

Workshop on
“Money, Finance and Banking in East Asia”

Training Centre of the Deutsche Bundesbank, Eltville
5-6 December 2011

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Federal Reserve Bank San Francisco and CPBS

Keynote on

“Can Asia Lead the Global Recovery”



FEDERAL RESERVE BANK OF SAN FRANCISCO

Can Asia Lead the Global Recovery?

3rd Workshop on Money, Finance, and Banking in East Asia

Bundesbank Training Centre, Eltville, Germany

5/6 December, 2011

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My comments are my own and not those of the Federal Reserve

Introduction

Introduction

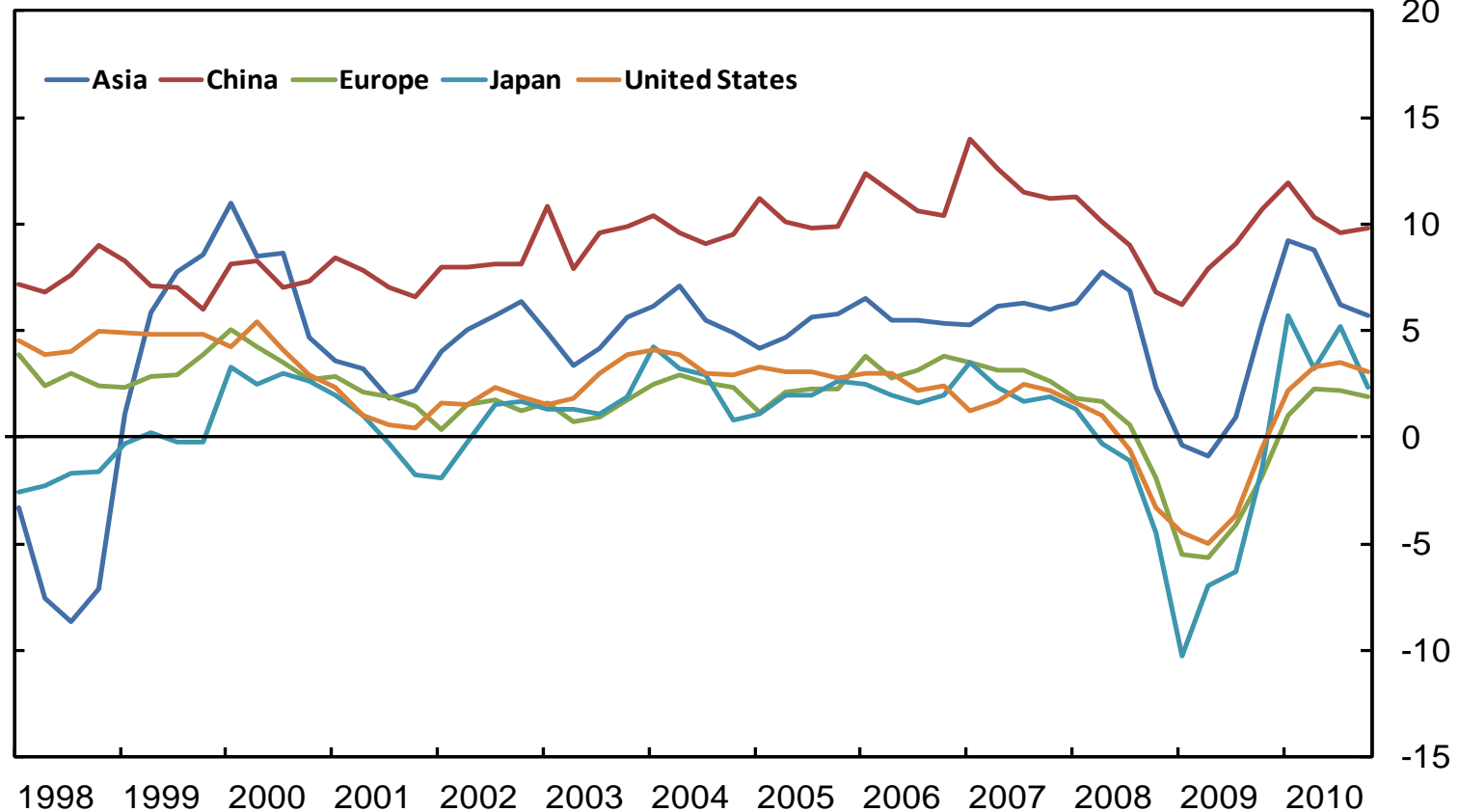
- Going into crisis, much debate about Asian “decoupling”
 - Conjecture that Asia would be able to weather Western downturn with little adverse impact
- Severity of crisis demonstrated that sufficient adverse shock would indeed adversely affect Asia as well
- Still, as a region, Asia held up relatively well
 - Japan notable exception

Asia, ex. Japan, has led the recovery

Real GDP Growth

4 quarter percent change

% change



Source: IFS, Eurostat, Bloomberg

Asia: Weighted average of Korea, Hong Kong, Indonesia, Malaysia, Philippines, Singapore, Thailand

Reasons for relatively mild Asian experiences

- Lessons from 1997 Asian financial crisis
 - Countries undertook regulatory and other reforms
 - Improved fiscal positions allowed for pursuit of counter-cyclical policies
- Relatively little exposure to exotic financial instruments
 - Partly regulatory reforms, but also some luck
 - Lack of experience with these instruments
 - Some hand-wringing in Asian commercial banks during boom

Extraordinary Chinese experience

- Real GDP growth remained at or close to double digits throughout crisis
 - Growth bottomed at 9.2% in 2009
- Chinese government able to marshal unprecedented credit expansion
 - Quantitative lending goals given to commercial banks
 - Some concerns now about quality of these loans, but quite effective counter-cyclical policy

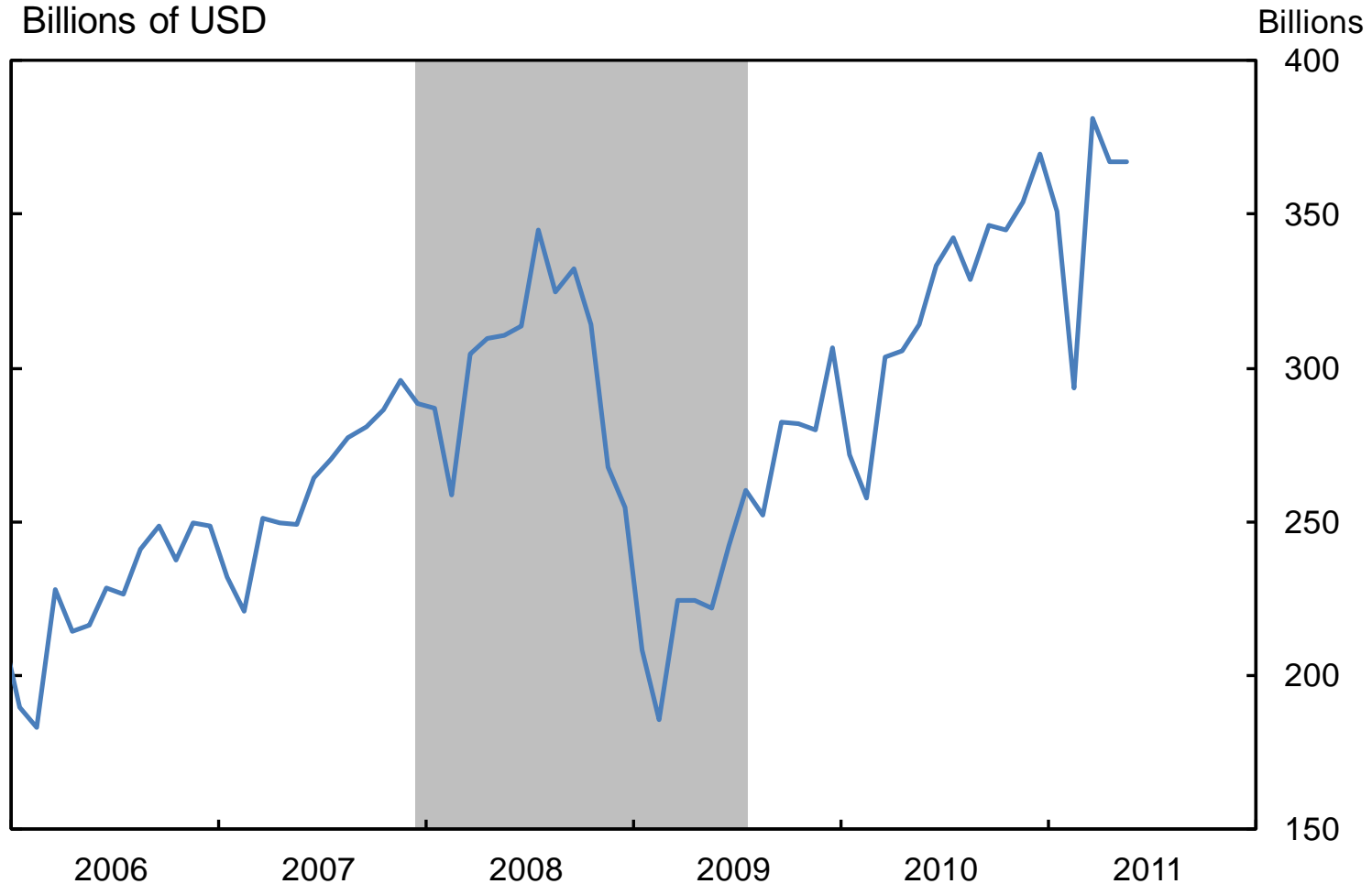
In addition to benign crisis experience, Asia is now leading the recovery

- Emerging Asia had positive growth in 3rd qtr 2009, half year prior to Western economies
- Even Japan, which had devastating crisis, was enjoying superior performance prior to Tohoku earthquake
- Going forward, economic prospects for Asia look much brighter in short-term than West
 - Sluggish US labor market recovery
 - European fiscal crisis, and anticipated future regional austerity

Asian exports have picked up nicely

Total Asian* Exports

Billions of USD



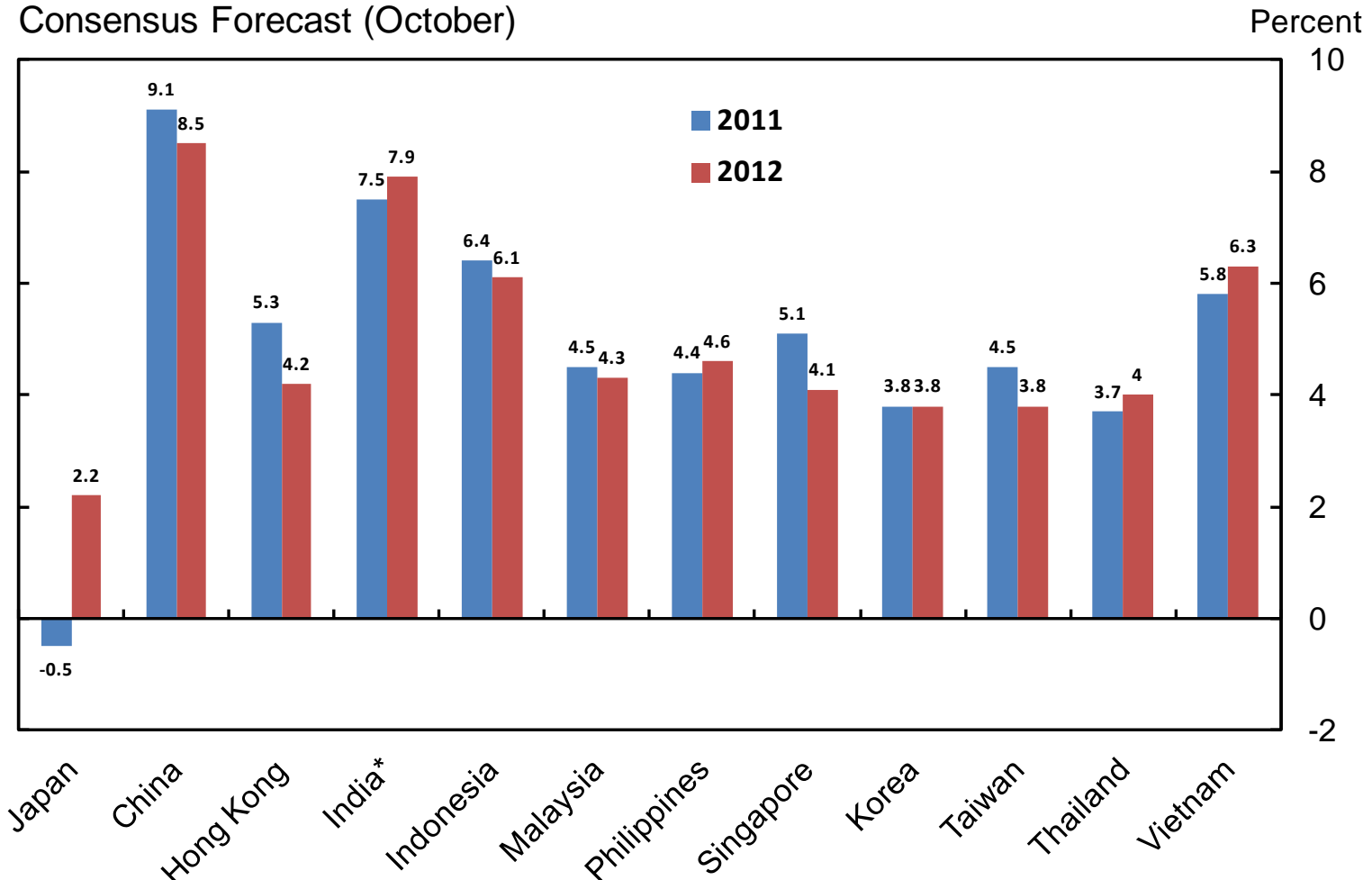
Source: IMF

*Asia: ASEAN + China, Japan, Korea

Asian growth moderating, but robust

Growth Forecasts for Asian Countries

Consensus Forecast (October)

