



The Economic Crisis in Armenia: Causes, Consequences, and Cures

IMF Armenia Team

www.imf.org/yerevan



Financial Banking College
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Outline

1. Causes of the global financial crisis
2. Consequences for transition economies
3. Consequences for Armenia
4. Financial sector impact
5. Policy responses



1. Causes Of The Global Crisis

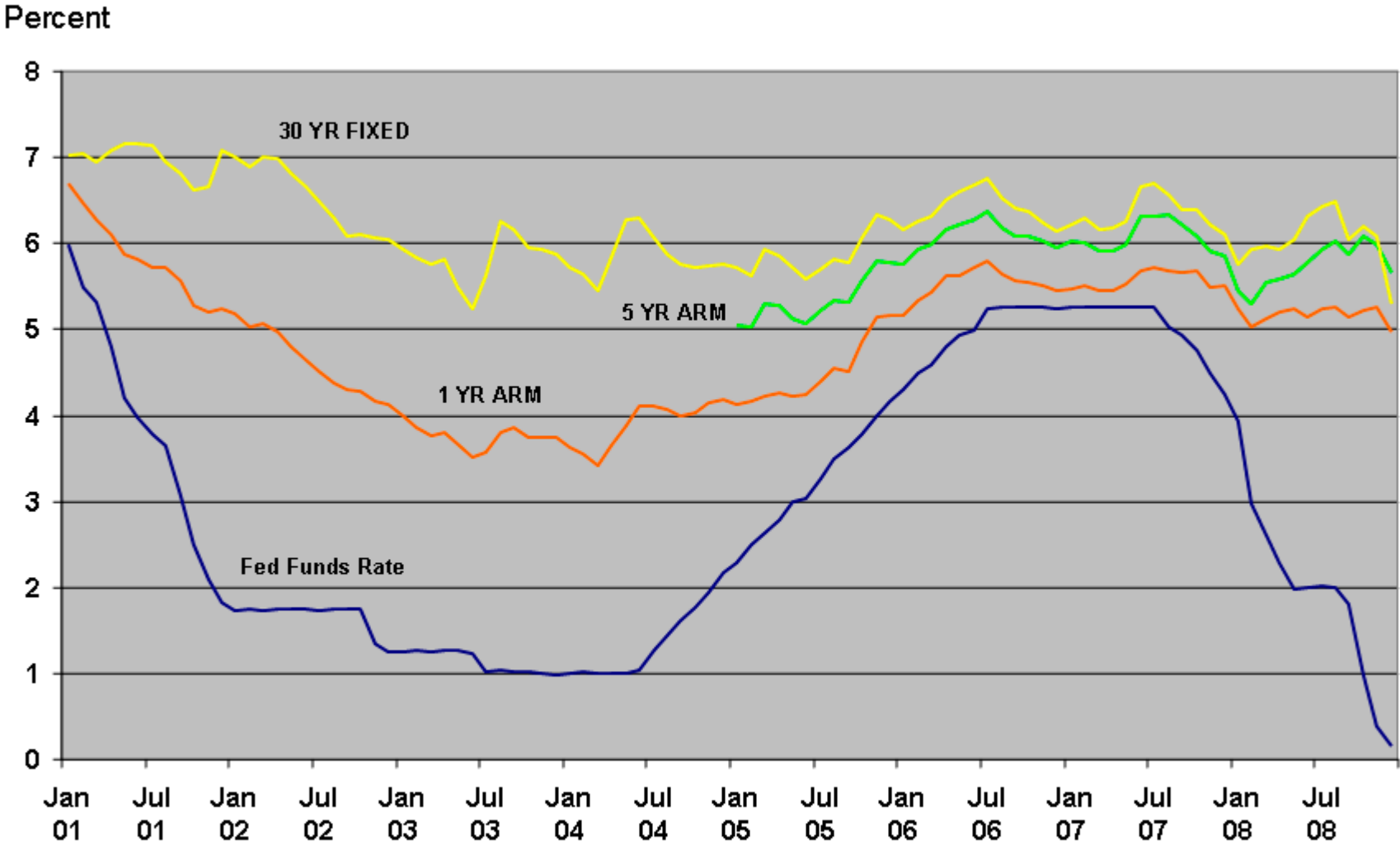
- a) Easy credit conditions
- b) Deregulation
- c) Financial innovations
- d) United States housing bubble
- e) Sub-prime lending
- f) Over-leveraging

1. Causes Of The Crisis

a) Easy credit conditions, which fueled both housing and credit bubbles

- From 2000 to 2003, the Fed lowered the federal funds rate target from 6.5% to 1.0%
- Between 1996-2004, the US current account deficit increased from 1.5% to almost 6% of GDP
- Hence, large and growing amounts of foreign funds flowed into the US to finance its imports, creating demand for financial assets (“global imbalances”).
- Between 2004-2006, the Fed increased the Fed funds rate significantly, pushing up adjustable-rate mortgages (ARM) rates

Fed Funds Rate & Mortgage Rates 2001 - 2008



Source Data: U.S. Federal Reserve, Freddie Mac

1. Causes Of The Crisis

b) Deregulation

- In 1999, Congress repealed the Glass-Steagall Act that kept commercial and investment banking separated
- In 2004, the Securities and Exchange Commission relaxed the net capital rule, enabling investment banks to substantially increase their debt, fueling the growth in mortgage-backed securities
- Financial perimeter: financial institutions in the shadow banking system are not subject to the same regulation as depository banks, allowing them to assume additional debt obligations relative to their financial cushion or capital base
- The U.S. Commodity Futures Modernization Act of 2000 allowed the self-regulation of the over-the-counter derivatives market



1. Causes Of The Crisis

c) Financial innovations

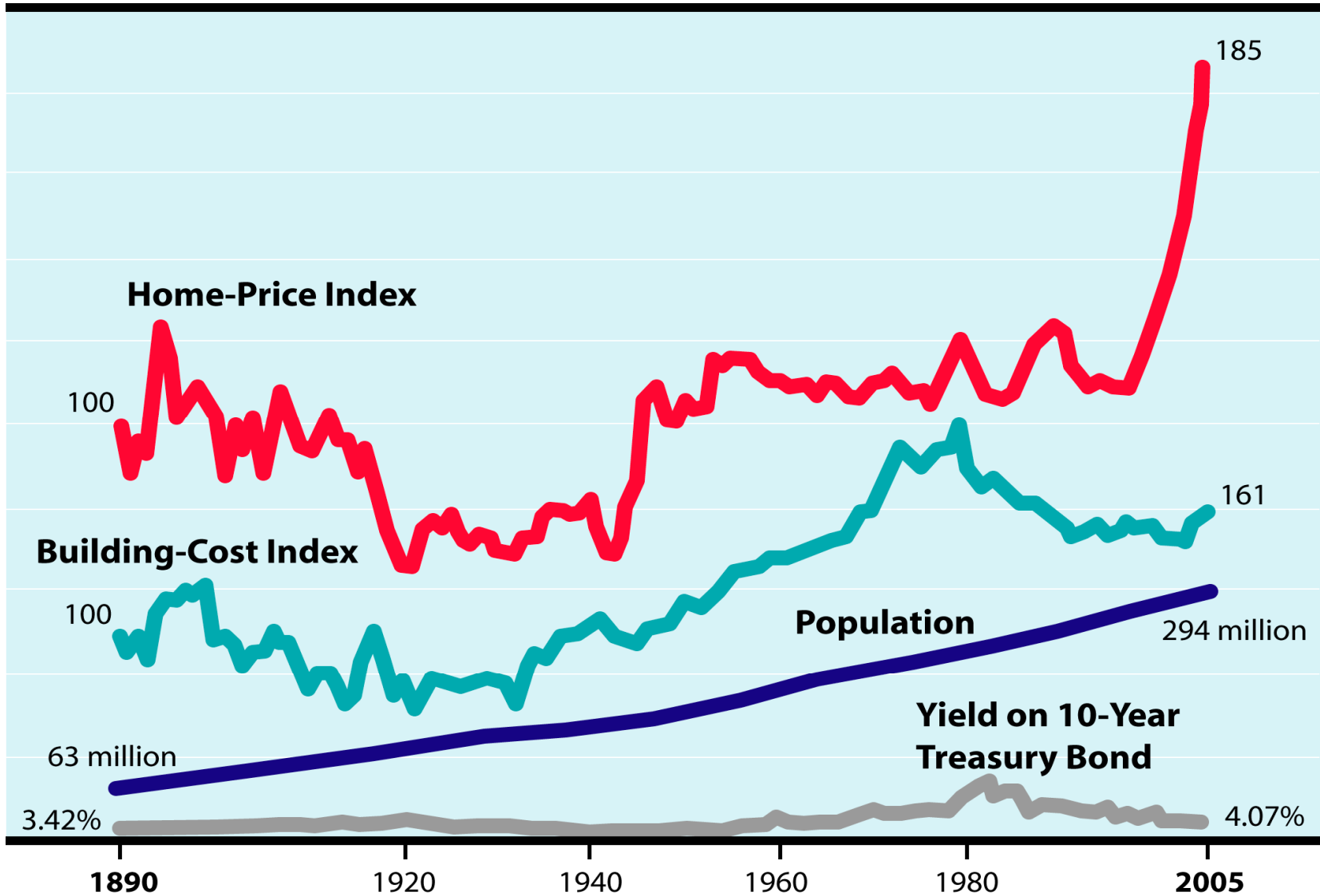
- Mortgage-backed securities (MBS)
- Adjustable rate mortgages (ARM)
- Credit default swaps (CDS)
- Collateralized Debt Obligations (CDO)

1. Causes Of The Crisis

d) United States housing bubble

- Between 1997-2009, house prices in U.S. increased by 124 percent
- U.S. home mortgage debt relative to GDP increased from an average of 46% during the 1990s to 73% during 2008
- By September 2008, average U.S. housing prices had declined by over 20% from their mid-2006 peak

Inflation-adjusted U.S. home prices, Population, Building costs, and Bond yields (1890–2005)



Source: *Irrational Exuberance*, 2d ed. (Fig. 2.1)

1. Causes Of The Crisis

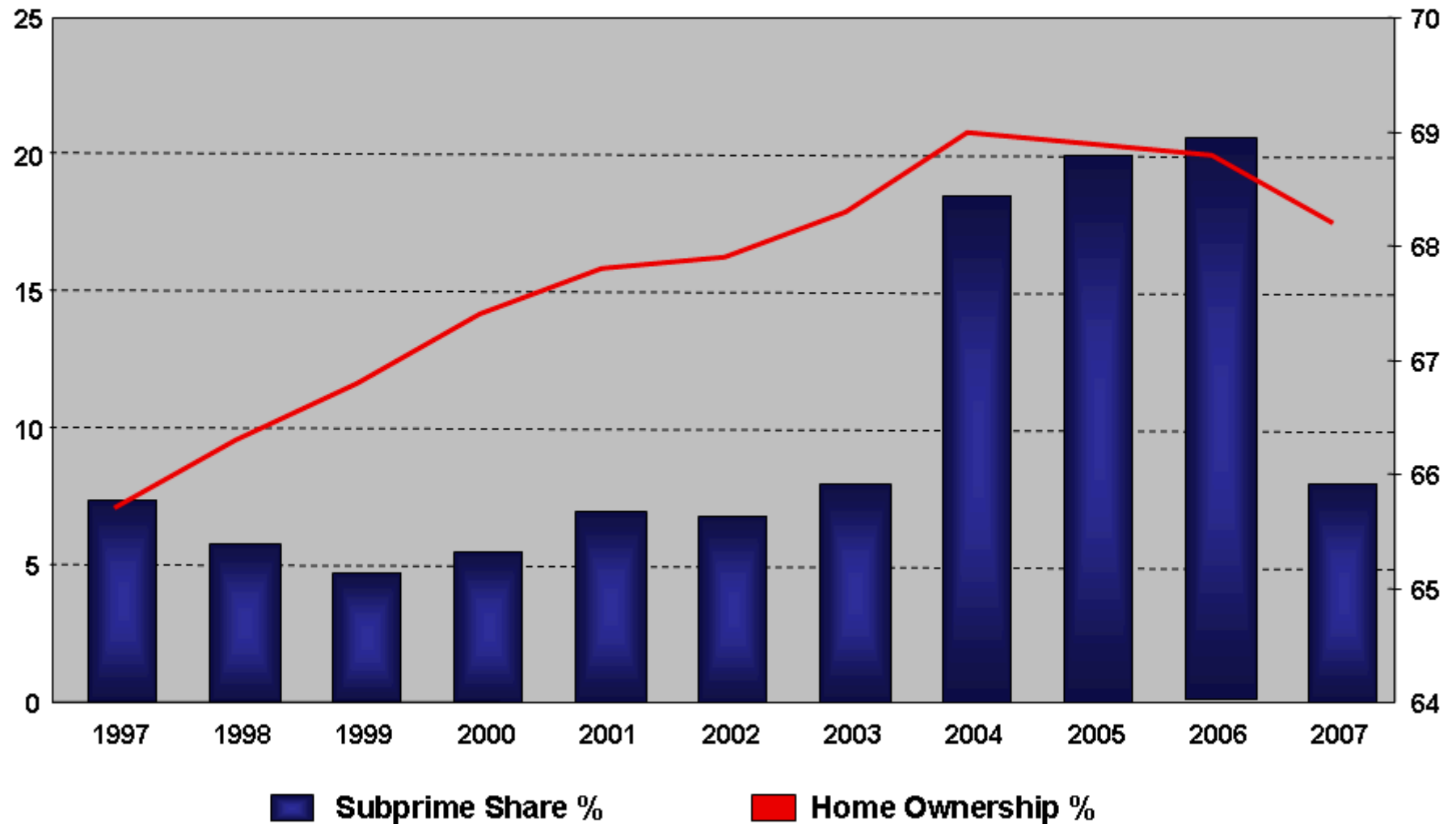
e) Sub-prime lending

- Sub-prime lending increased significantly during the years preceding the crisis
- Sub-prime mortgages remained below 10% of all mortgage originations until 2004, when they spiked to nearly 20% and remained there through 2005-2006
- Sub-prime mortgage payment delinquency rates remained in the 10-15% range from 1998 to 2006, then began to increase rapidly, rising to 25% by early 2008

U.S. Subprime Lending Expanded Significantly 2004-2006

**Subprime
Share of Mortgage
Originations (%)**

**Home
Ownership
Rate (%)**



Sources: U.S. Census Bureau; Harvard University- State of the Nation's Housing Report 2008

1. Causes Of The Crisis

f) Over-leveraging

- U.S. households and financial institutions became increasingly indebted or overleveraged during the years preceding the crisis
- U.S. household debt as a percentage of annual disposable personal income was 127% at the end of 2007, versus 77% in 1990
- U.S. home mortgage debt relative to GDP increased from an average of 46% during the 1990s to 73% during 2008, reaching \$10.5 trillion
- In 1981, U.S. private debt was 123% of GDP; by the third quarter of 2008, it was 290%

Propagation of the crisis

1. United States

- Complexity of assets led to mispricing of risks (subprime lending)
- Realization of risks with fall in U.S. house prices

2. Other advanced countries

- Many advanced countries had invested in U.S. mortgage backed securities
- Globalization spread risks across assets, institutions, and countries
- Counterparty risks led to further tightening of banking standards and international financial flows

Propagation of the crisis

3. Emerging Market (EM) countries

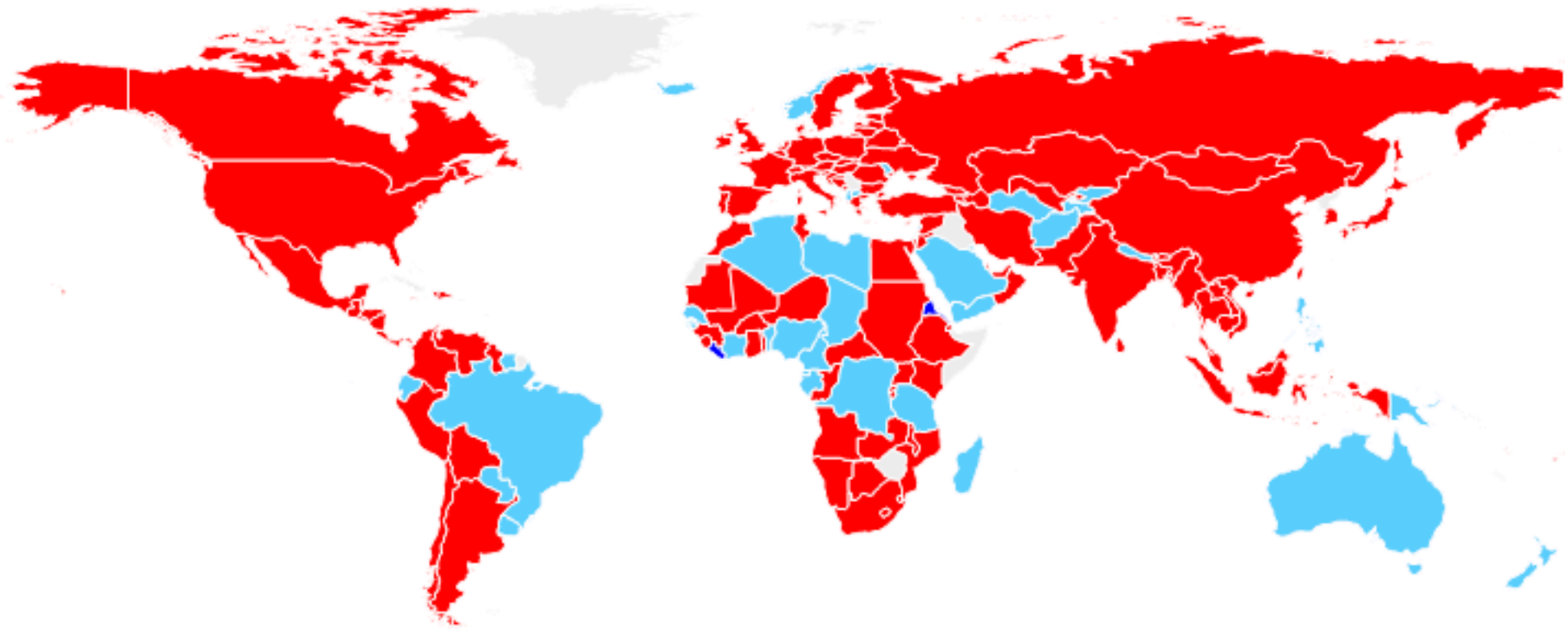
- Sudden stop in capital flows from advanced countries to EMs
- Large increase in EM spreads (borrowing costs)
- Problems in EMs caused further problems in advanced countries' banking systems
- Financial crisis turned into global economic crisis



4. Transition countries

- Financial channels relatively less important (except in EMs like Russia, Ukraine, Kazakhstan)
- Economic channels more important (exports, remittances, FDI)
- Economic crisis may have financial sector implications (credit risk, exchange rate risk, etc)

