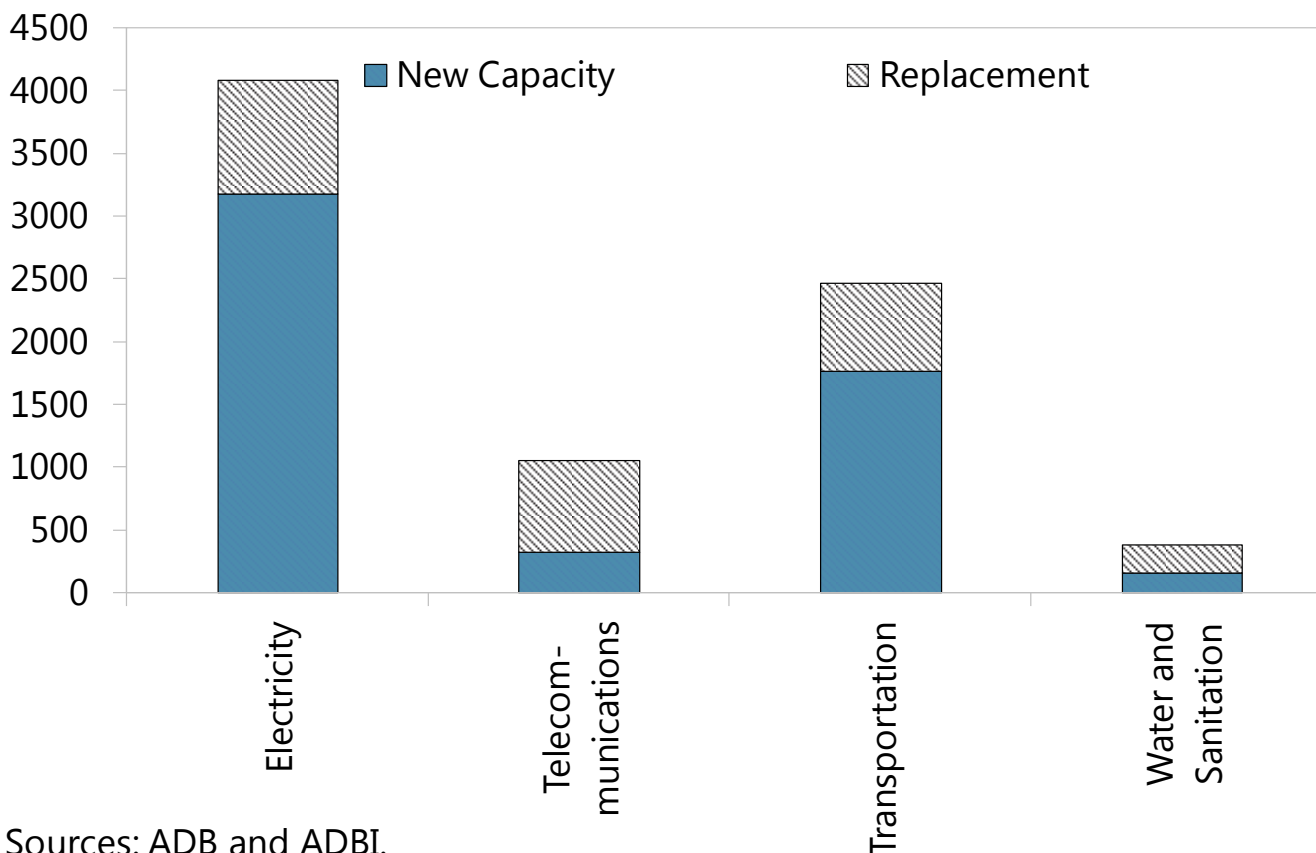
2/ Emerging Europe: Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Russia, Slovak Republic, Slovenia, Turkey, and Ukraine.

3/ Latin America: Argentina, Brazil, Chile, Colombia, Mexico, Peru, and Venezuela.