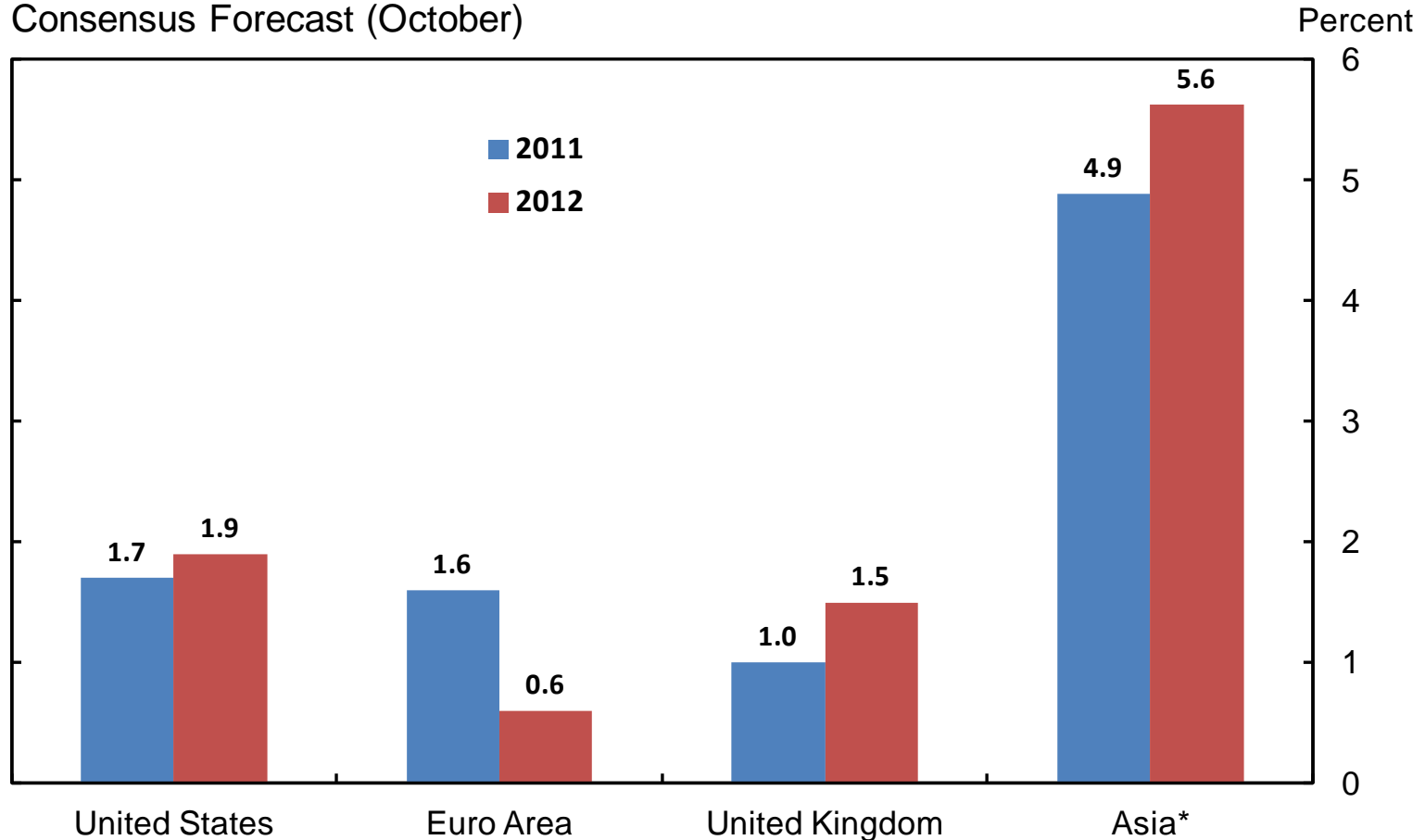


Source: Consensus Forecast
*India forecast for fiscal year

Meanwhile, Western economies lag behind

Growth Forecasts

Consensus Forecast (October)



Source: Consensus Forecast & World Economic Outlook

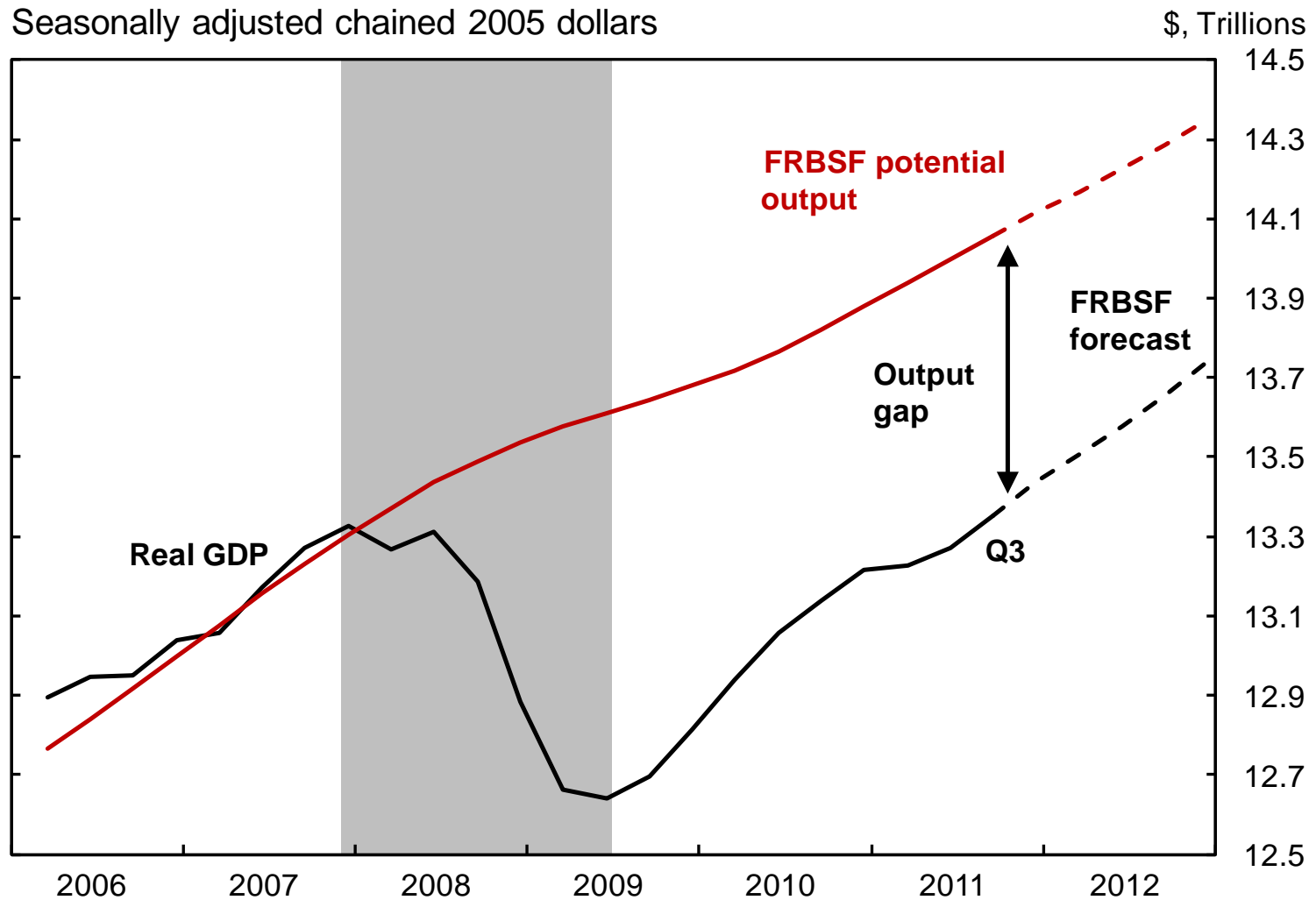
* Asian Growth is average weighted by GDP:

Japan, China, Hong Kong, India, Indonesia, Malaysia, Philippines, Singapore, Korea, Taiwan, Thailand, Vietnam

