CRISES IN EMERGING MARKET ECONOMIES:
A Global Perspective

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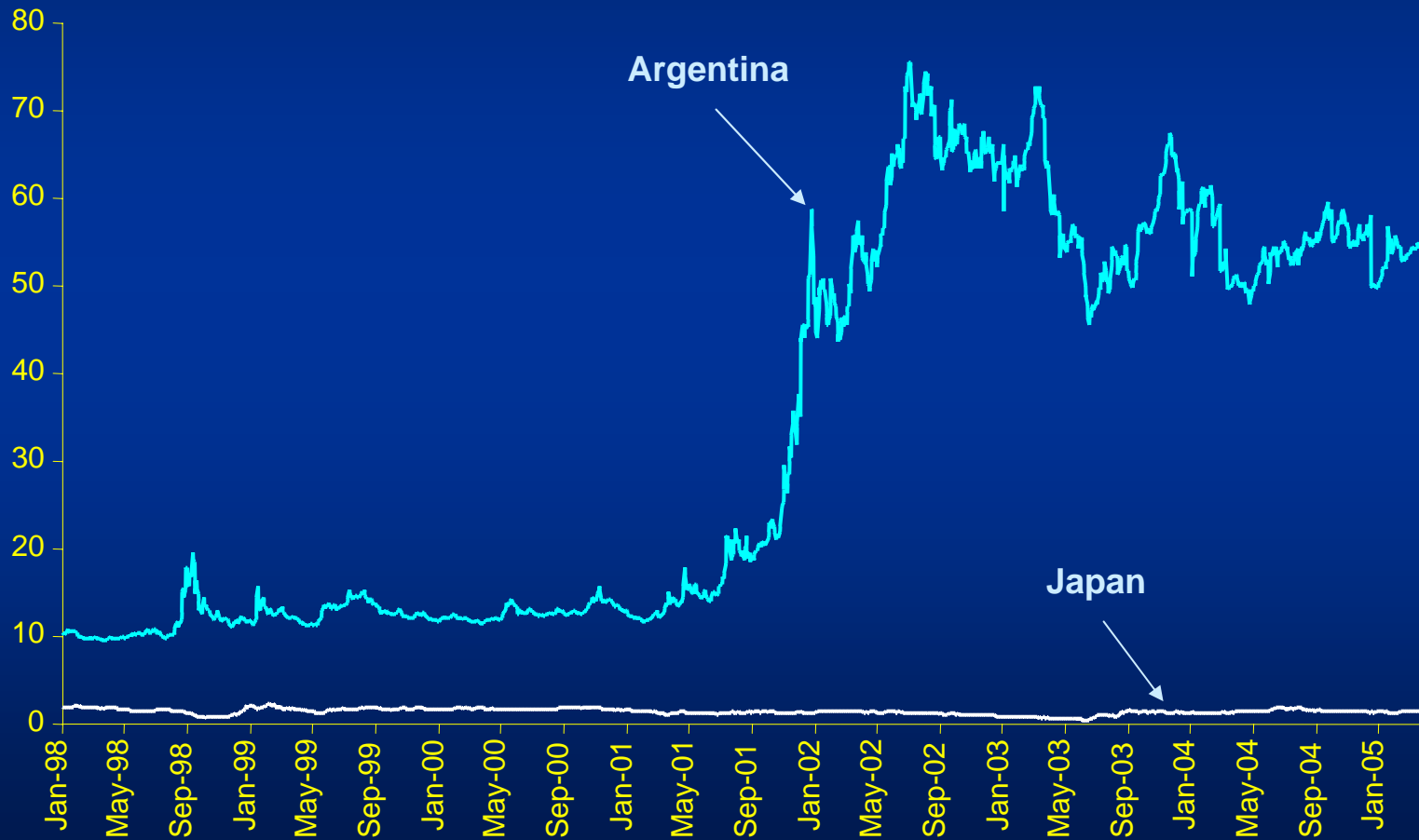# Outline

Argentina and Japan: Public Debt

(General Government net debt, % of GDP)

Source: Figures for Japan are from the OECD Economic Outlook Database. Data for Argentina is from the Ministry of Economy and Production.
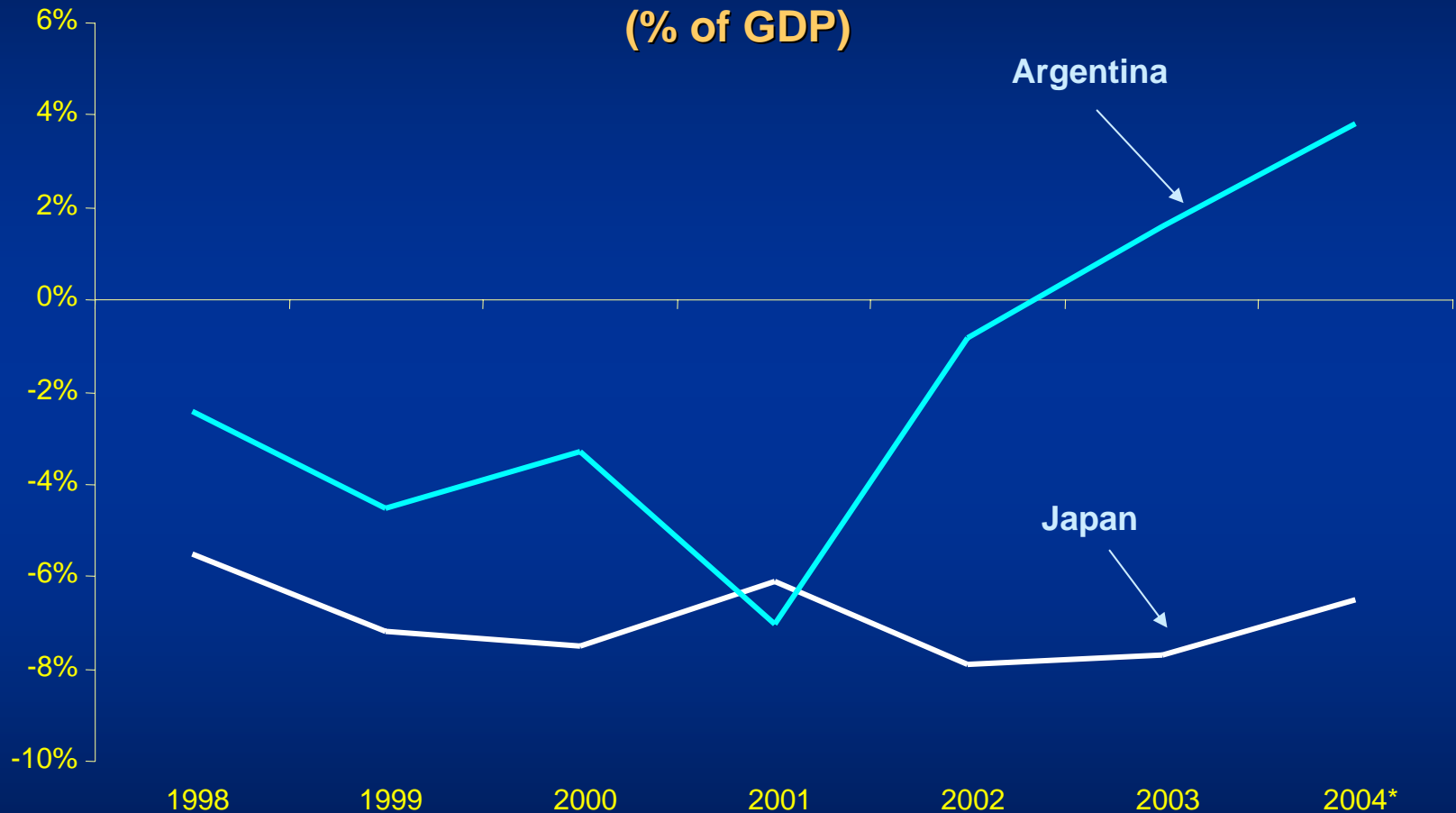
Argentina and Japan: Cost of Funding