Global warming (output)

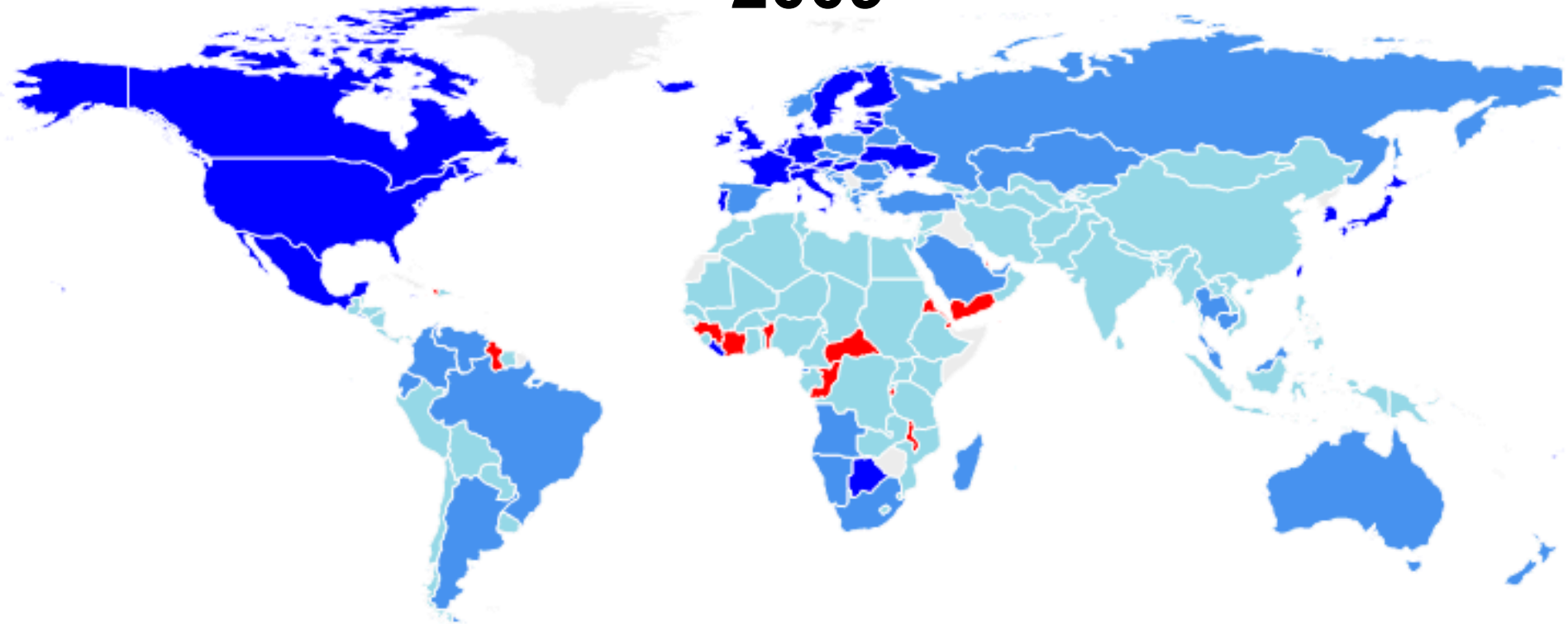
2006



-  Heating economy—above trend growth
-  Cooling economy—below trend growth

Global cooling (output)

2009



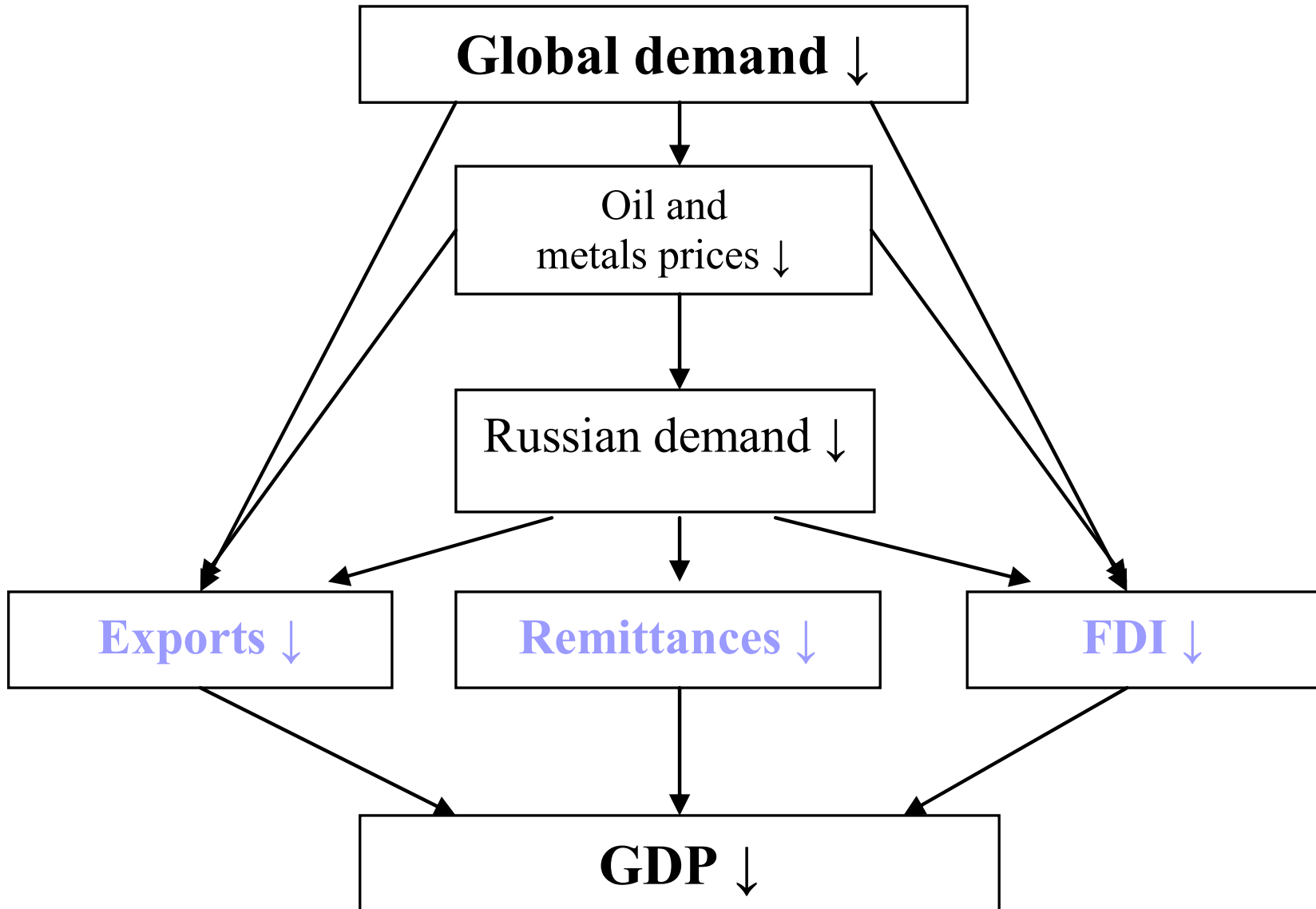
- Heating economy—above trend growth
- Cooling economy—below trend growth



2. Consequences for transition economies

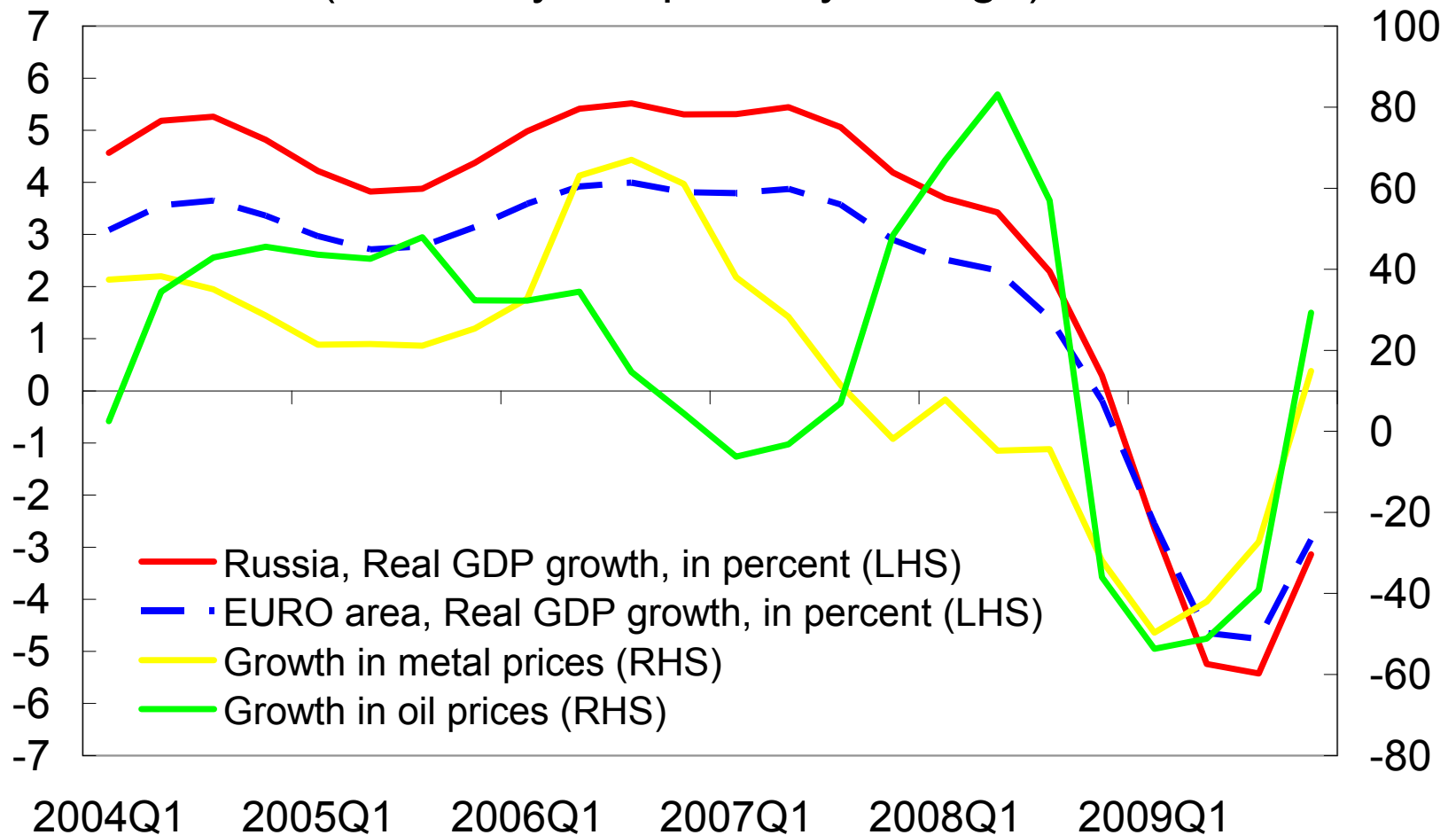
- Armenia
- Azerbaijan
- Belarus
- Georgia
- Kyrgyz Republic
- Moldova
- Mongolia
- Serbia
- Tajikistan
- Ukraine

Main economic channels

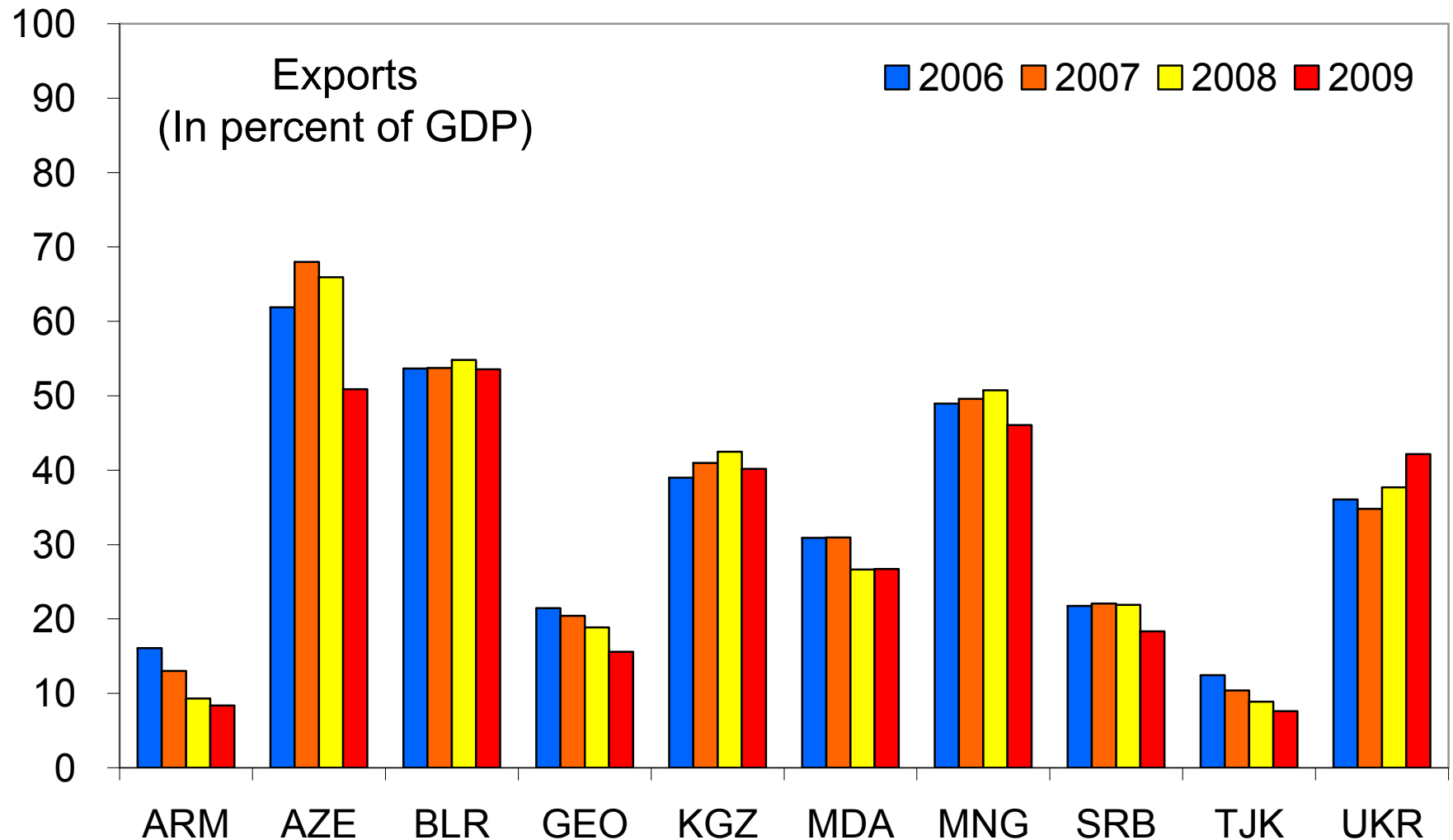


Transition countries were mostly affected by the fall in global demand and commodity prices

Growth and Metal Prices
(Year on year quarterly change)



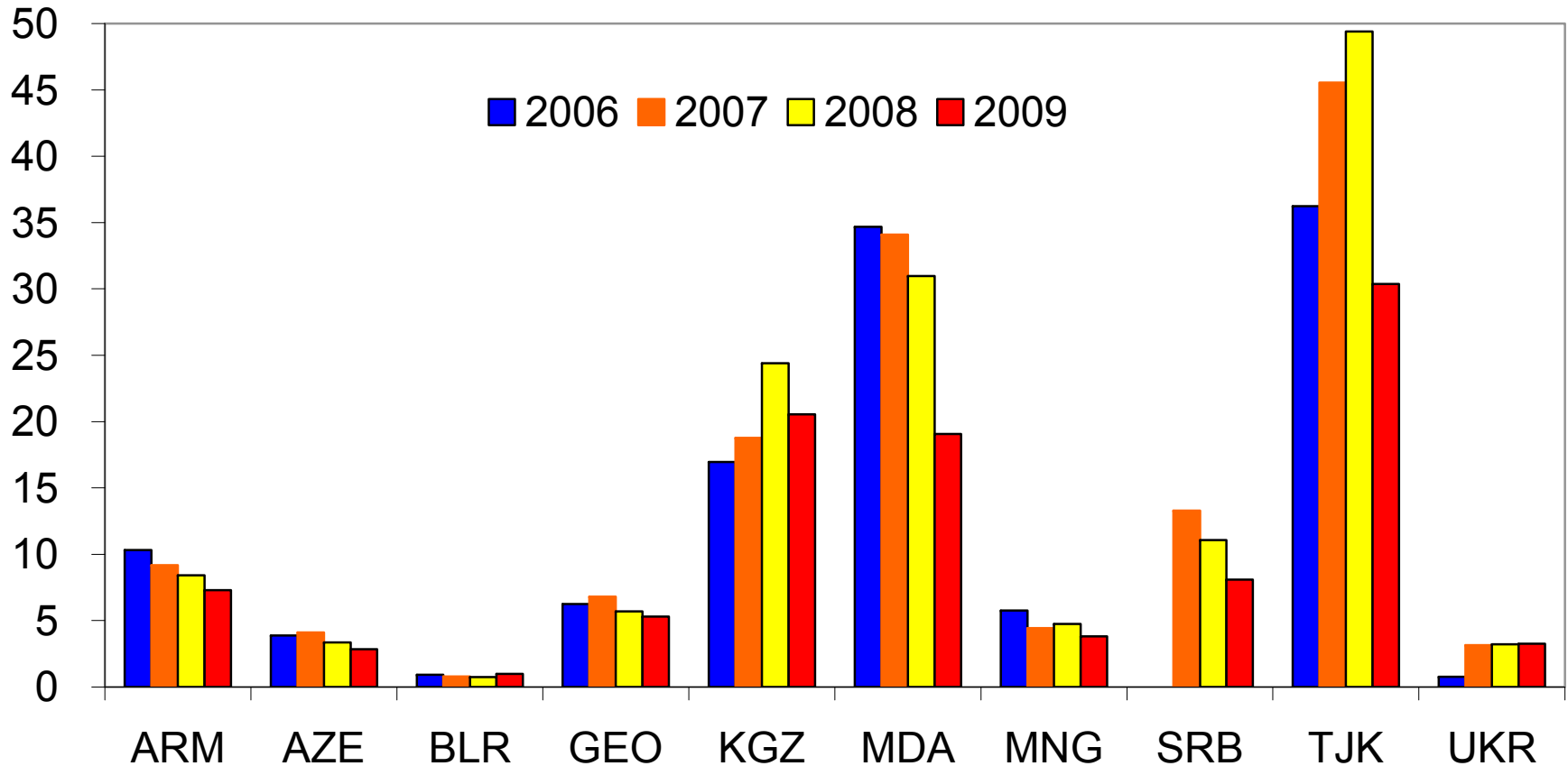
As a result, exports have been falling



Sources: IMF, staff estimates and projections

The economic contraction in other countries (Russia, Europe) led to a fall in remittances