US conditions are still very depressed

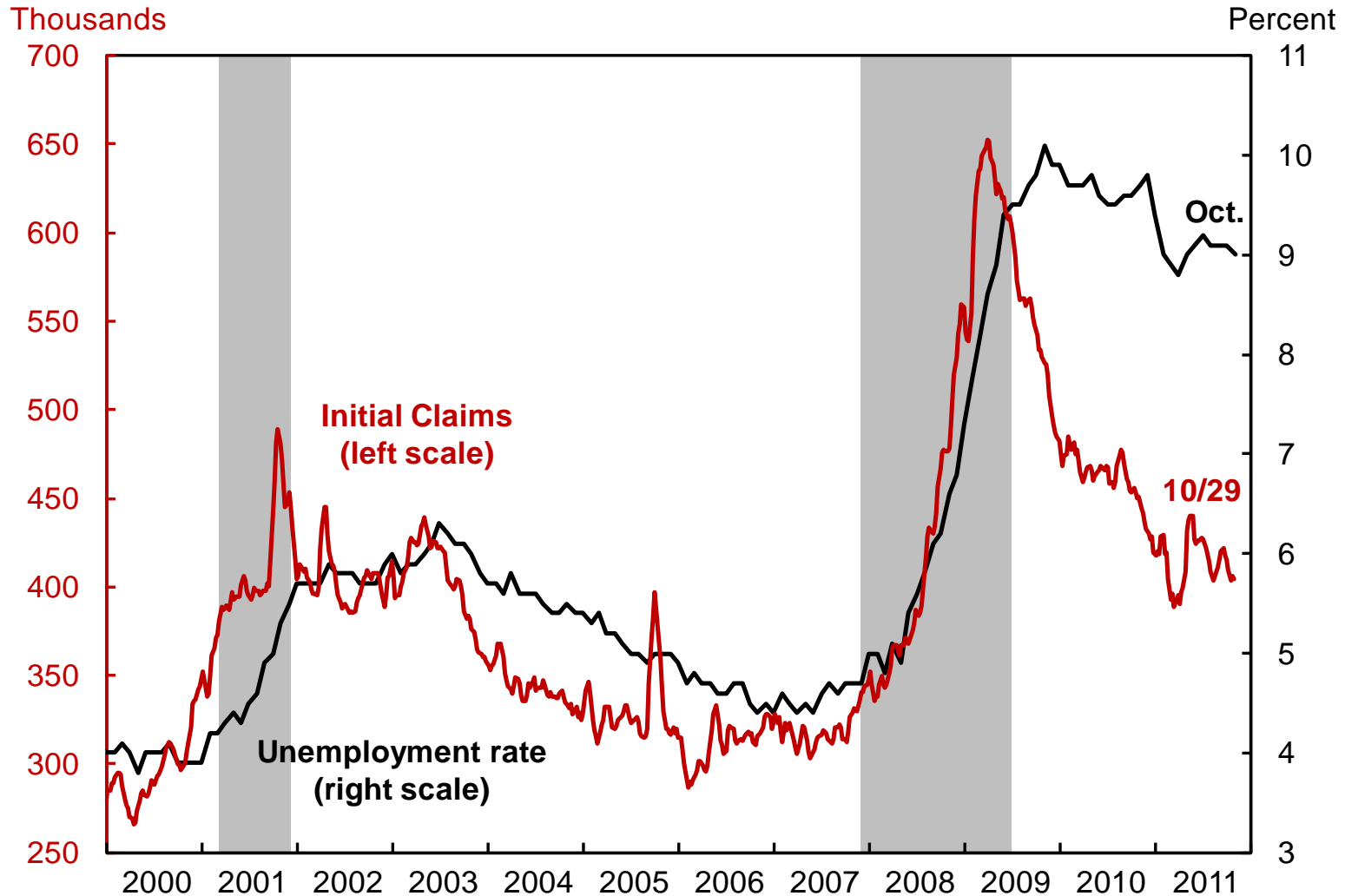
Real GDP

Seasonally adjusted chained 2005 dollars



... leaving unemployment high

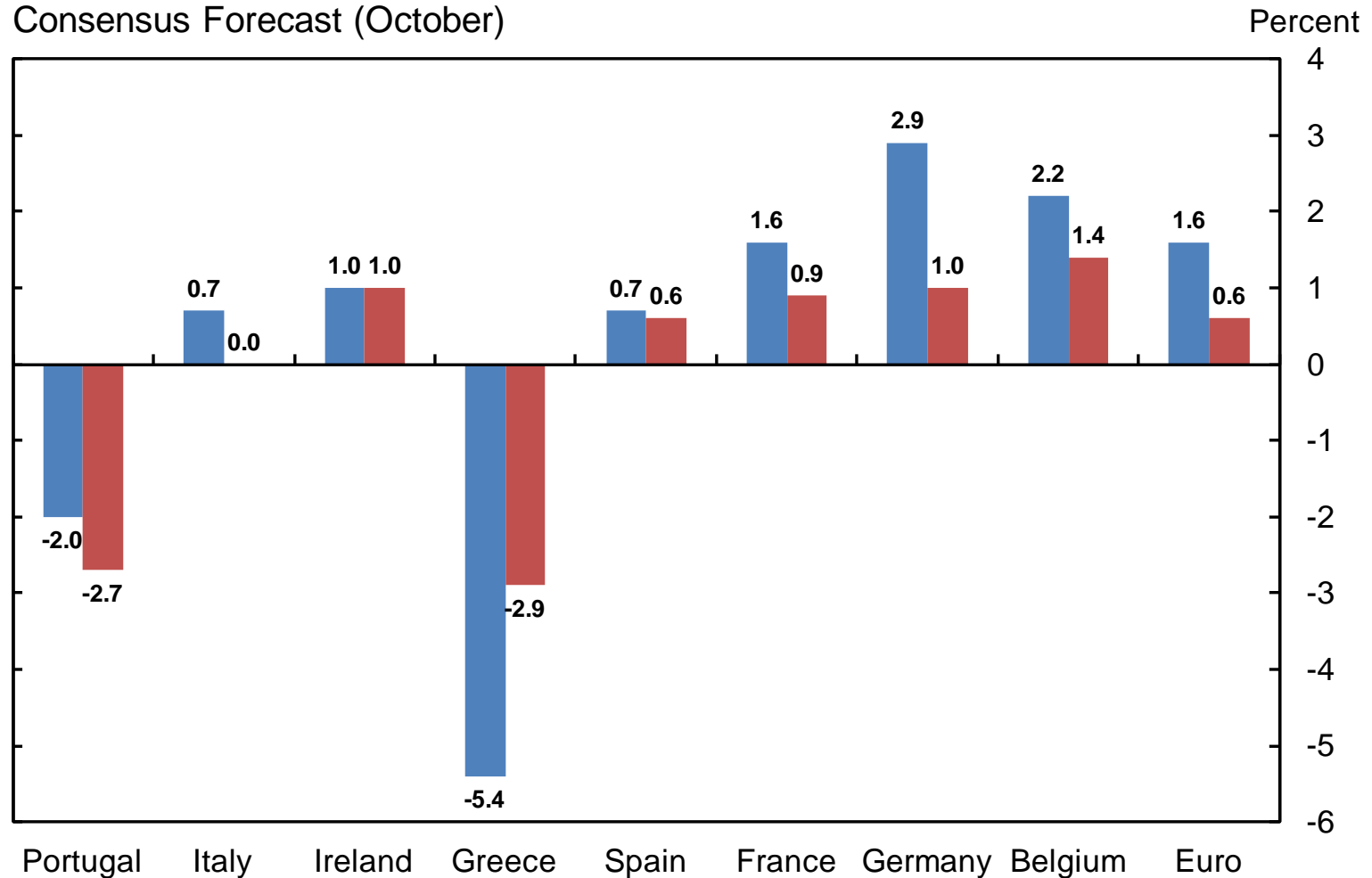
Unemployment Indicators



Euro area continues to weaken

Growth Forecasts for Euro Area

Consensus Forecast (October)



Source: Consensus Forecast

Can Asia lead the global recovery?

- Closely tied to question of international business cycle synchronization
 - Also to related literature on Asian “decoupling”
 - If Asia loosely tied to Western economies, would not expect its fortunes to have major implications for West
- Some caveats, e.g. Asian countries may be able to use foreign reserves for liquidity assistance (swap arrangements)
- Return to these at end of talk

Roadmap

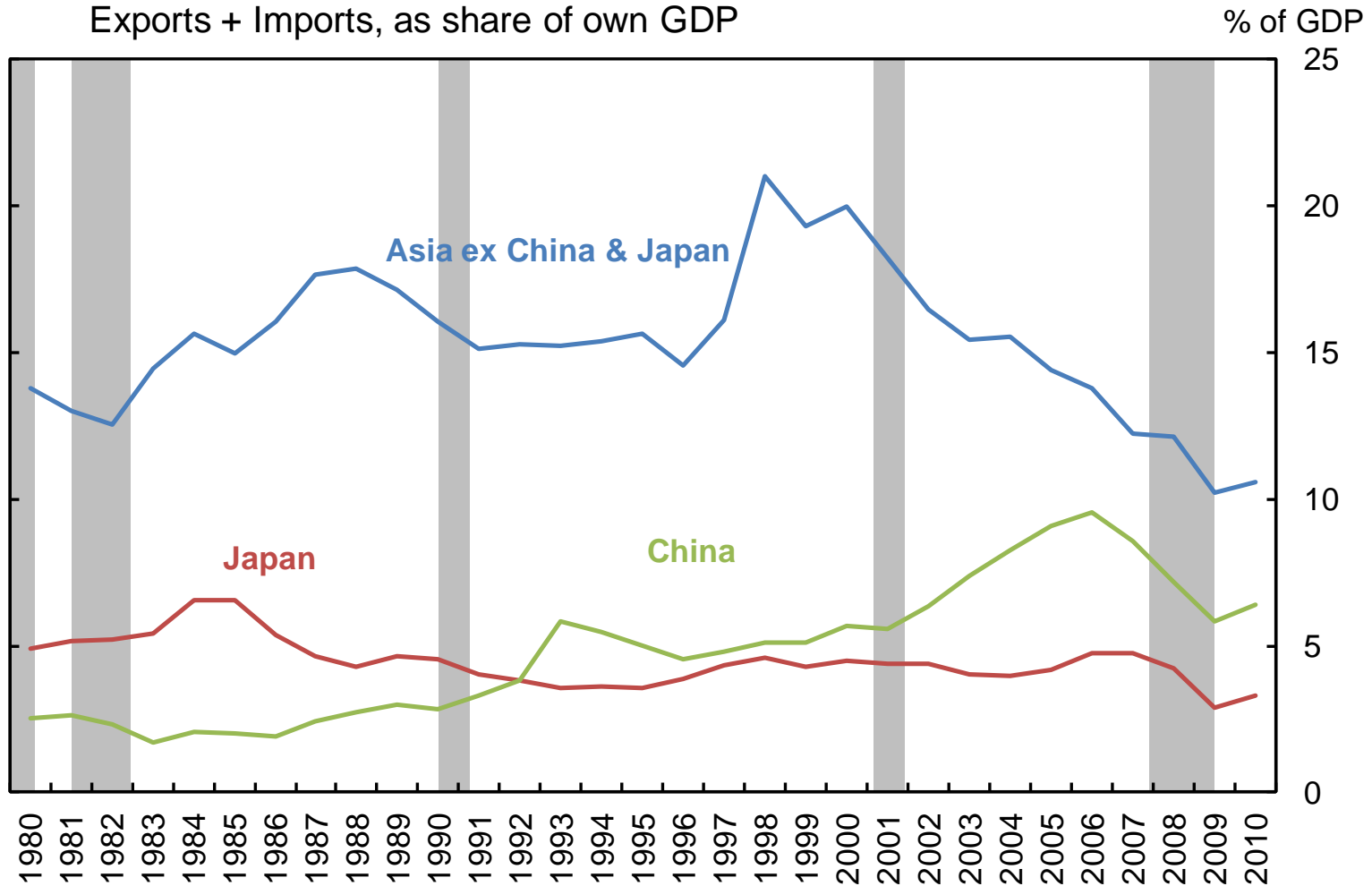
- Trends in Asian integration with rest of the world
- Asian synchronization since the 1997 crisis
- Evidence from open economy DSGE model
- Potential for Asian assistance for West through financial channels
- Conclusion

**Asian Business Cycle
Synchronization Since the 1997
Crisis**

As share of GDP, US less directly integrated with emerging Asia (ex China)

