BANK FOR INTERNATIONAL SETTLEMENTS

Weathering the financial crisis: good policy or good luck?

Stephen G Cecchetti, Michael R King & James Yetman

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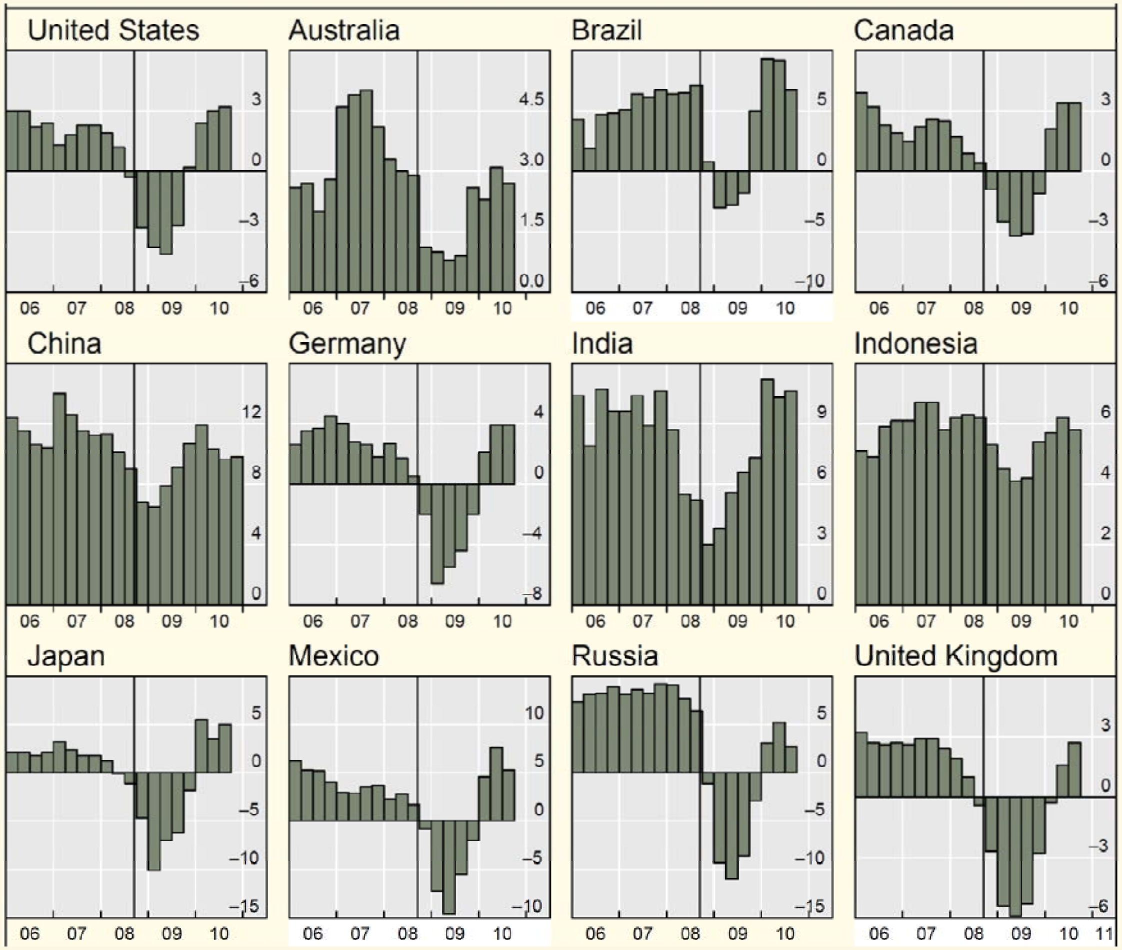
Figure 1: Year-on-year growth



Why did performance vary?

- Measuring differential impact
- Candidate explanations
- Policy or luck?