(Argentina's EMBI Yield vs Japan's 10YR+ Generic Government Bond yield)

Argentina and Japan: Fiscal Balance

(% of GDP)

* Data for Argentina as of 2004-III.

Source: Bloomberg

EMs: External Financial Conditions
(EMBI sovereign spread & Current Account Balance in EMs, millions of USD, last four quarters)
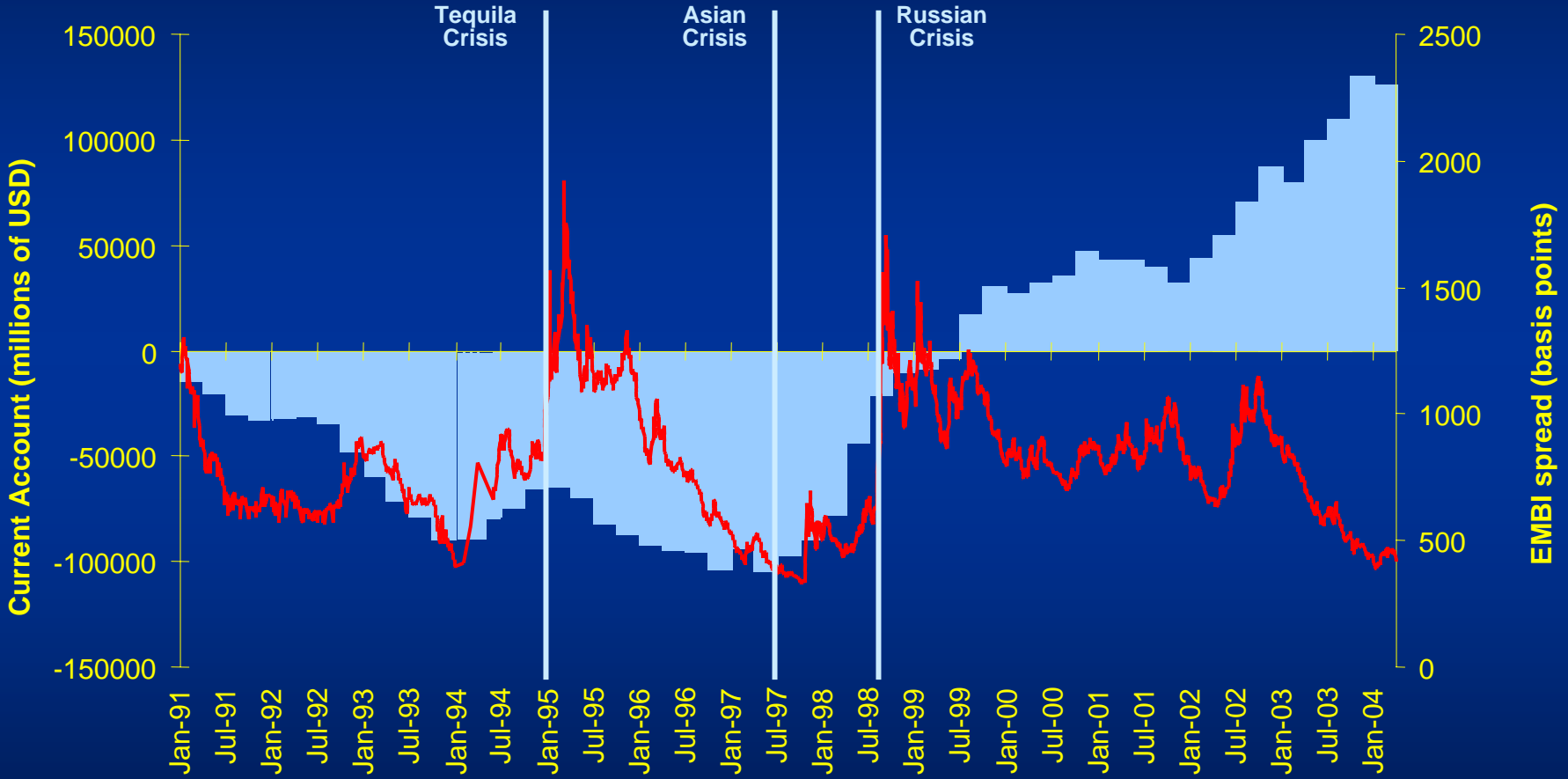
Note: Includes Argentina, Brazil, Chile, China, Colombia, Czech Republic, Egypt, Hungary, India, Indonesia, Israel, Korea, Malaysia, Mexico, Morocco, Pakistan, Peru, Philippines, Poland, Slovak Republic, South Africa, Thailand, Turkey and Venezuela.