Asian Trade with the US

Exports + Imports, as share of own GDP

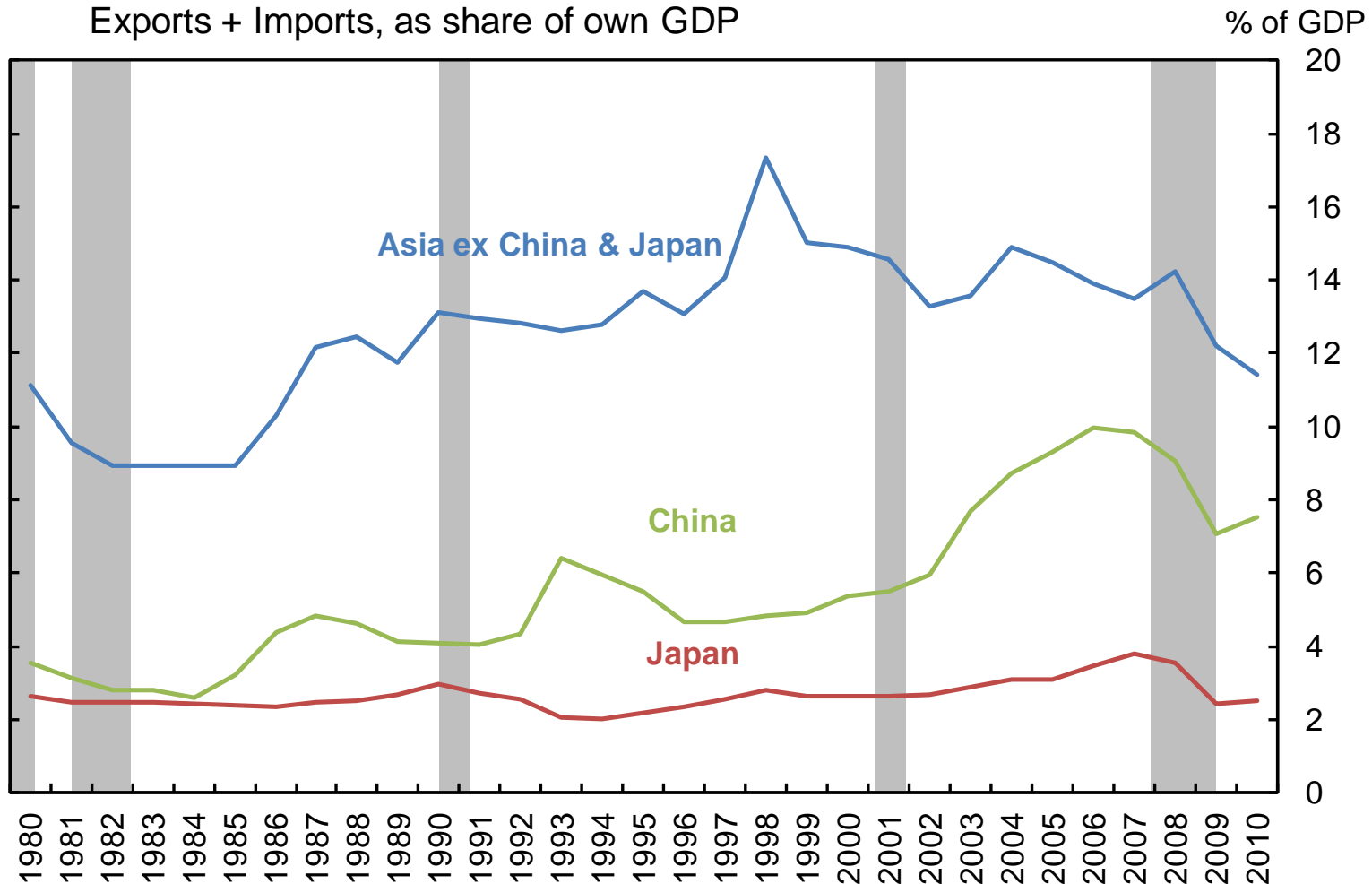


Source: IFS (DOT), World Bank

... as well as Europe

Asian Trade with Europe

Exports + Imports, as share of own GDP

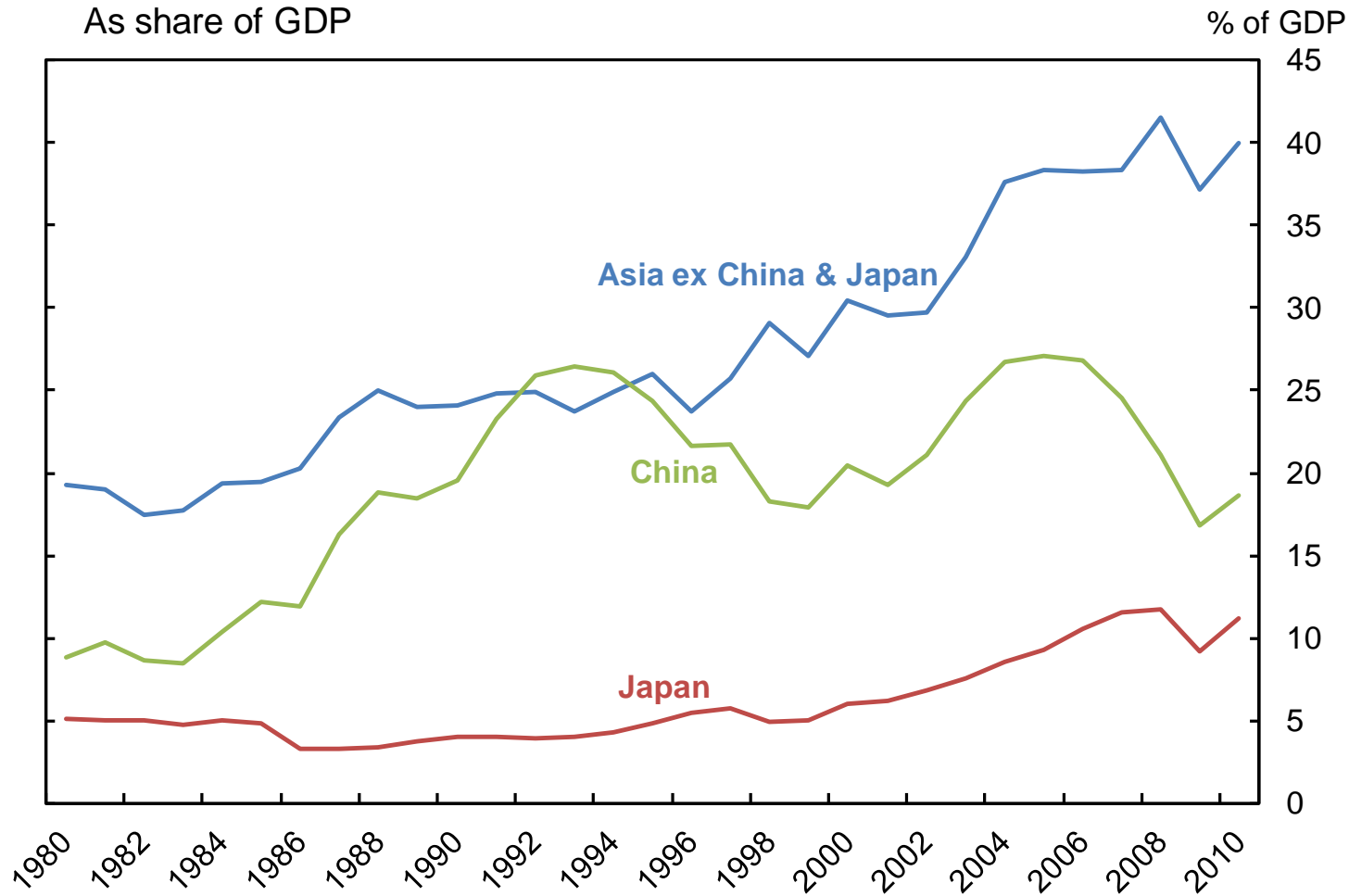


Source: IFS (DOT), World Bank

Big increase in trade within Asia

Trade with other Asian Countries

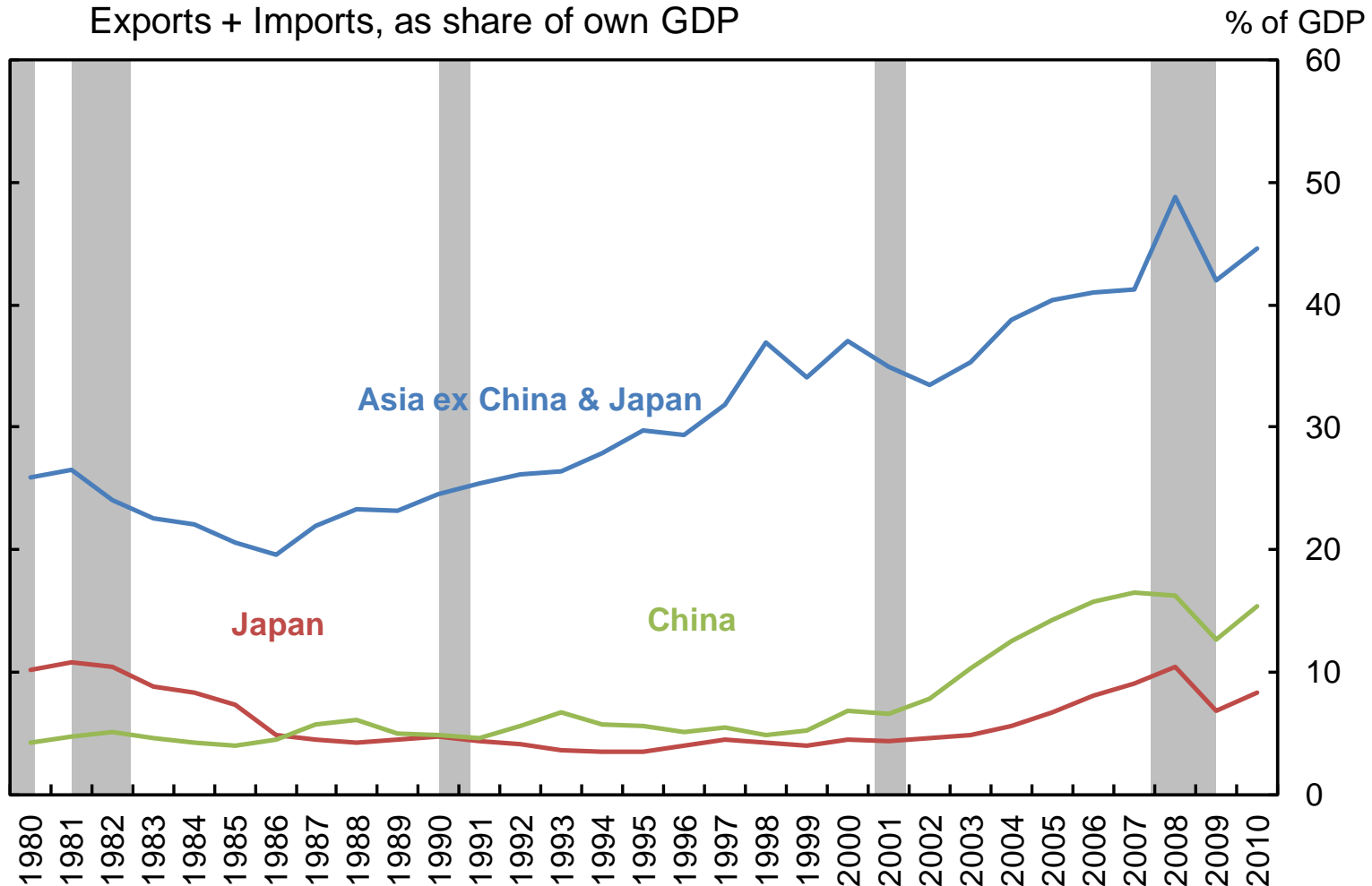
As share of GDP



Emerging Asia integration with ROW has also grown dramatically

Trade Integration with ROW

Exports + Imports, as share of own GDP



Source: IFS(DOT), World Bank

Integration between Asia and the rest of the world

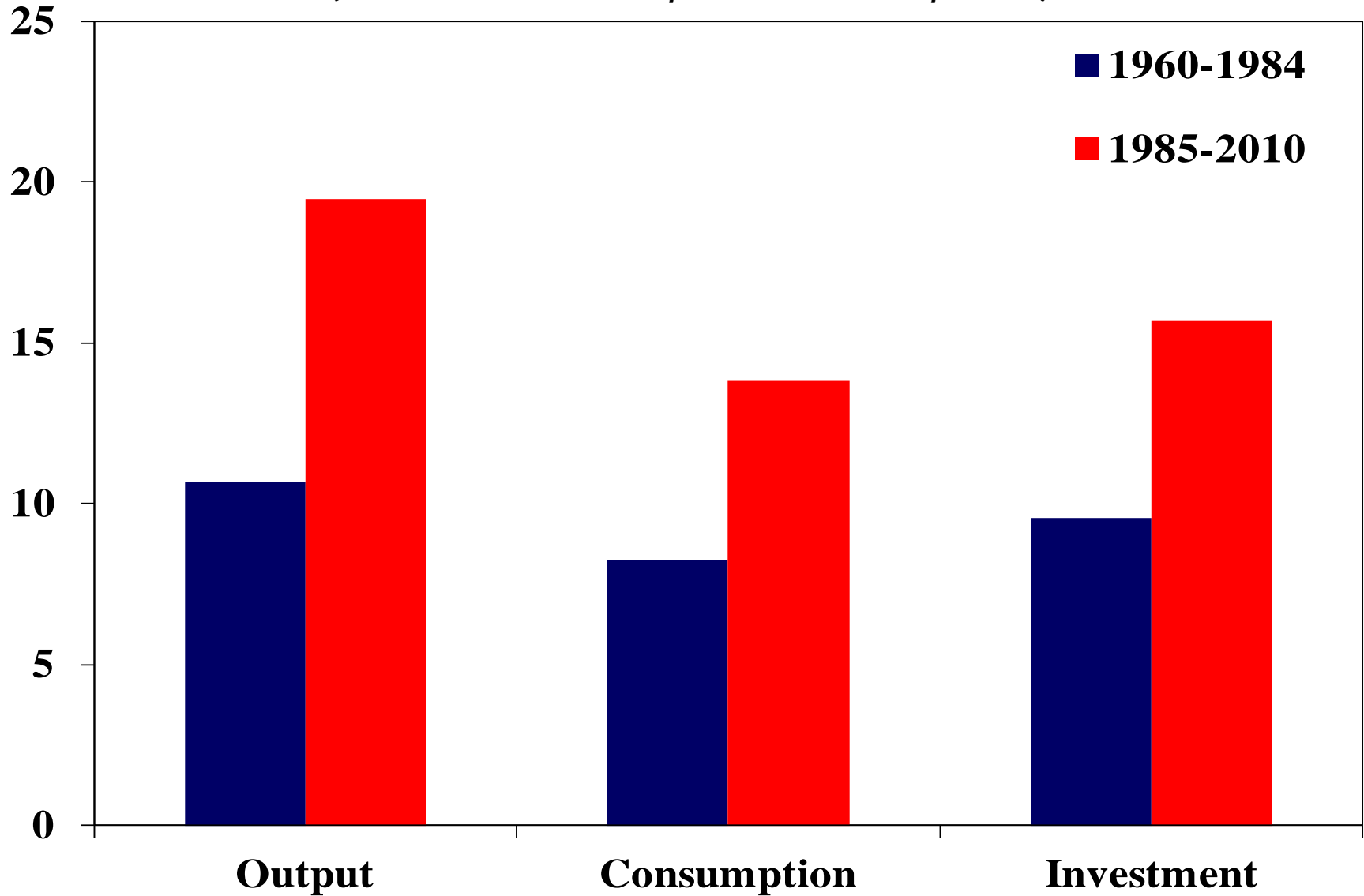
- Region (excluding Japan) growing rapidly
- Integration with US and Europe stagnant or declining as a share of *own* GDP
 - Gross volumes are increasing dramatically
- Integration between Asian nations clearly increasing
- Also increased integration with ROW
- However, as engine of growth for West, more interested in Asia as destination for US and European exports

Main integration pattern is therefore one of regionalization, not globalization

- Harati, et al (2011): Dynamic factor model
 - Identify global “regions”
 - Increase in the explanatory power of regional factors in explaining output
 - Global factor’s influence is found to have actually declined over the same period
- Conclude that recent globalization has facilitated regional synchronization, not global synchronization.

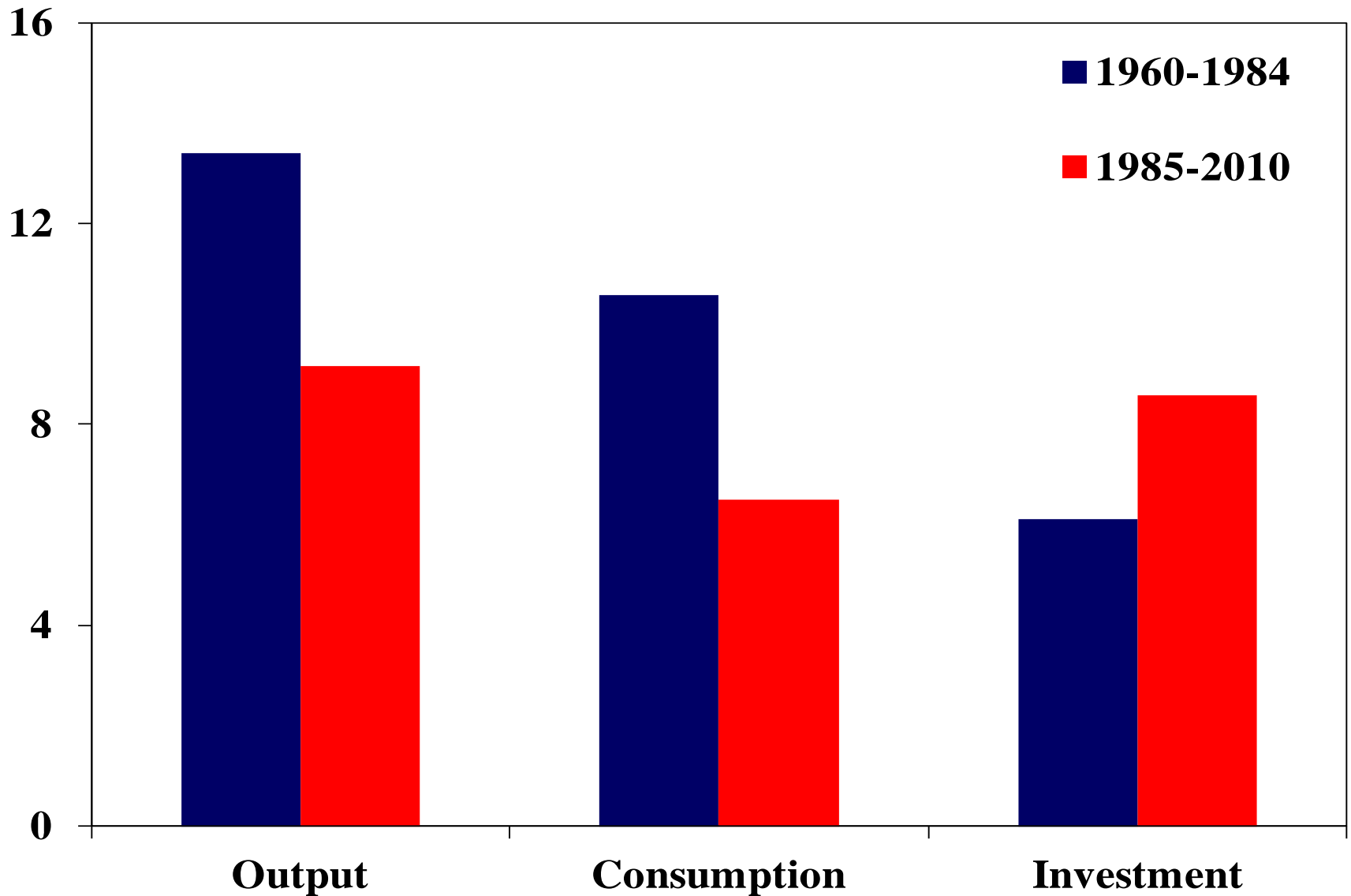
Variance by Regional Factor- World

(fraction of variance explained, mean, in percent)



