Domestic Currency Debt: Challanges in developing the market

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- Why have governments relied on foreign currency debt?

  - Small domestic capital markets
  - Difficult to issue at long maturities in domestic currency
  - Interest rates were typically lower in foreign currency
  - Many countries have had a large degree of financial dollarization
  - International institutional in industrialized countries and hedge funds are natural buyers of these instruments

What are the advantages of domestic currency debt?

- The markets (and the rating agencies) perceive that the default risk is smaller. The typical arguments are
  - There is no need to make an external transfer
  - Provides a natural hedge as it is the currency of denomination of most tax revenues
  - There is always the option of using inflation (time inconsistency)
  - International investors started to diversify into domestic currency instruments (carry trade)

What are the disadvantages of domestic currency debt?

- There are financial costs in developing the domestic markets
- It requires an adequate financial infrastructure and legal framework
- Domestic demand is not always strong enough
- It is difficult to issue long-term maturities at fixed interest rates
- Tight monetary policy could complicate the interest rate bill (the unpleasant monetary arithmetic)
- It could mean shorter maturities

Some key decisions in debt management

- Domestic vs foreign currency debt
- Domestic vs external legislation
- proportion of fixed, floating or indexed debt
- maturity and average duration of debt
- number, size and liquidity of the instruments
- Scheduled vs. opportunistic issuance

The choice of maturity

- Short term debt would be preferable over long term on a cost basis but it is subject to refinancing risks
  - Governments will face uncertainty about the interest rates at which they can rollover the debt, or about the possibility that the country is unable to rollover the debt at maturity
- Long term debt has less refinancing risk and might therefore be preferable in the end as a better structure of amortization is likely to reduce the country risk

- From those episodes it has been learnt that the ability of governments to "stick to rules" usually affects the cost of borrowing, especially in domestic currency, and it increases the number of options available
- "**HISTORY MATTERS**" (Reinhart, Rogoff, Savastano 2003)

The choice of maturities

- Latin American countries have had difficulties issuing long-term debt at fixed interest rate in domestic currency
- The main alternatives have been to issue **longer-term** maturities (longer than two years) is by offering floating interest rates instruments, indexed debt, or dollar linked debt

The choice of "currency"

- Experience shows that governments still issue indexed or dollar linked debt many years after inflation is brought under control
- Moreover, the use of indexed debt does not necessarily mean that the economy is inflation prone

- In Chile, for instance, most of the domestic currency debt continues to be indexed through a unit, called *unidad de fomento (UF)*, in spite of experiencing low inflation for years
- And the United States and the Euro Area, who have enjoyed periods of very low inflation, have their own indexed bonds as a way to reduce the overall borrowing costs.

Why could short-term debt be preferable?

- if the government expects inflation to stay low and credibility to increase gradually, they would not want to lock in high interest rates that incorporate high inflation fears in long-term instruments and would prefer instead to issue short-term debt until credibility improves and maturity can be lengthened at lower interest rates
- if risk aversion or liquidity constraints at a global level are high it would better not to carry forward such abnormal and inconvenient conditions and contend to shorter rollovers until better times

  Global financial conditions are found to be a substantial determinant of the borrowing costs of emerging economies.

  Investors' risk appetite is unobservable per se, but the evolution of some financial variables can provide a rough indicator of market sentiment (e.g. stock volatility index & US high-yield bond spreads).

- The share of Foreign currency debt (denominated or or currency linked) on total public debt has been falling in the region

Total Stock of Public Debt

% FX currency	1996	2000	2004	2008
Argentina	91%	96%	70%	60%
Bahamas	0%	14%	14%	14%
Barbados	27%	32%	32%	32%
Belize	0%	0%	0%	85%
Bolivia	98%	99%	91%	100%
Brazil	44%	38%	24%	10%
Chile	9%	10%	24%	11%
Colombia	61%	52%	46%	33%
Costa Rica	66%	48%	53%	22%
Dominican Republic	100%	94%	93%	69%
Ecuador	100%	100%	100%	100%
El Salvador	100%	100%	100%	100%
Guatemala	0%	0%	0%	60%
Guyana	85%	82%	76%	68%
Haiti	0%	0%	0%	100%
Honduras	91%	86%	82%	78%
Jamaica	63%	50%	51%	43%
Mexico	60%	37%	31%	32%
Nicaragua	92%	85%	68%	71%
Panama	100%	100%	100%	100%
Paraguay	72%	83%	81%	86%
Peru	90%	87%	85%	58%
Uruguay	91%	91%	90%	72%
Venezuela	93%	72%	66%	68%

Note: 2007 last available official data for Guyana and Haiti

- The stock of floating interest rate debt very low with few, but important exceptions

Total Stock of Public Debt

% Local floating rate	1996	2000	2004	2008
Argentina	**0%**	**0%**	**0%**	**2%**
Bahamas	**0%**	**0%**	**0%**	**71%**
Barbados	0%	0%	0%	0%
Belize	0%	0%	0%	0%
Bolivia	0%	0%	0%	0%
Brazil	**8%**	**45%**	**48%**	**34%**
Chile	0%	0%	0%	0%
Colombia	**0%**	**0%**	**0%**	**4%**
Costa Rica	**0%**	**0%**	**0%**	**19%**
Dominican Republic	0%	0%	0%	0%
Ecuador	0%	0%	0%	0%
El Salvador	0%	0%	0%	0%
Guatemala	0%	0%	0%	0%
Guyana	0%	0%	0%	0%
Haiti	0%	0%	0%	0%
Honduras	**0%**	**0%**	**0%**	**1%**
Jamaica	**0%**	**0%**	**0%**	**34%**
Mexico	**18%**	**35%**	**31%**	**8%**
Nicaragua	0%	0%	0%	0%
Panama	0%	0%	0%	0%
Paraguay	0%	0%	0%	0%
Peru	**0%**	**0%**	**0%**	**0%**
Uruguay	0%	0%	0%	0%
Venezuela	**0%**	**0%**	**0%**	**15%**

Note: 2007 last available official data for Guyana and Haiti

- Debt issued at fixed nominal interest rates has increased in importance

Total Stock of Public Debt

% Local fixed rate	1996	2000	2004	2008
Argentina	9%	4%	1%	7%
Bahamas	0%	86%	86%	15%
Barbados	73%	68%	68%	68%
Belize	0%	0%	0%	15%
Bolivia	2%	1%	4%	0%
Brazil	42%	12%	16%	29%
Chile	13%	12%	23%	34%
Colombia	39%	40%	42%	45%
Costa Rica	25%	52%	47%	59%
Dominican Republic	0%	6%	7%	31%
Ecuador	0%	0%	0%	0%
El Salvador	0%	0%	0%	0%
Guatemala	0%	0%	0%	40%
Guyana	15%	18%	24%	32%
Haiti	0%	0%	0%	0%
Honduras	9%	14%	18%	21%
Jamaica	37%	50%	49%	20%
Mexico	18%	22%	32%	42%
Nicaragua	8%	15%	32%	29%
Panama	0%	0%	0%	0%
Paraguay	28%	17%	19%	14%
Peru	10%	13%	15%	29%
Uruguay	9%	9%	10%	0%
Venezuela	7%	28%	34%	17%

Note: 2007 last available official data for Guyana and Haiti

- The stock of inflation indexed debt is not rising

Total Stock of Public Debt

% Local indexed	1996	2000	2004	2008
Argentina	**0%**	**0%**	**30%**	**31%**
Bahamas	0%	0%	0%	0%
Barbados	0%	0%	0%	0%
Belize	0%	0%	0%	0%
Bolivia	**0%**	**0%**	**5%**	**0%**
Brazil	**6%**	**5%**	**12%**	**27%**
Chile	**78%**	**78%**	**53%**	**56%**
Colombia	**0%**	**8%**	**12%**	**17%**
Costa Rica	**10%**	**0%**	**0%**	**0%**
Dominican Republic	0%	0%	0%	0%
Ecuador	0%	0%	0%	0%
El Salvador	0%	0%	0%	0%
Guatemala	0%	0%	0%	0%
Guyana	0%	0%	0%	0%
Haiti	0%	0%	0%	0%
Honduras	0%	0%	0%	0%
Jamaica	**0%**	**0%**	**0%**	**3%**
Mexico	**5%**	**6%**	**6%**	**18%**
Nicaragua	0%	0%	0%	0%
Panama	0%	0%	0%	0%
Paraguay	**0%**	**0%**	**0%**	**0%**
Peru	**0%**	**0%**	**0%**	**13%**
Uruguay	**0%**	**0%**	**0%**	**28%**
Venezuela	0%	0%	0%	0%

Note: 2007 last available official data for Guyana and Haiti

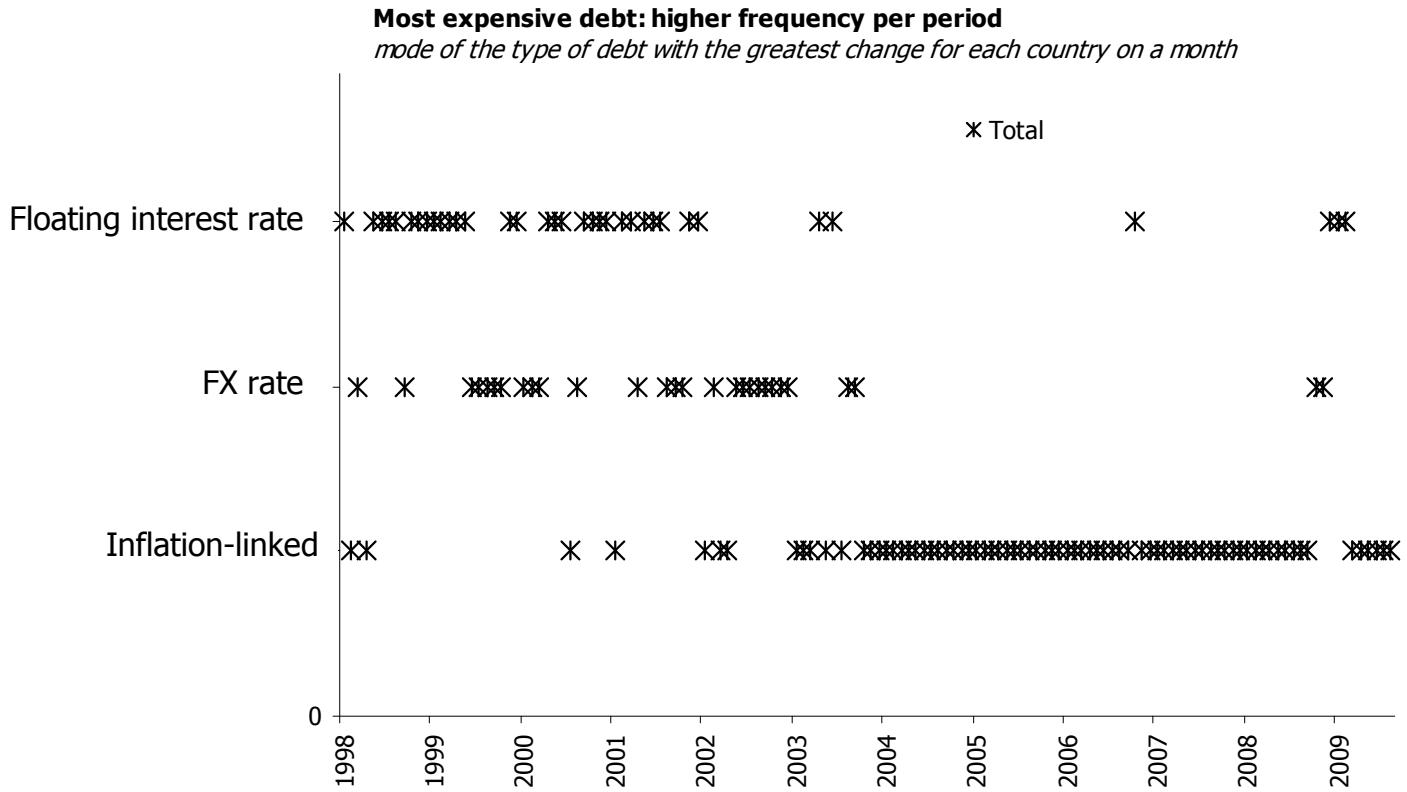
The empirical exercise

- We have performed a comparison of the estimated costs of different types of financial instruments for the period 1998-2009.
- We compare the costs of
  - floating interest rates
  - Indexation to the CPI
  - Exchange rate - dollar linked
- Sources: IFS-IMF, Central Banks, National Statistics Institutes, Reuters