Real Exchange Rate Adjustment
(vis-à-vis US dollar, Jan-90=100)

Russian Crisis

Emerging Asia

LAC-7

Note: *LAC-7* includes Argentina, Brazil, Chile, Colombia, Mexico, Peru and Venezuela. *Emerging Asia* includes Indonesia, Korea, Malaysia, Philippines and Thailand.

Emerging Asia: Investment and Growth

(s.a. Investment and GDP, 1997.II=100)

Investment

Asian Crisis

Russian Crisis

Annualized growth : 6.06% 1993.I-1997.II

Annualized growth: - 37% 1997.II-1998.III

Annualized growth: 5.9% 1998.III-2004.III

Economic Growth

Asian Crisis

Russian Crisis

Annualized growth: 7.25% 1993.I-1997.II

Annualized growth: 5.4% 1998.III-2004.III

Annualized growth: -10.6% 1997.II-1998.III:
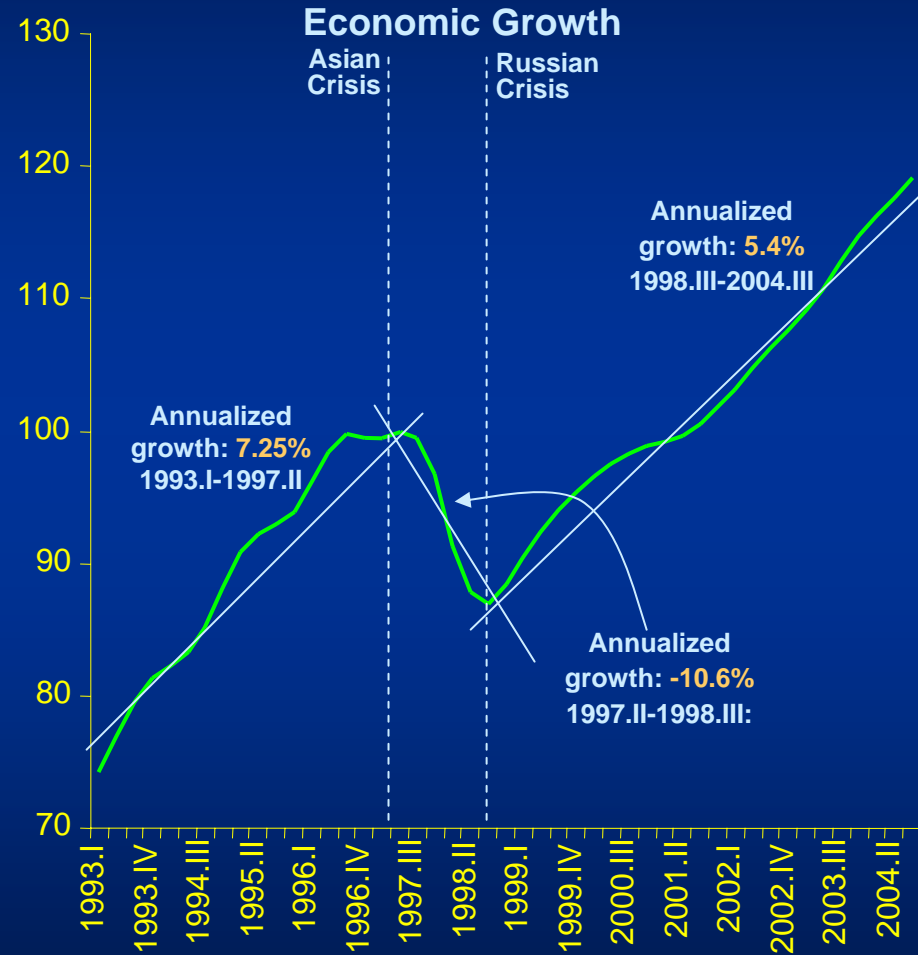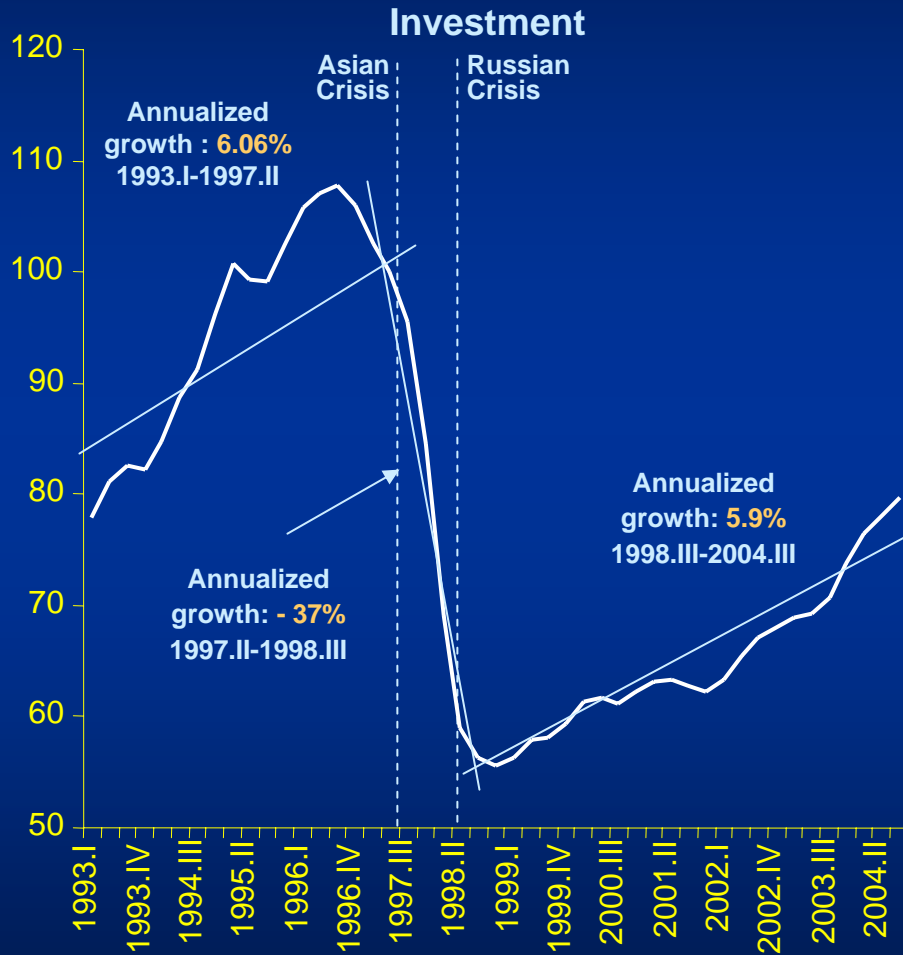
Includes Indonesia, Korea, Malaysia, Philippines and Thailand.