Variance by Global Factor- World

(fraction of variance explained, mean, in percent)



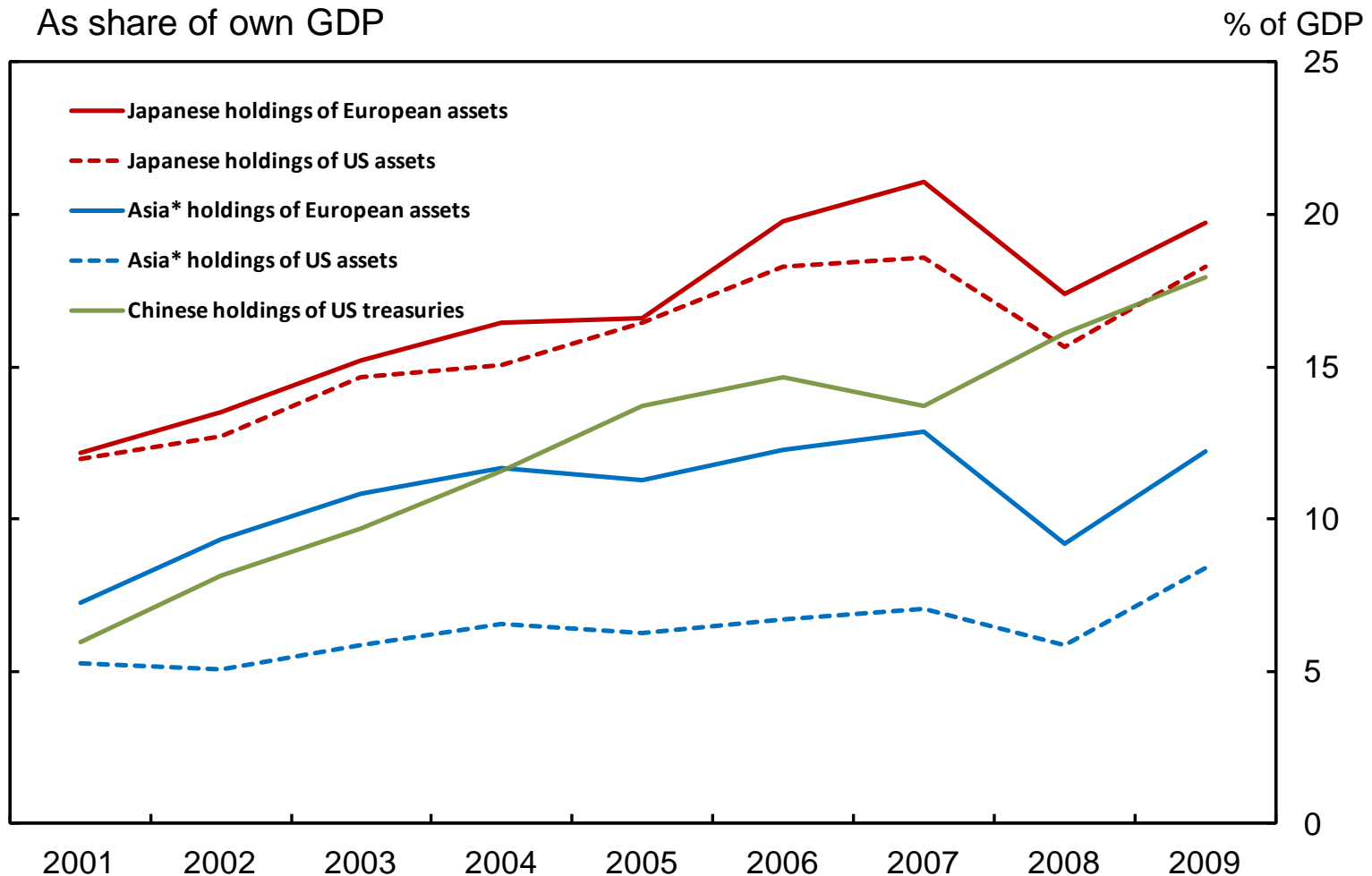
Theory is ambiguous on impact of trade openness on synchronization

- Increase
 - May facilitate international transmission of country aggregate demand shocks
 - Also global common shocks [Frankel and Rose (1998)].
- Reduction
 - Increase national product specialization [e.g. Kose and Yi (2002)].
 - Ambiguous impact as can lead to increased vertical integration [Imbs (2004)].

Asia has also become more financially open

Holdings of Foreign Assets

As share of own GDP



Source: CPIS, CEIC

* Asia comprised of Hong Kong, Indonesia, Korea, Malaysia, Philippines, Singapore, Thailand

Impact of financial openness on synchronization also unclear

- Increased
 - May increase financial contagion
 - This would raise synchronization of aggregate demand, and thereby business cycles as well [e.g. Claessens and Forbes (2001)]
- Decreased
 - Facilitate the hedging of consumption risk
 - Would encourage countries to become more specialized, leaving output responses to sector-specific shocks more different

Evidence on synchronization before and after crisis

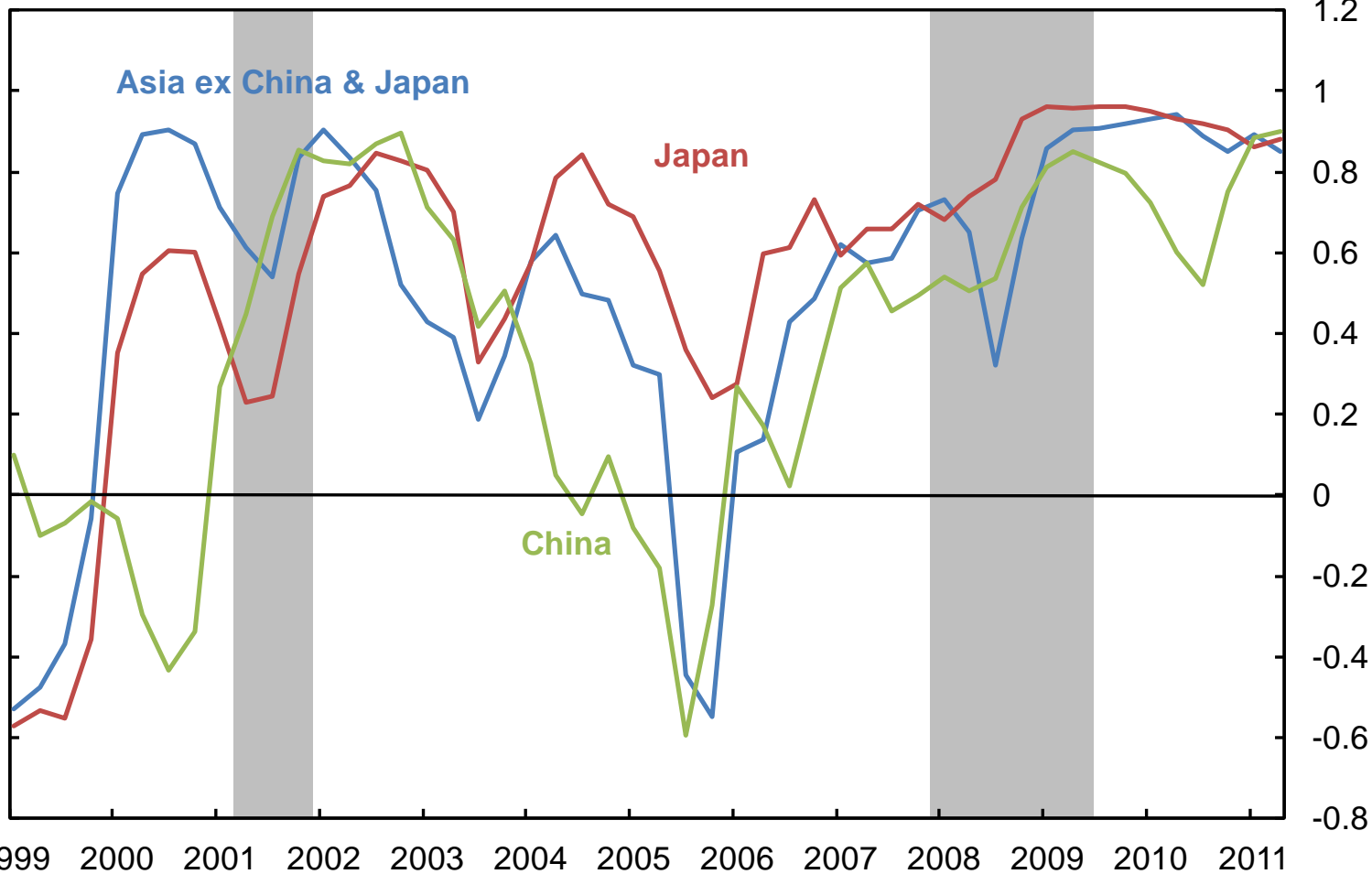
- Examine correlations in output fluctuations between China, Japan and Asia* groups, and US, Europe (27), and ROW
 - Asia* includes Hong Kong, Indonesia, Korea, Malaysia, Philippines, Singapore, and Thailand
- Quarterly data from the 1st quarter of 1997 through the 4th quarter of 2010
 - Data deseasonalized and detrended using HP filter
 - Correlations based on 8 quarter sample including that quarter and 7 lags.

Correlations between Asia and US off crisis highs

Business Cycle Correlations with the U.S.

2-year trailing correlation

Correlation



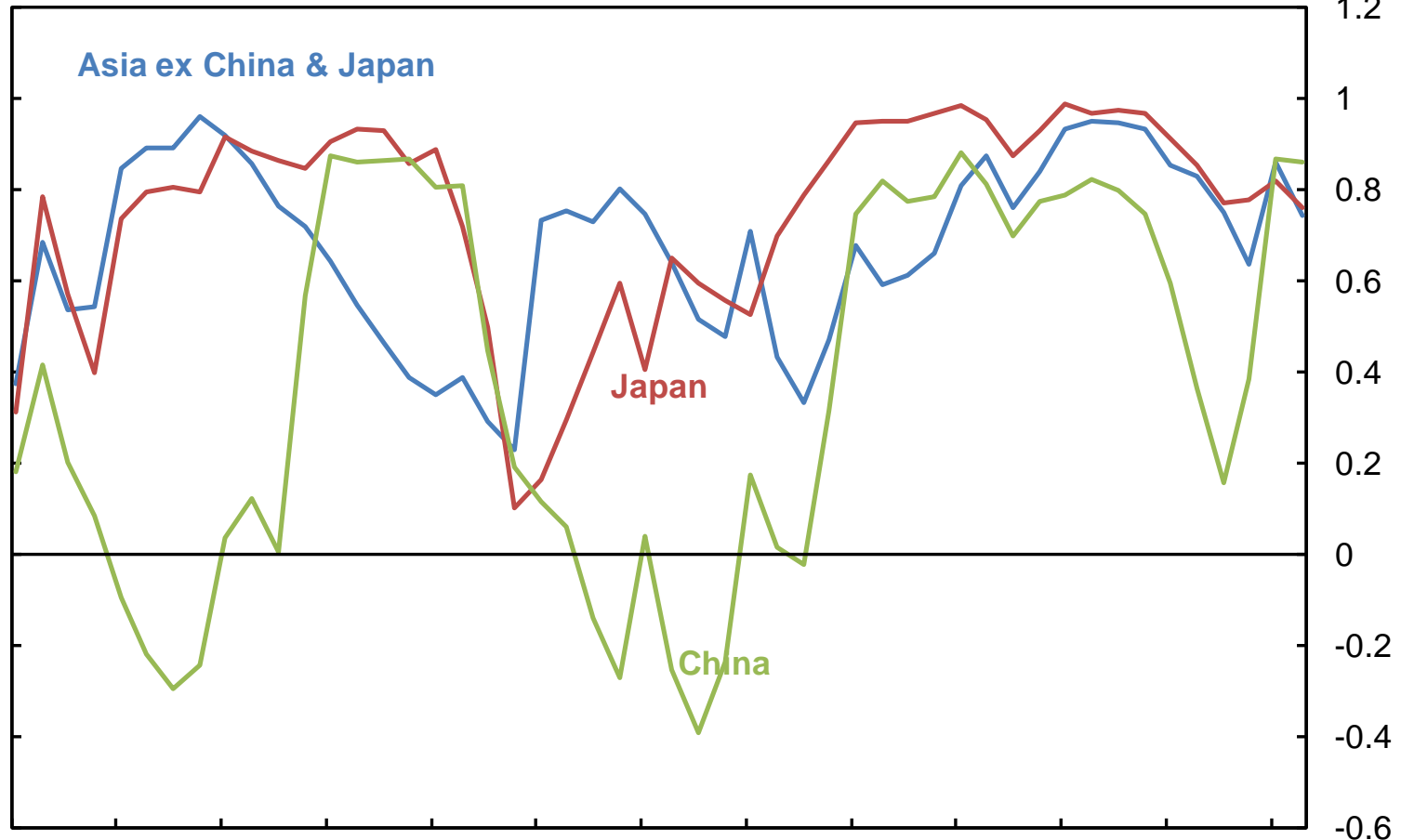
Source: IFS, World Bank, Bloomberg, Economist