Measuring differential impact

Ideal:

- Decline in social welfare due to crisis

Practical Alternatives:

- Change in growth rates pre-crisis to trough
- Forecast revisions
- Changes in industrial production
- Composite indicators

Our choice:

- Residuals from regressing GDP growth on principal component

Table 1: Sample of 46 economies
24 advanced & 22 emerging market

Country	EME	Average bank total capital ratio	Bank crisis 1990–2007	CB supervisor	FX peg	Inflation target	Current account / GDP	Debt/GDP	Credit/GDP
ARGENTINA	x	8.8	x	x	x		2.3	67.9	12.5
AUSTRALIA		9.9				x	-6.2	9.5	117.3
BRAZIL	x	16.6	x	x		x	0.1	65.2	42.1
CANADA		11.5				x	0.8	65.1	125.2
CHINA	x	10.3	x		x		10.6	19.8	107.5
FRANCE		9.2		x		x	-1.0	63.8	103.6
GERMANY		19.0				x	7.6	64.9	103.9
HONG KONG		15.1		x	x		12.3	1.4	139.7
INDIA	x	11.6	x	x			-0.7	72.9	45.2
INDONESIA	x	12.9	x	x		x	2.4	36.9	25.5
IRELAND		11.6				x	-5.3	25.0	198.5
ITALY		10.8		x		x	-2.4	103.5	100.2
JAPAN		10.1	x				4.8	187.7	98.2
KOREA	x	11.8	x			x	0.6	29.7	99.6
RUSSIA	x	.	x	x	x		5.9	8.5	38.2
SOUTH AFRICA	x	12.2		x		x	-7.2	27.4	77.5
SPAIN		10.9		x		x	-10.0	36.1	183.6
SWITZERLAND		16.8					9.0	43.6	173.6
UNITED KINGDOM		11.9				x	-2.6	43.9	187.3
UNITED STATES		10.9		x			-5.1	62.1	60.4

Figure 2: Global growth
(first principal component)