Rising From the Ashes: Bank Credit & Output

(bank credit deflated by CPI; GDP seasonally adjusted)

Average

LAC
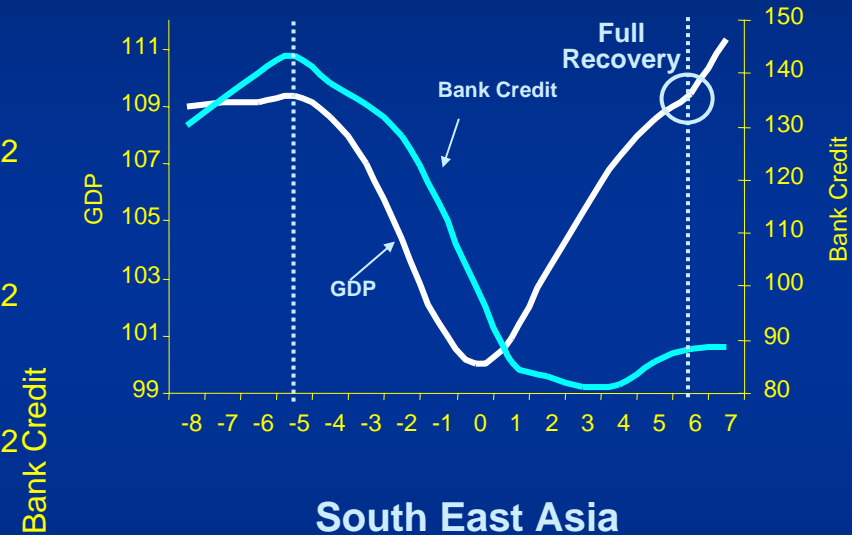
South East Asia
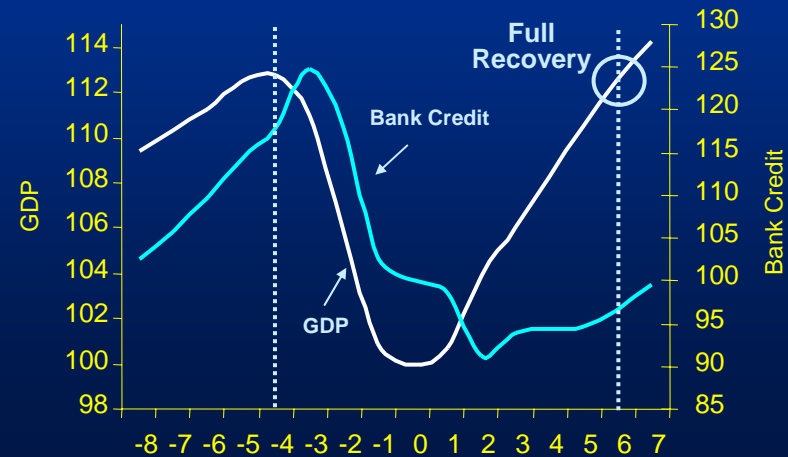
Outline

Global/Fisherian SS
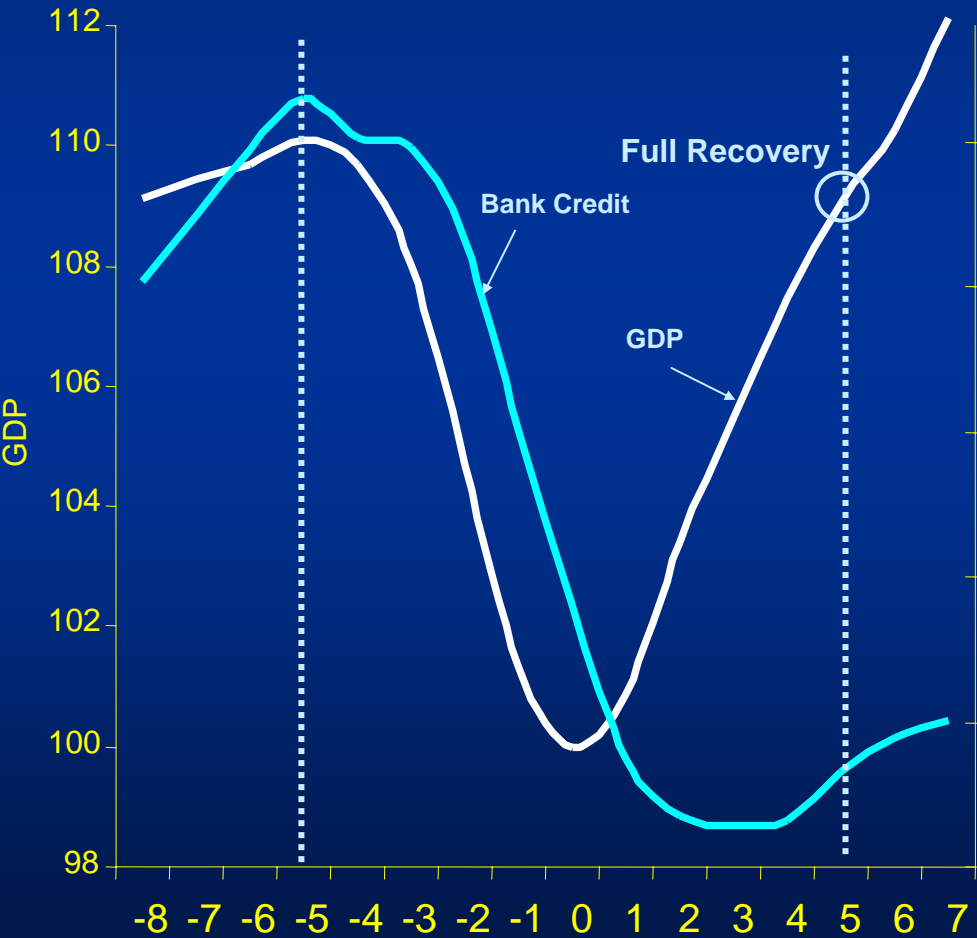
- output = $sf(k)$, s = shock, k = capital
- profit = $sf(k) - rk$, r = interest rate
- Possible crisis scenario:
  - r rises because of <u>margin calls</u> in capital market (e.g., 1998 Russian crisis).
  - k falls causing Sudden Stop and sharp changes in relative prices
  - Fisherian debt-deflation sets in (critical ingredient Liability Dollarization and trade closeness).
  - As a result Es falls and var s rises
  - which results in more durable SS, fall in output and relative-price volatility.