Remittance Inflows (in percent of GDP) 1/

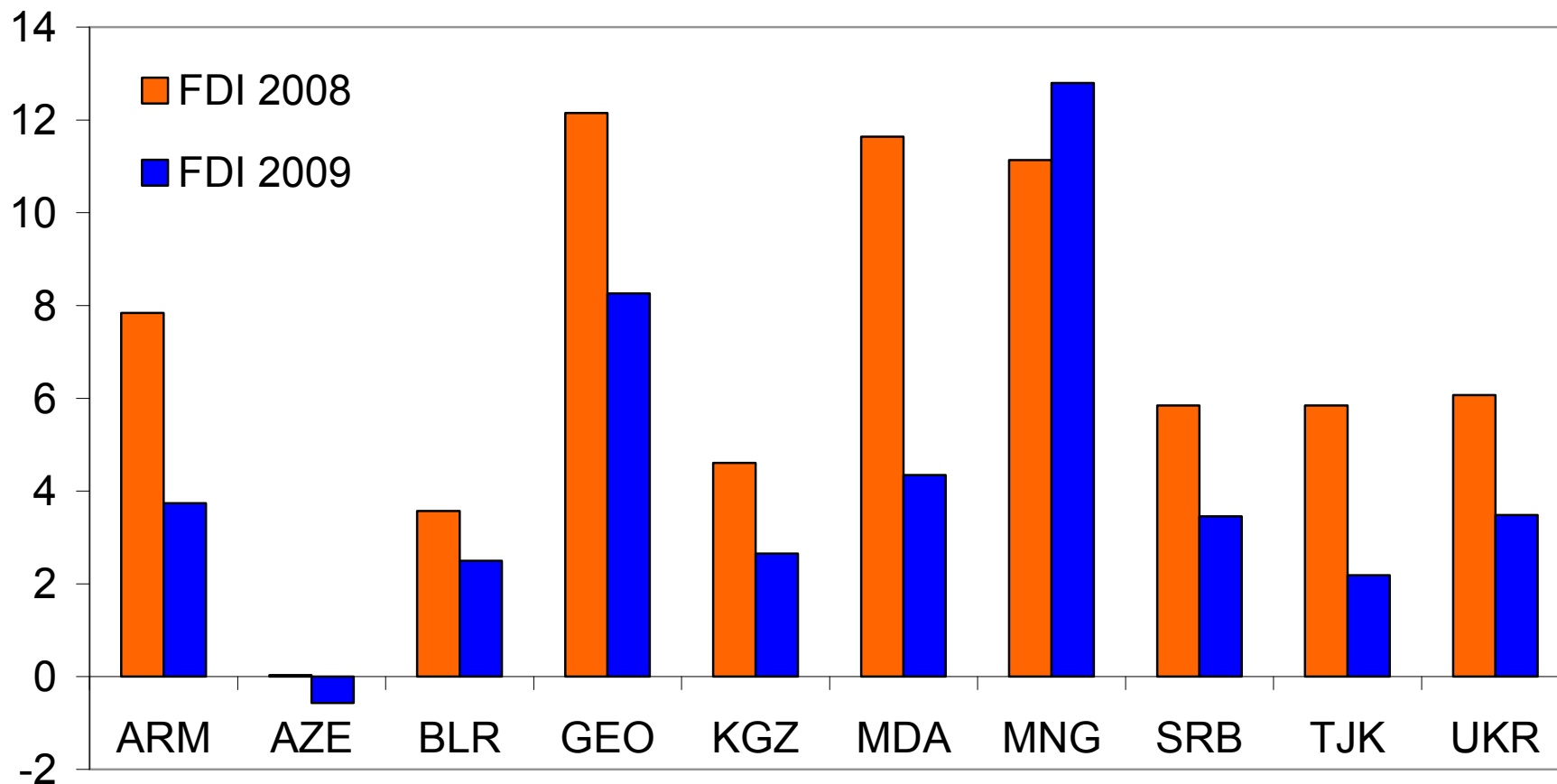


1/ Inflows are the sum of remittances, compensation of employees and migrants transfers.

Sources: IMF, staff estimates and projections

and in FDI

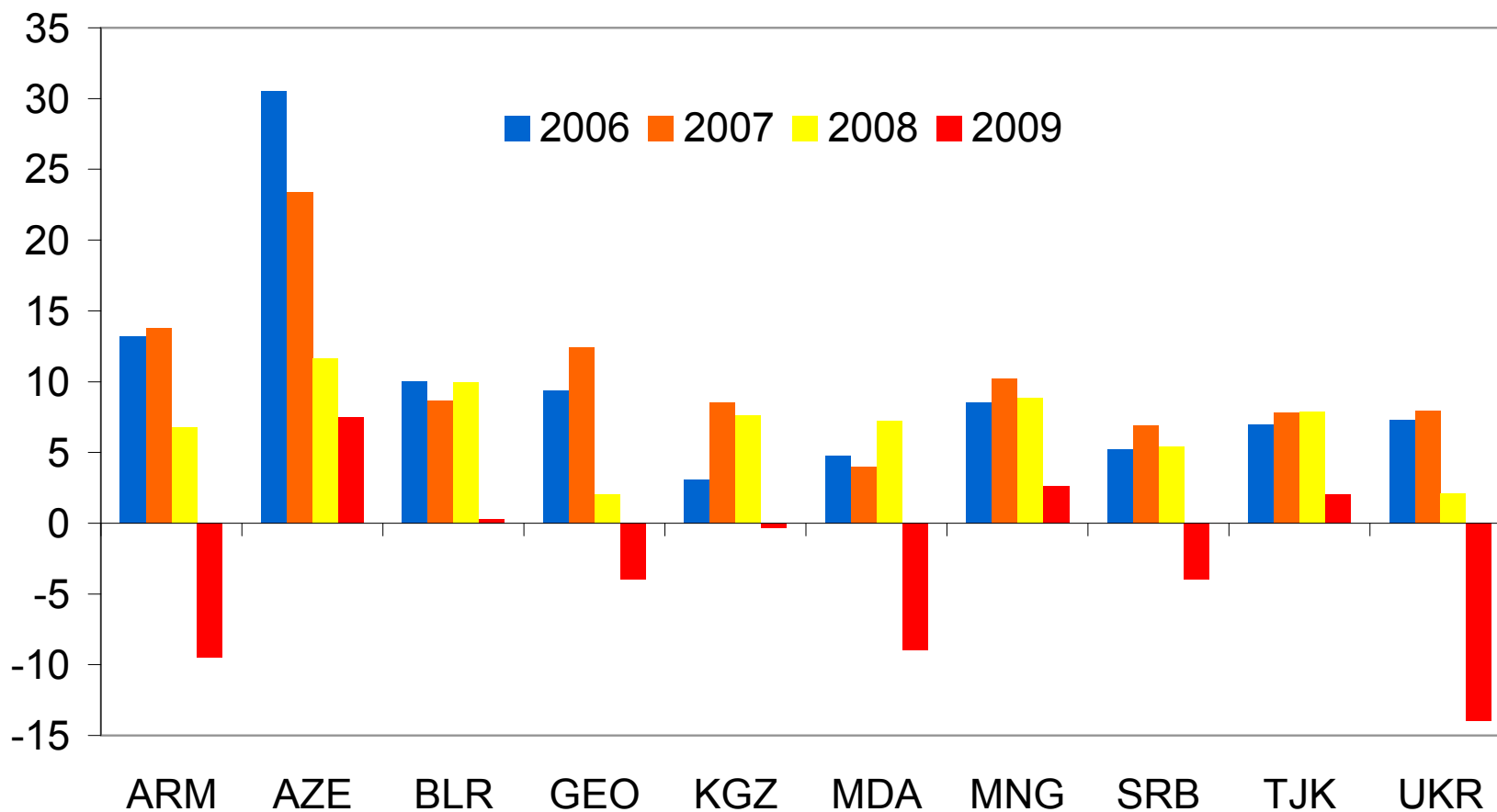
Foreign Direct Investment
(In percent of GDP)



Sources: IMF, staff estimates and projections

As a result of the fall in exports, remittances, and FDI, GDP has slowed down or fallen

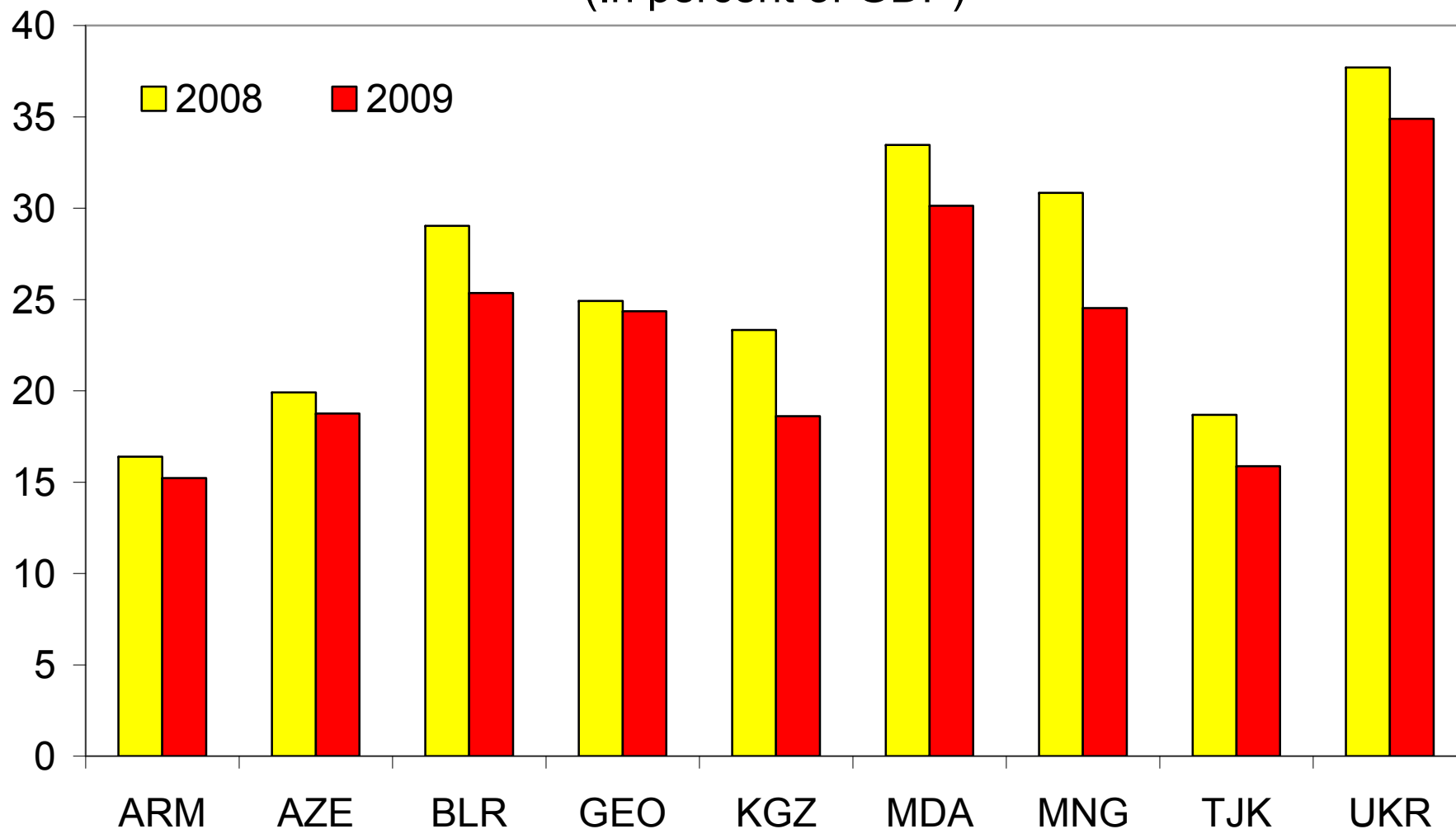
Real GDP growth in selected countries



Sources: IMF, staff estimates and projections

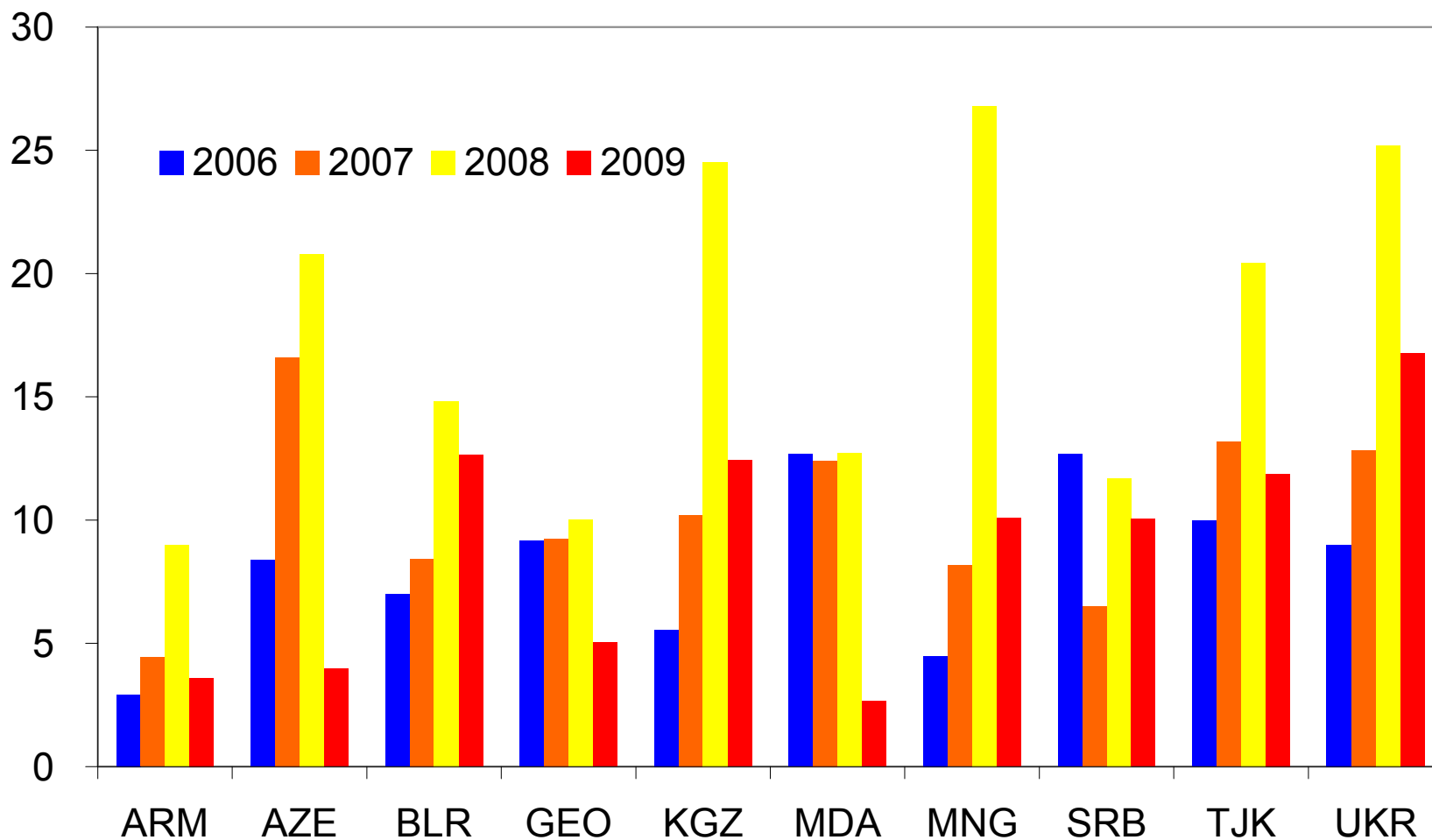
Tax revenues have also been falling as a result

Tax Revenues
(In percent of GDP)



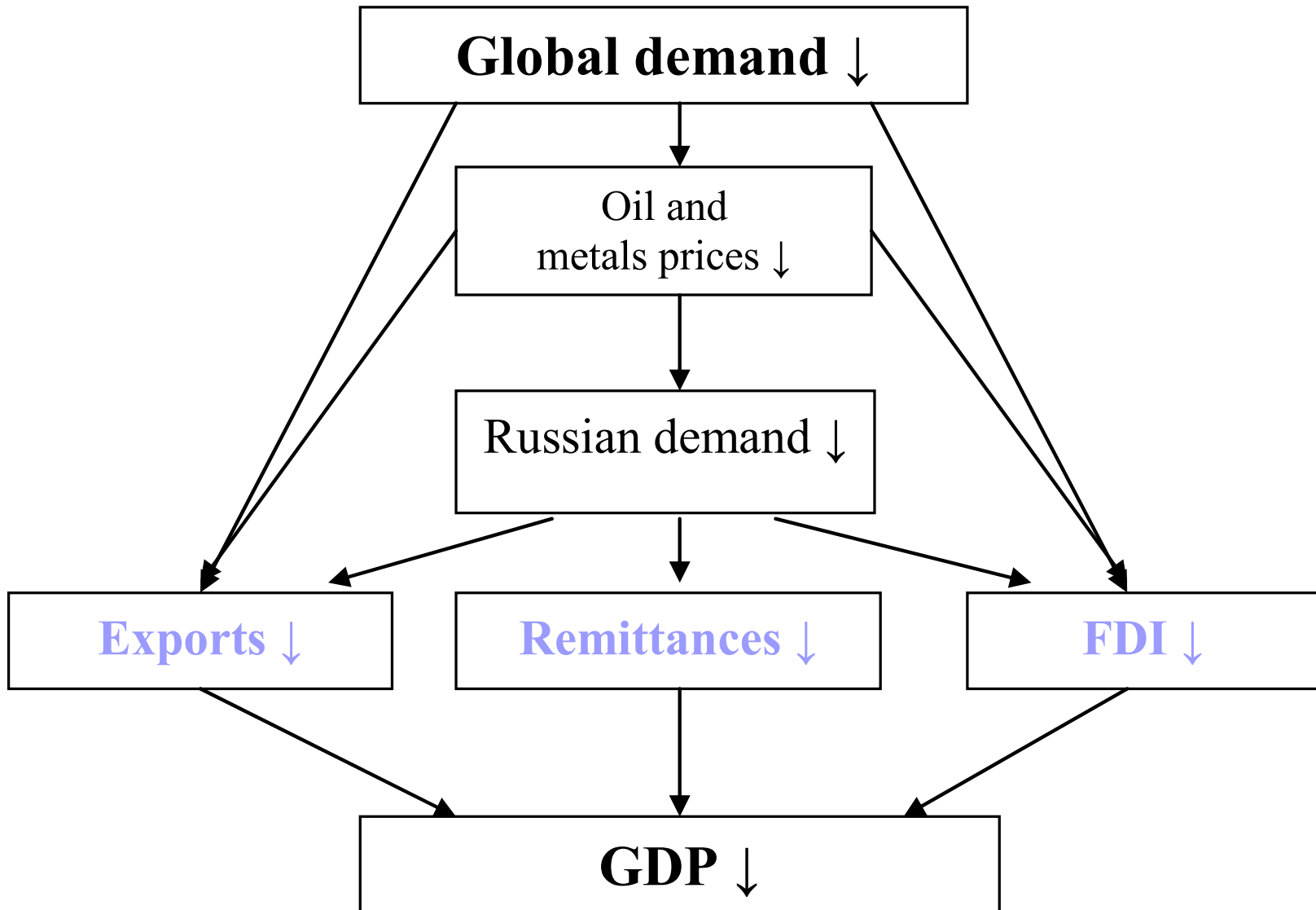
Sources: IMF, staff estimates and projections