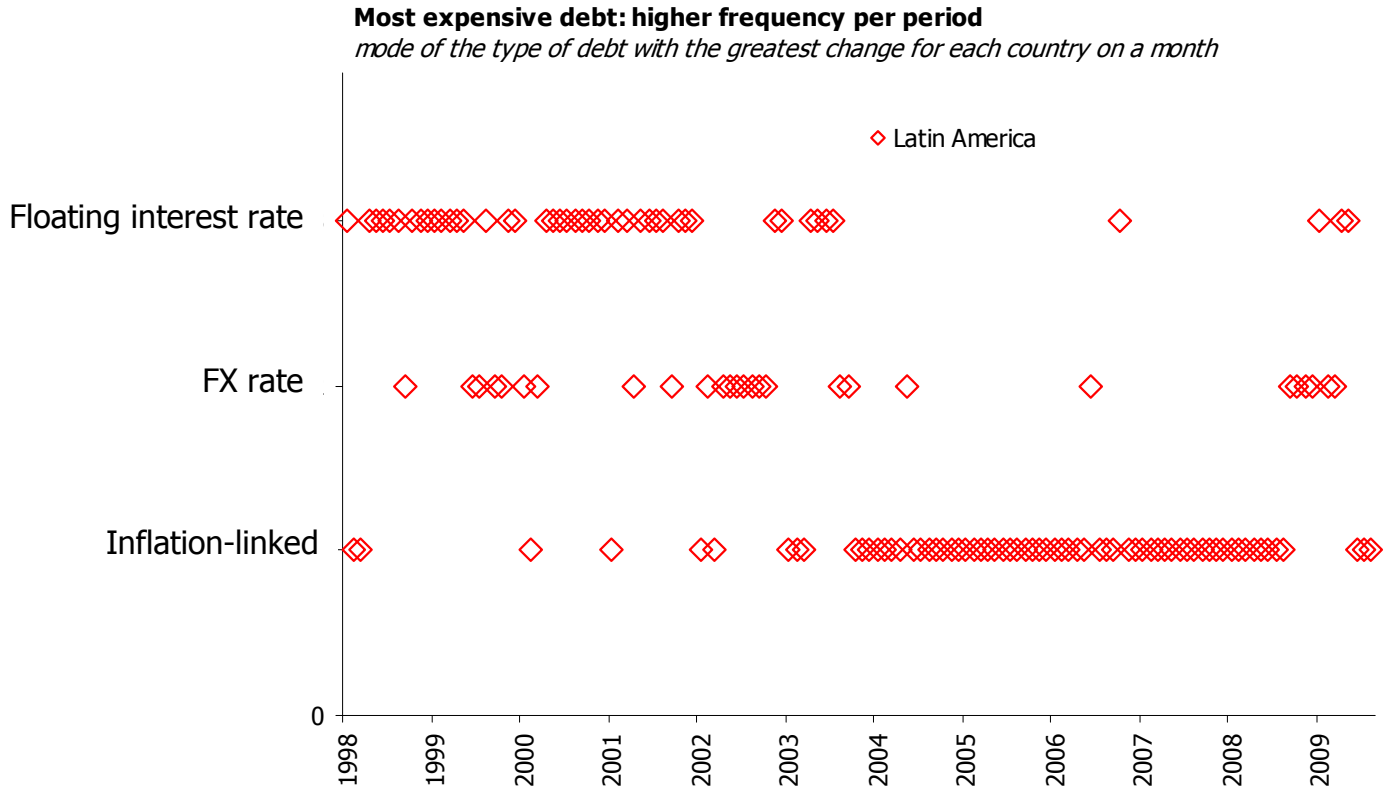
The empirical exercise

- The actual calculations assume:
  - Inflation rate plus a spread of 3%
  - Exchange rate variation plus an interest rate equal to the 10 year US Treasury bond
  - Floating rate, which depending on the country was the money market rate or the short-term time-deposit rate
- We use monthly data and an index of total cost was constructed by compounding the periodic variations for the whole period (140 months).

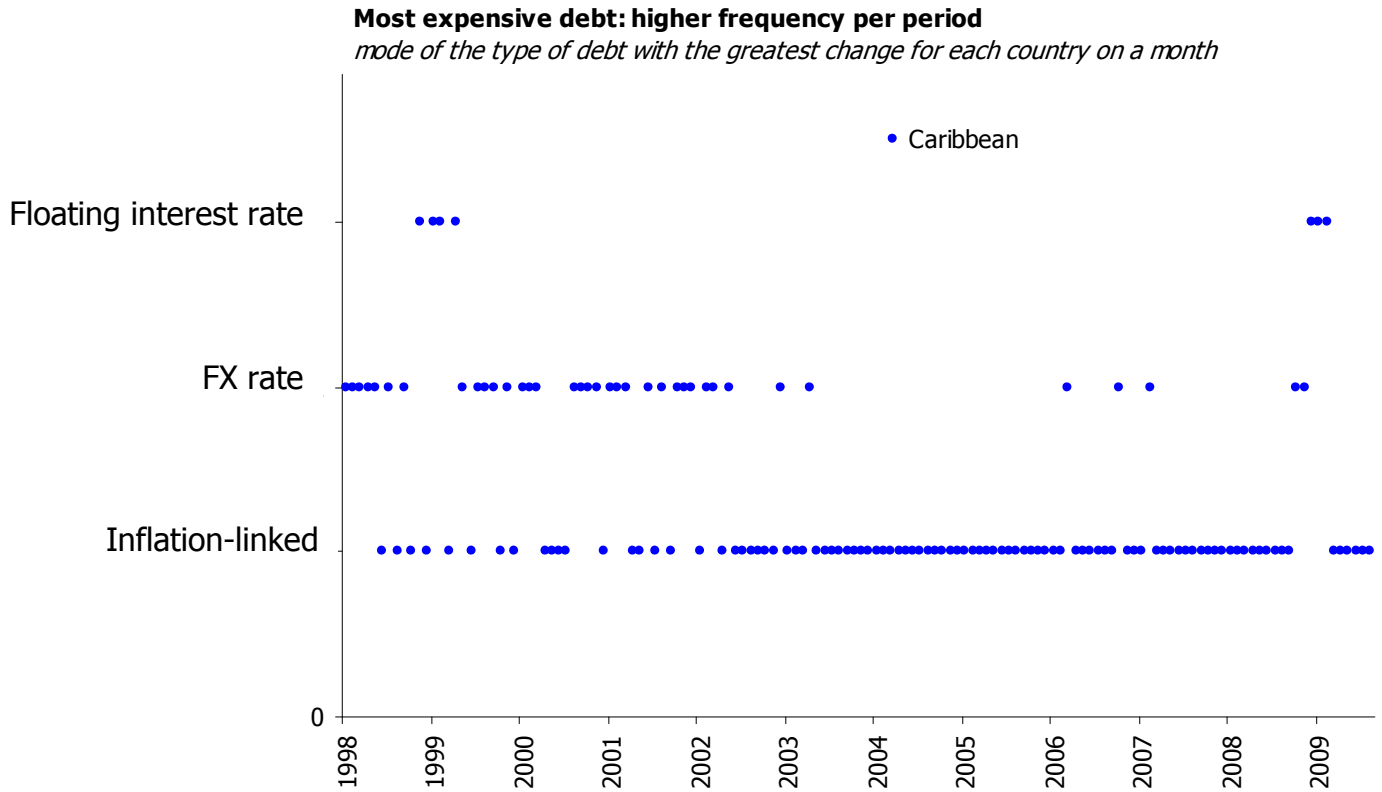
- The most expensive debt option has varied in time, the floating-interest rate debt was the most expensive until 2001, it then shifted to FX debt and since 2004 its has been inflation linked



- In Latin America debt linked to the exchange rate would have been the least expensive for the period as a whole, though in specific episodes it was very costly



- In the Caribbean region inflation had the lowest cost



- For the whole sample, inflation has been in general relatively more expensive month after month, while the other two instruments came in almost as a tie

	Proportional time a debt has been more expensive		
	Inflation	**FX**	**Floating**
Argentina	39%	**20%**	**41%**
Bolivia	**41%**	38%	**21%**
Brazil	**4%**	31%	**64%**
Chile	**24%**	**46%**	31%
Colombia	33%	**36%**	**31%**
Costa Rica	**55%**	38%	**7%**
Dominican Republic	**24%**	29%	**47%**
Ecuador	**61%**	**19%**	21%
El Salvador	**54%**	**15%**	31%
Guatemala	**56%**	30%	**14%**
Haiti	**49%**	37%	**14%**
Honduras	41%	**1%**	**59%**
Mexico	**20%**	39%	**41%**
Nicaragua	**49%**	42%	**9%**
Panama	**42%**	**18%**	40%
Paraguay	**37%**	**30%**	33%
Peru	33%	**31%**	**36%**
Uruguay	**35%**	**31%**	34%
Venezuela, Rep. Bol.	**61%**	**14%**	26%

	Proportional time a debt has been more expensive		
	Inflation	**FX**	**Floating**
Aruba	**51%**	**22%**	27%
Bahamas, The	43%	**44%**	**14%**
Barbados	**56%**	25%	**19%**
Belize			
Dominica	46%	**50%**	**4%**
Grenada	**55%**	41%	**4%**
Guyana	**51%**	32%	**16%**
Jamaica	**50%**	31%	**19%**
Montserrat			
Netherlands Antilles	**51%**	**14%**	34%
St. Kitts and Nevis	**51%**	32%	**17%**
St. Lucia	**57%**	36%	**7%**
St. Vincent & Grens.	**54%**	41%	**5%**
Suriname	**67%**	**9%**	24%
Trinidad and Tobago	**69%**	**11%**	21%

Average	**46%**	29%	**25%**
Latin America	**40%**	**29%**	32%
Caribbean	**54%**	30%	**16%**

Inflation linked would have been the more costly alternative for the period as a whole

- Accumulated growth: 1998-2009

1998-2009	Accumulated variation		
	Inflation	Exchange rate	Interest rate
Argentina	308%	**554%**	**258%**
Bolivia	**140%**	124%	**119%**
Brazil	192%	**182%**	**721%**
Chile	**108%**	106%	**101%**
Colombia	218%	**161%**	**258%**
Costa Rica	**365%**	305%	**222%**
Dominican Republic	395%	**328%**	**447%**
Ecuador	**960%**	852%	**168%**
El Salvador	**105%**	71%	**69%**
Guatemala	**201%**	126%	**115%**
Haiti	**535%**	304%	**184%**
Honduras	281%	**147%**	**338%**
Mexico	194%	**172%**	**296%**
Nicaragua	**274%**	249%	**140%**
Panama	**83%**	**71%**	74%
Paraguay	**262%**	**241%**	259%
Peru	96%	**85%**	**132%**
Uruguay	**257%**	287%	**451%**
Venezuela, Rep. Bol.	**1257%**	**625%**	664%