Similar pattern for Europe

Business Cycle Correlations with Europe

2-year trailing correlation

Correlation



1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011

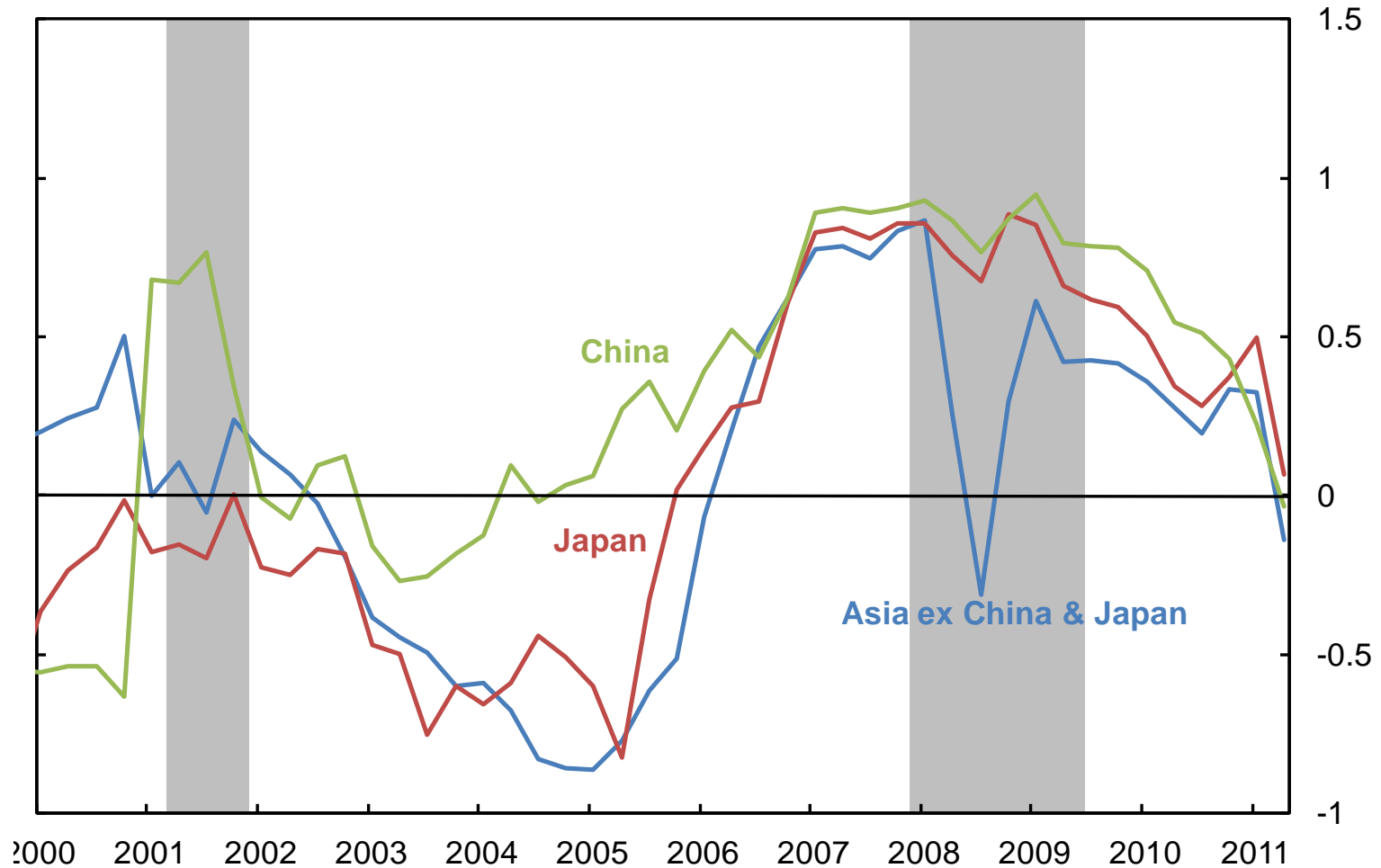
Source: IFS, World Bank, Eurostat, Bloomberg, Economist

Asian correlation with rest of the world also declining after crisis

Asia's Business Cycle Correlation with Rest of World

2-yea trailing correlation

Correlation



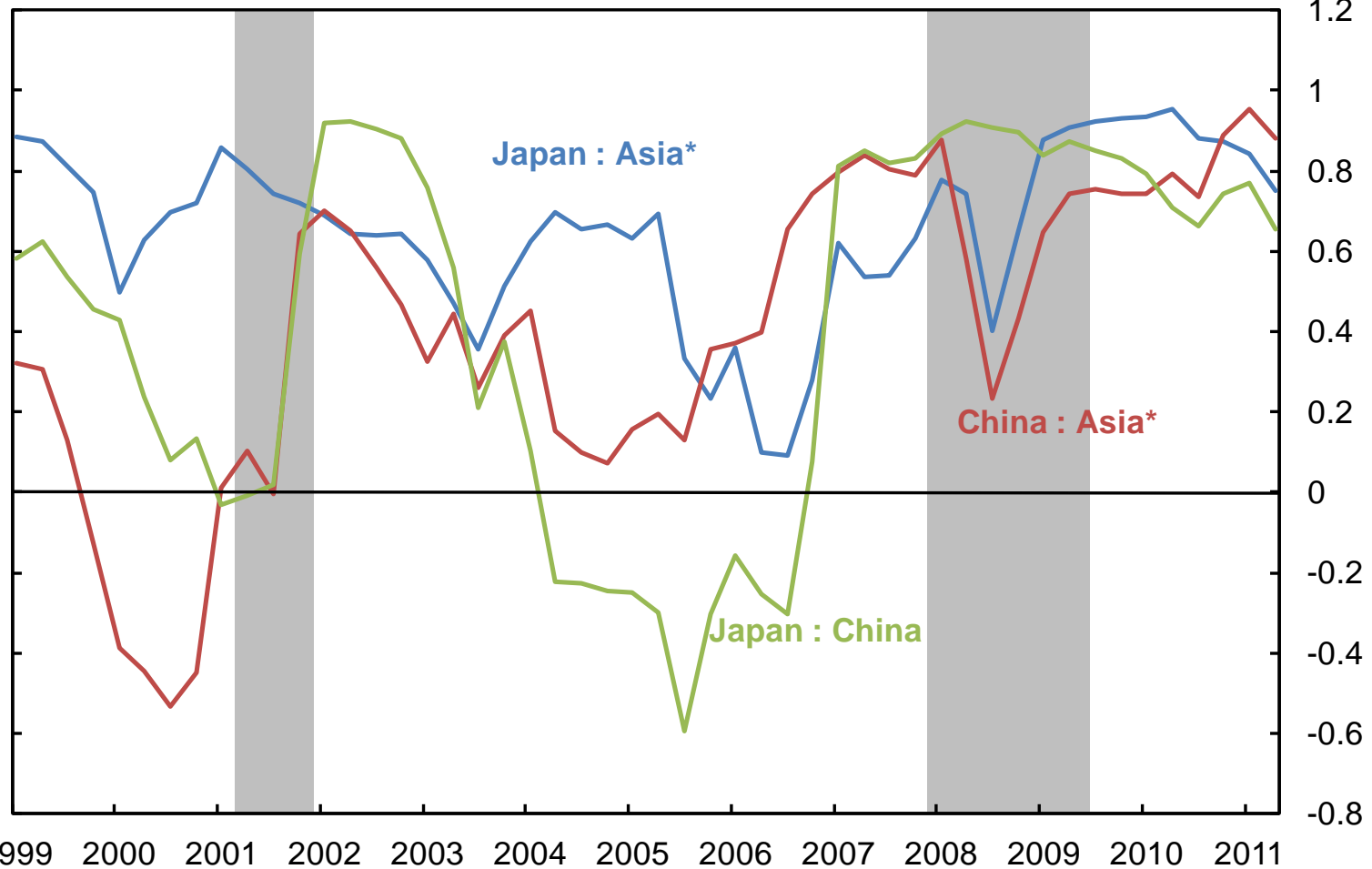
Source: IFS, World Bank, Eurostat, Bloomberg, Economist

Interdependence within Asia on the rise

Business Cycle Correlations within Asia

2-year trailing correlation

Correlation



1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011

Source: IFS, World Bank, Bloomberg, Economist

Mixed changes in correlations between Asian regions and rest of world

Business Cycle Correlations		
	<u>Before Crisis</u>	<u>After Crisis</u>
	2002Q1-2007Q3	2009Q3-2011Q2
<i>Correlation with Japan</i>		
Asia*	0.496	0.652
China	0.559	0.518
EU	0.861	0.673
US	0.869	0.839
ROW	0.517	0.287
<i>Correlation with China</i>		
Asia*	0.575	0.820
EU	0.685	0.798
US	0.375	0.847
ROW	0.647	0.208
<i>Correlation with Asia*</i>		
EU	0.602	0.601
US	0.390	0.767
ROW	0.147	0.150
* Asia includes Hong Kong, Indonesia, Korea, Malaysia, Philippines, Singapore, Thailand		

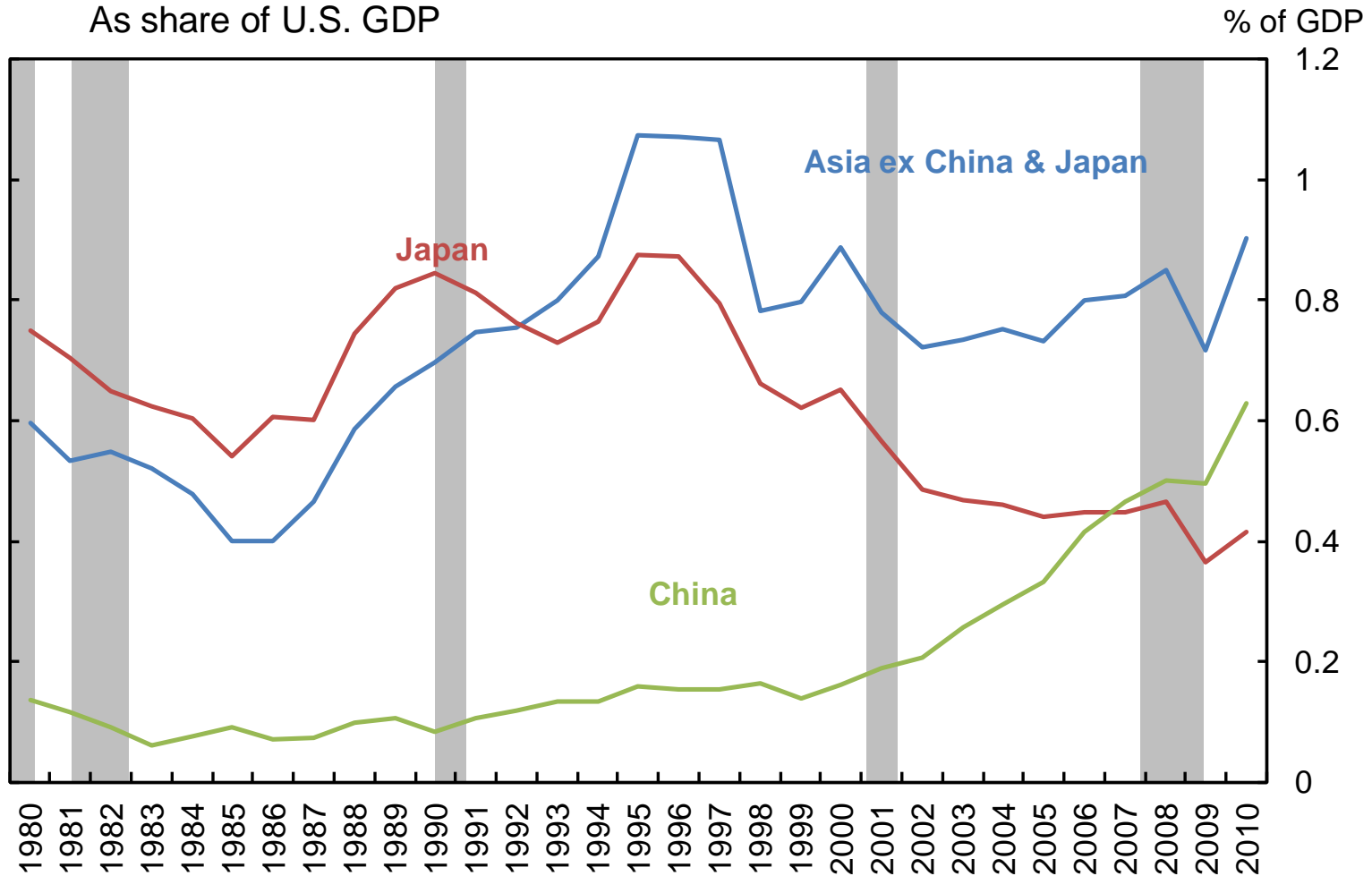
Limits to correlation analysis

- Correlations reflect shocks running both West to East, and East to West
- With growth of Asian nations since '97 crisis, increased observed correlations likely reflect increased East to West spillovers
- Kim (2011) uses VAR approach
 - Emerging Asia “recoupling” with G7 with substantial East-to-West spillovers
 - Stresses importance of Asia as destination for Western exports