Sizeable Infrastructure Needs in Asia

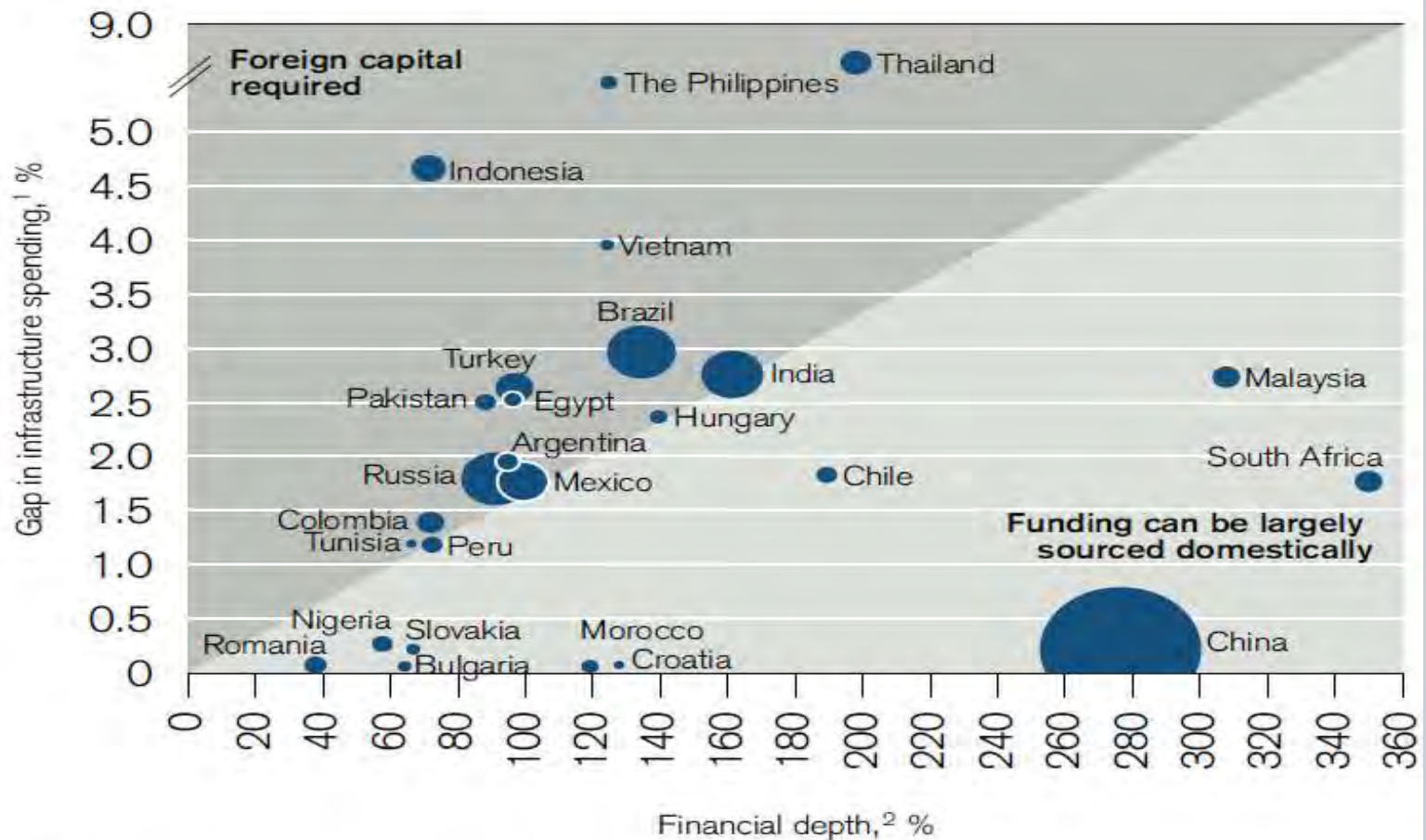


Figure 8.3. Estimated Infrastructure Needs in Developing Asia
(in billions of US dollars)



Sources: ADB and ADBI.

Infrastructure Financing Gap



¹ Gap in needed vs. actual infrastructure spending as % of GDP, 2009

² Value of bank deposits, bonds and equity as % of GDP, 2009

Financial Sector's Role



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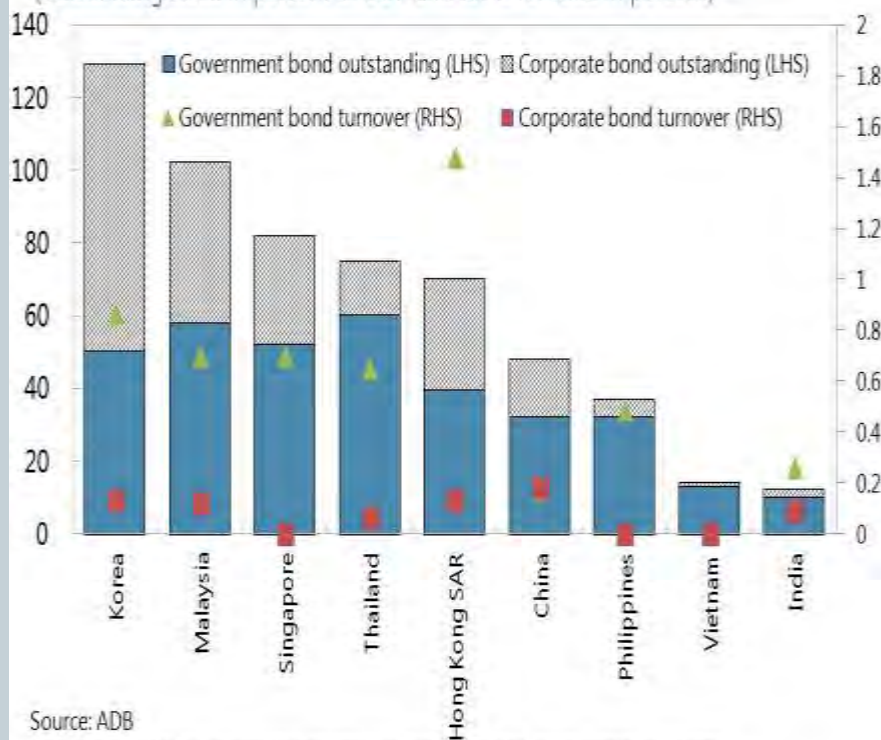
- Financial sector can better mobilize savings to finance infrastructure investment through:
 - **Financial deepening**—facilitating development of capital markets
 - **Financial inclusion**—improving households financial access
 - **Financial integration**—bringing in external finance