The only positive news is that the fall in domestic and external demand has led to lower inflation



Sources: IMF, staff estimates and projections

3. Consequences for Armenia



Copper prices lost about 2/3 of their value

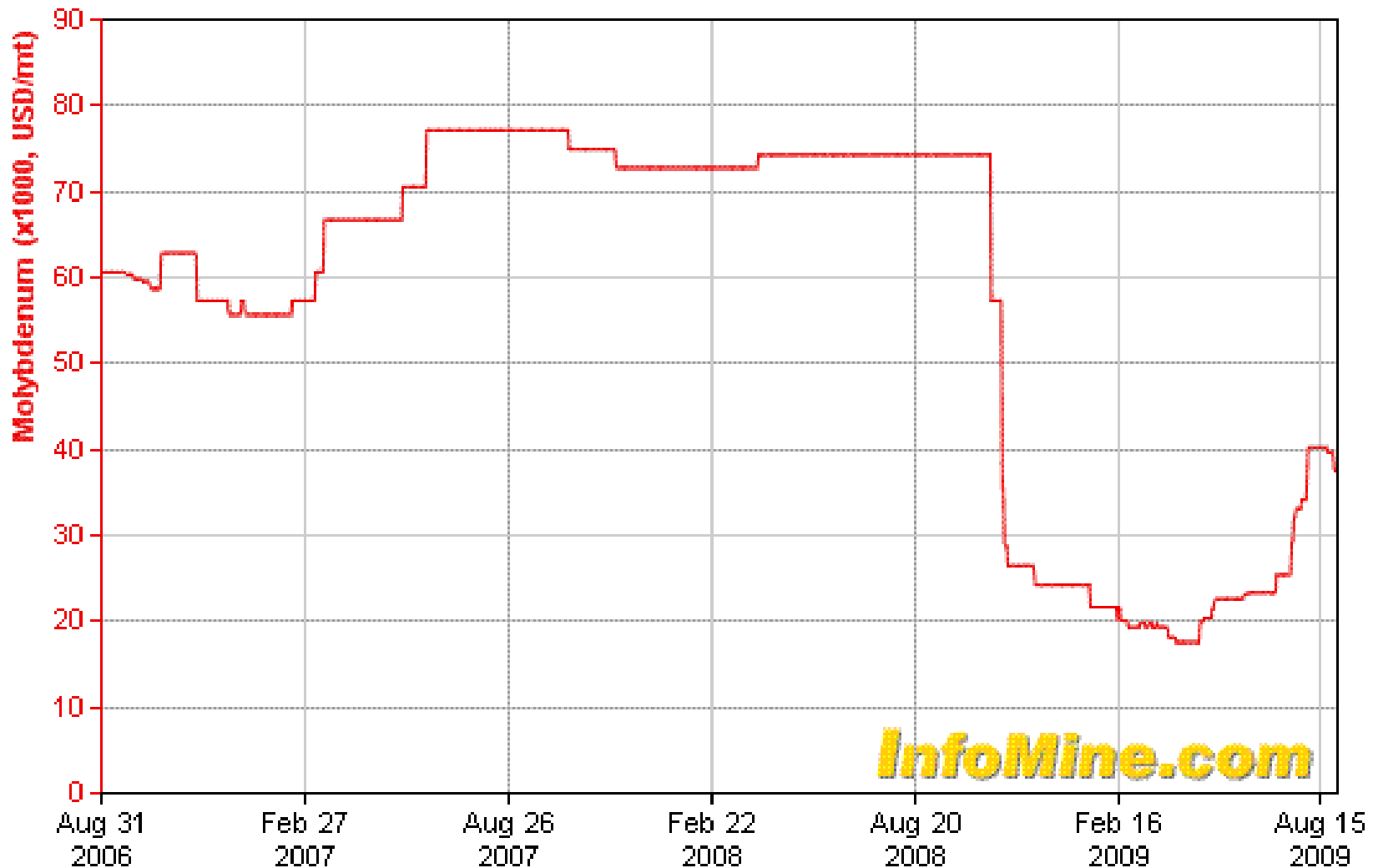
COPPER

5 YEARS (Aug 31, 2004 - Aug 30, 2009)

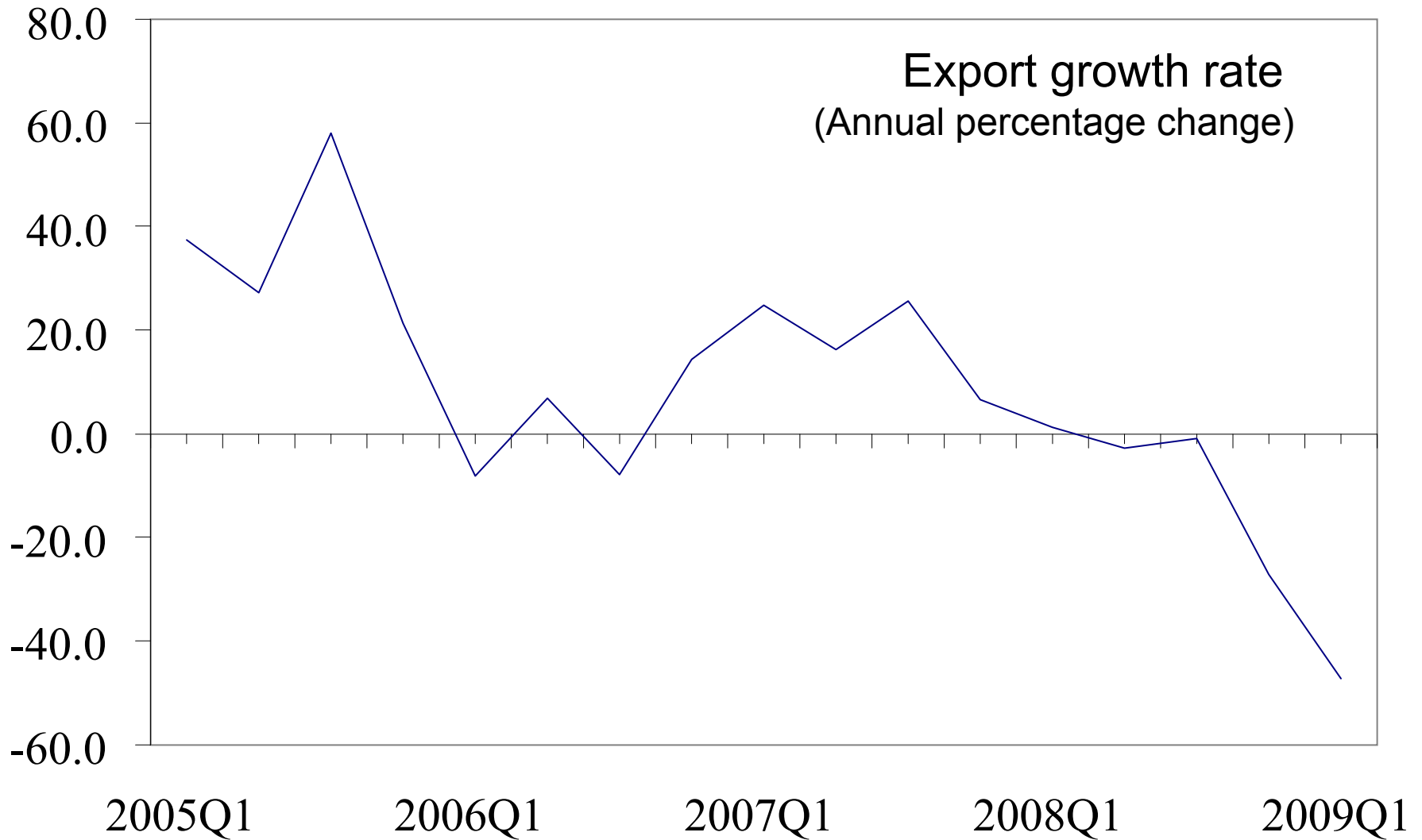


Molybdenum prices lost > 2/3 of their value

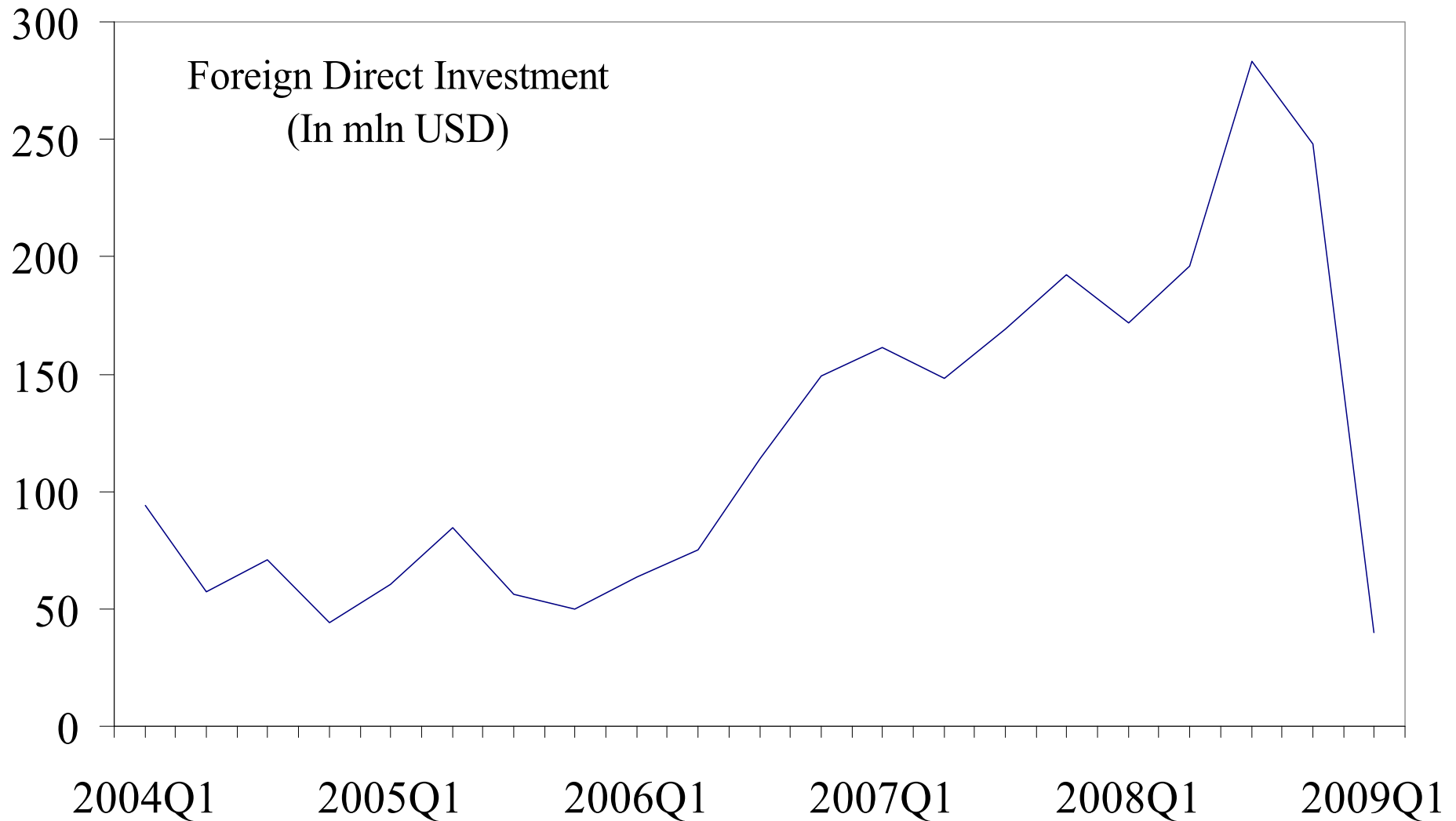
MOLYBDENUM
3 YEARS (Aug 31, 2006 - Aug 30, 2009)



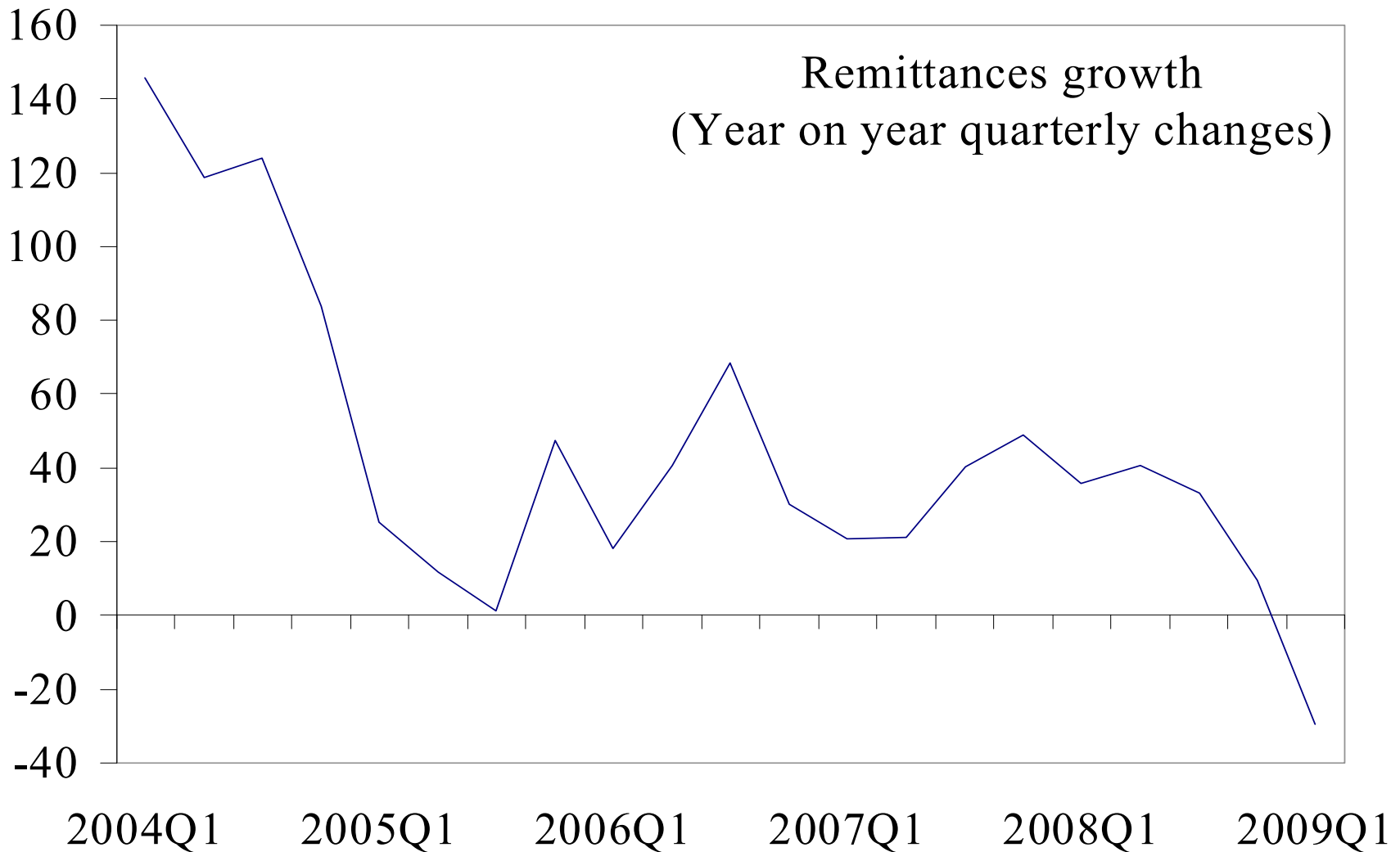
As a result, Armenian exports fell by 47 percent



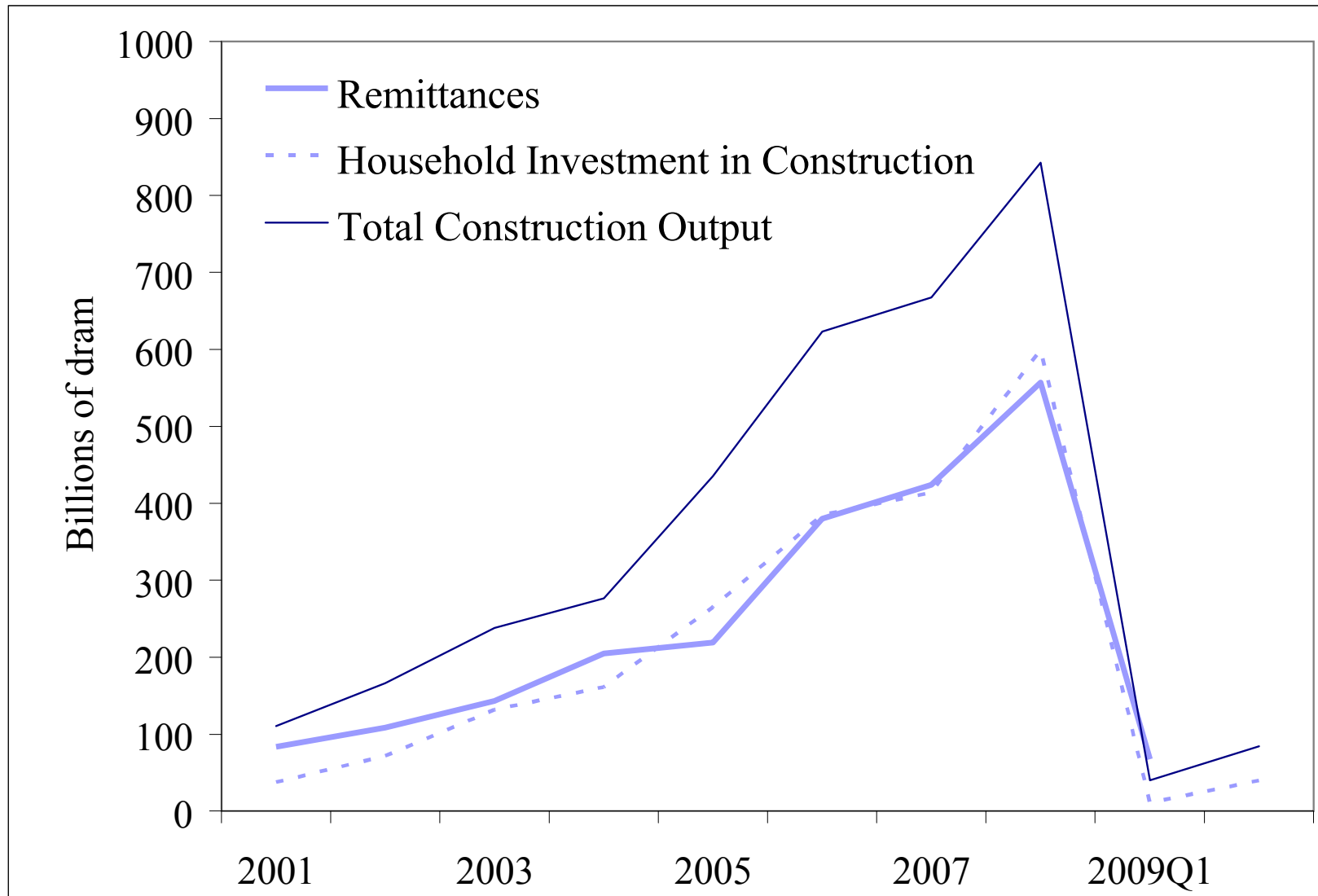
and FDI to Armenia fell by almost \$250 mln