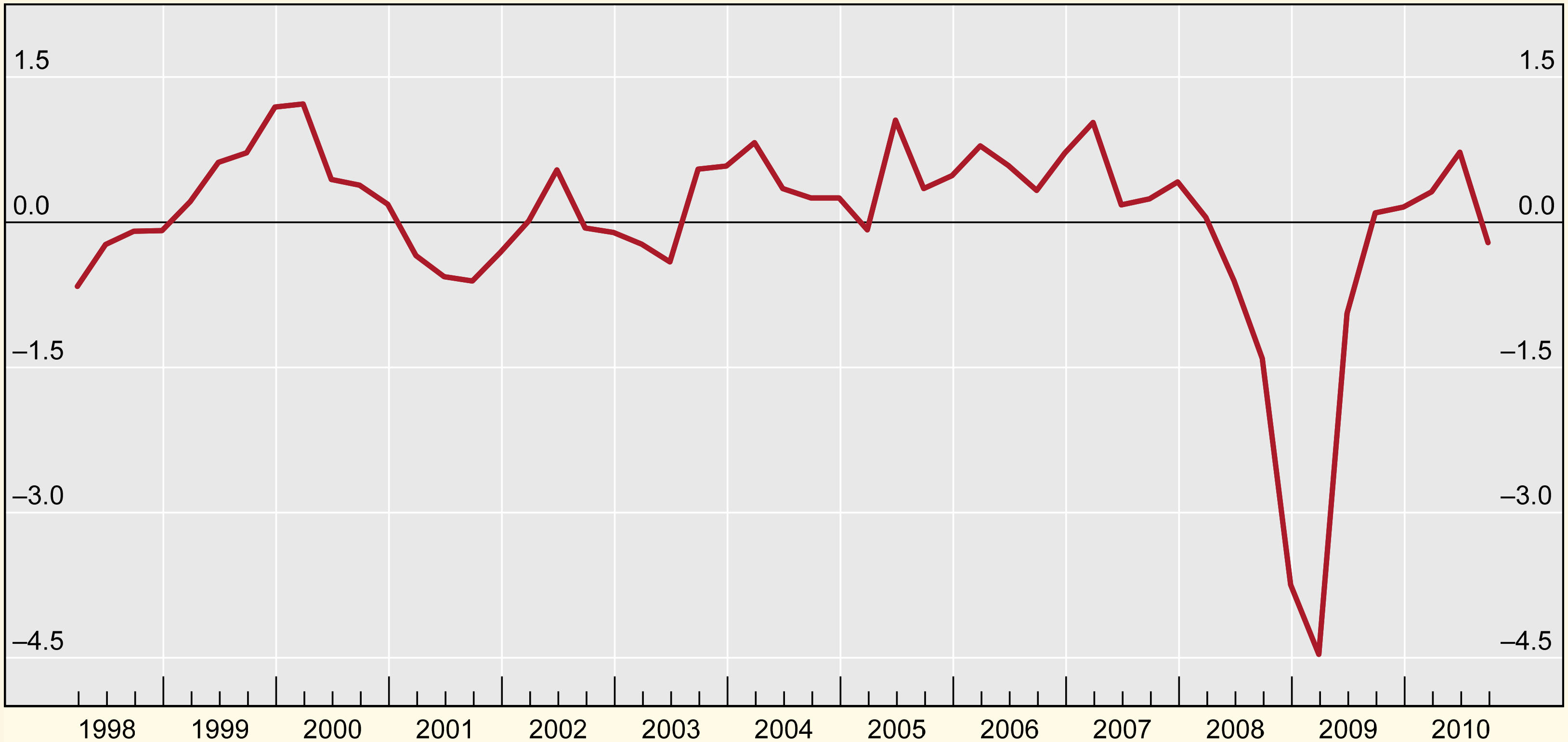


Figure 3: Variation accounted for by global growth