China main source of increased importance of Asia for US exports

U.S. Exports to Asia

As share of U.S. GDP

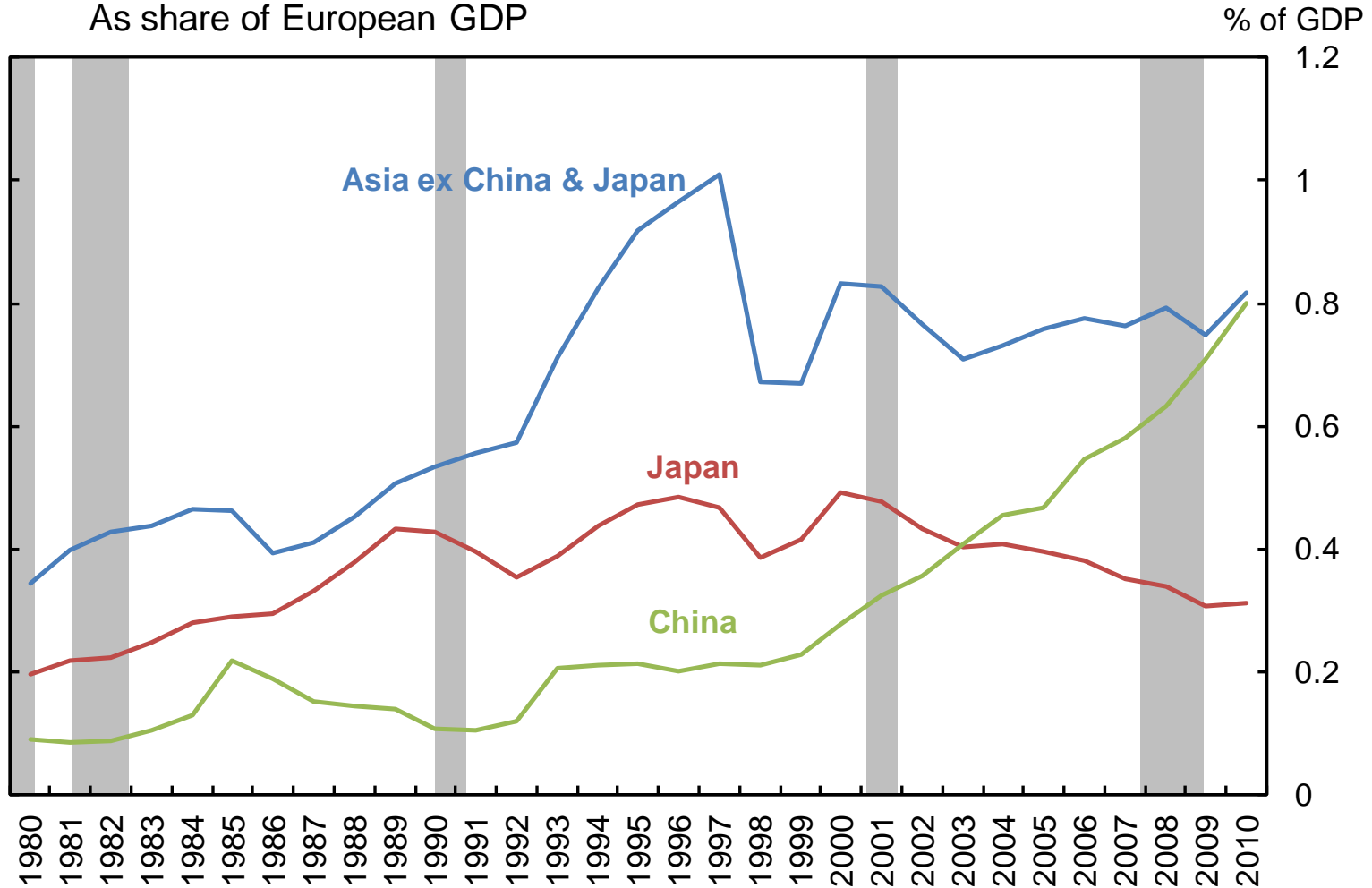


Source: IFS (DOT), World Bank

Similar story for Europe

European Exports to Asia

As share of European GDP



Source: IFS (DOT), World Bank

Increased integration between emerging Asia and West

- Increased correlations between Western and emerging Asia business cycles
 - Growing importance of China as destination for Western exports
- Other channels, such as supply chain disruptions
 - Tohoku earthquake had far greater impact on US economy than anticipated
 - Thailand floods: Macroadvisers knocked 0.3% off this quarter's projected growth due to supply chain disruptions

**Could Asia “rescue” a Western
crisis?**

Structural approach required to isolate impact from Asia on Western economies

- VAR approach [e.g. Kim (2011)] requires coefficients to be stable for long periods of time
- Alternative is getting very structural with fully specified model
- We use SIGMA model
 - 3-block open economy DSGE model from Federal Reserve Board of Governors
 - Meant to accommodate shocks with stable deep parameter values

Characteristics of SIGMA model

- Number of real-world features not commonly found in previous large-scale econometric macro models [Erceg, et al (2006)]
 - Informational frictions, as agents employ a simple Kalman filter based learning mechanism to estimate shocks
 - Non-Ricardian, as share of households consume all of their disposable income
- Fiscal multiplier in SIGMA more persistent, as in observed data

Allowance for nominal zero bound

- SIGMA explicitly allows for zero bound on nominal interest rates
 - Still not widespread in macro DSGE models
 - US and European monetary policies are currently constrained by the zero bound
- Zero bound matters
 - Bodenstein, et al (2010): positive oil price shocks in oil-importing economies can have a positive impact on output under the zero bound
 - Central bank discretely below target; does not raise nominal rates

Key features of SIGMA model (1)

- 3 country blocks
 - US, Europe, and ROW, which we call “Asia”
 - Really only about 61% East Asia
- Parameters are calibrated to global economy
 - Model used in policy analysis and parameter values classified
- Competitive composite consumption goods
 - Uses nonoil final goods and oil services in a CES production function
 - Nonoil final goods produced with imported and domestic intermediate differentiated products

Key features of SIGMA model (2)

- Intermediate inputs sold by continuum of monopolistically competitive firms
- Nominal rigidities
 - Firms only reset prices in some periods
 - Otherwise prices increase with lagged inflation
 - Wages also follow similar rigidities
 - Firms practice local currency pricing
- Real rigidities
 - Convex adjustment costs investment and imports
 - Households are subject to habit persistence

Government policies

- Monetary policy
 - Follows interest rate rule based on deviations from interest rate target and output gap
 - Constrained by the zero lower nominal interest rate bound.
- Fiscal policy
 - Government revenue raised via distortionary capital and labor income taxes
 - Expenditures can be financed partially by external borrowing

Financial accelerator

- Physical capital purchased by entrepreneurs who transform into capital services using stochastic technology
 - Purchases financed from entrepreneurs' own wealth or borrowed from competitive banks.
- Banks receive deposits from households and make loans subject to costly monitoring
 - Entrepreneur pays premium over risk free rate
 - Increases with entrepreneur leverage
- Endogenous business cycle amplification mechanism

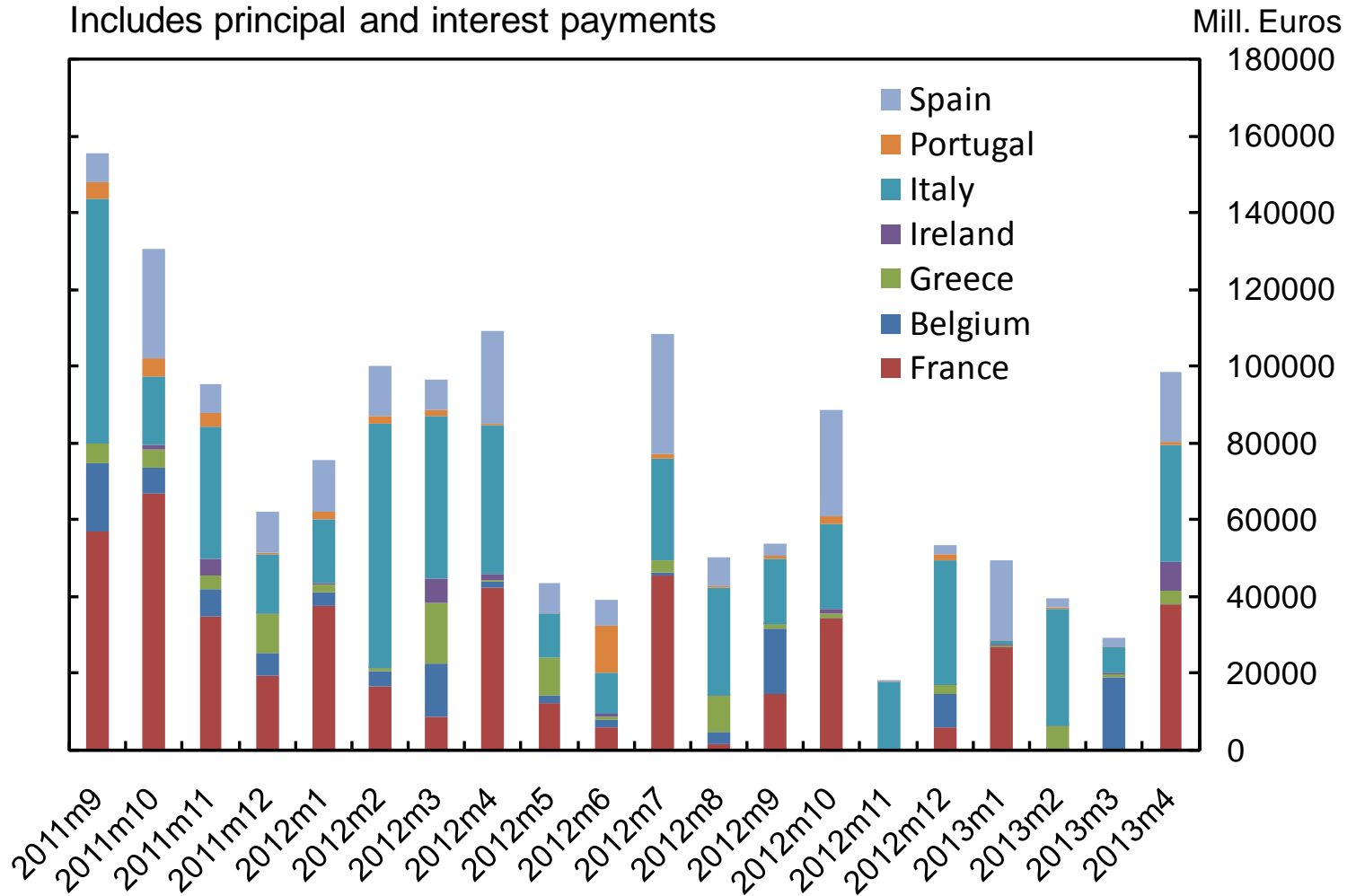
Simulation of euro area financial crisis

- Implications of euro area “sudden stop”
 - Halt in borrowing capabilities of European periphery (Greece, Portugal, Ireland, Spain and Italy), Belgium, and France
 - European governments pursue austerity in the form of reductions in spending to manage payment obligations
 - Crisis results in plummet in “euro”
- Financial turmoil leads to increased European corporate spreads
 - Contagion to US and Asia