1998-2009	Accumulated variation		
	Inflation	Exchange rate	Interest rate
ECCU		**71%**	**52%**
Anguilla		**71%**	**63%**
Antigua and Barbuda		**71%**	**62%**
Aruba	**105%**	**71%**	74%
Bahamas, The	**81%**	71%	**59%**
Barbados	**112%**	71%	**60%**
Belize		**71%**	**143%**
Dominica	**77%**	71%	**52%**
Grenada	**98%**	71%	**51%**
Guyana	**186%**	142%	**95%**
Jamaica	**346%**	319%	**194%**
Montserrat		**71%**	**39%**
Netherlands Antilles	**95%**	**71%**	75%
St. Kitts and Nevis	**112%**	71%	**66%**
St. Lucia	**102%**	71%	**58%**
St. Vincent & Grens.	**114%**	71%	**54%**
Suriname	**1587%**	1070%	**211%**
Trinidad and Tobago	**177%**	**72%**	92%

Dollar debt was more expensive in 98-02

- Accumulated growth: sample break 1998-2002

1998-2002	Accumulated variation		
	Inflation	Exchange rate	Interest rate
Argentina	57%	346%	117%
Bolivia	32%	80%	61%
Brazil	64%	320%	188%
Chile	36%	101%	53%
Colombia	82%	176%	119%
Costa Rica	89%	100%	86%
Dominican Republic	65%	94%	127%
Ecuador	557%	621%	97%
El Salvador	28%	30%	30%
Guatemala	57%	59%	55%
Haiti	100%	179%	72%
Honduras	91%	67%	124%
Mexico	82%	62%	138%
Nicaragua	65%	89%	67%
Panama	21%	30%	38%
Paraguay	86%	264%	144%
Peru	33%	66%	78%
Uruguay	77%	249%	249%
Venezuela, Rep. Bol.	196%	238%	213%

1998-2002	Accumulated variation		
	Inflation	Exchange rate	Interest rate
ECCU		30%	22%
Anguilla		30%	19%
Antigua and Barbuda		30%	25%
Aruba	34%	30%	33%
Bahamas, The	27%	30%	25%
Barbados	26%	30%	24%
Belize		30%	44%
Dominica	21%	30%	22%
Grenada	25%	30%	22%
Guyana	51%	73%	51%
Jamaica	64%	79%	78%
Montserrat		30%	17%
Netherlands Antilles	29%	30%	33%
St. Kitts and Nevis	28%	30%	23%
St. Lucia	32%	30%	26%
St. Vincent & Grens.	21%	30%	24%
Suriname	637%	712%	94%
Trinidad and Tobago	44%	30%	44%

Inflation and interest rates would have been the more expensive

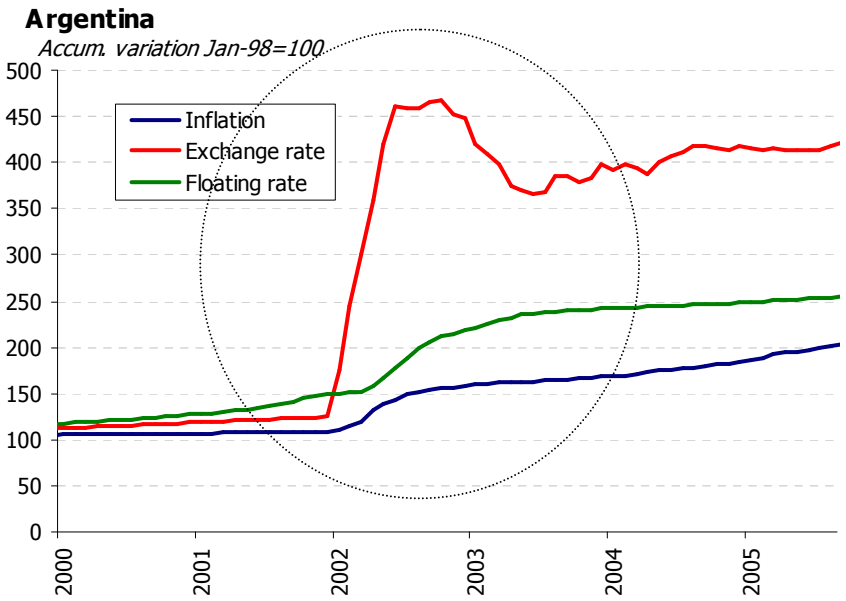
- Accumulated growth: sample break 2003-2009 ¿IT?

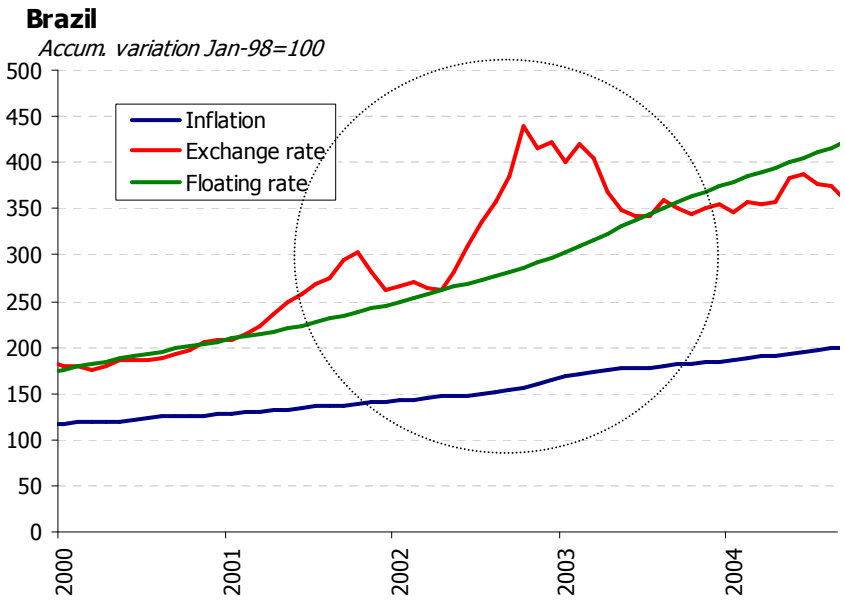
2003-2009	Accumulated variation		
	Inflation	Exchange rate	Interest rate
Argentina	160%	47%	65%
Bolivia	82%	24%	36%
Brazil	78%	-33%	185%
Chile	53%	3%	31%
Colombia	75%	-5%	64%
Costa Rica	146%	103%	72%
Dominican Republic	200%	121%	142%
Ecuador	61%	32%	36%
El Salvador	60%	32%	30%
Guatemala	91%	42%	39%
Haiti	218%	45%	64%
Honduras	100%	48%	96%
Mexico	62%	68%	67%
Nicaragua	126%	84%	43%
Panama	51%	32%	26%
Paraguay	95%	-6%	47%
Peru	47%	12%	31%
Uruguay	101%	11%	58%
Venezuela, Rep. Bol.	358%	115%	144%

2003-2009	Accumulated variation		
	Inflation	Exchange rate	Interest rate
ECCU		32%	25%
Anguilla		32%	37%
Antigua and Barbuda		32%	30%
Aruba	53%	32%	31%
Bahamas, The	43%	32%	28%
Barbados	68%	32%	29%
Belize		32%	69%
Dominica	46%	32%	25%
Grenada	59%	32%	23%
Guyana	89%	40%	29%
Jamaica	172%	134%	65%
Montserrat		32%	19%
Netherlands Antilles	52%	32%	31%
St. Kitts and Nevis	65%	32%	35%
St. Lucia	53%	32%	26%
St. Vincent & Grens.	77%	32%	24%
Suriname	129%	44%	61%
Trinidad and Tobago	93%	32%	34%

The event of large depreciations were costly

- Some countries faced extreme variations in some of the underlying debt instruments