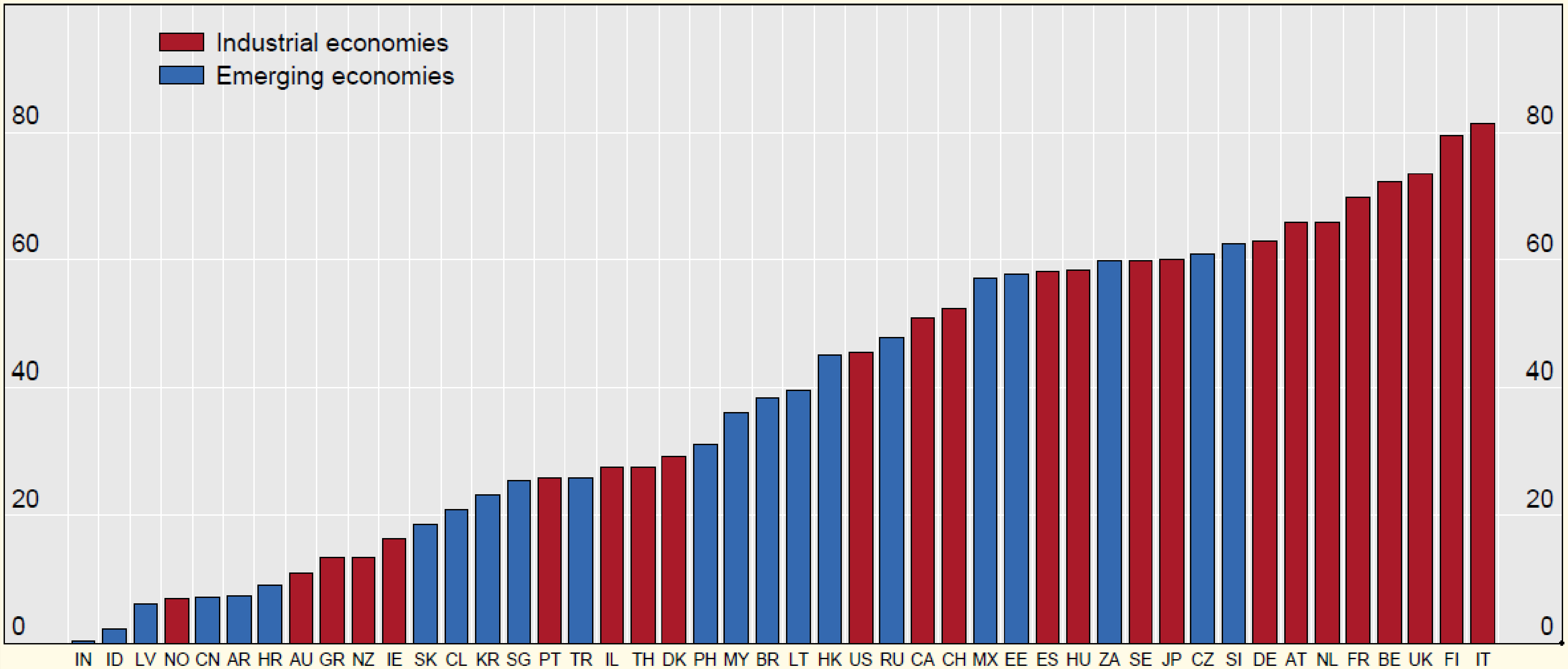
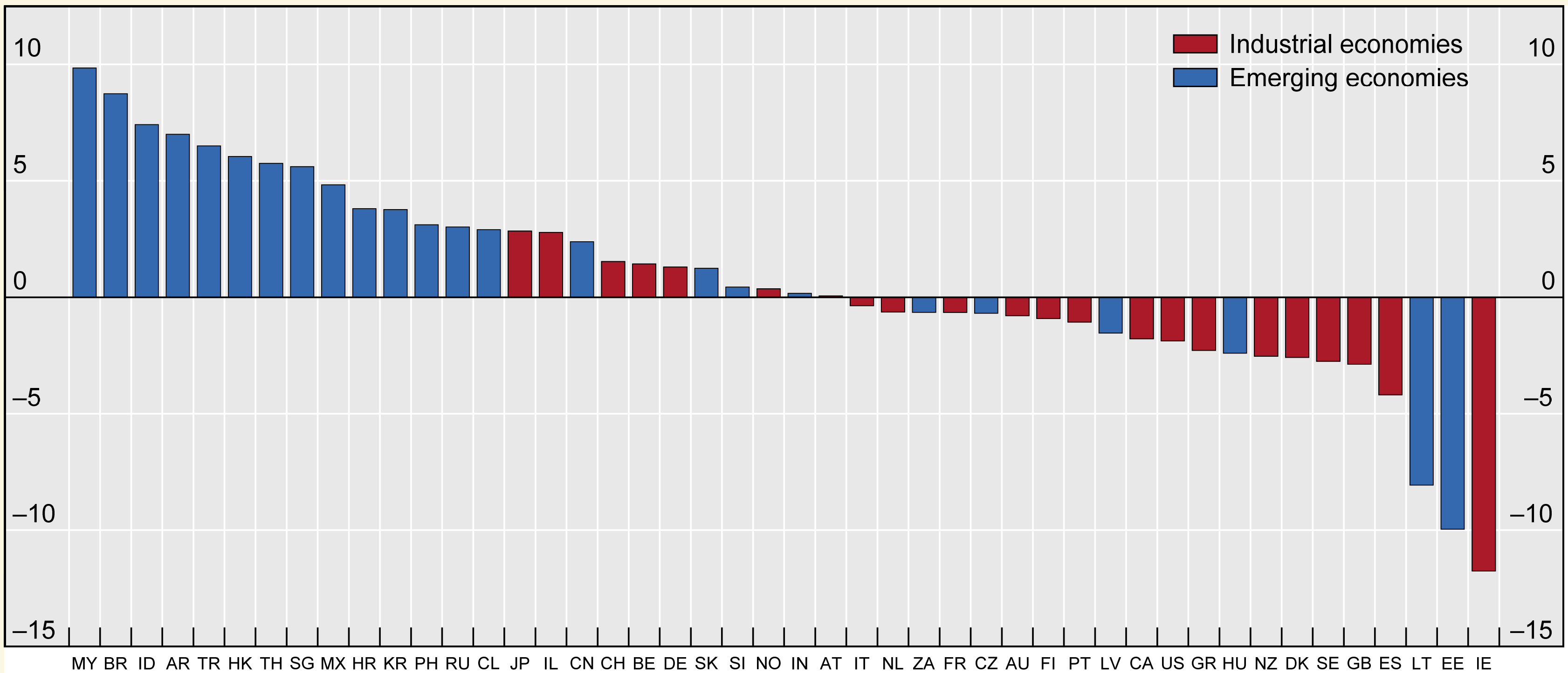