Financial Deepening: stylized facts



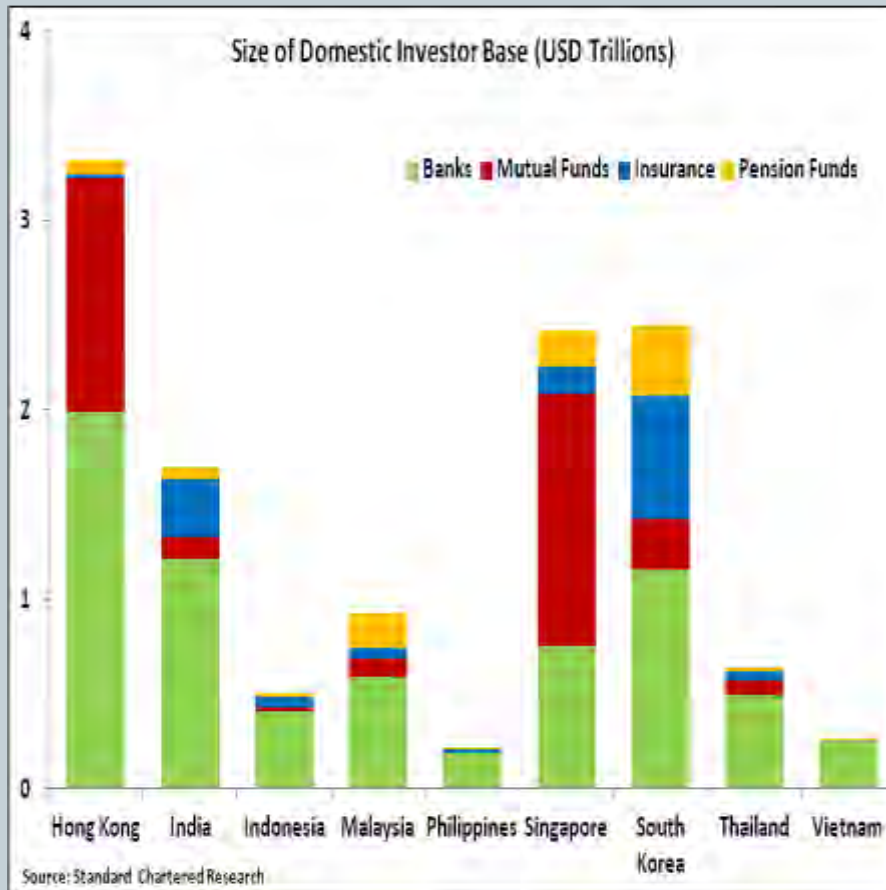
Bond Markets in Selected Asian Economies

(outstanding stock in percent of GDP and turnover ratio in percent)^{1/}



Source: ADB

1/ Turnover ratio is the outstanding stock of bonds divided by its turnover volume.

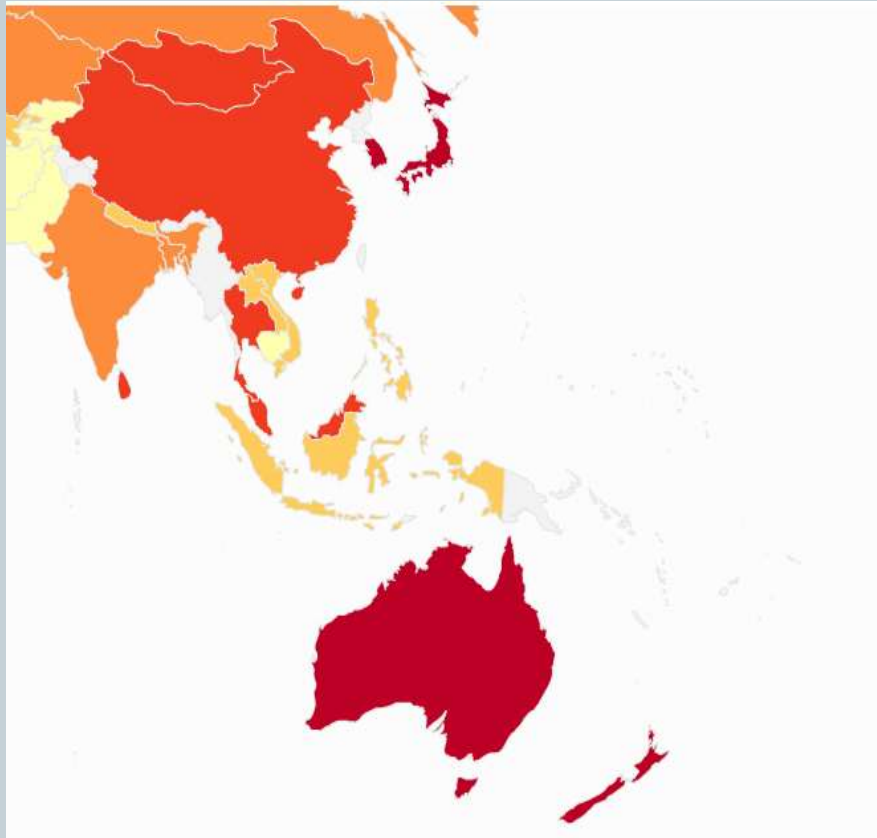


Source: Standard Chartered Research

Financial Inclusion: stylized facts



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Indicator: Account at a formal financial institution (% age 15+)