Sudden Stop and the Real Exchange Rate

- Demand for nontradables (logs):

$$h_t = \alpha + \beta\, rer_t + \delta\, z_t \qquad\qquad (1)$$

- Current account deficit:

$$CAD_t = Z_t - Y^*_t + S_t \qquad\qquad (2)$$

- When CAD_t is driven down to zero, given Y^* and S:

$$\Delta CAD_t = \Delta Z_t \qquad\qquad (3)$$

$$CAD_{t-1} / Z_{t-1} = - \Delta Z_t / Z_{t-1} \qquad\qquad (4)$$

- From (1) and (4), and assuming $h_t = \bar{y}$:

$$\Delta rer_t = (\delta / \beta)\, CAD_{t-1} / Z_{t-1} \qquad\qquad (5)$$

- This is not the <u>actual</u> change in the RER but that part of the total change that is difficult to prevent.

Sudden Stop and Volatility

Sudden Stops are associated with sharply higher volatility.   Possible reasons:

- Increased correlation among investment projects during systemic crises

- fear of balance-sheet currency-denomination mismatch

- all of which gives incentives to collect more information.

Outline

Sudden Stop: Definition

- <u>Sudden Stop Signal</u>: A drop in monthly change in capital inflows exceeding 2 standard deviations

- <u>Sudden Stop (Interval)</u>:
  - period containing a SS signal and in which drop in capital inflows exceeds 1 standard deviation.
  - output falls, or interval coincides with rise in EM spreads exceeding 2 standard deviations.

Sudden Stops: Bunching
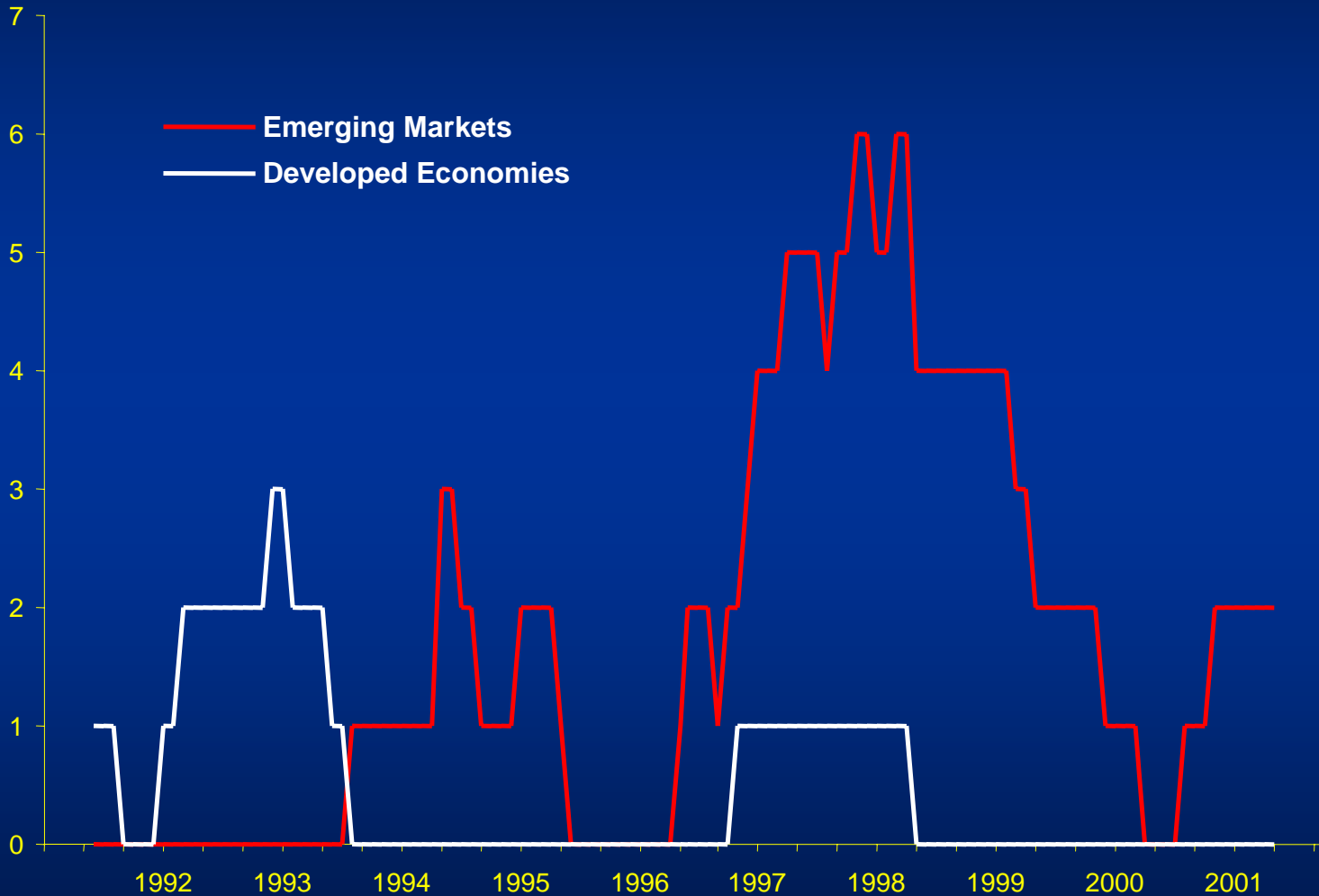
Sudden Stops and Large Depreciation