Figure 5: Relative performance during the crisis
(2008 Q1 to 2009 Q4)



Candidate explanations for variation

- We consider five categories of variables
  1. banking system structure
  2. trade openness
  3. financial openness
  4. monetary and fiscal policy frameworks
  5. policy responses during the crisis

Explaining cross-country variation
(CGAP variable)

1. Differences in medians:
   - divide our countries into two groups
   - test for difference in the median CGAPs

2. Regression: bivariate OLS

Example: Total bank capital

	Observations		Median CGAP		Difference (statistical significance)	Coefficient (scaled for 1 st dev chg)
Description	A	B	A	B		
Total bank capital ratio	23	23	-0.7	1.5	2.17**	-0.12

- Median total bank capital 2007 11.9%
- Median CGAP:

  (A) Low bank capital (≤11.9%): -0.7%

  (B) High bank capital (>11.9%): +1.5%

  - Medians are statistically different at 5% level.
  - Difference of 2.2% is economically important.
- Regression of CGAP on bank capital:
  - estimated coefficient small and insignificant.

1. Banking system structure

	Observations		Median CGAP		Difference (statistical significance)	Coefficient (scaled for 1 st dev chg)
Description	A	B	A	B		
Total bank capital ratio	23	23	-0.7	1.5	2.17**	-0.12
Banking crisis 1990–2007	22	24	-0.7	2.6	3.29**	1.22*
CB bank supervisor	21	25	0.1	0.4	0.39	1.06*
Banking concentration	23	23	1.3	-0.6	1.89	-0.53

- Higher levels of regulatory capital are **good**: +2 p.p.
- Banking crisis in 1990 to 2007 is **good:** >3 p.p.

2. Trade openness

	Observations		Median CGAP		Difference (statistical significance)	Coefficient (scaled for 1 st dev chg)
Description	**A**	**B**	**A**	**B**		
Current account	**22**	**24**	**-0.9**	**2.8**	**3.75*** **	**2.44*** **
Trade openness	**21**	**21**	**0.2**	**0.1**	**0.13**	**0.02**
Commodity exporter	**38**	**8**	**0.3**	**-0.2**	**0.46**	**0.22**

- <u>Current account surplus</u> is **good**: +9 p.p. of GDP → + 2.4 p.p.
- Trade openness <u>does not</u> explain cross-country variation.
- Doesn’t matter if you are a commodity exporters

3. Financial openness

Description	Observations A	Observations B	Median CGAP A	Median CGAP B	Difference (statistical significance)	Coefficient (scaled for 1 st dev chg)
Net foreign assets	23	23	-0.7	1.3	1.96	1.49***
Financial openness	23	23	3.0	-0.9	3.92***	-1.09
US holdings of foreign LT debt	23	22	1.4	-0.7	2.08	-1.50**
US holdings of foreign ST debt	23	22	3.1	-0.7	3.82***	-2.18***

- Less financial openness is **good**: difference is nearly 4 p.p.
- US holdings of your country's short-term debt is **bad:**
  +2.1 p.p. of your GDP → – 2.2 p.p.

3. Financial openness

	Observations		Median CGAP		Difference (statistical significance)	Coefficient (scaled for 1 st dev chg)
Description	A	B	A	B		
Private sector credit to GDP	22	21	2.9	-0.7	3.54**	-2.12***
Foreign banks' share of US credit	13	12	0.4	-0.7	1.09**	-0.42
US banks' share of foreign credit	13	12	-0.7	2.2	2.84*	1.64**

- <u>Lower private sector credit-to-GDP</u> is **good**:
  - High vs. low: –0.7% vs. +2.9%
  - – 50 p.p. of your GDP→ +2.12 p.p.