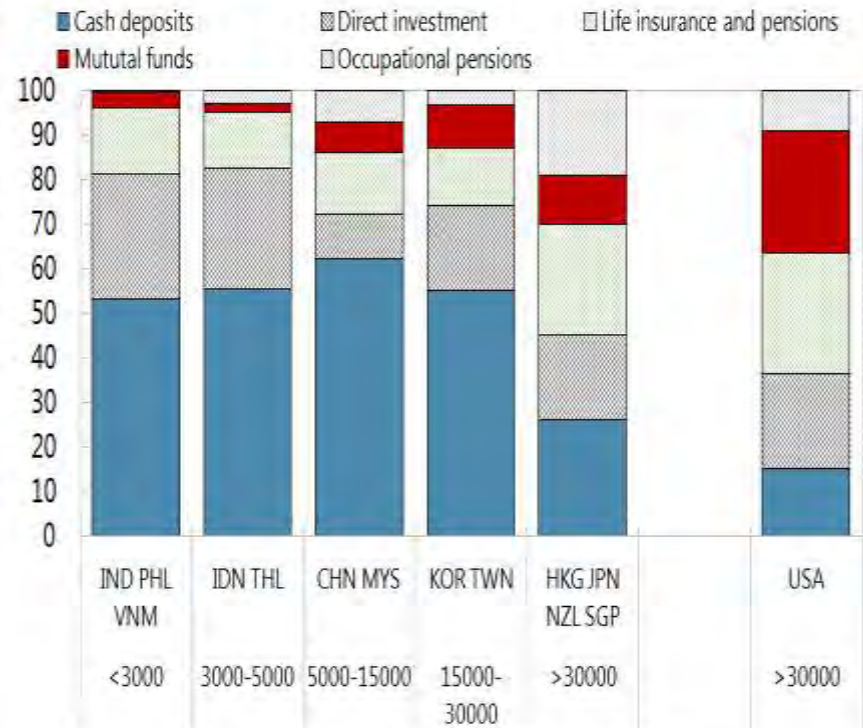
Year: 2011

■ No Data
 ■ 0 - 16.5
 ■ 16.5 - 28.5
 ■ 28.5 - 50.3
 ■ 50.3 - 81.2
 ■ 81.2 - 99.8

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Household Asset Allocation

(in percent of asset allocation)



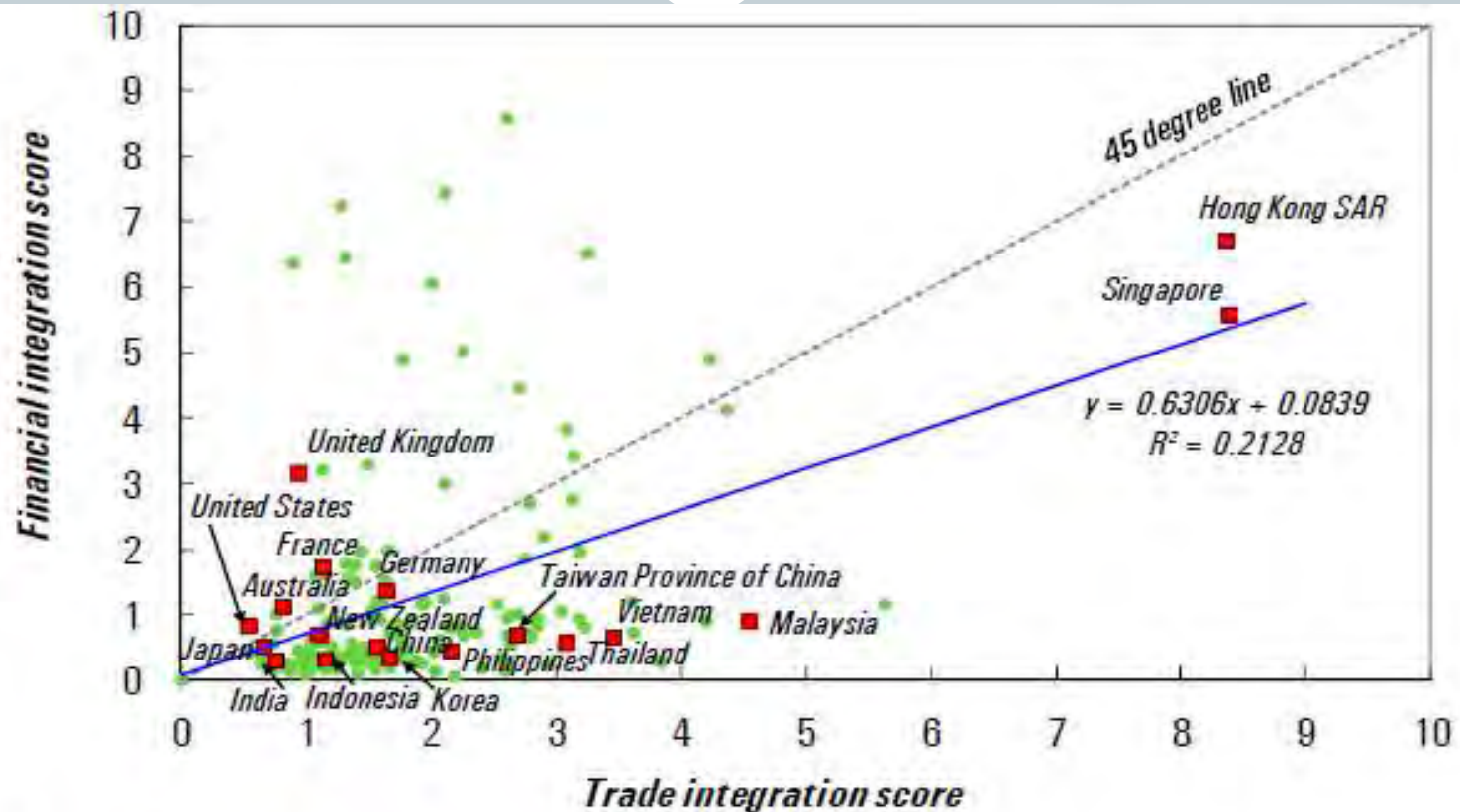
Selected Asian Economies, GDP per Capita (USD)