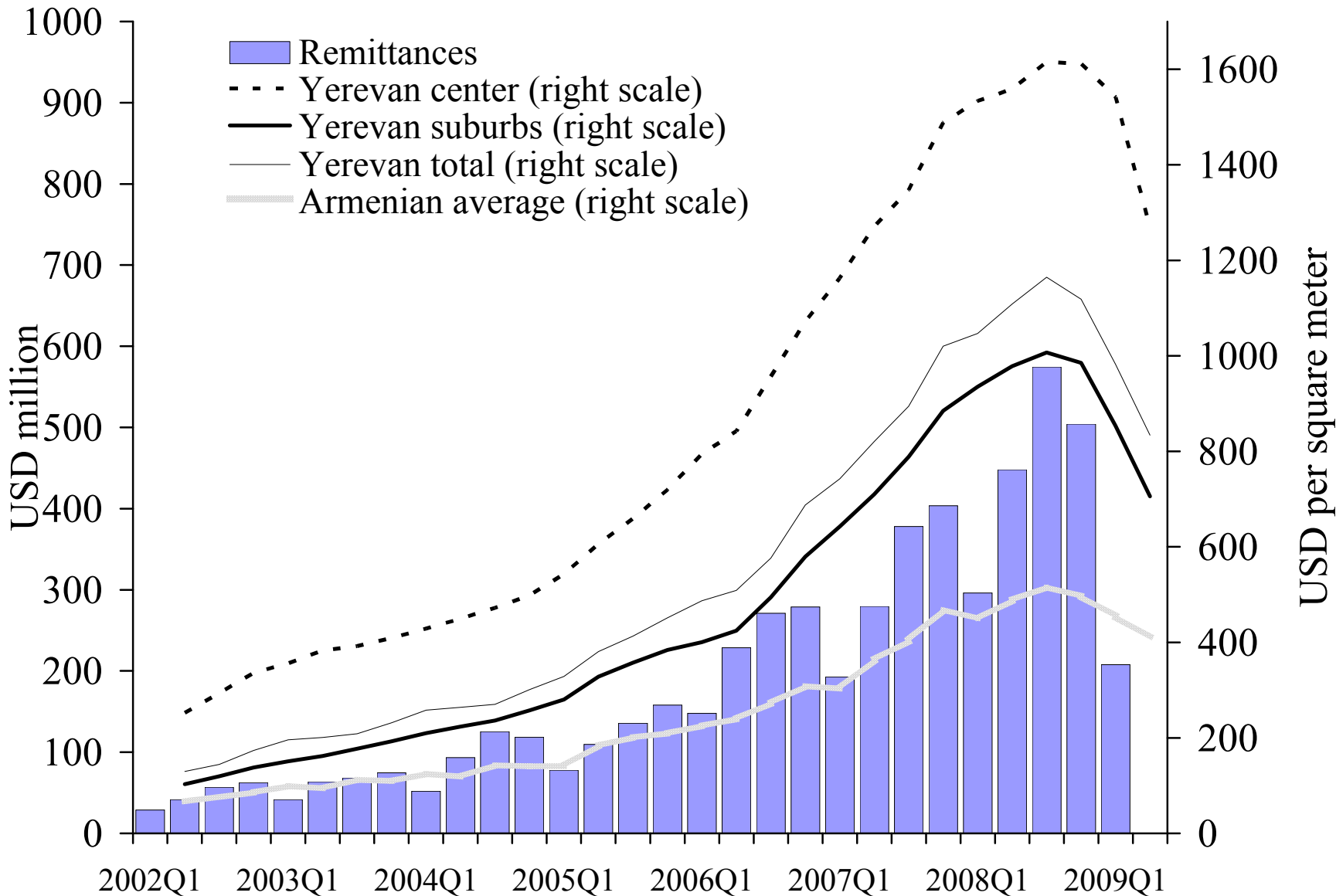
Remittances to Armenia stopped growing and started falling (from +30% to -30%)



The drop in remittances led to a large drop in construction output...

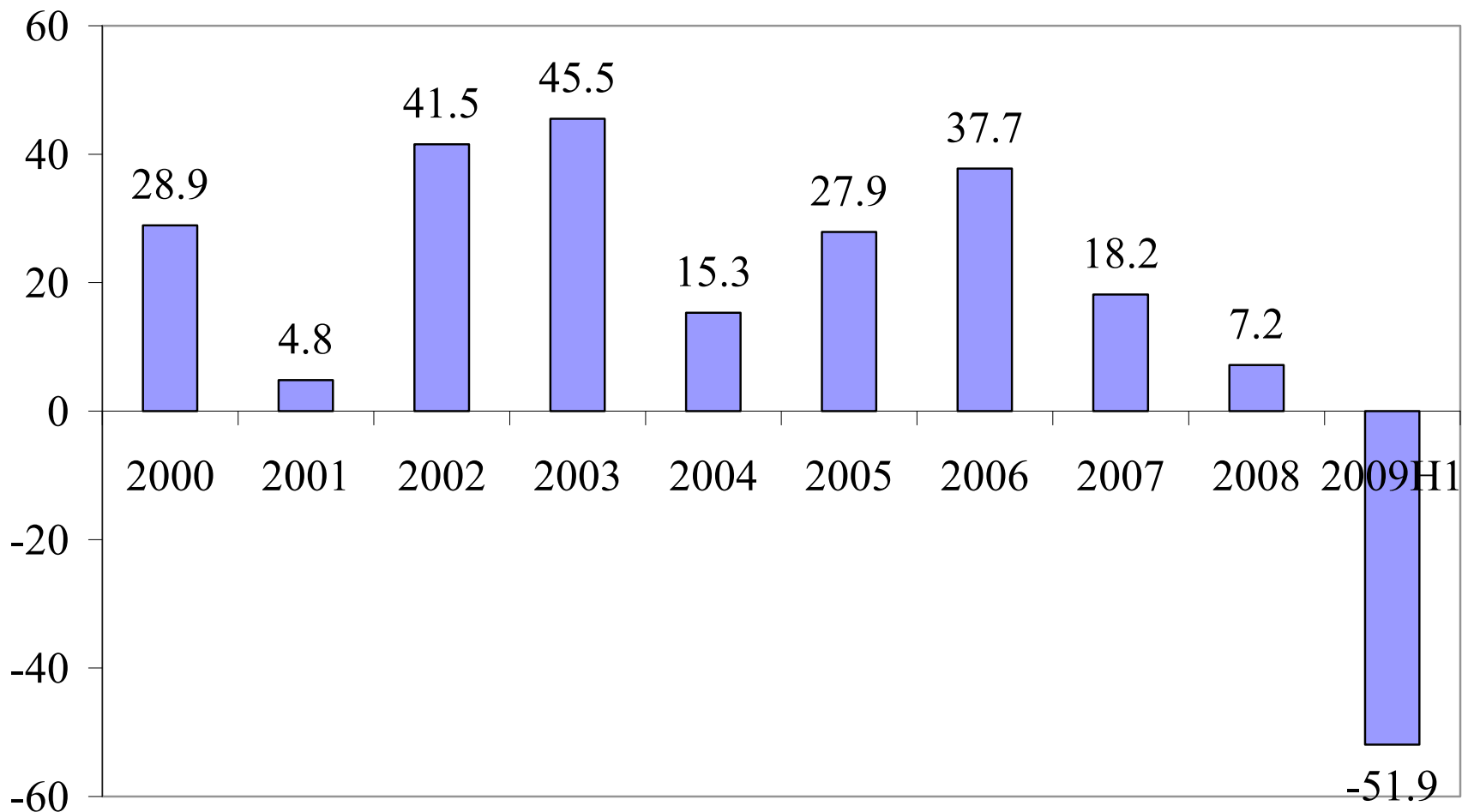


...and a drop in real estate prices (by about 30%)

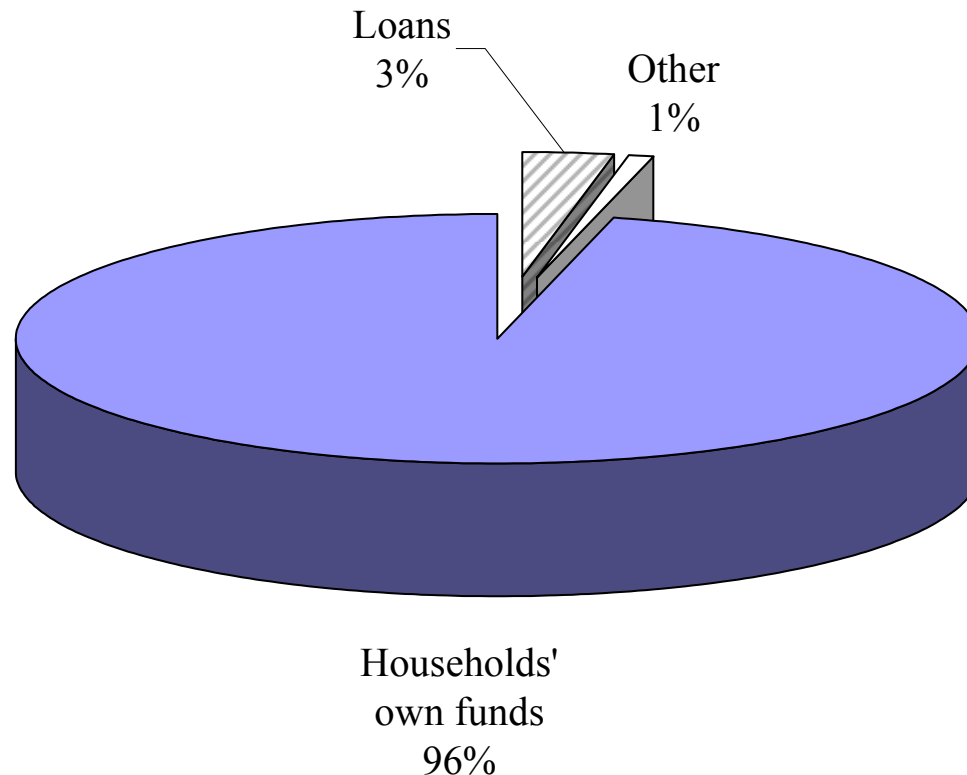


Construction fell by more than 50% during 2009H1

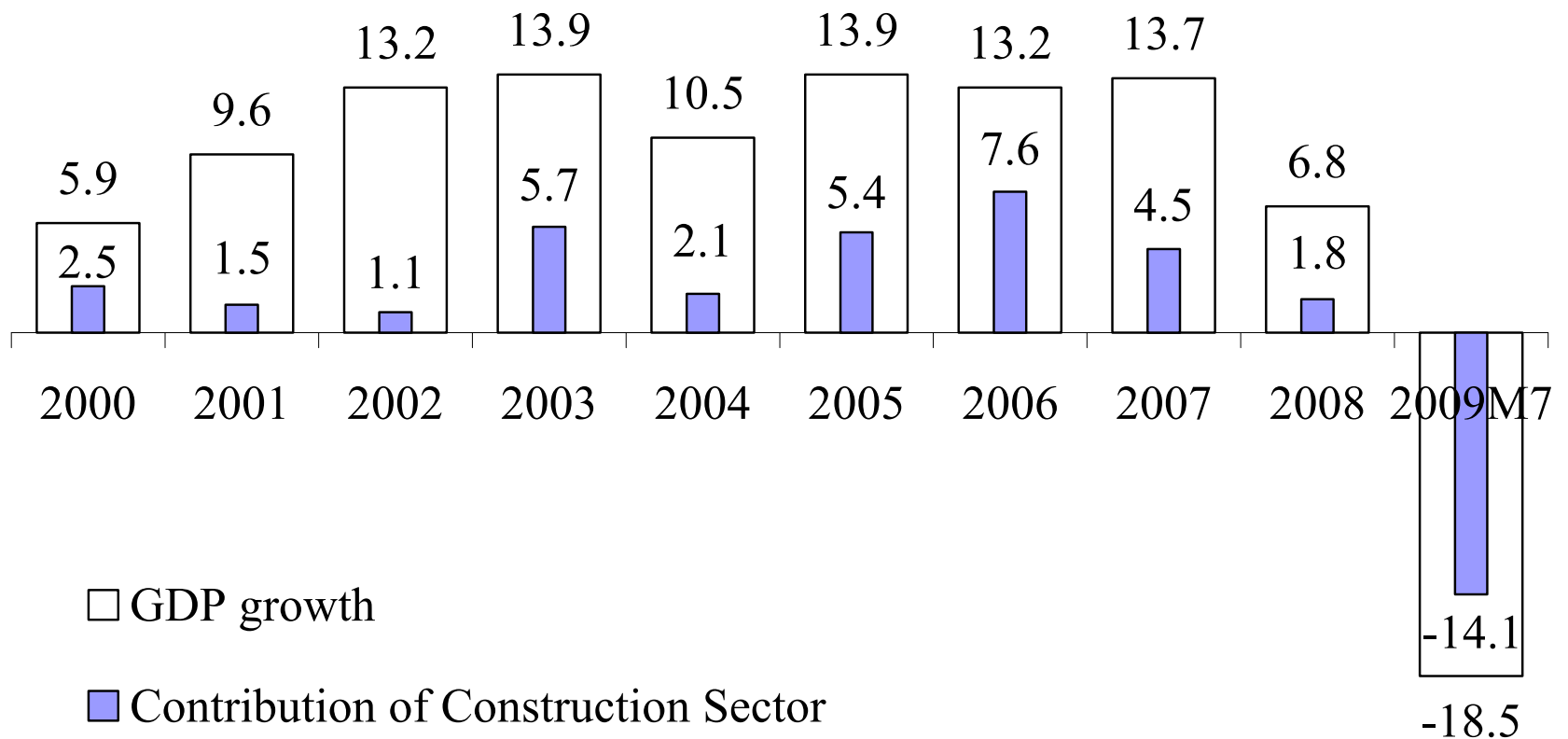
Real Growth of Construction Sector
(In percent)




The lack of mortgage credit did not play a big role, given that household investment in construction was mostly financed by cash



The large drop in construction explains most (about 3/4) of the large drop GDP in Armenia





The boom years had resulted in exchange rate appreciation and de-dollarization

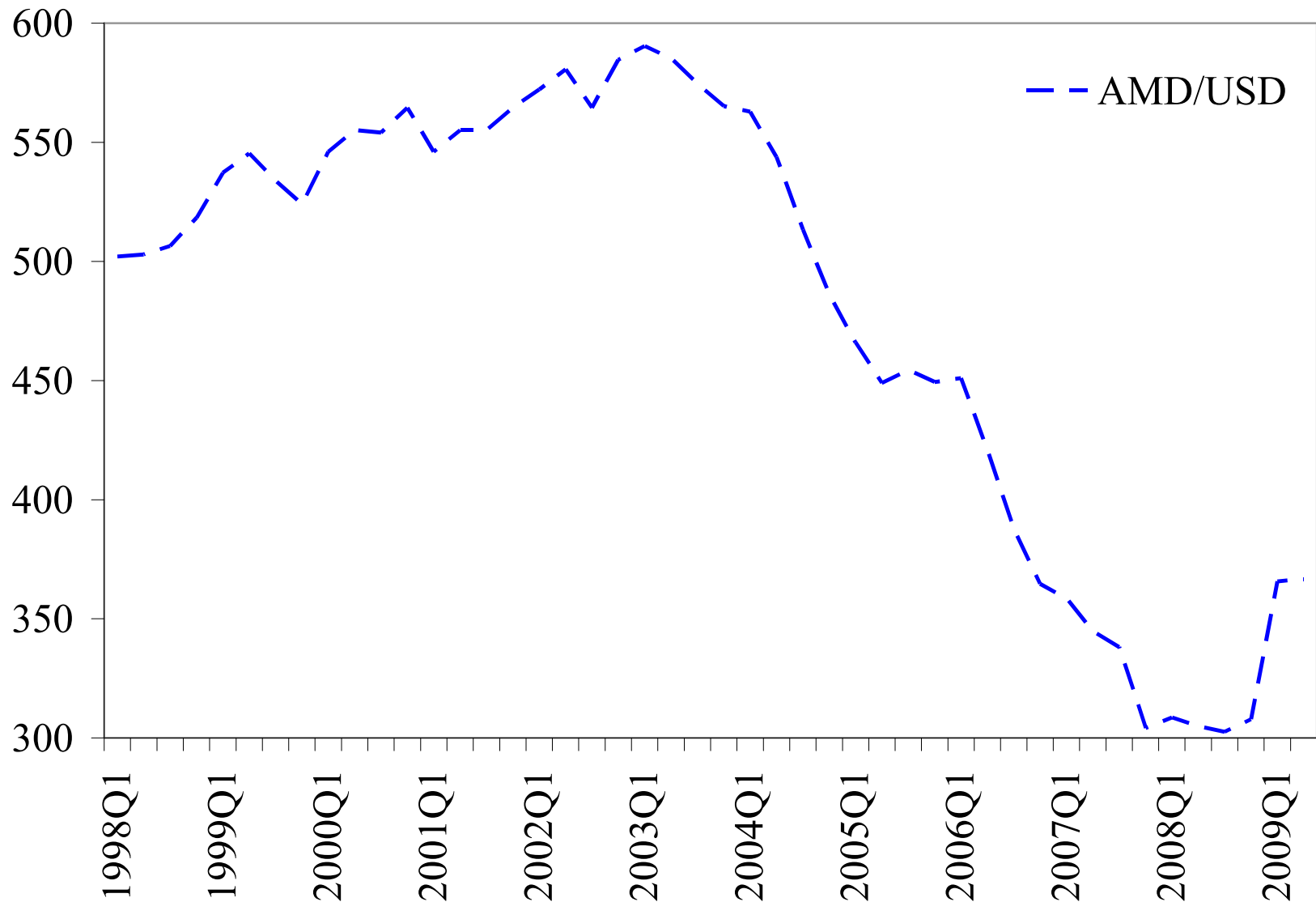
- Increasing supply of foreign currency:
 - Booming exports
 - Booming remittances
 - Booming FDI
- Increasing demand for local currency:
 - Booming domestic demand for domestic goods
 - Booming foreign demand for domestic goods
 - Expected appreciation → de-dollarization