4. Monetary & fiscal policy

	Observations		Median CGAP		Difference (statistical significance)	Coefficient (scaled for 1 st dev chg)
Description	**A**	**B**	**A**	**B**		
Foreign exchange peg	35	11	0.1	2.4	2.35	-0.04
FX reserves to GDP	23	23	-0.7	2.9	3.52**	2.01***
Inflation target	16	30	2.0	-0.5	2.46	-0.37

- Foreign exchange reserves are **good**
  - High vs low: +2.9% versus –0.7%
    (Independent of exchange rate regime.)
- Inflation targeting framework does not distinguish performance

4. Monetary & fiscal policy

	Observations		Median CGAP		Difference (statistical significance)	Coefficient (scaled for 1 st dev chg)
Description	A	B	A	B		
Government budget balance	23	23	1.3	-0.6	1.89	0.08
Government revenues	23	23	3.1	-0.7	3.75**	-1.92***
Government expenditures	23	23	3.0	-0.7	3.7***	-1.93***
Government debt-to-GDP	23	23	0.4	0.2	0.26	0.72

- Low government revenues or expenditures to GDP is **good:**

  For both:

  - Low vs high: +3 p.p. vs. –0.7 p.p.
  - +10 p.p. of GDP → –1.9 p.p.

5. Policy responses

- Countries took actions to reduce the impact:
  - Easing of monetary conditions (rate cuts or fx depreciation)
  - Fiscal stimulus
  - Bank bailouts and other rescue measures
- These responses are clearly endogenous.
  - Causality likely runs from outcome to response
  - Outcomes would have been worse without them

5. Policy responses

	Observations		Median CGAP		Difference (statistical significance)	Coefficient (scaled for 1 st dev chg)
Description	A	B	A	B		
Purchase bank assets	27	19	1.3	-0.7	1.90	-0.76
Bank debt guarantees	22	24	2.9	-0.9	3.79***	-1.55**
Bank recapitalisation	23	23	2.8	-0.6	3.42**	-1.33**
Swap line with Fed	20	25	2.9	-0.6	3.53**	-1.07
Swap line with ECB	30	16	2.8	-1.0	3.81***	-1.83***

- No financial sector bail-outs is **good**

5. Policy responses

Description	Observations A	Observations B	Median CGAP A	Median CGAP B	Difference (statistical significance)	Coefficient (scaled for 1 st dev chg)
Monetary policy cut	2	44	5.4	0.1	5.26*	1.21
FX depreciation	28	17	-0.5	3.0	3.51	0.34
Discretionary stimulus	8	38	-1.2	0.4	1.64	-0.35
Automatic fiscal stabilisers	9	9	-0.4	3.8	4.13*	2.04**
Government debt/GDP increase	23	23	3.0	-1.1	4.08***	-2.07***

- Large automatic fiscal stabilisers is **good:**
  High vs. low → +3.8% vs. –0.4%
- Small increases in government debt-to-GDP is **good**

Multivariate results

- Three variables combined explain 62%:
  - Improved current account is **good**
  - Low private sector credit /GDP is **good**
  - Small US holdings of your ST debt is **good**

Dependent variable: CGAP	Coefficient	Std error	p-value
Current account / GDP	2.62	0.60	0.00
Private sector credit / GDP	-1.62	0.41	0.00
US holdings of foreign ST debt (% of GDP)	-1.37	0.23	0.00
Number of observations (countries)			42
Adjusted R^2			0.62

Good policy or good luck?

- A country's macroeconomic performance over the crisis period was relatively better if:
  1. Their banks had more capital
  2. They had lower private sector credit-to-GDP
  3. Their financial system was relatively closed
  4. They were less dependent on the US for short-term funding
  5. They had a relatively small government sector
  6. They had a better current account balance