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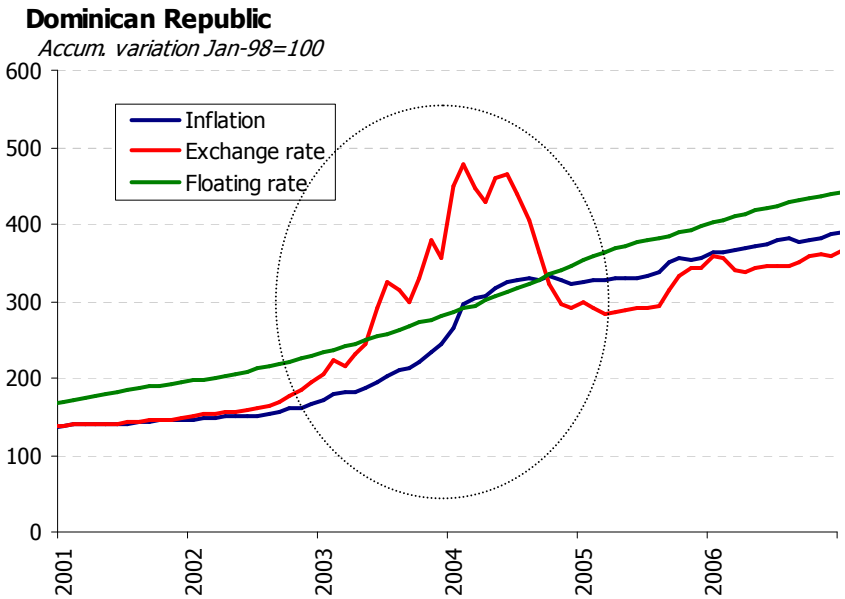
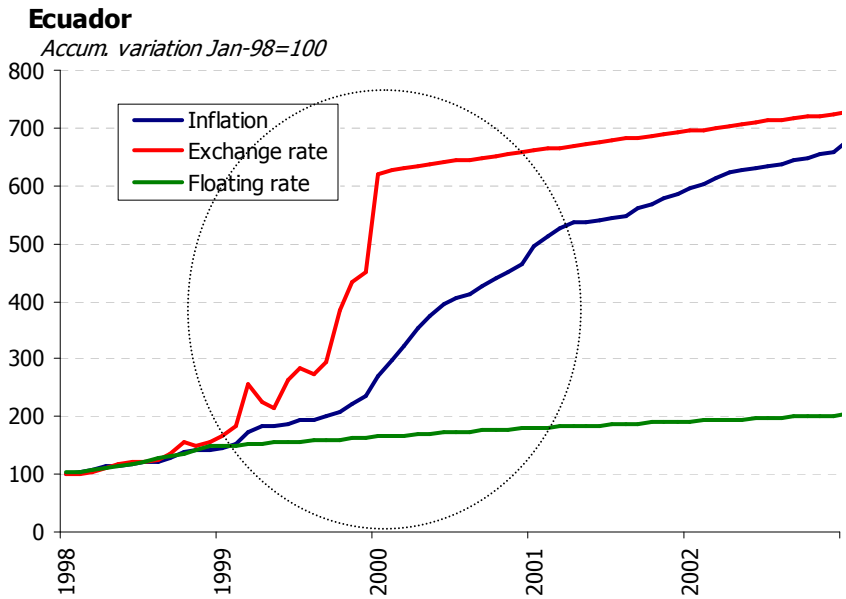
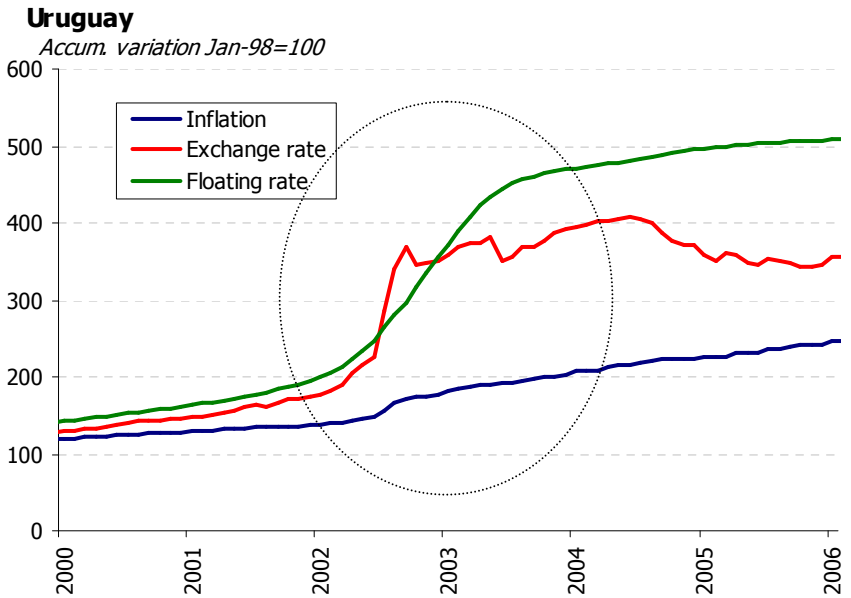
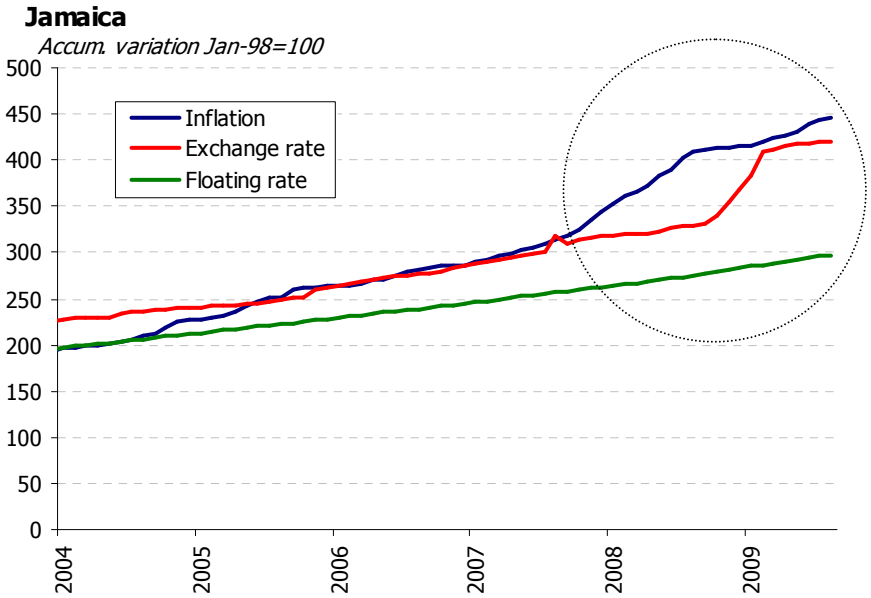
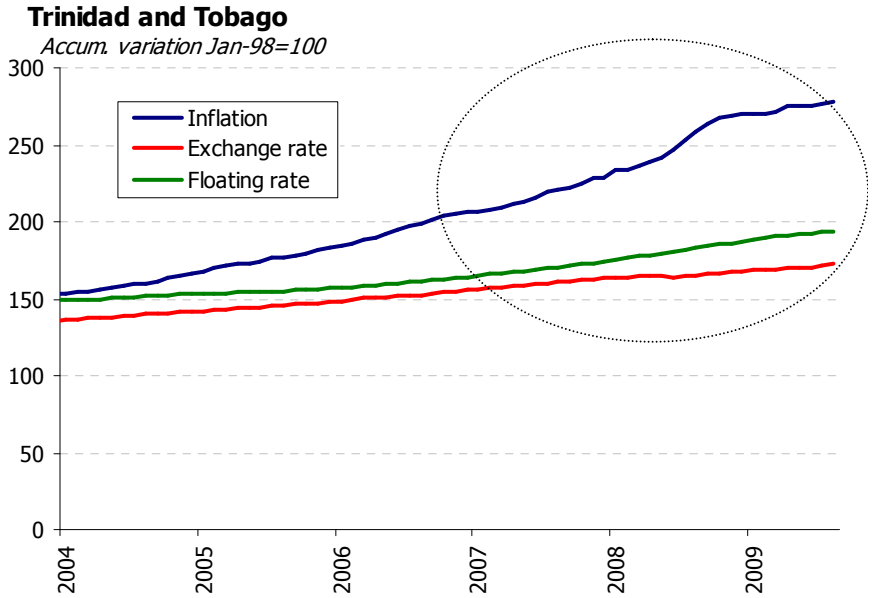




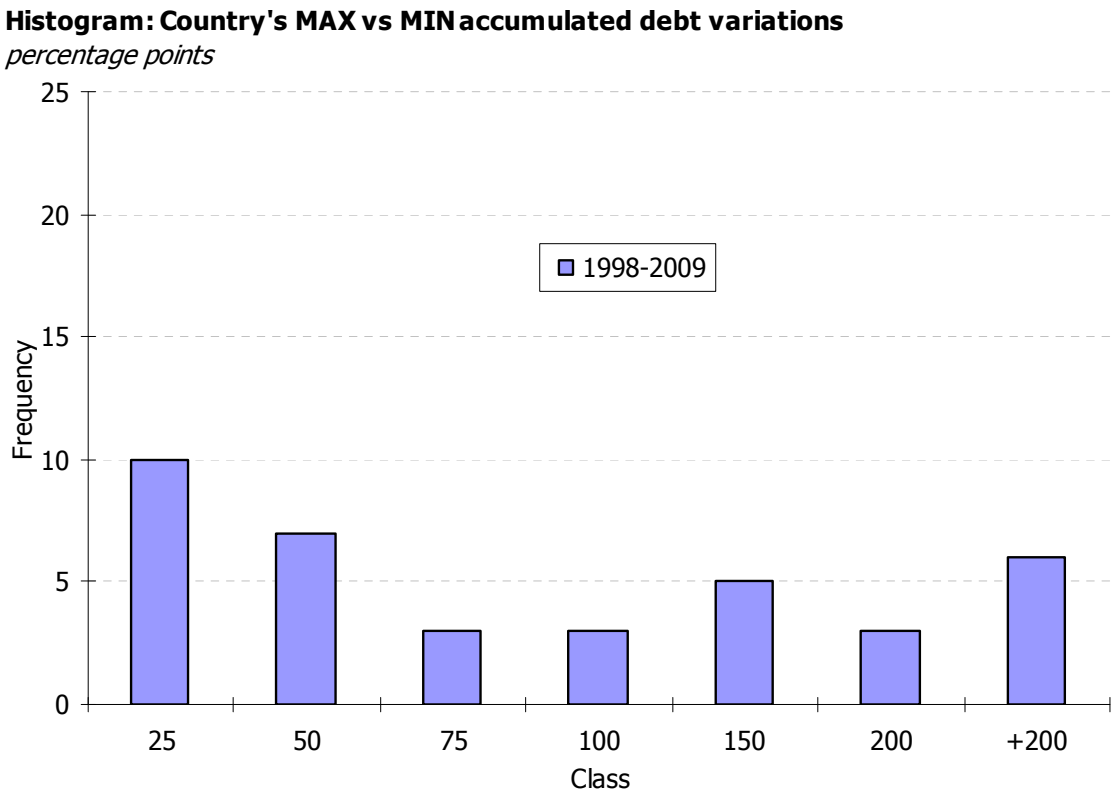
The event of large depreciations were costly