But the economic crisis resulted in exchange rate depreciation and re-dollarization

- Falling supply of foreign currency:
 - Falling exports
 - Falling remittances
 - Falling FDI
- Falling demand for local currency:
 - Falling domestic demand for domestic goods
 - Falling foreign demand for domestic goods
 - Expected depreciation → dollarization

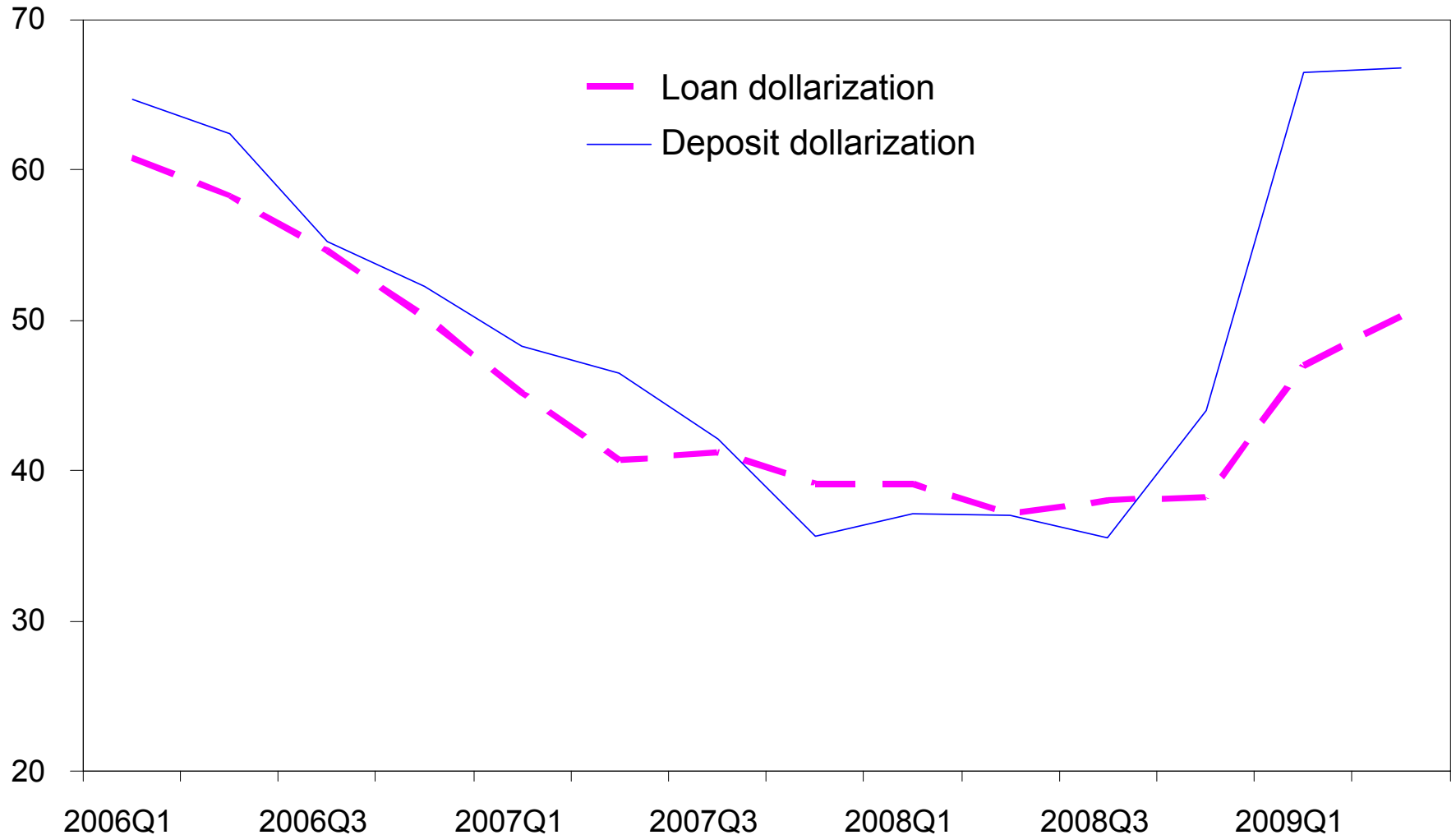
On 3/3/09, the Armenian dram depreciated by 22%



Why did the depreciation not happen earlier?

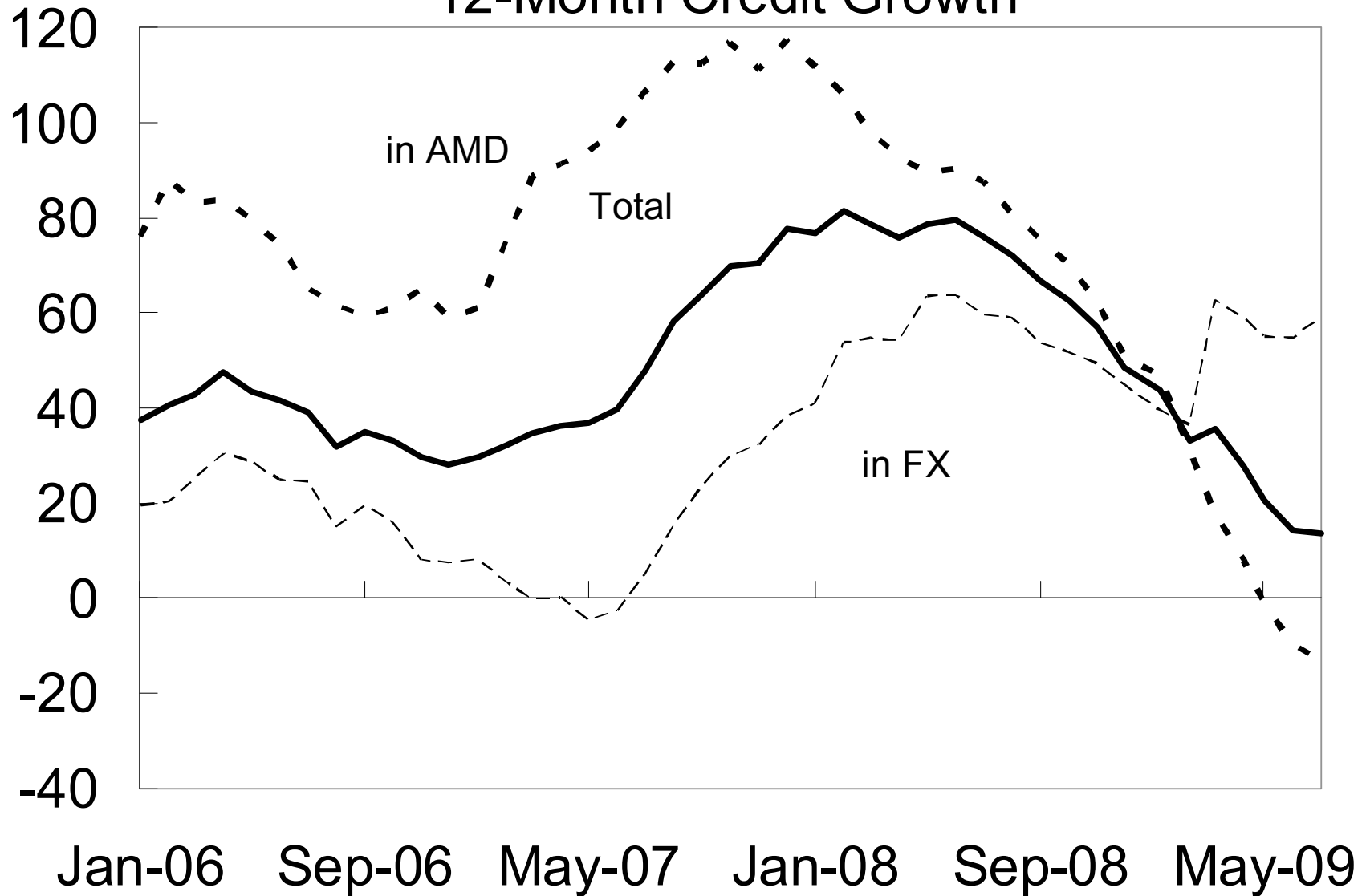
- During 2008, the Central Bank of Armenia (CBA) kept the nominal AMD/USD rate within a very tight band, out of concern for financial instability
- To do this, the CBA had to increasingly sell large amounts of dollars, which led to a significant loss in CBA reserves.
- Eventually, a large depreciation was unavoidable

As a result of the delayed depreciation, there was a significant increase in dollarization



...and AMD credit dried up

12-Month Credit Growth





4. Financial sector implications

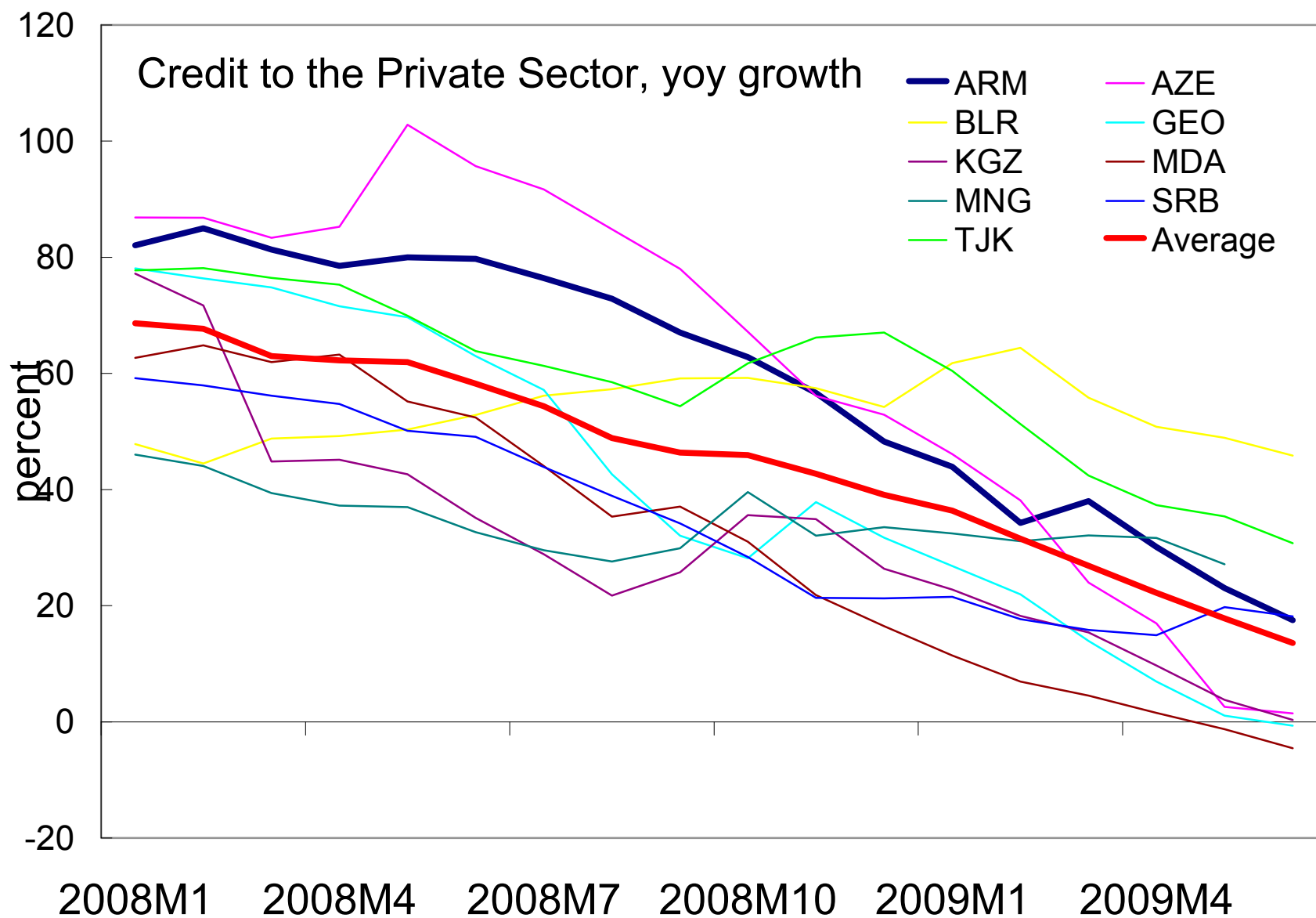
a) Main financial sector challenges

- Credit contraction
- High dollarization

b) Increased banking system vulnerabilities

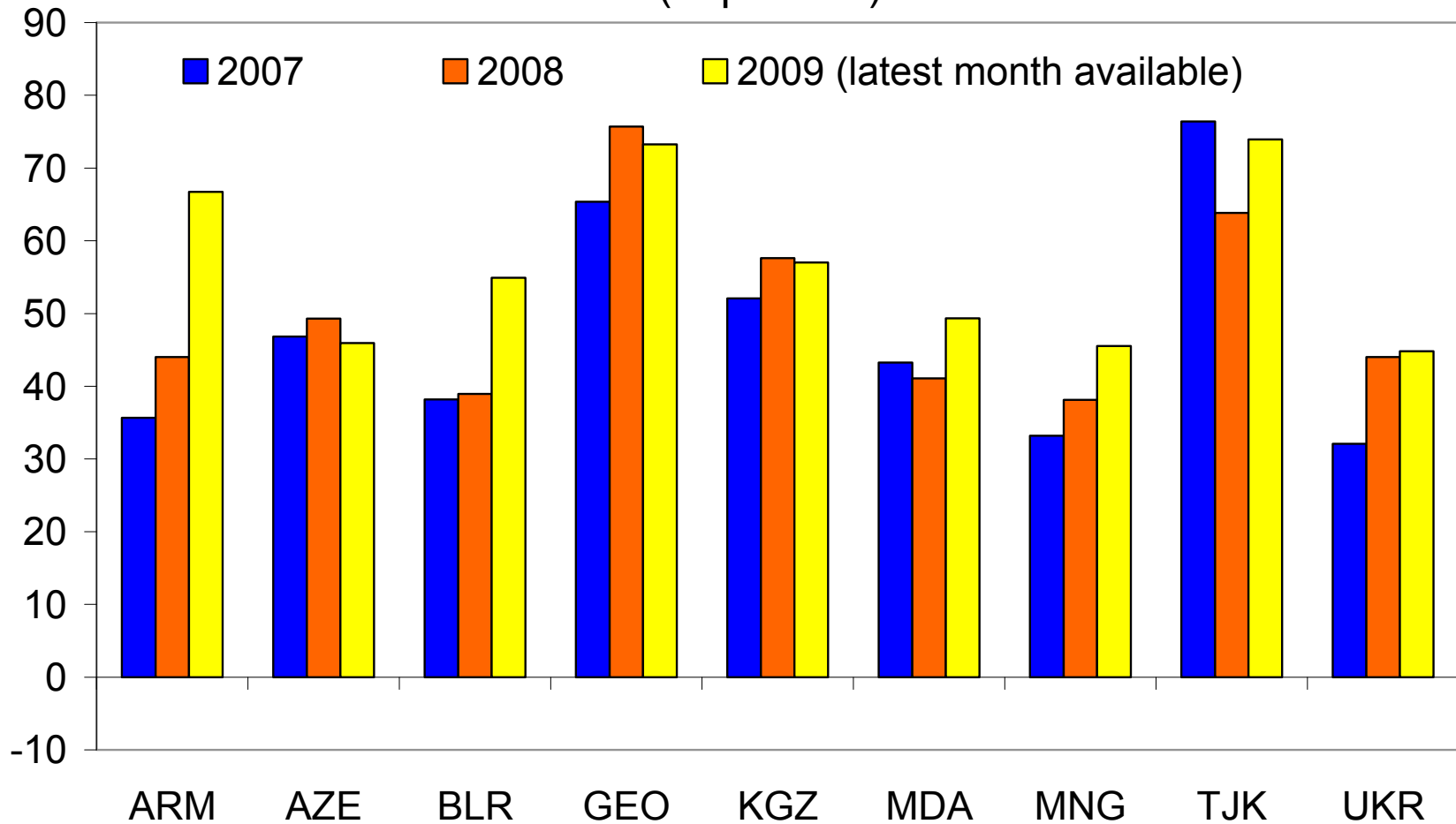
- Credit risk
- Exchange rate risk
- Liquidity risk

Credit has contracted almost everywhere



and dollarization has increased in many countries

Dollarization of Deposits
(In percent)



Sources: IMF, staff estimates and projections

Causes of the credit contraction

■ Demand-side:

- Economic uncertainty makes borrowers reluctant to borrow
- Fewer lending opportunities in times of economic recession

■ Supply-side:

- Higher credit risk: banks have tightened lending standards
- Currency mismatch: shortage of dram liquidity due to re-dollarization
- Maturity mismatch: shortage of long-term dram funding