Sources: OECD, Oliver Wyman, and staff estimates.

Financial Integration: stylized facts



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Source: IMF staff calculations.

¹ Integration scores measure country ratios (of exports and imports; or capital flows) to GDP over global average.

Methodology



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- Quantify the impact of demographic changes on savings
- A multi-region dynamic structural general equilibrium model to
 - incorporate the impact of demographic changes
 - assess the results of scaling up infrastructure investment
 - illustrate the benefits of financial inclusion and deepening

How do demography changes affect savings?



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- Empirical Analysis: key determinants of savings in Asia
- Panel estimation: 15 Asian economies with data from 1960-2012
- Explanatory variables: elderly and youth dependency ratios, per-capita GDP, real growth, credit/GDP ratio, and financial sector development

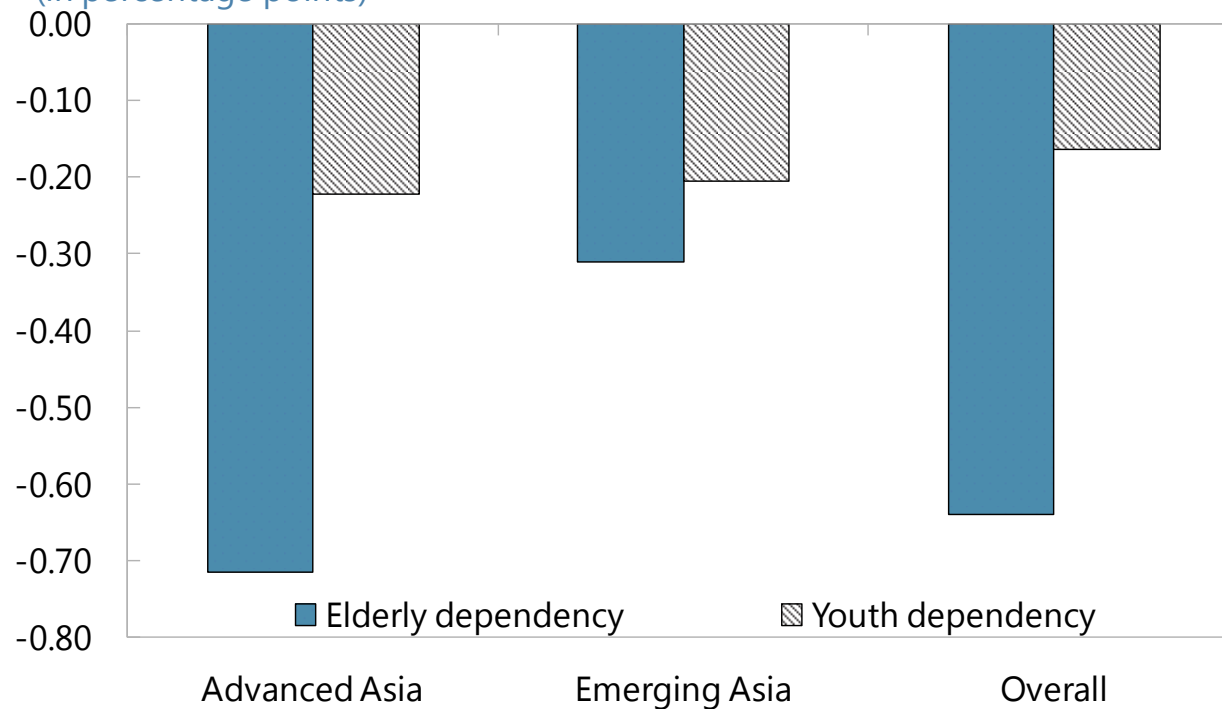
Empirical Analysis



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Estimates of Impact on Saving Rate given a One Percentage-point Increase of Dependency Ratio

(in percentage points)

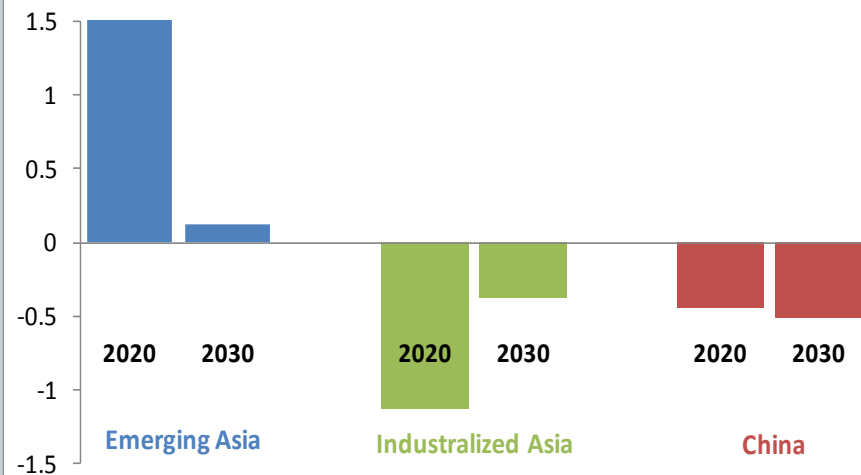


Sources: Staff estimates.