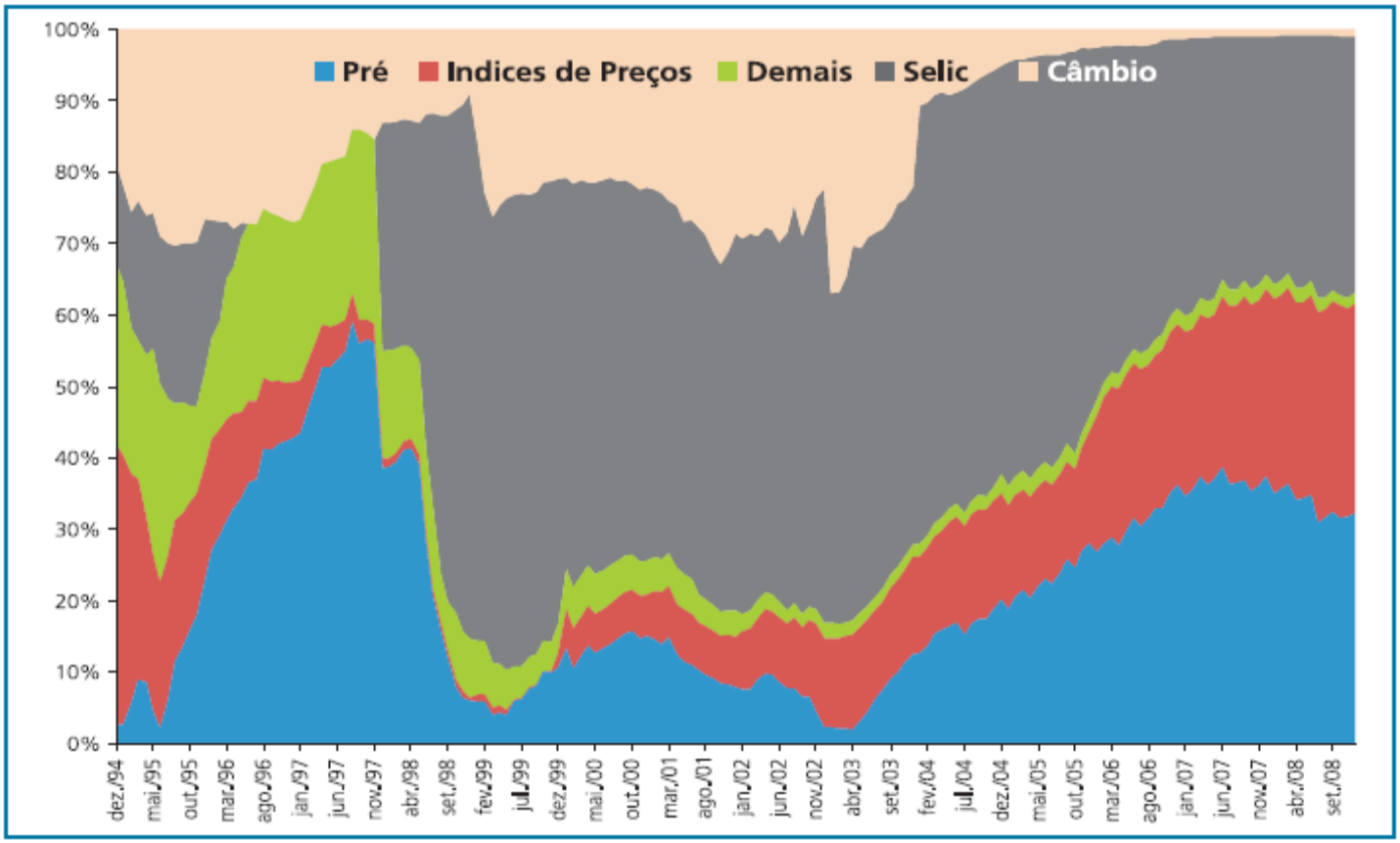


There was a large differences in the financial cost depending on the instrument



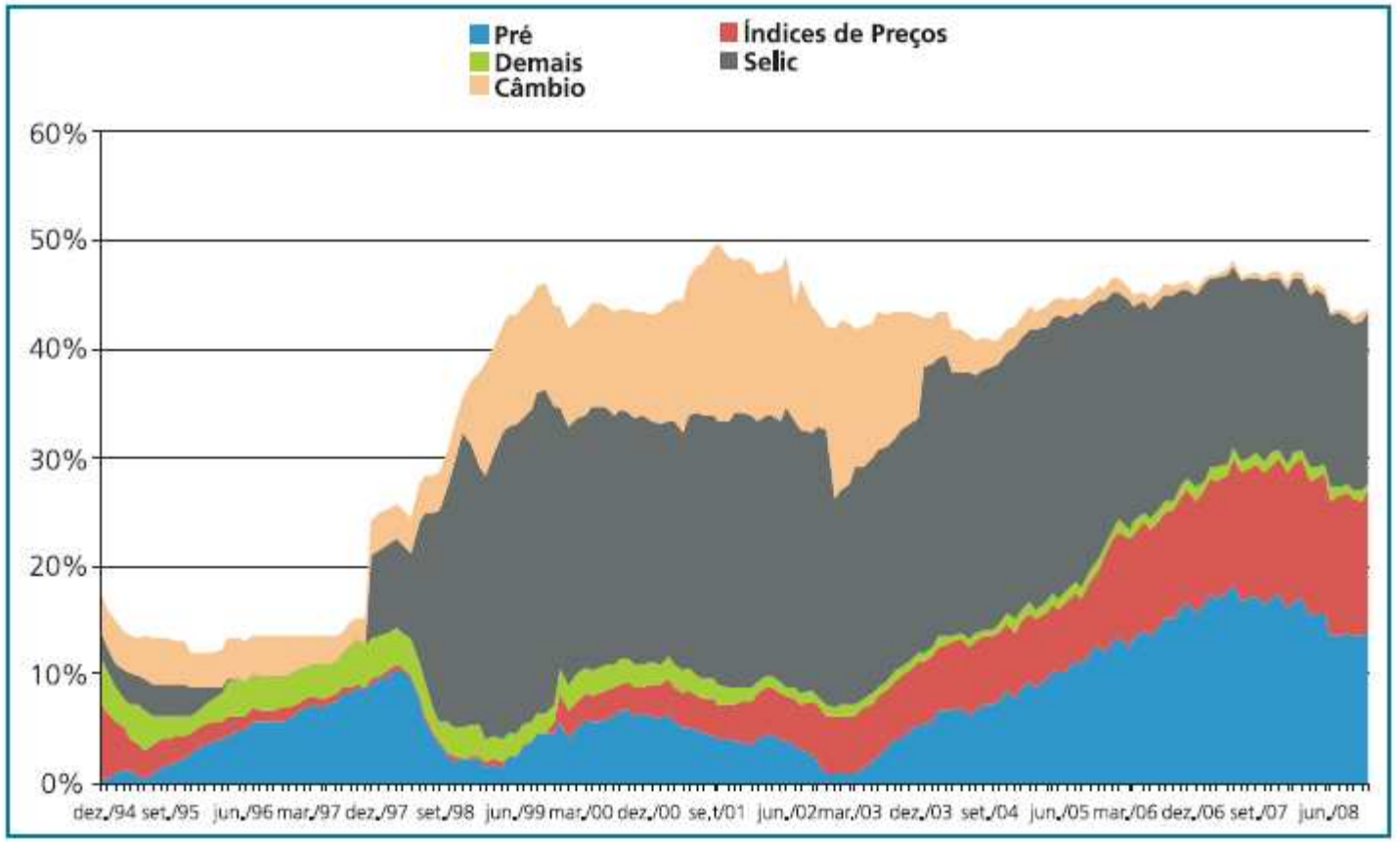
Brazilian's experience with a shift toward more domestic currency debt

- Brazil - case study: distribution of domestic debt



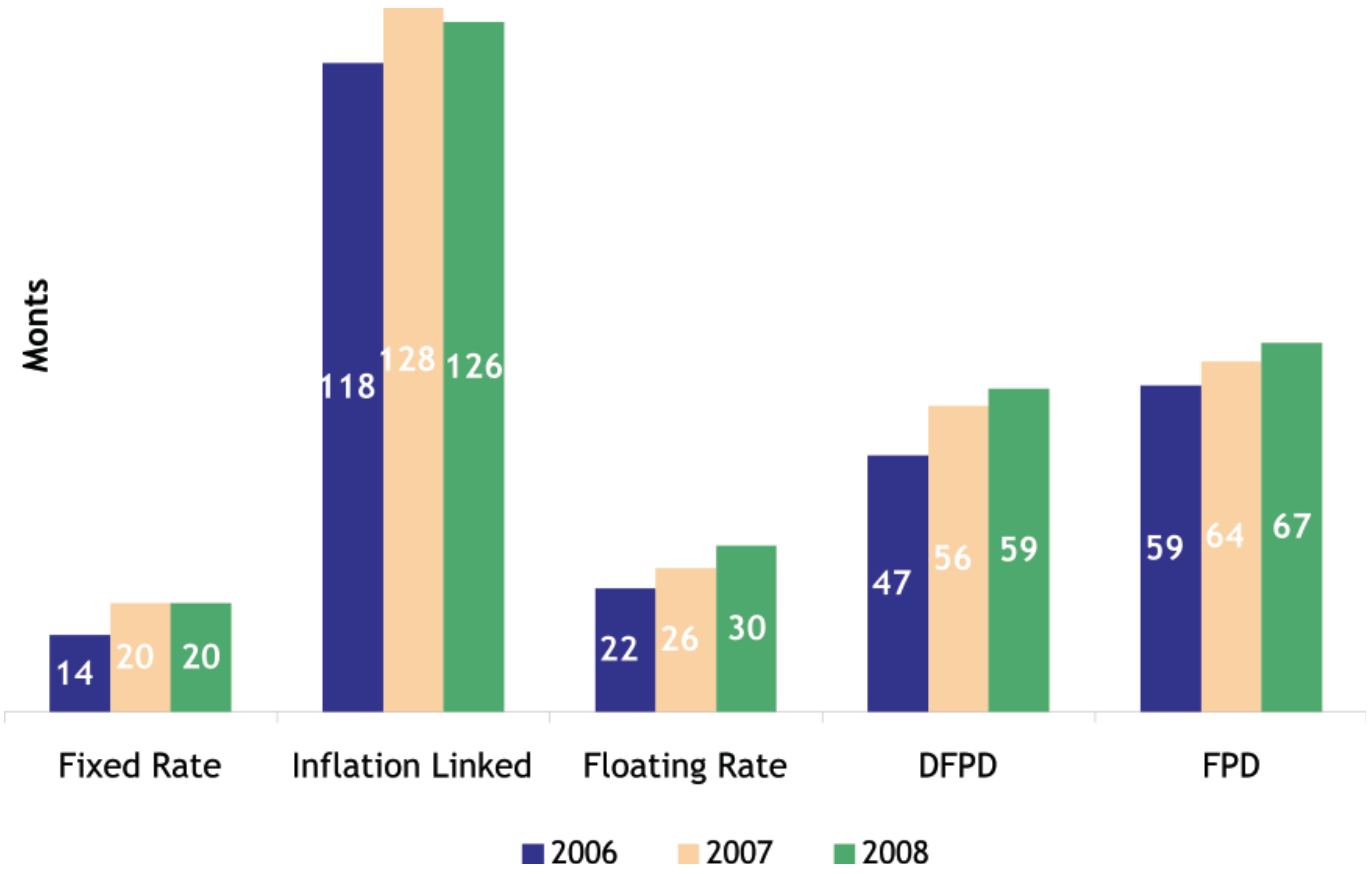
Fonte: Tesouro Nacional

- Brazil: Absolute evolution of the domestic debt stock

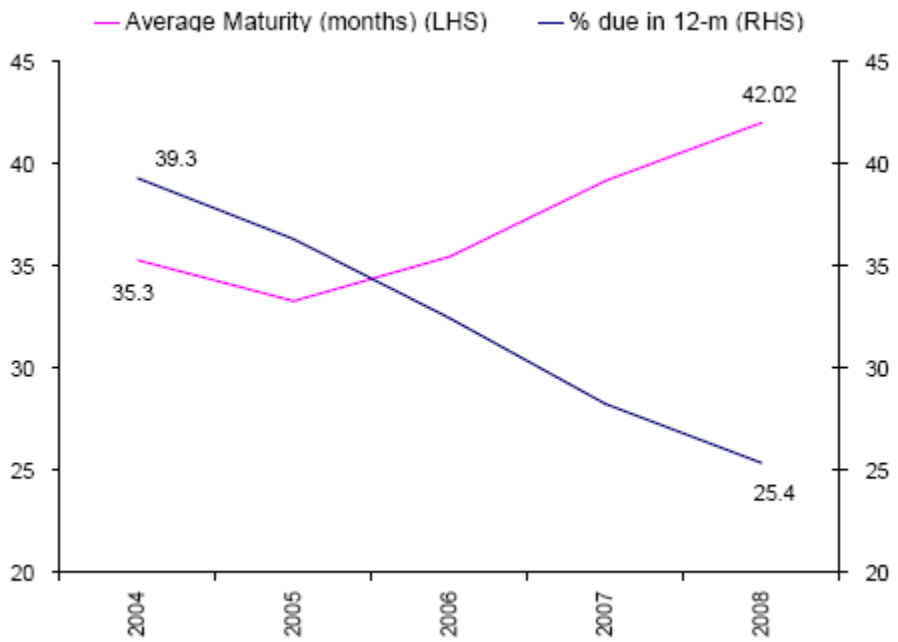


Fonte: Tesouro Nacional

- Average life of Brazil's debt security types



- Average life



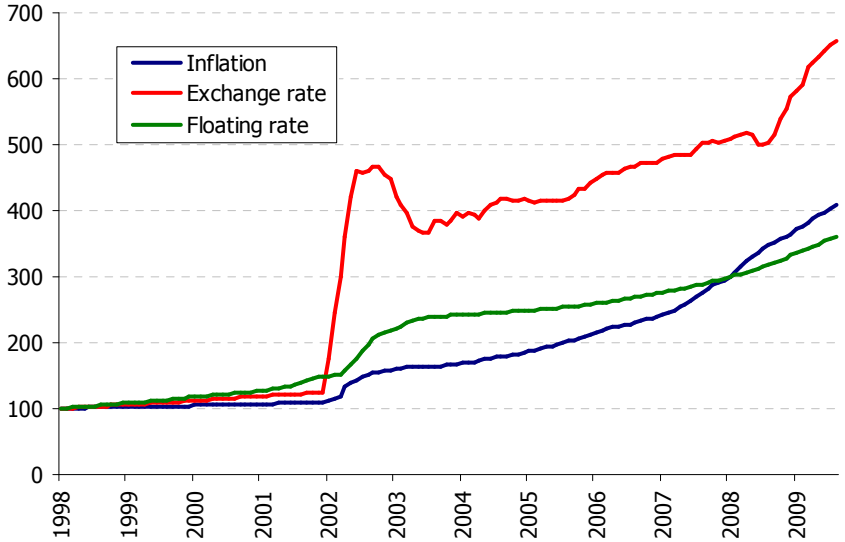
Final Reflexions

- Domestic debt might not be the cheapest in the short run, but it can help to reduce long term vulnerability
- Fixed interest rates is probably the best option, but it can only be issued in a low inflation environment
- Dollar debt could be cheaper in the longer haul, but it can be very volatile and lead to jumps that affect the debt to GDP ratio
- Floating rates could be risky in an environment in which the central bank uses tight monetary policy
- No easy choices

- Country-specific theoretical debt behavior based on actual evolution of instrument variables