In % of total

	Emerging Markets	Developed Economies
Depreciations associated with Sudden Stop	**63**	**17**
Of which: First Sudden Stop, then depreciation	42	9
First depreciation, then Sudden Stop	21	9
Depreciations not associated with Sudden Stop	37	83

Note: The total number of large devaluations is 19 in emerging markets and 23 in developed economies.

Panel Probit (Random Effects)

|	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$(1-\varpi)$	5.376	5.440	5.371	5.149	5.187	5.171	5.077
	(1.683)***	(1.902)***	(1.909)***	(1.942)***	(1.945)***	(1.945)***	(2.058)**
DLD	4.294	2.784	2.819	2.738	2.849	2.848	2.723
	(1.474)***	(1.586)*	(1.588)*	(1.596)*	(1.615)*	(1.615)*	(1.695)
EM Dummy		0.809	0.803	0.853	0.854	0.852	0.581
		(0.309)***	(0.309)***	(0.315)***	(0.323)***	(0.322)***	(0.442)
TOT Growth			1.018	1.129	1.052	1.061	1.334
			(2.175)	(2.200)	(2.194)	(2.195)	(2.239)
Total Debt/Revenues				-0.088	-0.094	-0.093	-0.105
				(0.111)	(0.111)	(0.111)	(0.125)
Ex. Regime 3					0.083		
					(0.150)		
Ex. Regime 5						0.056	0.035
						(0.098)	(0.107)
Reserves/CAD							-0.011
							(0.016)
M2/Reserves							-0.033
							(0.033)
Credit Growth							0.647
							(0.538)
FDI/GDP							-6.145
							(7.000)
Public Balance/GDP							-0.404
							(4.150)
Constant	-2.079	-2.481	-2.482	-2.308	-2.460	-2.491	-1.952
	(0.234)***	(0.324)***	(0.323)***	(0.378)***	(0.486)***	(0.516)***	(0.776)**
Observations	282	282	282	278	276	276	274

All regressions include time dummies. Standard errors in parentheses.

Linear Probability Model

	(1)	(2)	(3)	(4)	(5)	(6)
$(1-\varpi)$	0.333	0.298	0.215	0.274	0.273	0.358
	(0.351)	(0.370)	(0.373)	(0.401)	(0.403)	(0.434)
DLD	0.975	0.970	1.041	1.170	1.170	1.338
	(0.405)**	(0.405)**	(0.416)**	(0.421)***	(0.421)***	(0.441)***
$(1-\varpi)$*DLD	5.632	5.627	5.191	5.428	5.431	5.460
	(1.679)***	(1.681)***	(1.692)***	(1.718)***	(1.719)***	(1.761)***
TOT Growth		0.190	0.231	0.190	0.189	0.296
		(0.336)	(0.335)	(0.345)	(0.346)	(0.340)
Total Debt/Revenues			-0.043	-0.047	-0.047	-0.034
			(0.023)*	(0.023)**	(0.023)**	(0.025)
Ex. Regime 3				0.005		
				(0.028)		
Ex. Regime 5					0.003	-0.003
					(0.019)	(0.020)
Reserves/CAD						-0.001
						(0.001)
M2/Reserves						-0.003
						(0.003)
Credit Growth						0.016
						(0.086)
FDI/GDP						0.590
						(0.771)
Public Balance/GDP						1.399
						(0.729)*
Constant	0.004	0.004	0.095	0.086	0.086	0.139
	(0.033)	(0.033)	(0.062)	(0.081)	(0.087)	(0.101)
Observations	282	282	278	276	276	274
R-squared	0.10	0.10	0.11	0.12	0.12	0.15

All regressions include time dummies. Standard errors in parentheses.