“Sudden stop” in Europe would require immediate fiscal adjustment

Upcoming sovereign payment obligations

Includes principal and interest payments



Source: Bloomberg

Alternative simulation with positive news from Asia

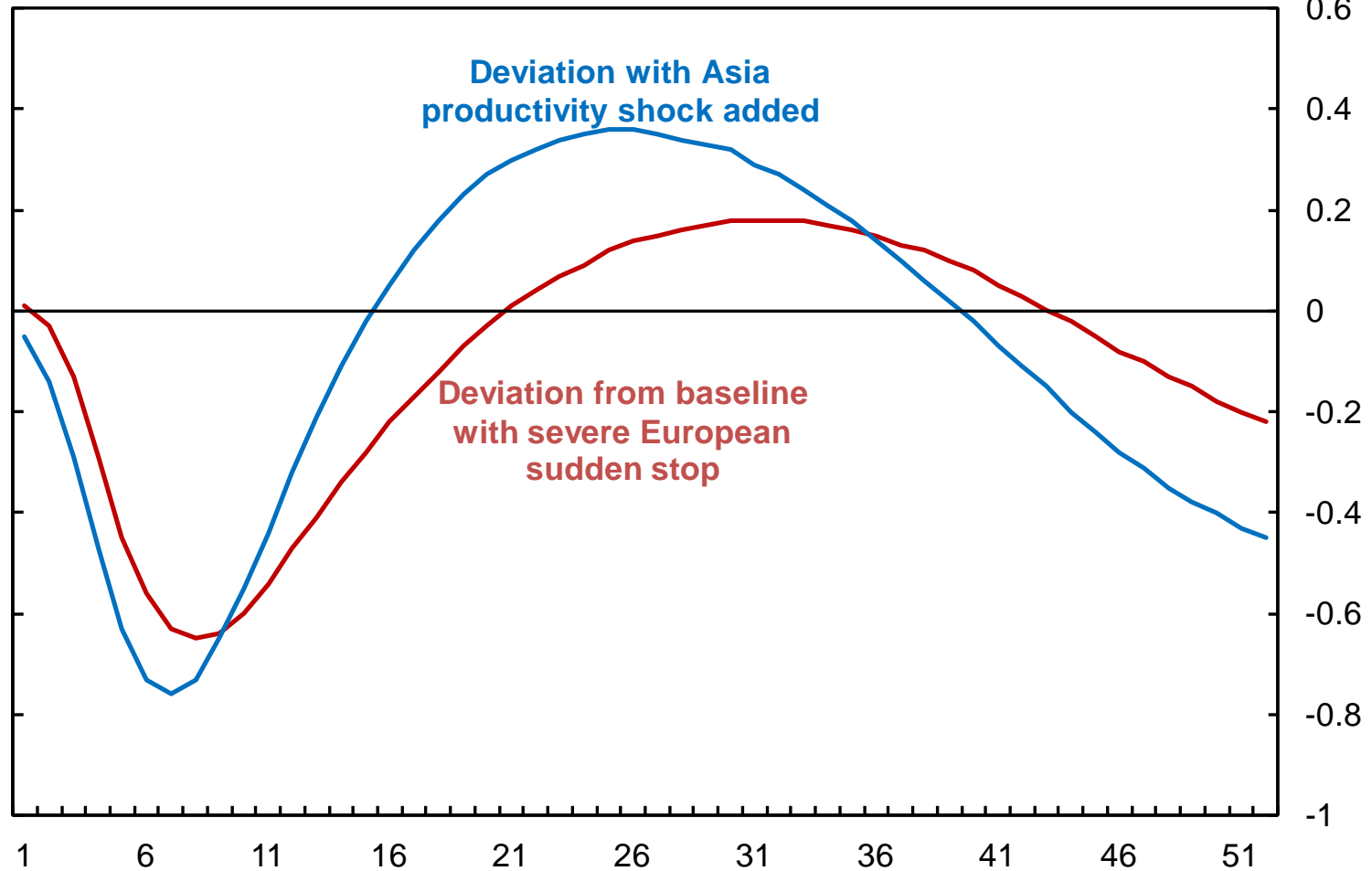
- Take European financial crisis shocks and add positive Asian productivity shock
 - Substantial 5% positive TFP shock at same time as we learn adverse news about Europe
 - Allows for examination of implication of strong Asian performance for US and Europe in wake of financial crisis
- Can't compare to benchmark, as it is classified
- Still, should recall that expected growth in Europe already pretty low

Model Results: US

Impact of Asia* 5% productivity shock on US GDP

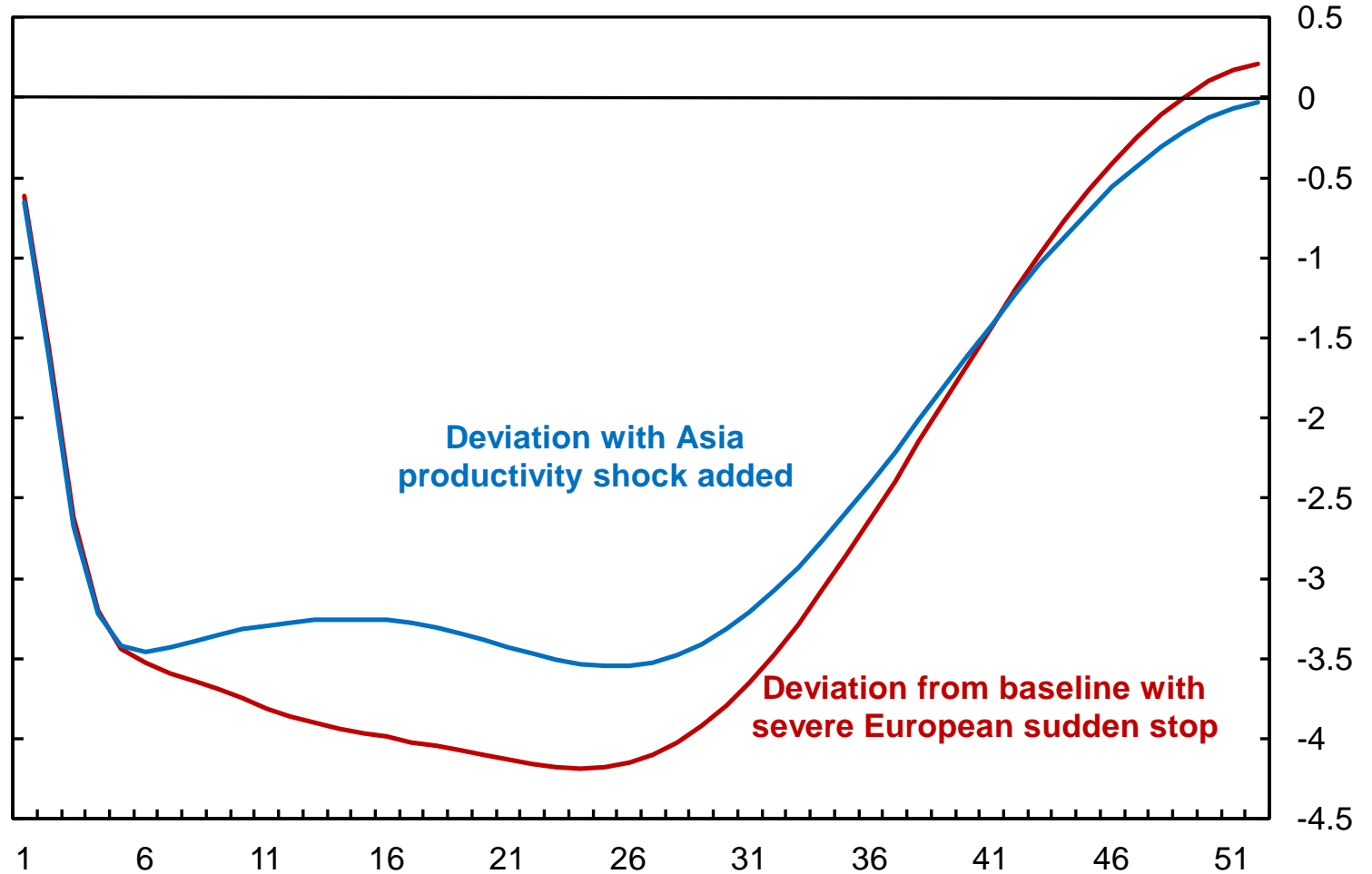
relative to baseline scenario

change from
baseline



Model Results: Europe

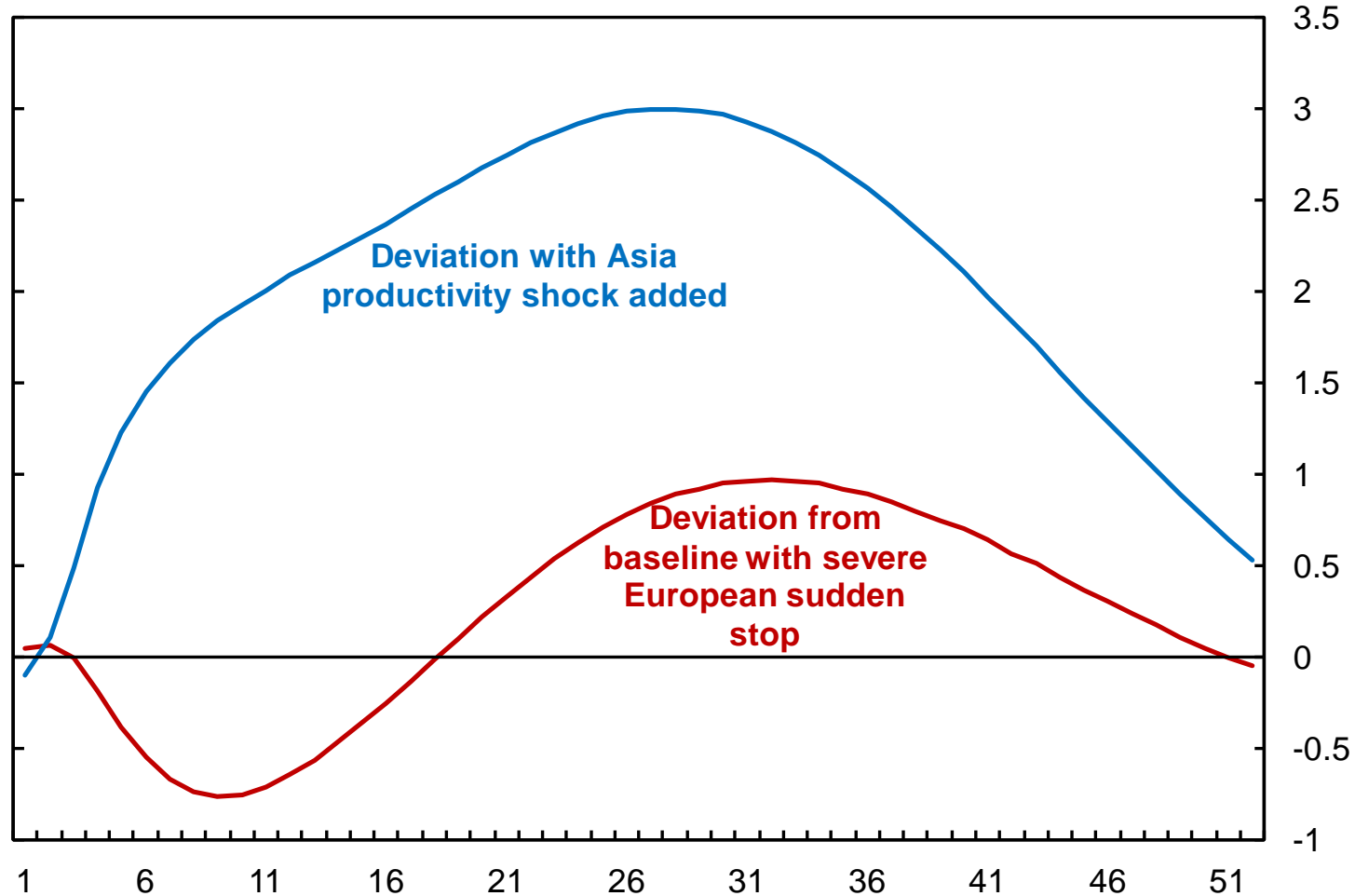
Impact of Asia* 5% productivity shock on European GDP
relative to baseline scenario



Model Results: Asia

Impact of Asia* 5% productivity shock on Asian* GDP
relative to baseline scenario

change from
baseline



Model Forecasts

Model Forecast (2012)						
	European Sudden Stop			European Sudden Stop with Asia Productivity Shock		
	<u>US</u>	<u>Europe</u>	<u>Asia</u>	<u>US</u>	<u>Europe</u>	<u>Asia</u>
GDP	-0.54	-1.98	-0.62	-0.59	-1.84	1.33
Inflation	-0.38	0.16	-1.64	-0.6	0	-1.9
Exports	-2.89	23.89	-13.69	-2.86	23.75	-10.06

Model Forecast (2013)						
	European Sudden Stop			European Sudden Stop with Asia Productivity Shock		
	<u>US</u>	<u>Europe</u>	<u>Asia</u>	<u>US</u>	<u>Europe</u>	<u>Asia</u>
GDP	-0.03	-0.22	-0.19	0.18	0.14	0.49
Inflation	-0.11	-1.36	-1.05	0	-1.13	-1.18
Exports	-4.07	34.23	-17.34	-3.79	34.31	-14.06

Results

- Positive productivity growth shock in Asia has little positive impact on US, European output growth
 - Actually modestly reduces US GDP growth in 2012 due to expenditure-switching effects
 - Modest positive impact on US and European GDP in 2013 (21 and 36 bps resp.)
- Relatively no aid to US, European exports
 - Asia more competitive on global markets due to adverse productivity shock

Caveats

- Parameter stability
 - SIGMA model designed exhibit parameter stability in face of shocks
 - Still, may be permanent changes to “deep parameters,” such as potential output
- Adequacy of financial accelerator?
 - Requires ad hoc spread changes
- Predicted export growth in Europe
 - Exporters may be credit constrained
- Results may be different for agg D shock
 - Crank up Chinese bank lending?

Conclusion

- Decoupling issue still alive
 - Strong form discredited by global financial crisis
 - But regional Asian integration growing much faster than global integration
- Limits positive spillovers from Asian growth to West
- Asian recovery unlikely to rescue West from a dramatic downturn, such as a European financial crisis