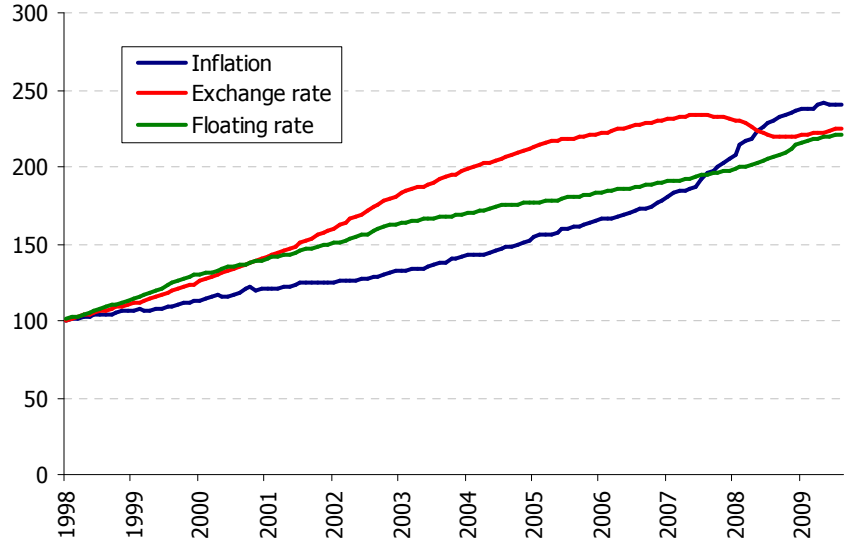
Argentina

Accum. variation Jan-98=100



Bolivia

Accum. variation Jan-98=100



Brazil

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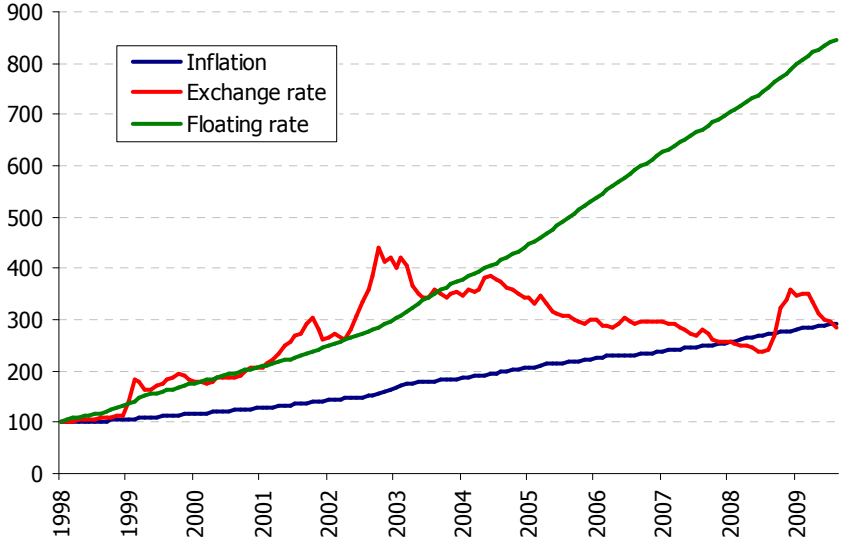

Chile

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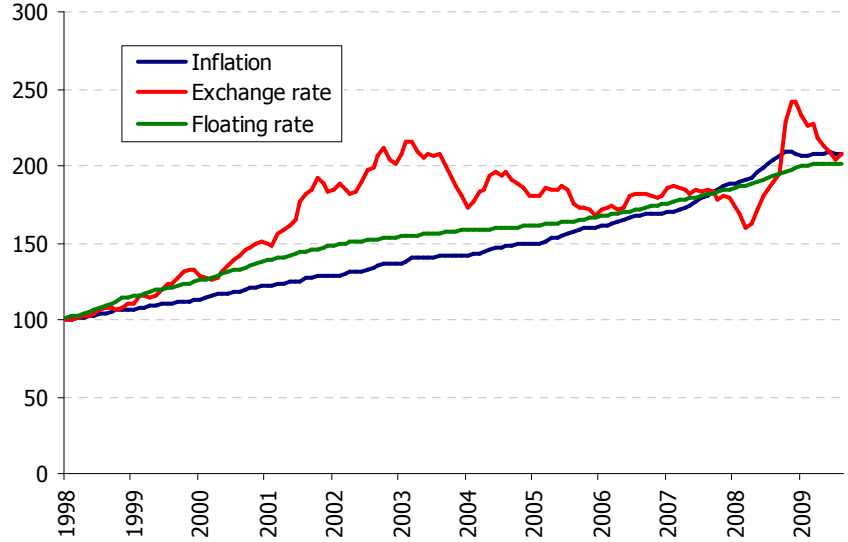

Colombia

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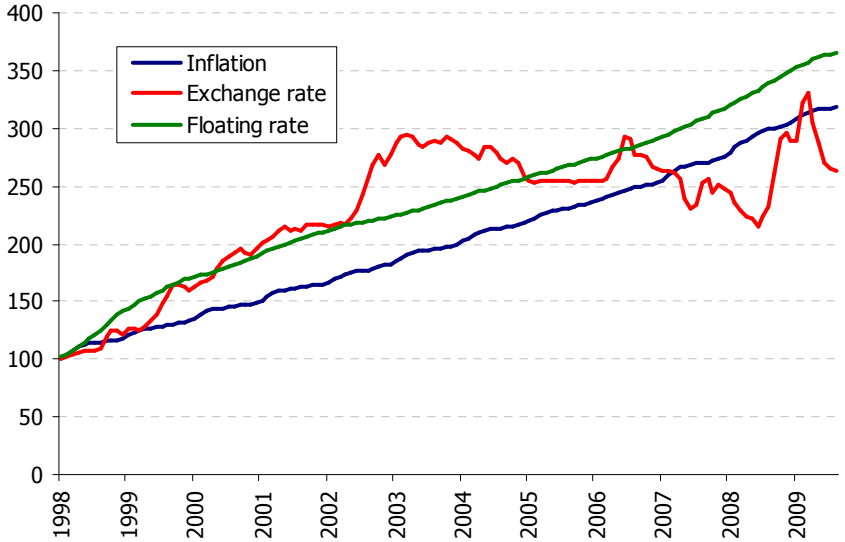
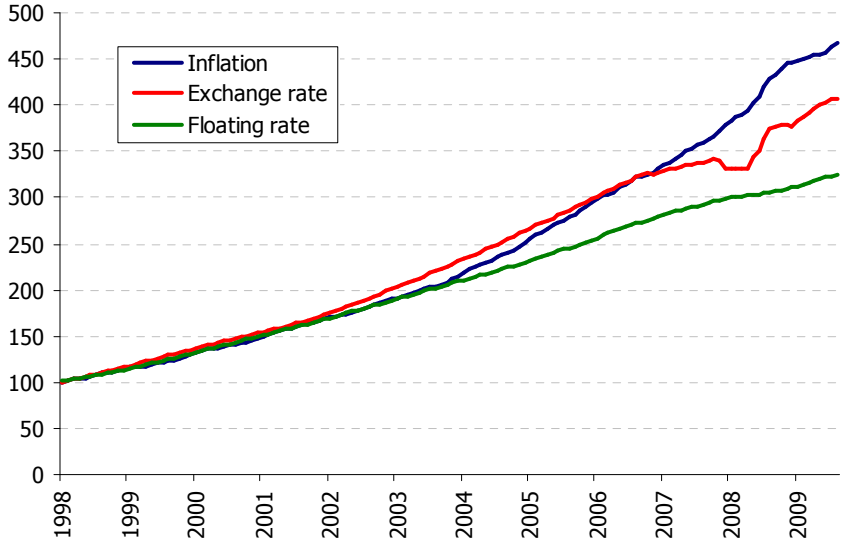