Probability of Sudden Stop
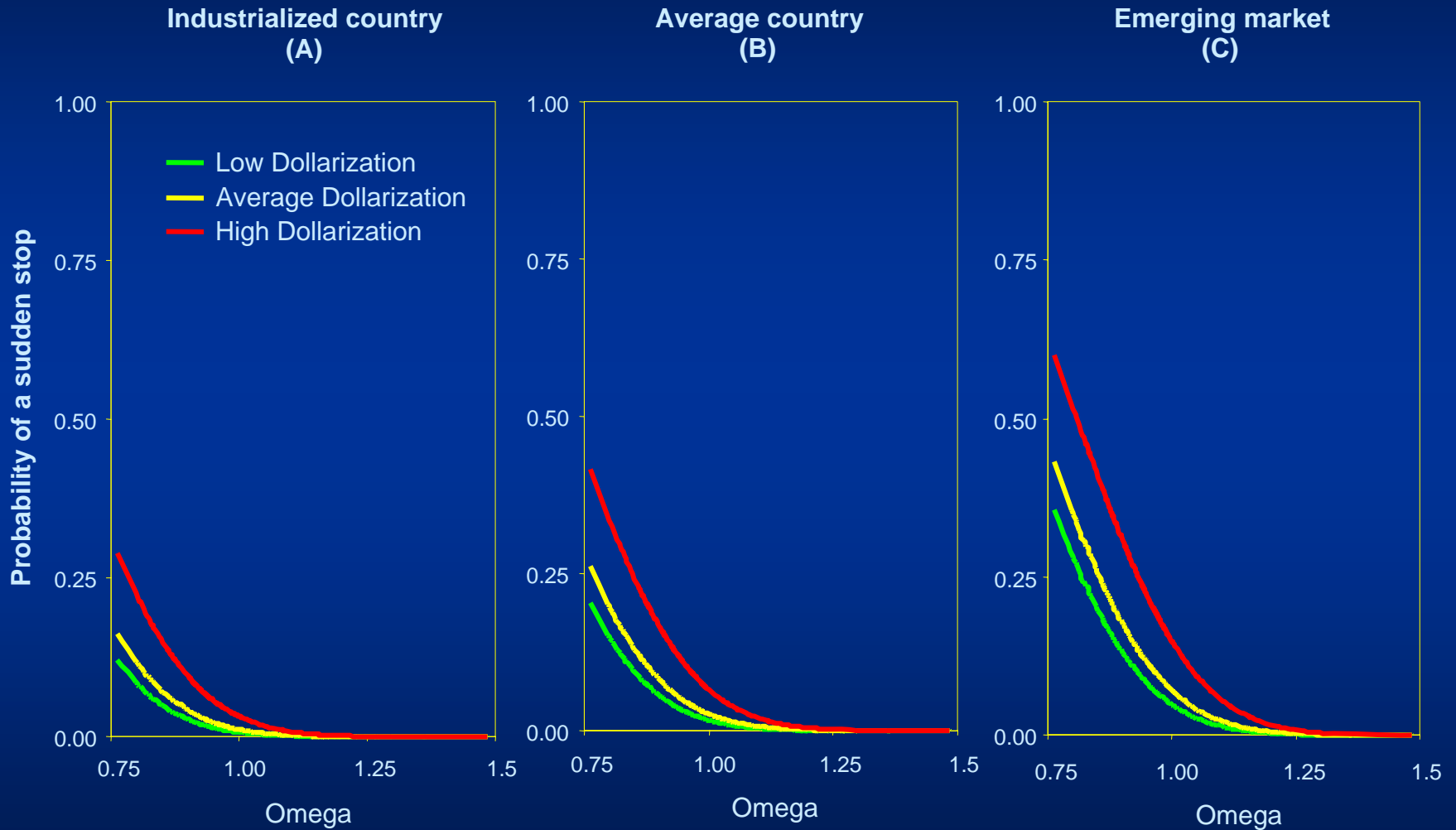
Source: Own calculations.

RELATIVE-PRICE VOLATILITY

Volatility under SS and Tranquil Periods

WPI to CPI ratio Volatility during Sudden Stops episodes vis-à-vis Tranquil times

|	
EMERGING MARKETS	2.6
DEVELOPED ECONOMIES	1.6

Panel ARCH Specification of the WPI to CPI Ratio

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
MEAN EQUATION								
Constant	-0.018	-0.017	-0.019	-0.019	-0.018	-0.018	-0.019	-0.019
	(0.007)**	(0.008)**	(0.008)**	(0.008)**	(0.008)**	(0.008)**	(0.008)**	(0.008)**
WPI/CPI $_{(t-1)}$	1.089	1.090	1.089	1.091	1.089	1.090	1.089	1.091
	(0.017)***	(0.017)***	(0.017)***	(0.017)\ ***	(0.017)***	(0.017)***	(0.017)***	(0.017)***
ToT $_{(t-1)}$	-0.002	-0.003	-0.002	-0.003	-0.002	-0.003	-0.002	-0.003
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Ind. Production $_{(t-1)}$	0.017	0.017	0.018	0.018	0.017	0.018	0.018	0.018
	(0.004)***	(0.004)***	(0.004)***	(0.004)***	(0.004)***	(0.004)***	(0.004)***	(0.004)***
WPI/CPI $_{(t-2)}$	-0.246	-0.245	-0.247	-0.246	-0.246	-0.246	-0.247	-0.246
	(0.018)***	(0.017)***	(0.018)***	(0.017)***	(0.018)***	(0.017)***	(0.018)***	(0.017)***
ToT $_{(t-2)}$	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Ind. Production $_{(t-2)}$	0.003	0.003	0.003	0.002	0.003	0.002	0.003	0.002
	(0.004)	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
ToT	-0.006	-0.006	-0.005	-0.005	-0.005	-0.005	-0.005	-0.005
	(0.002)***	(0.002)***	(0.002)***	(0.002)***	(0.002)***	(0.002)***	(0.002)***	(0.002)***
Sudden Stop			0.035	0.042			0.035	0.036
			(0.039)	(0.040)			(0.071)	(0.070)
Balance sheet effect					0.260	0.357	-0.007	0.087
					(0.347)	(0.372)	(0.625)	(0.634)
VARIANCE EQUATION								
Constant	-3.847	-3.479	-3.874	-3.483	-3.901	-3.517	-3.872	-3.492
	(0.310)***	(0.398)***	(0.320)***	(0.398)***	(0.314)***	(0.398)***	(0.321)***	(0.399)***
EM dummy	0.731	0.723	0.730	0.721	0.739	0.733	0.730	0.723
	(0.125)***	(0.126)***	(0.125)***	(0.126)***	(0.126)***	(0.127)***	(0.126)***	(0.127)***
DLD $_{(t-12)}$	3.041	3.105	3.073	3.149	3.023	3.073	3.074	3.136
	(0.722)***	(0.729)***	(0.752)***	(0.762)***	(0.726)***	(0.737)***	(0.783)***	(0.794)***
$(1 - \varpi)_{(t-12)}$	0.735	0.659	0.758	0.678	0.786	0.711	0.757	0.688
	(0.278)***	(0.292)**	(0.285)***	(0.295)**	(0.283)***	(0.293)**	(0.288)***	(0.295)**
Sudden Stop	0.892	0.916	0.880	0.896	0.914	0.939	0.879	0.905
	(0.157)***	(0.155)***	(0.169)***	(0.170)***	(0.155)***	(0.152)***	(0.202)***	(0.200)***
Ex. Regime RR $_{(t-12)}$		-0.085		-0.091		-0.090		-0.091
		(0.046)*		(0.048)*		(0.046)*		(0.048)*