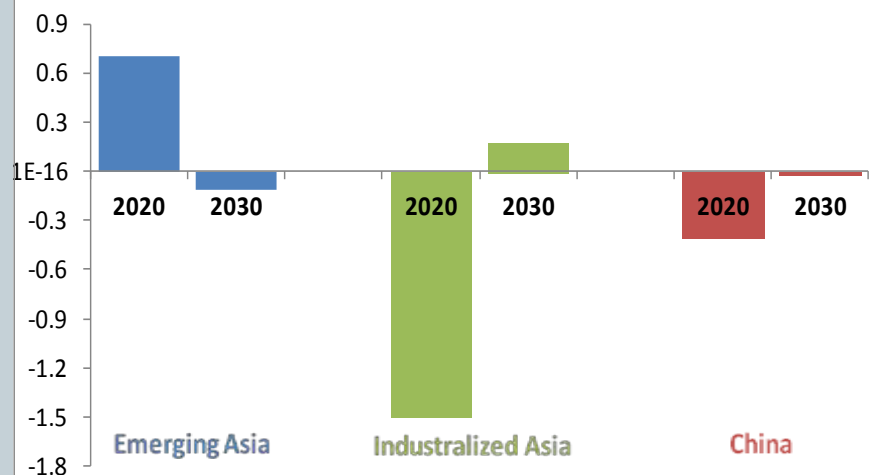
Model Simulations: Impact of Demographic Changes on Growth and Savings



RGDP (% diff)



Gross Saving/GDP (diff)



How to Finance Emerging **Asia's** Investment Needs?



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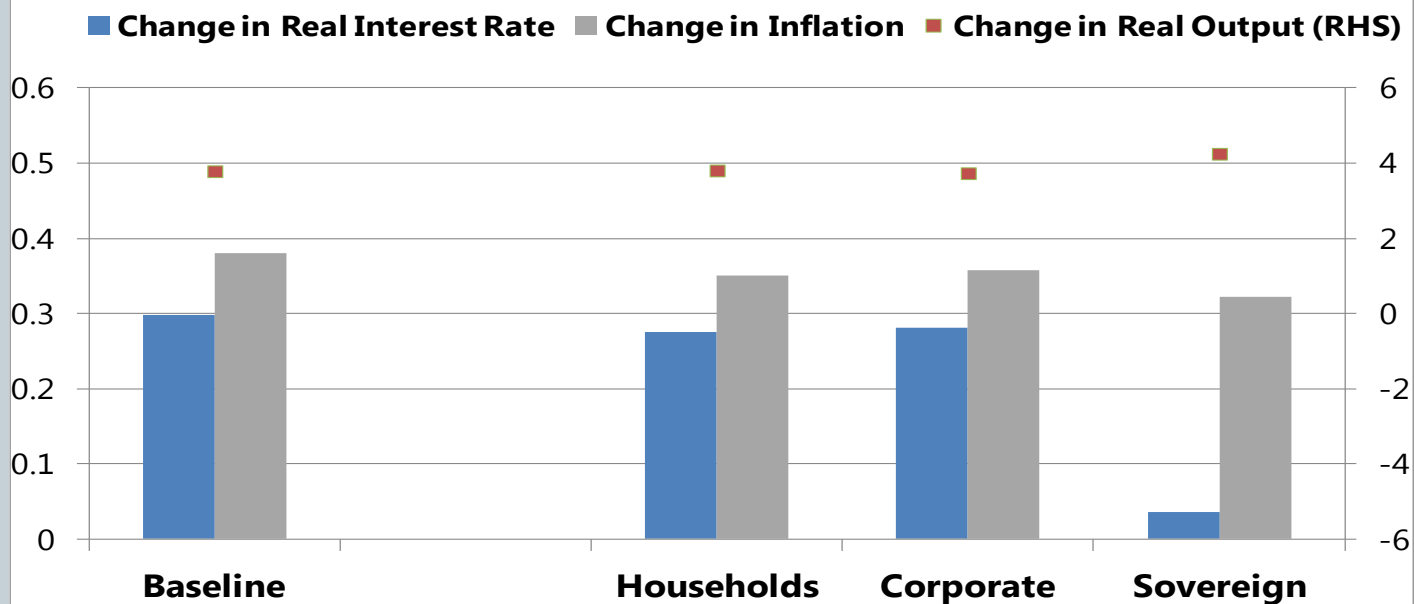
- Demographic changes could bring additional financing sources, but it is unlikely to be sufficient.
- Reliance on public investment alone could lead to overheating and crowding out.
- The role of the financial sector:
 - Household: financial inclusion
 - Corporate: spread compression
 - Sovereign: risk premium

Model Simulations



Baseline: demographic changes across Asia + direct impact on savings + scaling up investment

Figure 8.8. Simulation Impact of Financial Sector Development in Emerging Asia 1/
(in percent)



Source: IMF staff estimates.