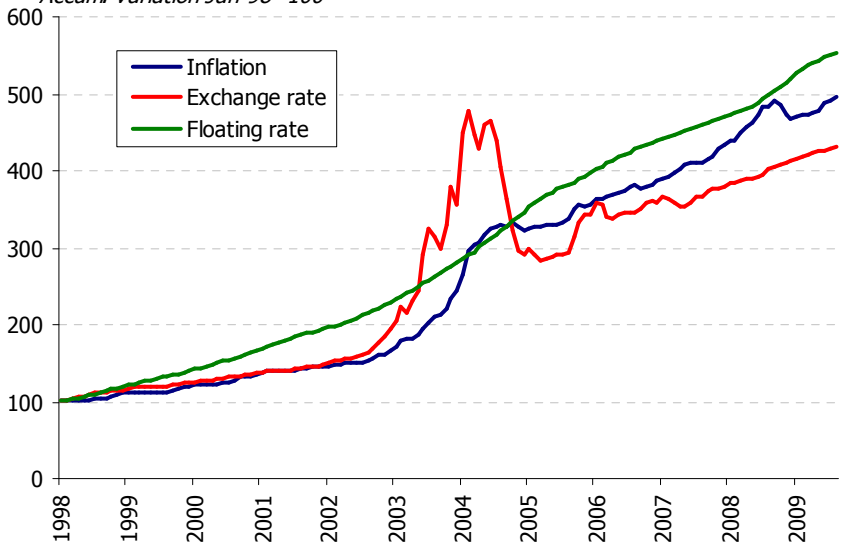
Costa Rica

Accum. variation Jan-98=100



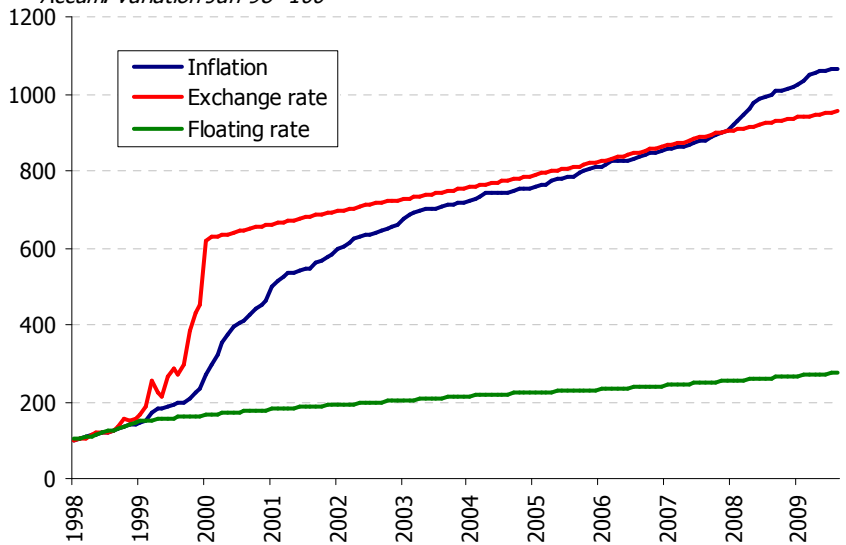
Dominican Republic

Accum. variation Jan-98=100



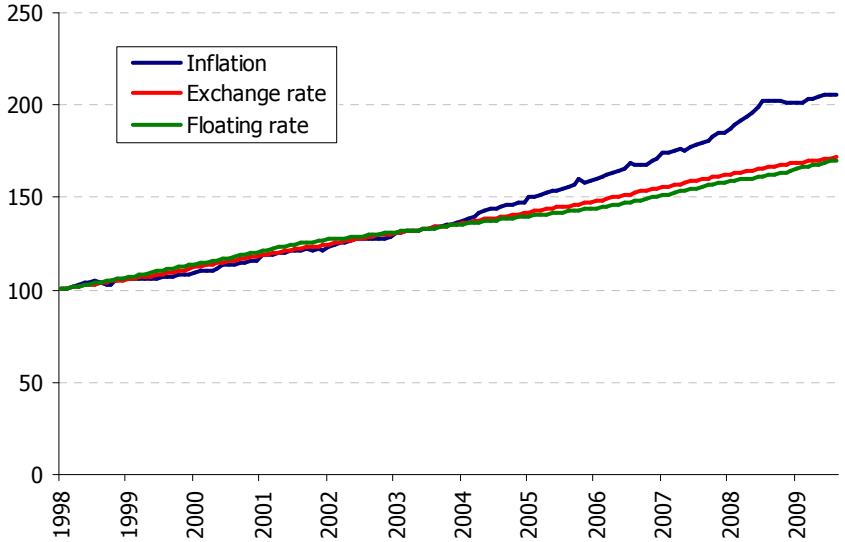
Ecuador

Accum. variation Jan-98=100



El Salvador

Accum. variation Jan-98=100



Guatemala

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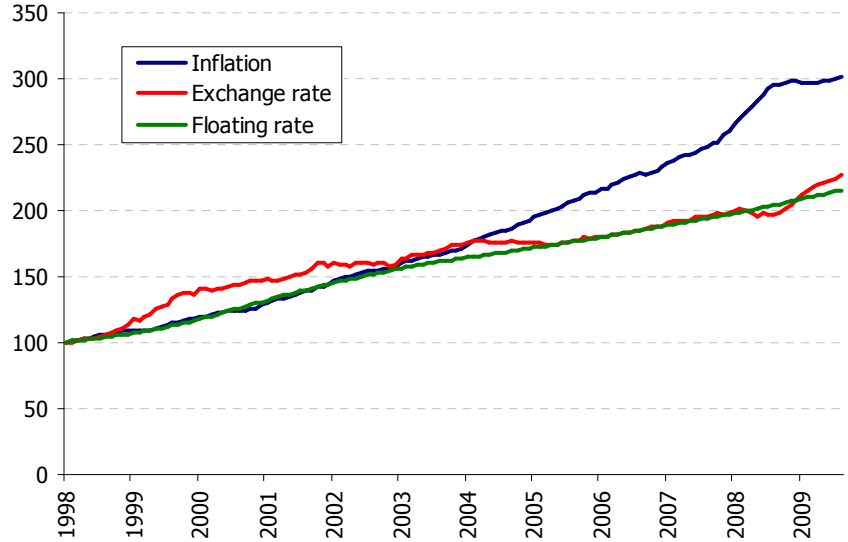
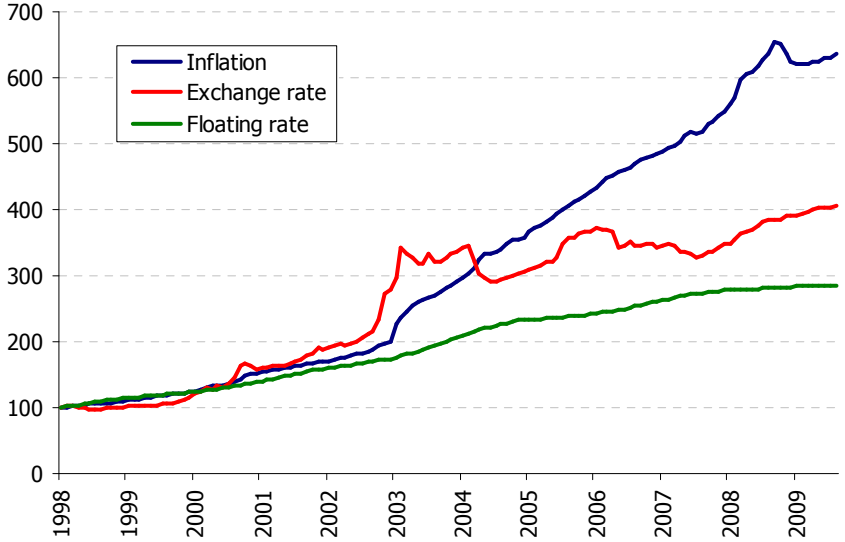


Haiti

Accum. variation Jan-98=100



Honduras

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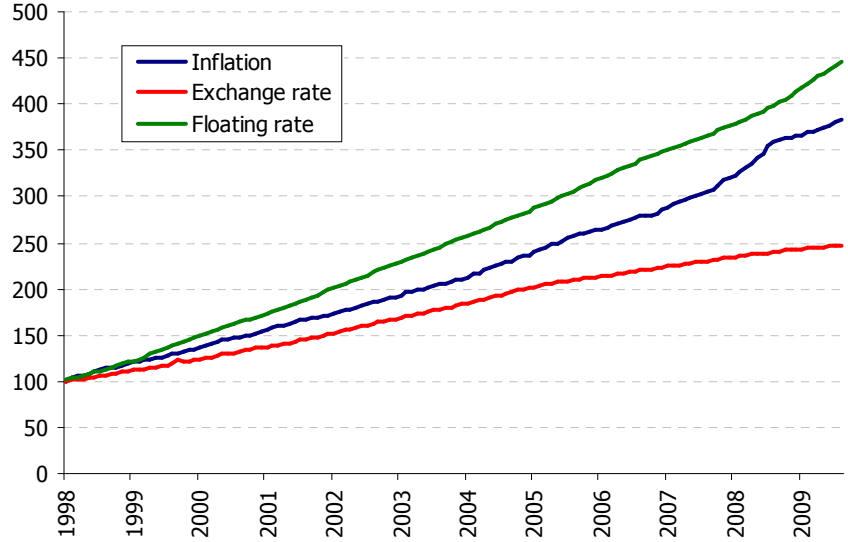

Mexico

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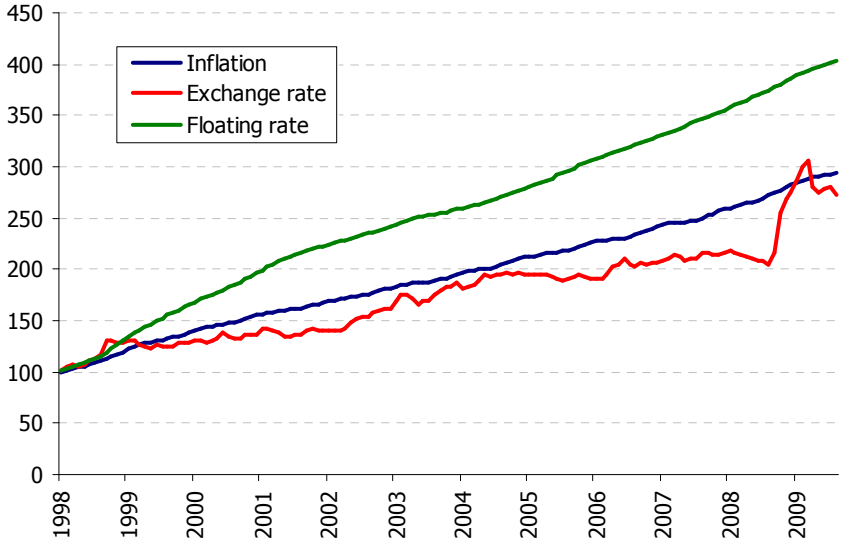

Nicaragua

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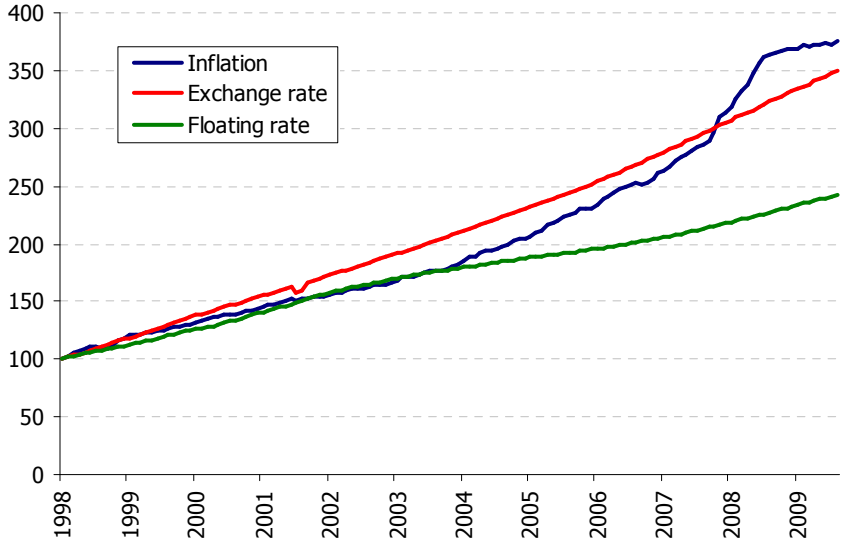

Panama

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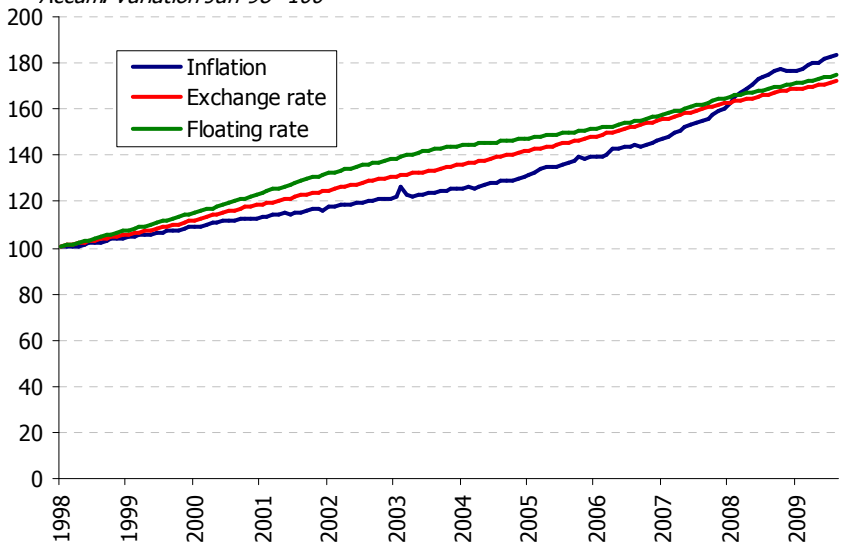

Paraguay

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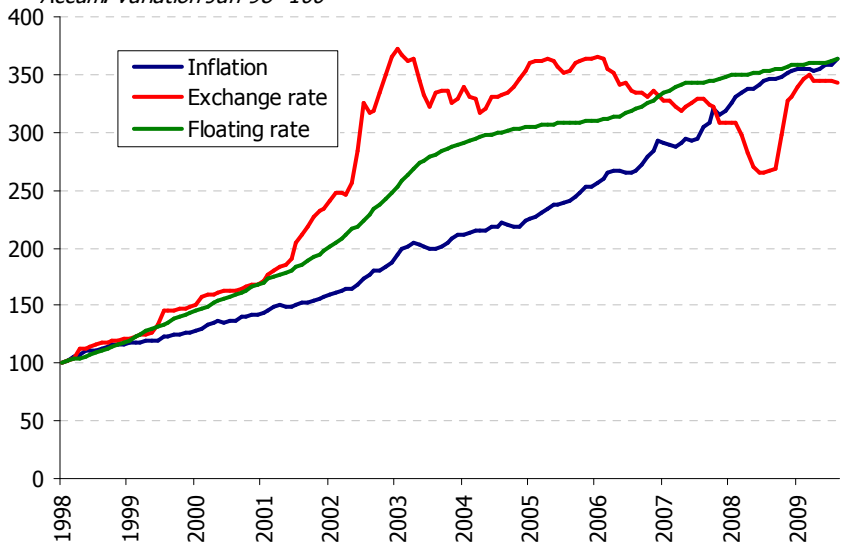
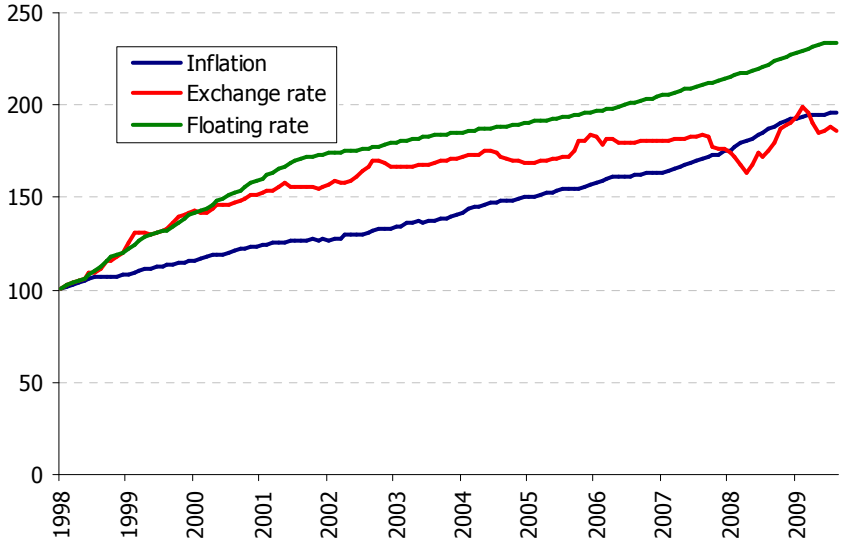