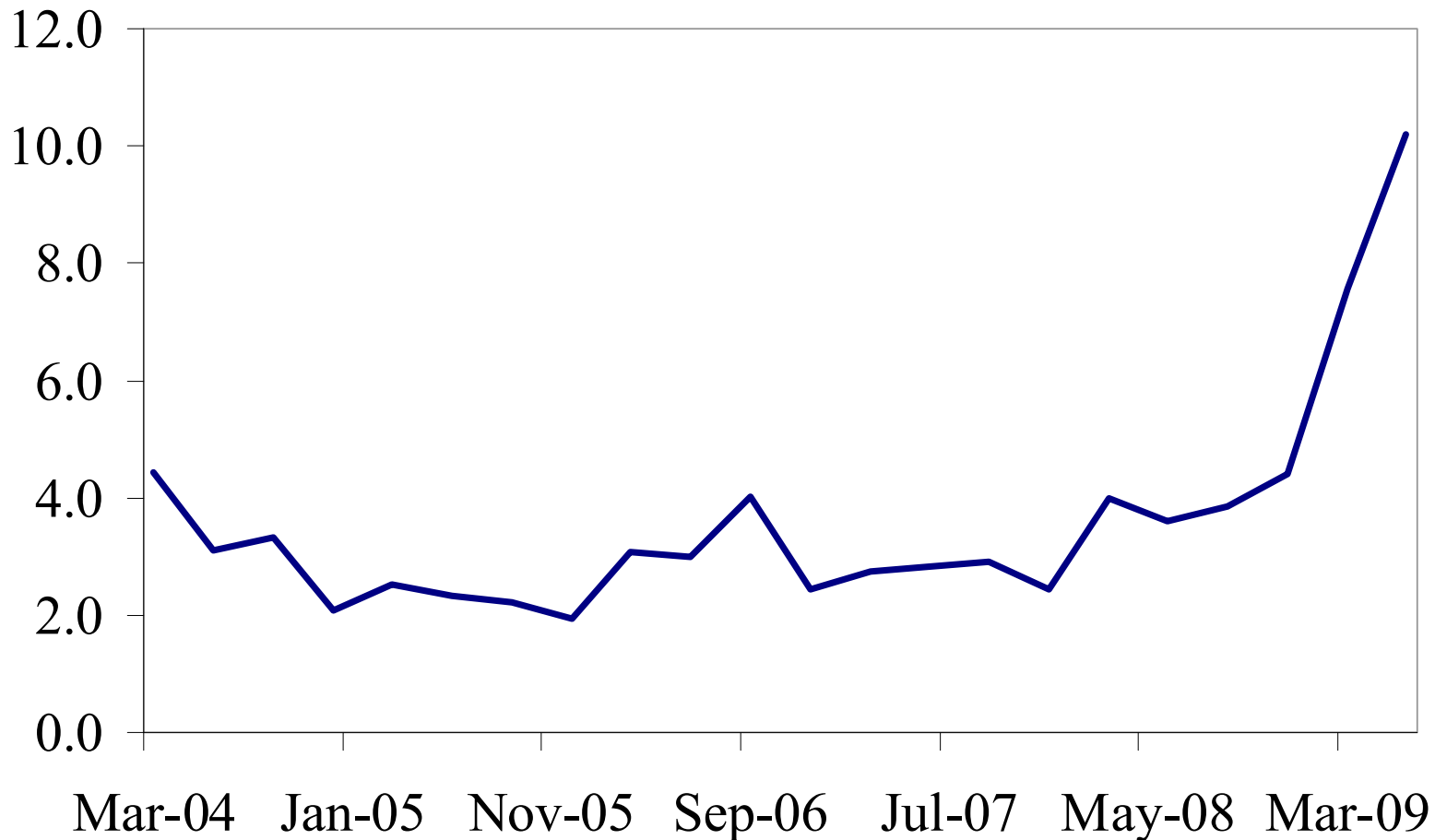


Increased banking system vulnerabilities

- a) Credit risk
- b) Exchange rate risk
- c) Liquidity risk

(a) Credit risk increased: NPLs have more than doubled since end-2008

Nonperforming Loans to Total Loans
(in percent)

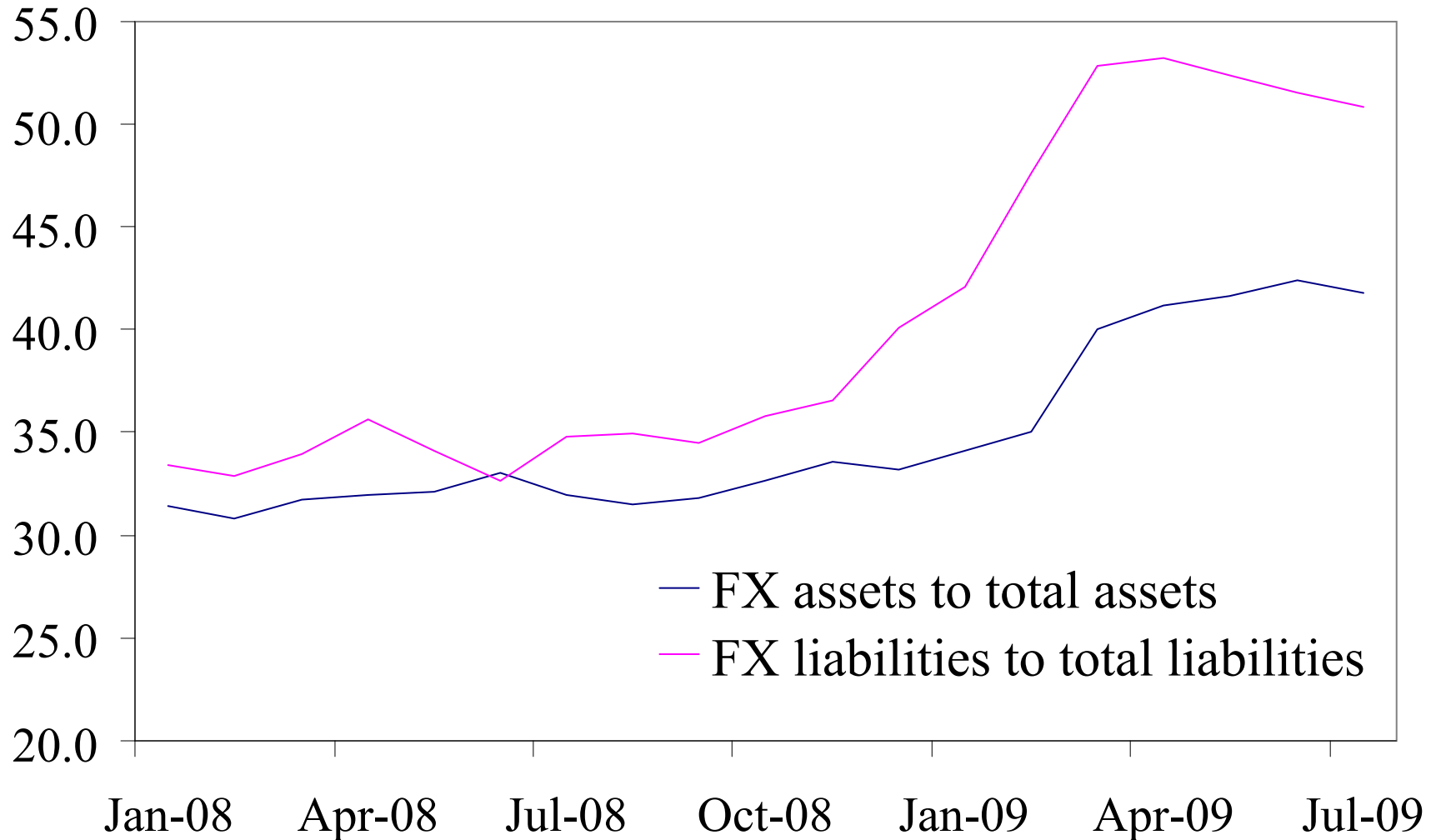




b) Exchange rate risk

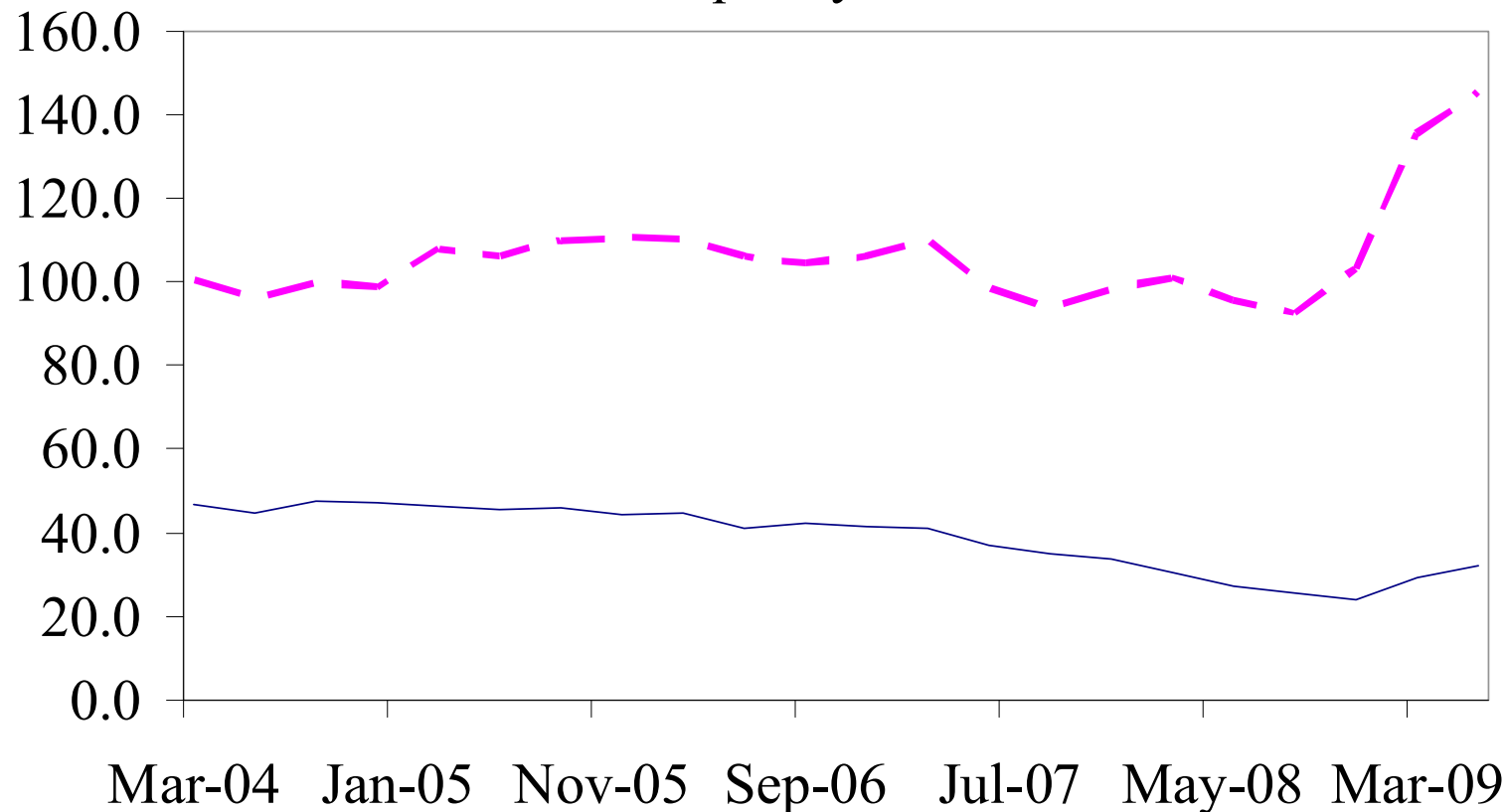
- Rapid redollarization led to increased currency mismatch
- However, by now most banks have closed their net FX open positions, so direct exchange rate risk is limited
- Indirect exchange rate risk still exists through increased credit risk on FX loans to unhedged borrowers

The currency mismatch increased, but exchange rate risk is limited with closed open FX positions



c) Liquidity risk seems limited given high liquidity ratios

Banks' Liquidity conditions



— Liquid assets to total assets

- - - Liquid assets to total short-term liabilities

5. Policy responses

1. Fiscal stimulus

- Higher government spending
- Tax cuts in some countries

2. Monetary stimulus

- Interest rate cuts
- Credit easing and liquidity easing measures to improve funding conditions for banks and businesses
- Quantitative easing to affect longer-term yield

3. Exchange rate policy

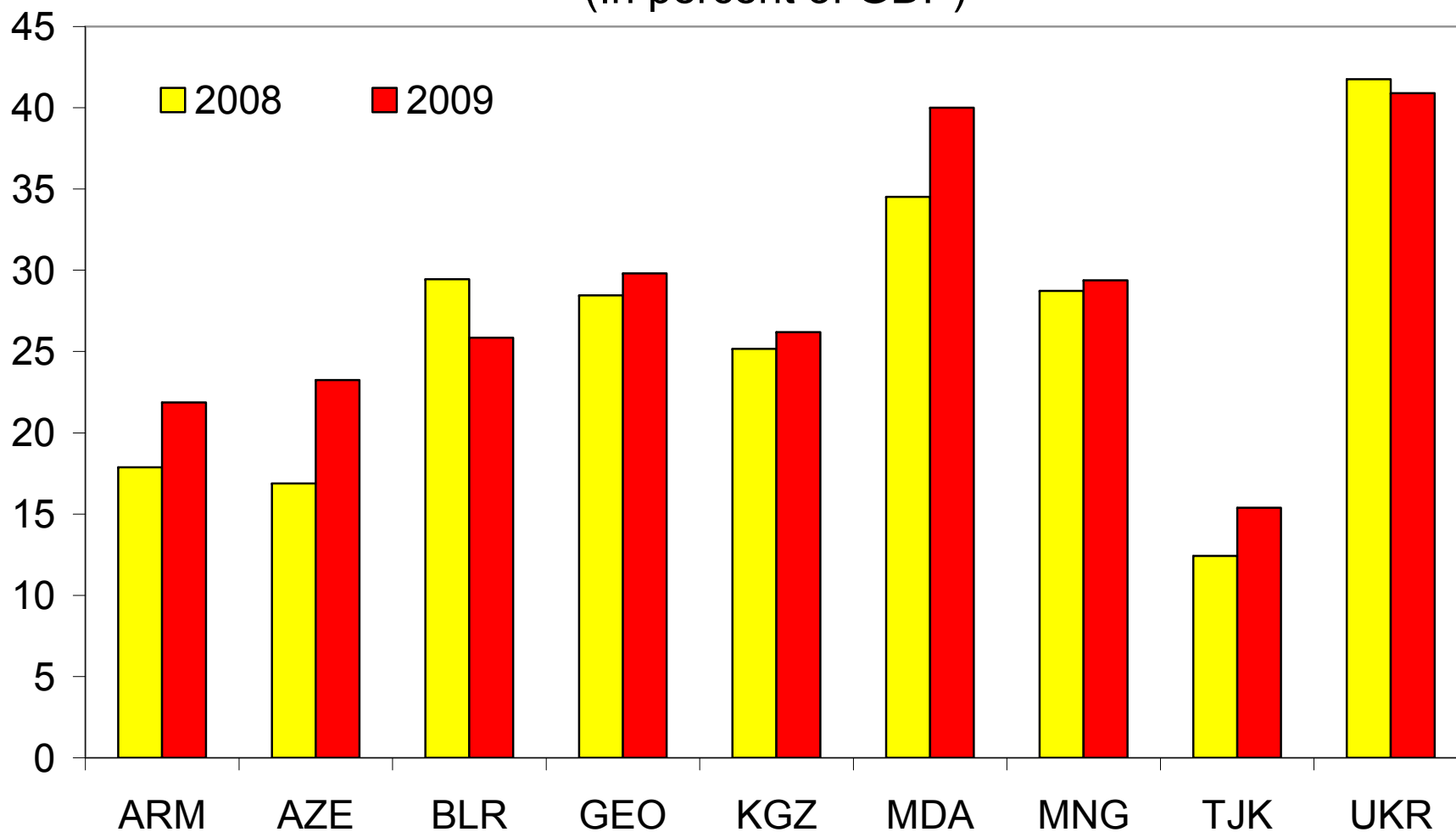
- Allow depreciation and increase flexibility of the exchange rate to help absorb shocks

4. Maintaining financial stability

- Extraordinary assistance to the financial sector including LOLR, debt guarantees, recapitalization

Policy response 1: fiscal stimulus

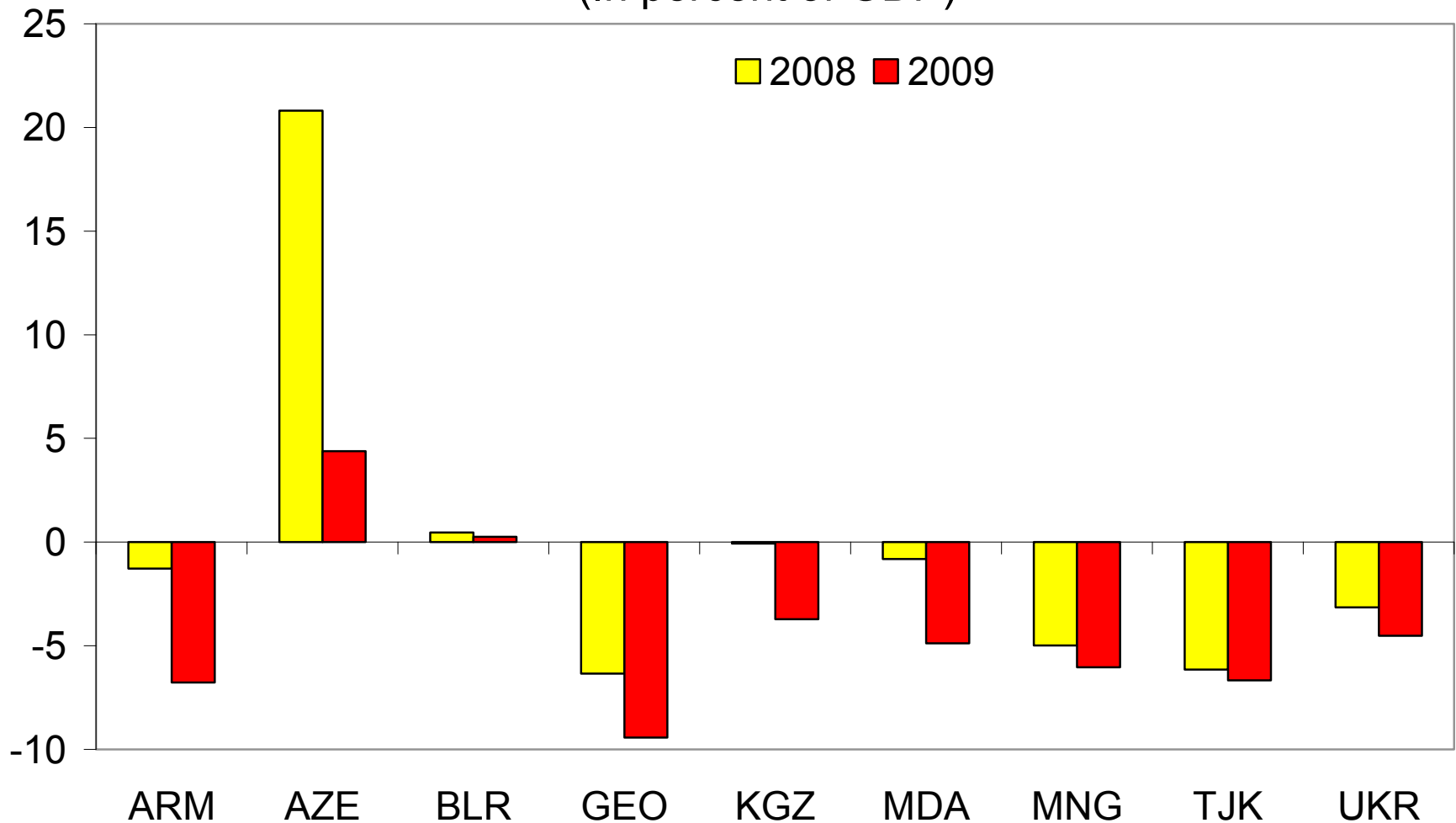
Current Expenditure
(In percent of GDP)