Implications for Financial Sector



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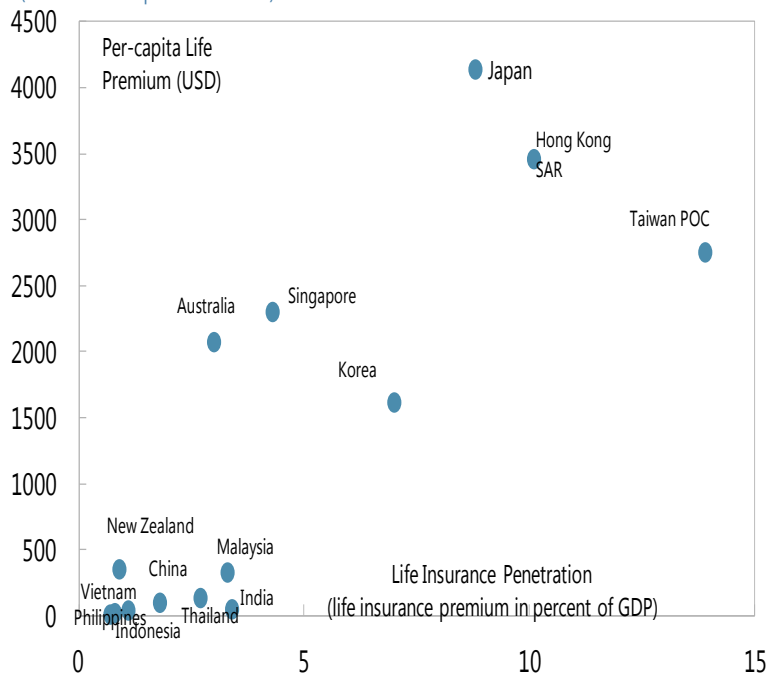
- Financial intermediaries and innovation can help channel savings against the background of demographic transitions.
- This could entice aging Asian savers to reduce home bias and investments in low return advanced economy assets.

Financial Intermediaries – Meeting the Changing Financial Needs



Life Insurance--Penetration and Per-Capita Premium

(in USD and in percent of GDP)



Sources: Ernst and Young (2011), Binder and Ngai (2013), and staff estimates.

Table 5. Amount of Sovereign Pension Fund Assets (US\$, million)

Country	2005	2012
China 1/	8,102	49,026
Hong Kong, China	110	211
Indonesia	4,000	14,399
Malaysia	69,659	183,761
Philippines 2/3/	4,452	7,443
Singapore	74,906	186,243
Korea	160,319	326,209
Thailand	6,986	18,253

1/ Latest data as of end-2010.

2/ Earliest data as of end-2006.

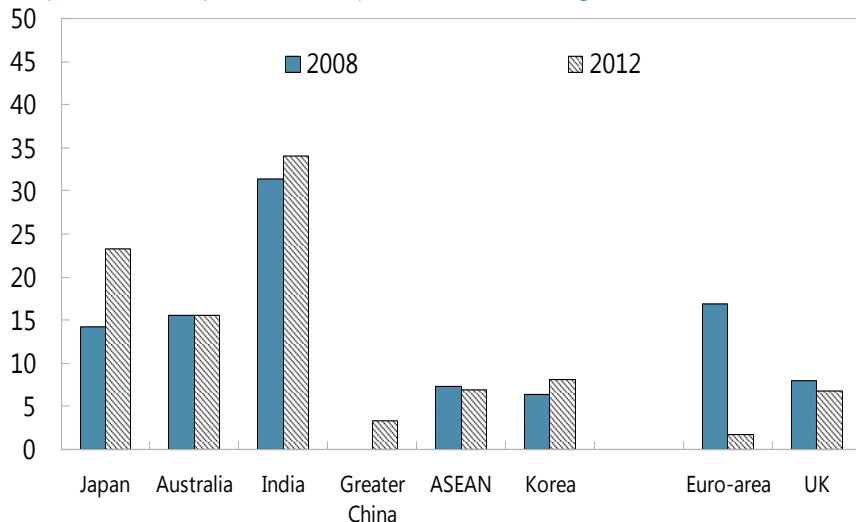
3/ Latest data as of end-2011.

Sources: OECD Pension Funds Data and Sovereign Pension Funds Annual Report.



Project Finance in Asia Pacific (ex Japan) by the Nationality of Parent Banks

(in percent of the proceeds of top 25 mandated arrangers)

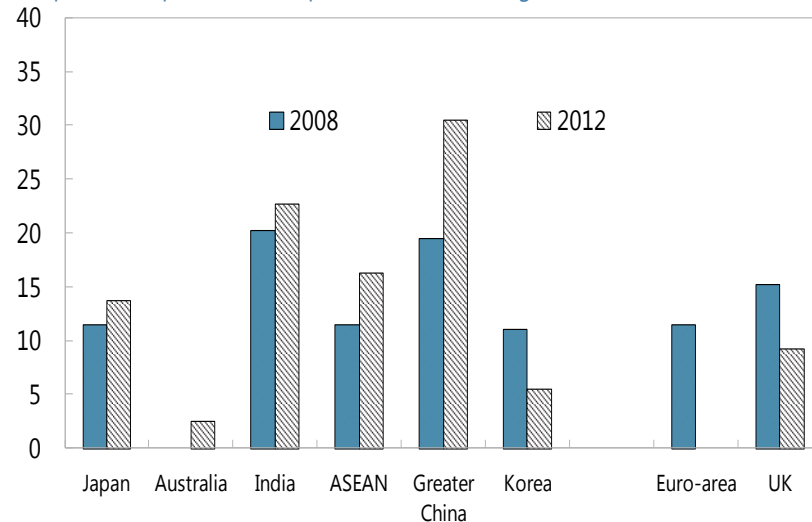


Sources: Dealogic and Staff estimates.