Conditional Volatility:
EMs vs Developed Countries
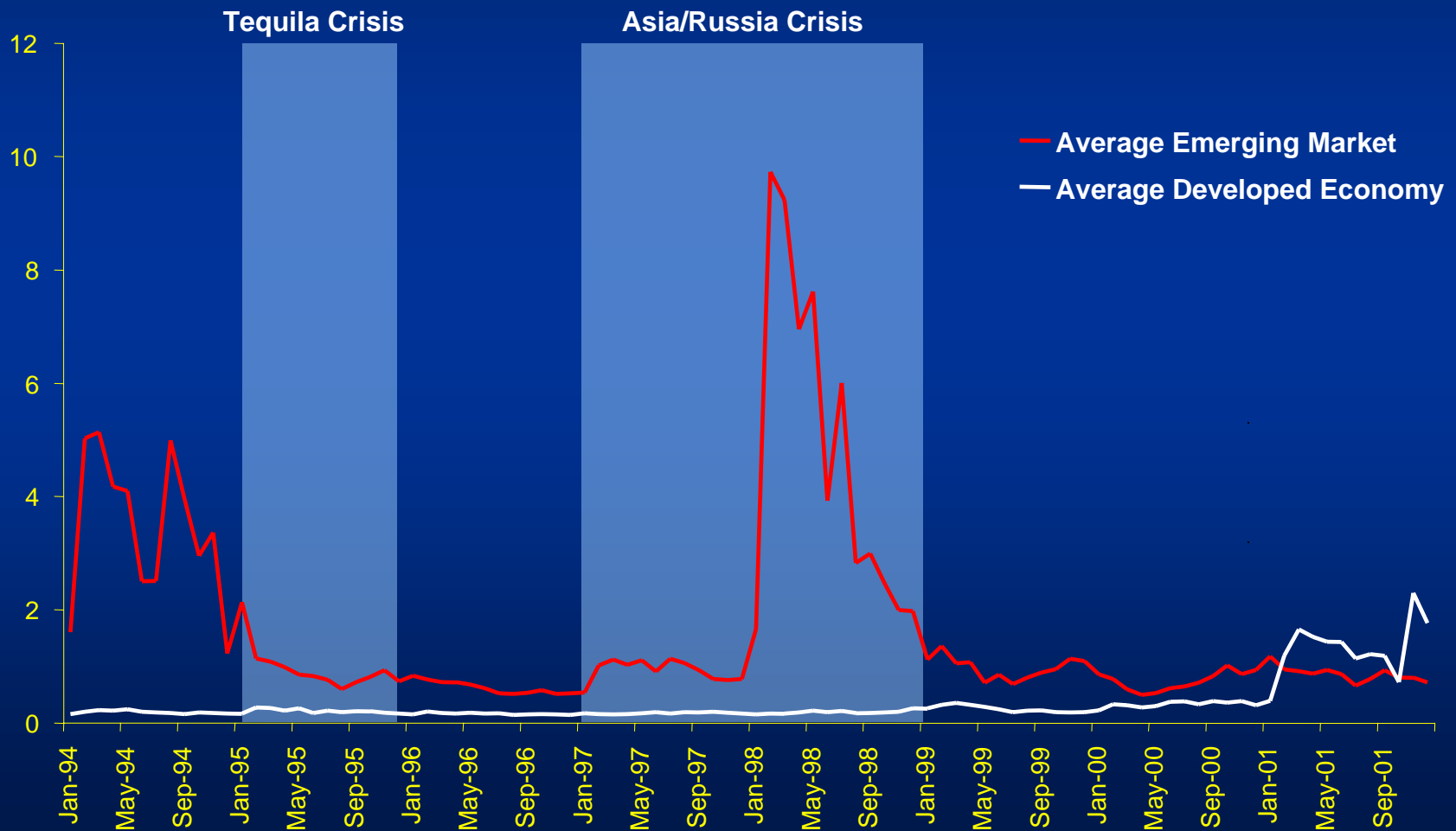
Outline

I. **EMs: The Antipodes of the Developed World**

II. **Sudden Stop: Theory**

III. **Sudden Stop: Evidence**

IV. **Conjectures and Policies**

Domestic Policies

Minimize vulnerabilities, e.g.,

- Self-Insurance

- <u>De-dollarize</u>, and develop market for bonds indexed to non-tradables

  - IFIs could help by borrowing in local currencies.

  - Forced de-dollarization is no good

- Full Dollarization.

Global Policies

- <u>Trade integration</u> with the *North* to enhance export price elasticity in case of financial stress.

- <u>Code of Conduct</u> to facilitate debt renegotiation.

- <u>Global Lender of Last Resort</u>. For example, Emerging Market Fund, EMF, to stabilize EMBI.

  - *<u>Justification</u>*: **Frictions** like collateral constraints, and **public-good nature of financial market information**.

Dubious Policies

- Controls on capital inflows
  - SS requires <u>no capital flow reversal</u>.
  - SS happens even if inflows are FDI
  - Chile exhibits largest SS in LAC, even though it imposed controls on K inflows.
- Floating exchange rates
  - <u>dangerous</u> under Domestic Liability Dollarization.
- (after crisis) Expansionary fiscal-monetary policies
  - fiscal expansion <u>unfeasible</u> if government is part of the problem
  - monetary expansion:
    - requires <u>control on K outflows</u> under fixed exchange rates
    - may trigger <u>inflationary expectations</u> under floating exchange rates.

Conclusions

- Domestic policies should be aimed at lowering domestic financial <u>vulnerabilities</u>.

- Standard fiscal/monetary policies are not very promising in crisis times.

- Global institutions should increase their role as:
  - Lenders of Last Resort
  - Developers and guarantors of a new Code of Conduct for Debt Rescheduling.

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