Sources: IMF, staff estimates and projections

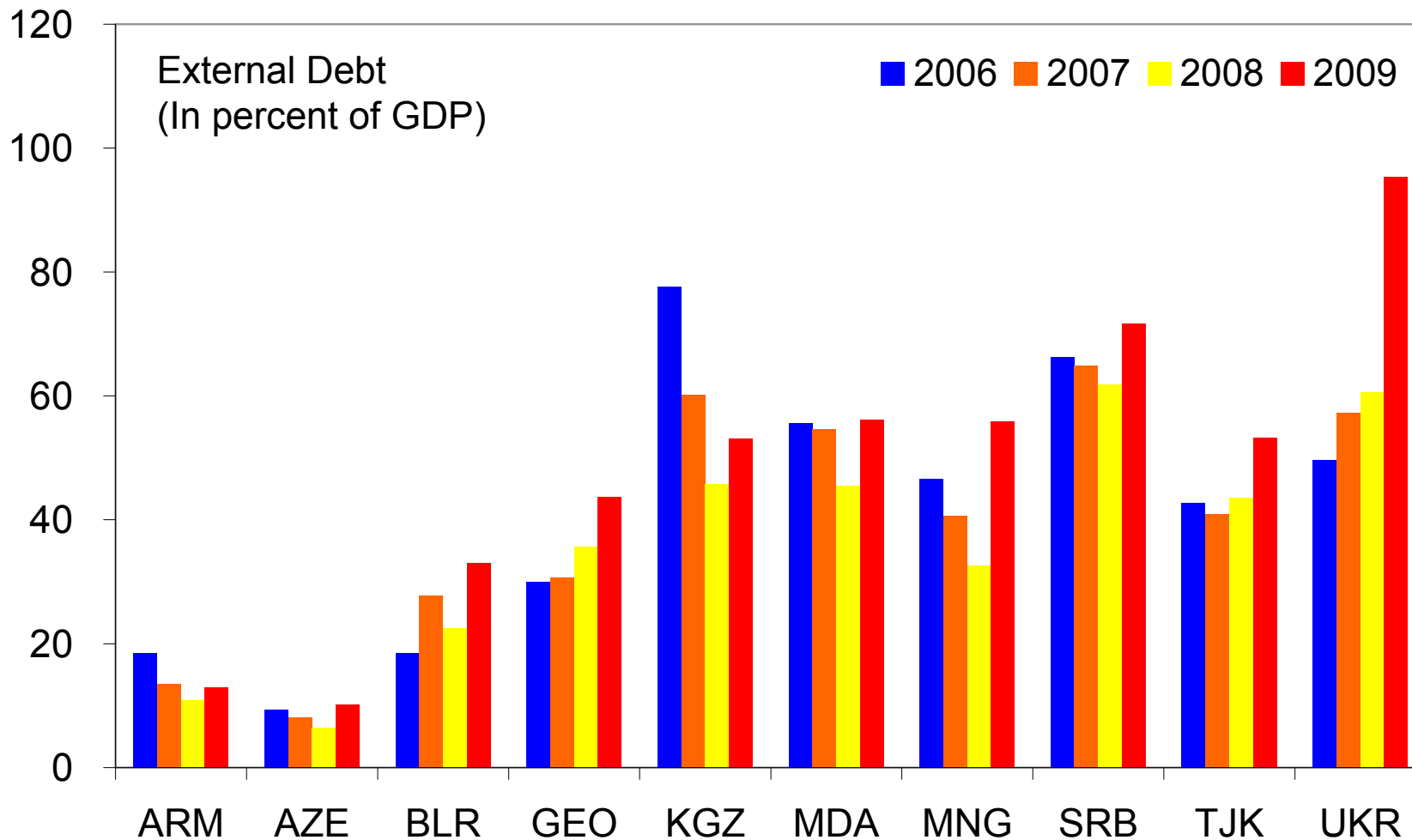
Policy response 1: fiscal stimulus

Overall Fiscal Balance
(In percent of GDP)



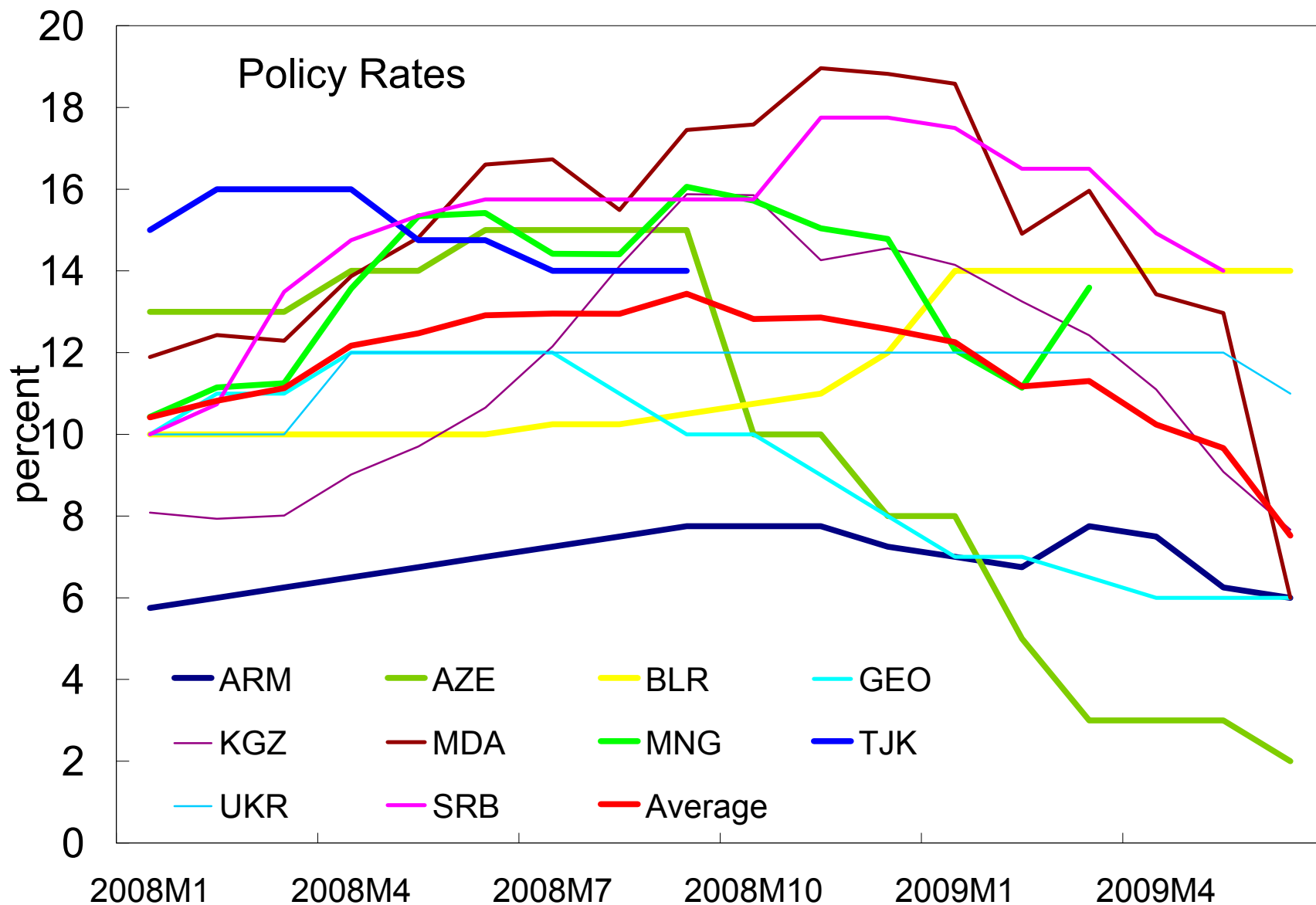
Sources: IMF, staff estimates and projections

Resulting in an increase in total external debt, raising medium-term vulnerabilities



Sources: IMF, staff estimates and projections

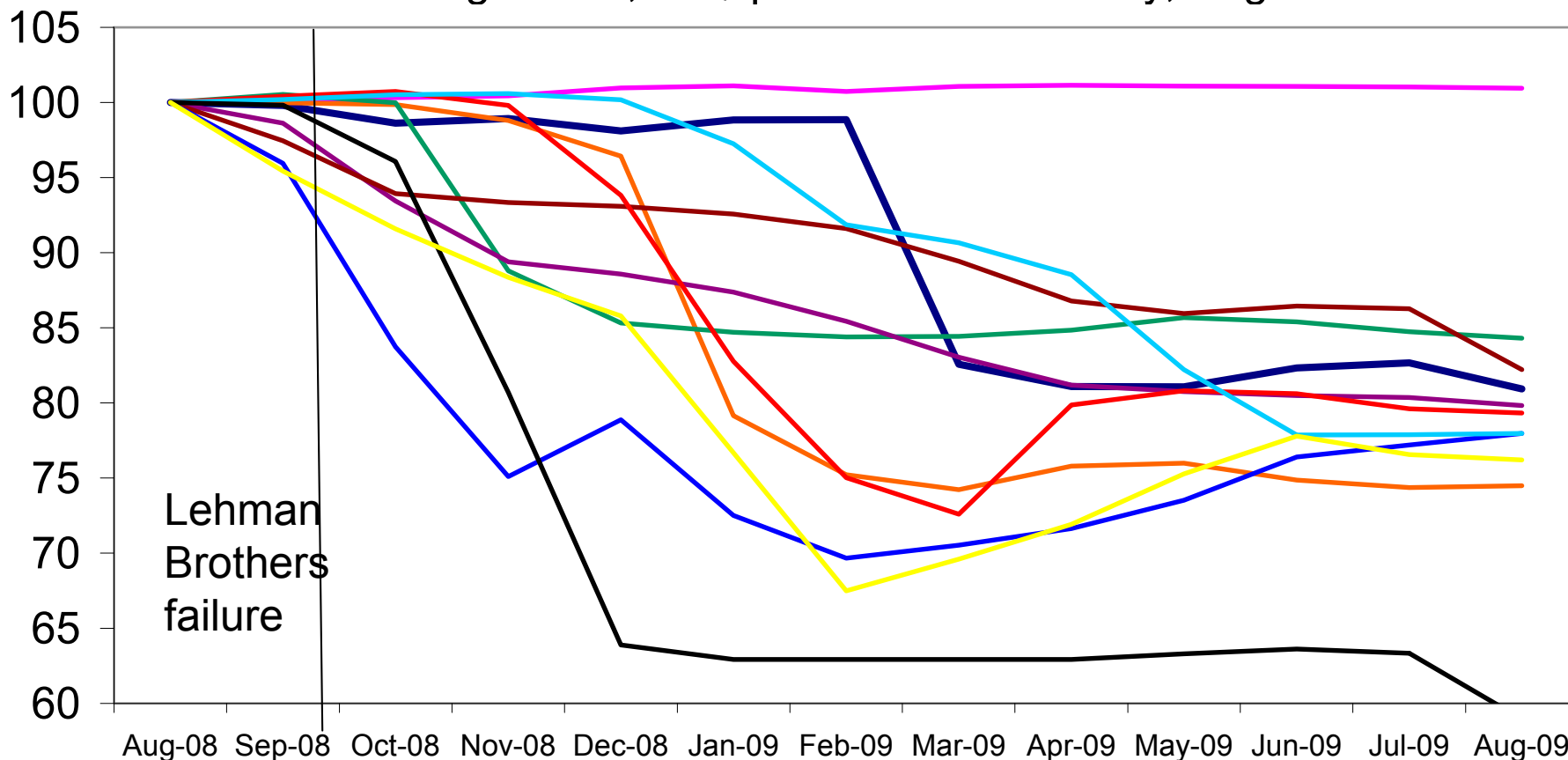
Policy response 2: monetary stimulus



Policy response 3: exchange rate depreciation

ARM AZE BLR GEO KGZ MDA MNG SRB TJK UKR RUS

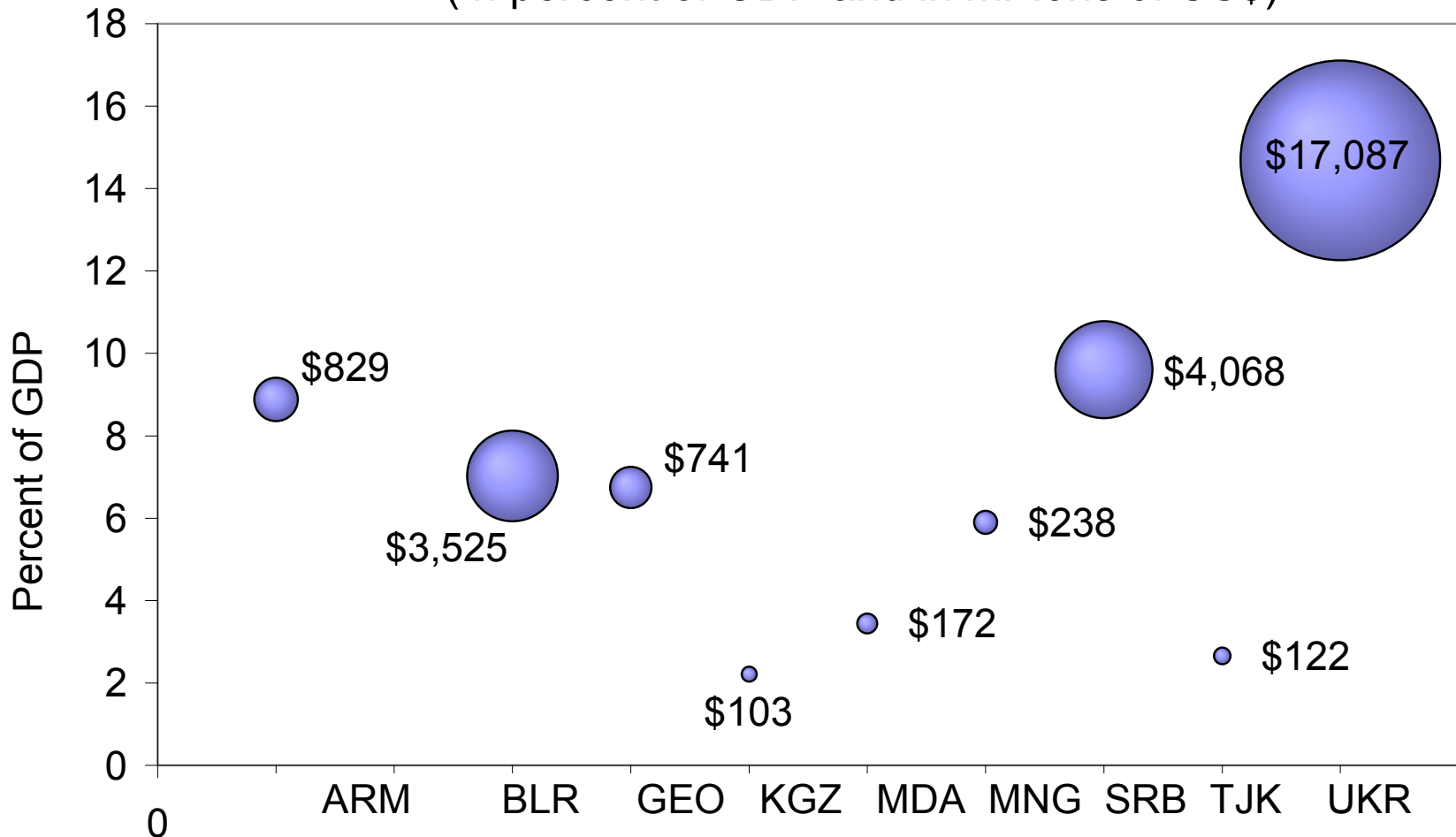
Nominal exchange rates, US\$ per national currency, Aug 2008=100



Sources: IMF, staff estimates and projections

Many of these policy responses have been supported by IMF programs

IMF Programs, as of July 2009
(In percent of GDP and in millions of US\$)



Sources: IMF, staff estimates and projections

Armenian policy response thus far

1. Fiscal stimulus

- Despite large drop in tax revenues, no substantial cut in expenditure
- Large increase in the deficit in 2009

2. Monetary stimulus

- Repo rate cut by 250 basis points since April 2009
- Provision of longer-term liquidity via 3-month repo
- Setting up a Secondary Mortgage Operator
- Targeted on-lending programs to SMEs, housing and construction sectors to channel credit to the real economy

Armenian policy response thus far

3. Exchange rate policy

- Large depreciation on 3/3/09 and return to a floating exchange rate regime to help absorb shocks

4. Maintaining financial stability

- Strengthen safety net including contingency planning, emergency liquidity provision and deposit guarantee fund
- Secure official external financing to boost confidence and increase the authority capacity in managing the crisis

Effectiveness of policy responses

- Policy responses so far have helped ease both external and domestic financial conditions
- Exchange rate depreciation combined with financial support and recovery in metals prices has stimulated recovery of mining sector
- Monetary stimulus measures have not had much impact yet on stimulating credit growth, in part because of high dollarization
- More needs to be done for a sustained recovery, as considerable risks remain from a severe economic contraction

What else can the authorities do?

- Maintain fiscal stimulus with medium-term fiscal consolidation plan, balancing between financing and adjustment
- Maintain monetary stimulus, as long as it does not threaten the inflation target
- Continued vigilant supervision of the financial system
- Longer-term structural reforms
 - Financial market development: facilitate funding and liquidity management, including by hedging instruments
 - Reforms to stimulate financial deepening
 - Reforms to encourage de-dollarization



What can financial professionals do?

- In the interest of maintaining financial soundness of the banking system, banks need to
 - address vulnerabilities in their business models including funding structures and lending portfolio
 - e.g. reliance on foreign financing or parent funding, concentration in loan portfolio
 - properly identify, quantify and manage all risks, to mitigate impacts of macro or financial shocks
 - Improve risk identification (including off balance sheet exposures)
 - Improve risk measurement
 - Improve risk management

Examples of possible improvements in risk measurement and management

■ Credit risk

- E.g. improve credit analysis by taking into account impact of FX risk on credit risk of borrowers

■ Interest rate risk

- E.g. reduce maturity mismatch by attracting long-term funding (ideally dram-denominated to reduce FX risk as well)

■ Liquidity risk

- E.g. tighter limits on liquidity gap

■ Exchange rate risk

- E.g. stricter internal limits on net open FX position, improve FX hedging techniques

Conclusions

- The global crisis has thus far affected Armenia mostly through real channels (global demand, commodity prices):
 - Exports ↓
 - Remittances ↓
 - FDI ↓
- Problems in the real sector could create problems in financial sector
 - Credit risk ↑
 - Exchange rate risk ↑
 - Liquidity risk ↑
- To ensure that the economic crisis does not become a financial crisis,
 - Authorities should maintain fiscal and monetary stimulus, increase financial sector supervision, and continue structural reforms
 - Banks should improve risk measurement and management