1/ Based on the nationality of parent mandated arrangers in percent of the proceeds for top 25 mandated arrangers.

Syndicated Loans in Asia Pacific (ex Japan) by the Nationality of Parent Banks

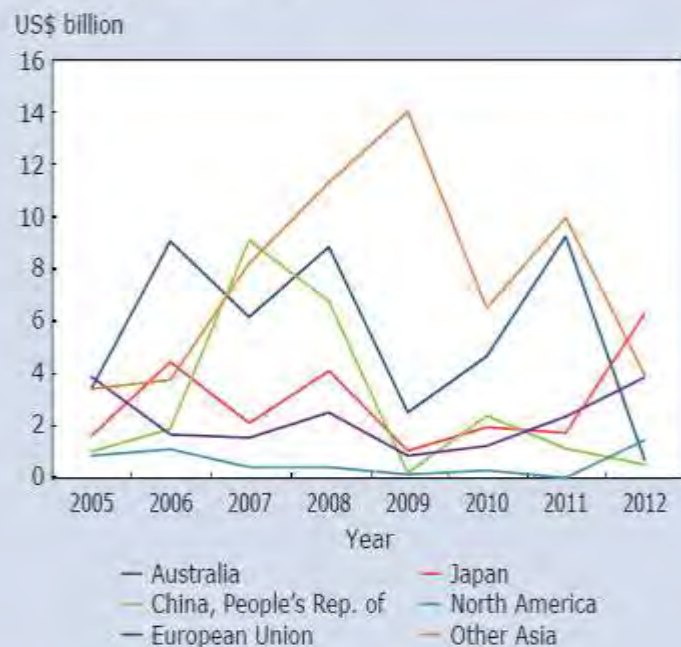
(in percent of proceeds of top 25 mandated arrangers)



Sources: Dealogic and Staff estimates.

1/ Based on the nationality of parent mandated arrangers in percent of the proceeds for top 25 mandated arrangers.

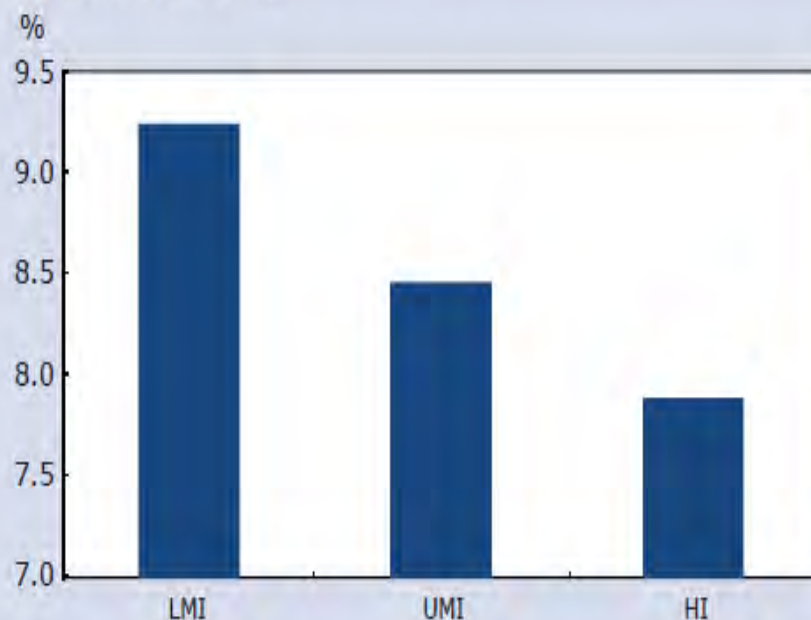
Figure 16: Sources of Infrastructure Project Financing Flows to Asia



Note: Other Asia includes Bangladesh, Brunei Darussalam, India, Indonesia, Malaysia, Pakistan, the Philippines, the Republic of Korea, Singapore, Thailand, and Viet Nam.

Source: *Infrastructure Journal Online*.

Figure 18: Average WACC of Infrastructure Firms by Income Group



HI = high-income, LMI = lower-middle income, UMI = upper-middle income, WACC = weighted average cost of capital.

Note: 2005–12 average.

Source: Author's calculations based on financial data from Bloomberg LP.



- Regional pension and life insurance funds can invest further in EA infrastructure bonds.
- A regional infrastructure asset class.
- Credit enhancement, securitization and hedging instrument can facilitate institutional investor.
- Dedicated infrastructure funds.

Issues for Discussion



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- What are the barriers to financial integration in Asia?
- What are the costs and benefits of further financial integration in Asia?
- What steps should be taken to encourage institutional investors to invest in frontier and developing Asia?