Peru

Accum. variation Jan-98=100



Uruguay

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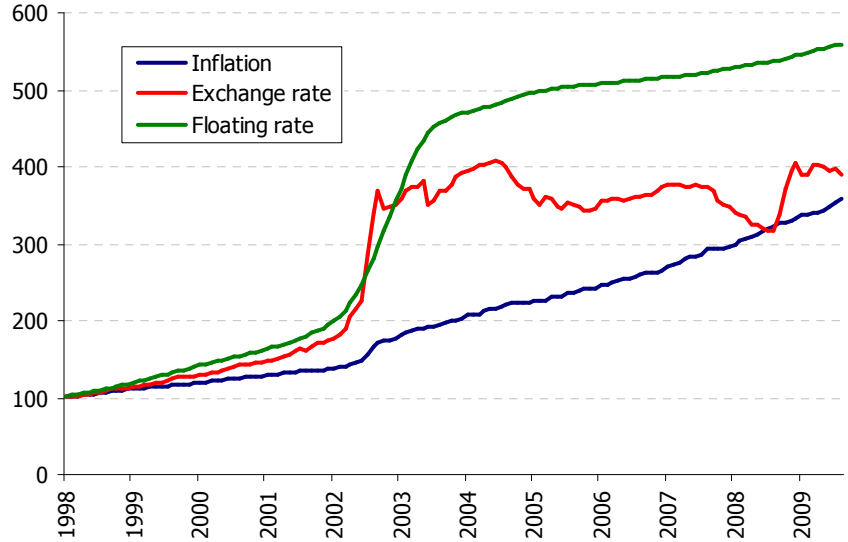
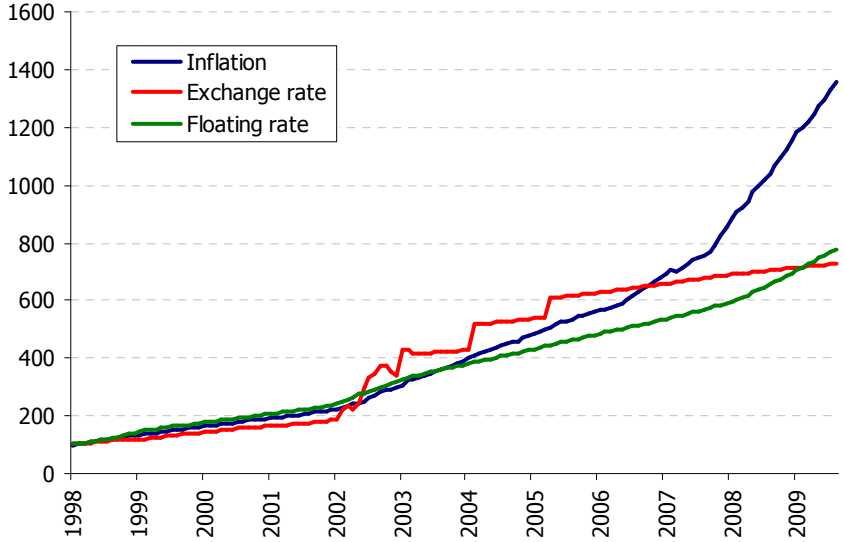


Venezuela, Rep. Bol.

Accum. variation Jan-98=100



ECCU

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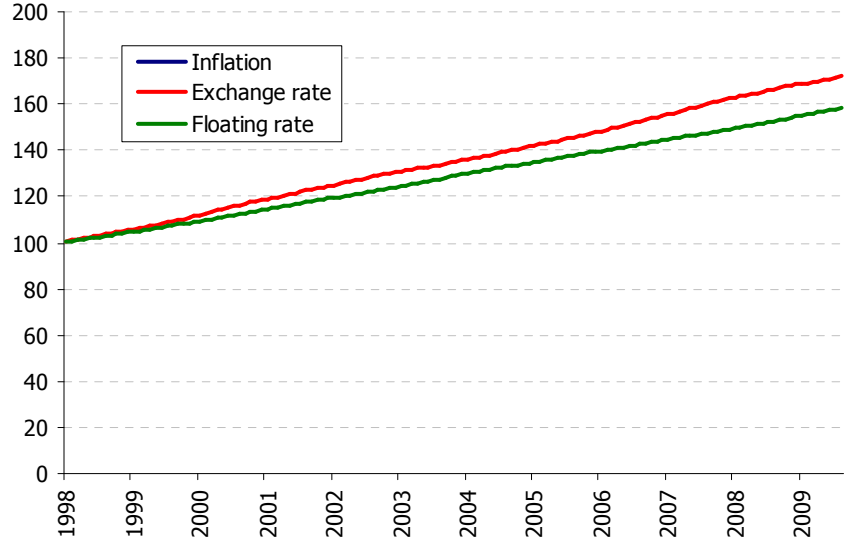

Anguilla

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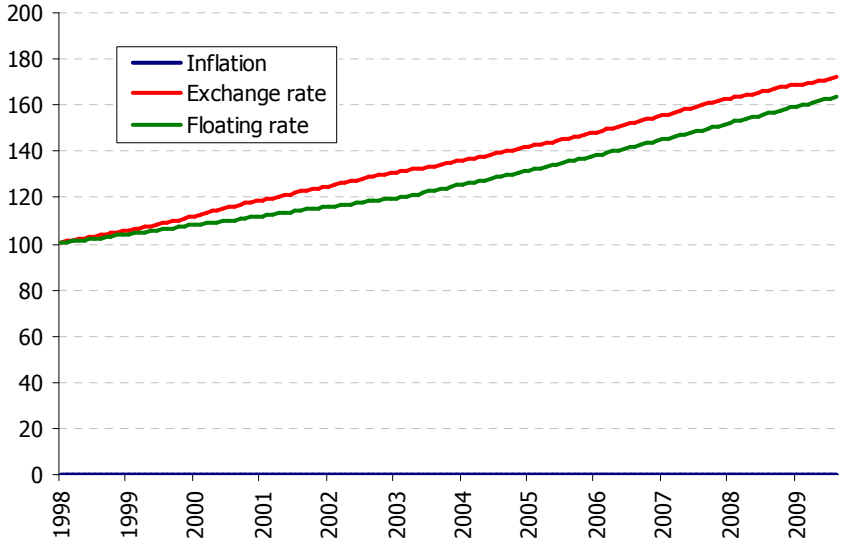

Antigua and Barbuda

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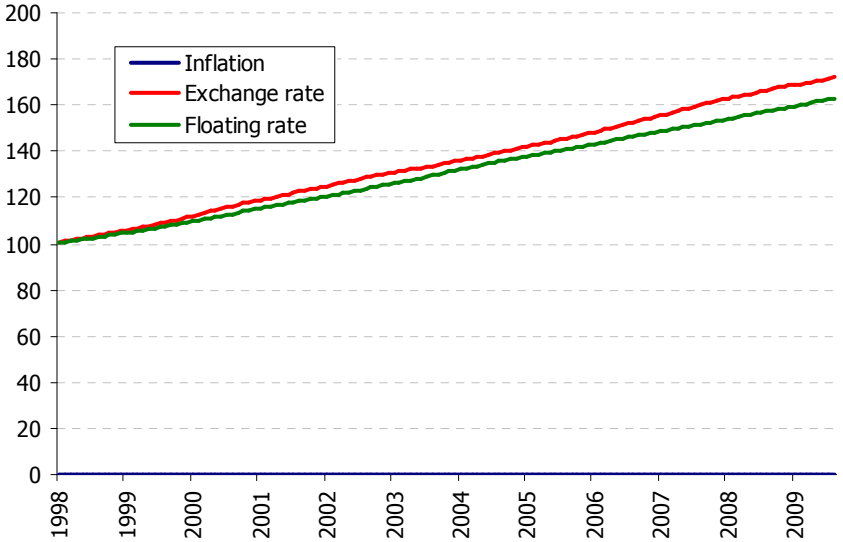

Aruba

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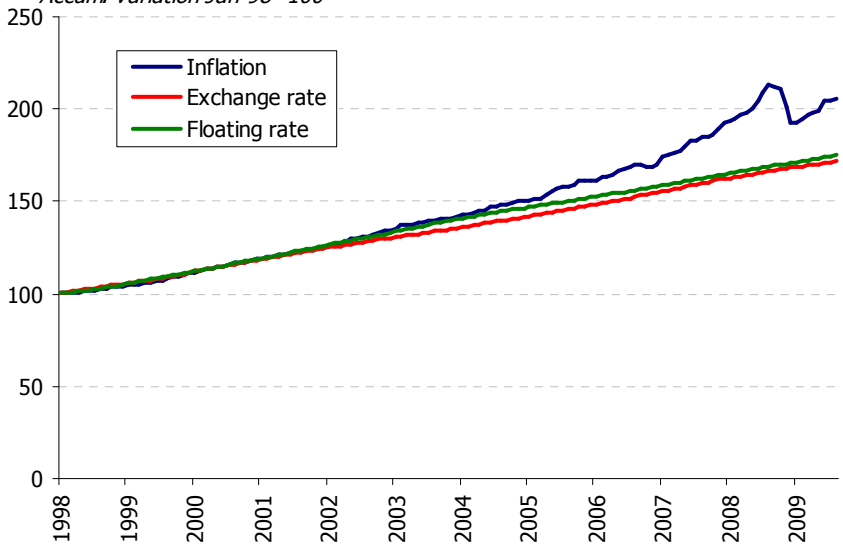

Bahamas, The

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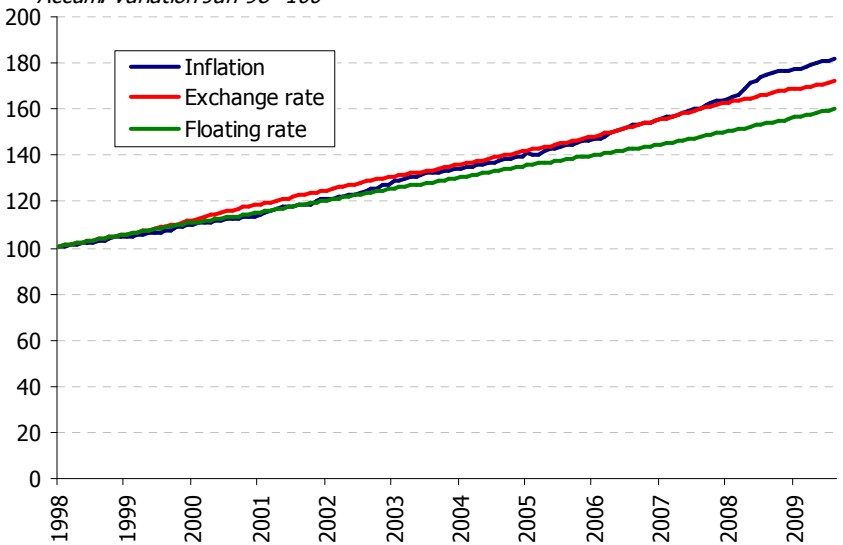
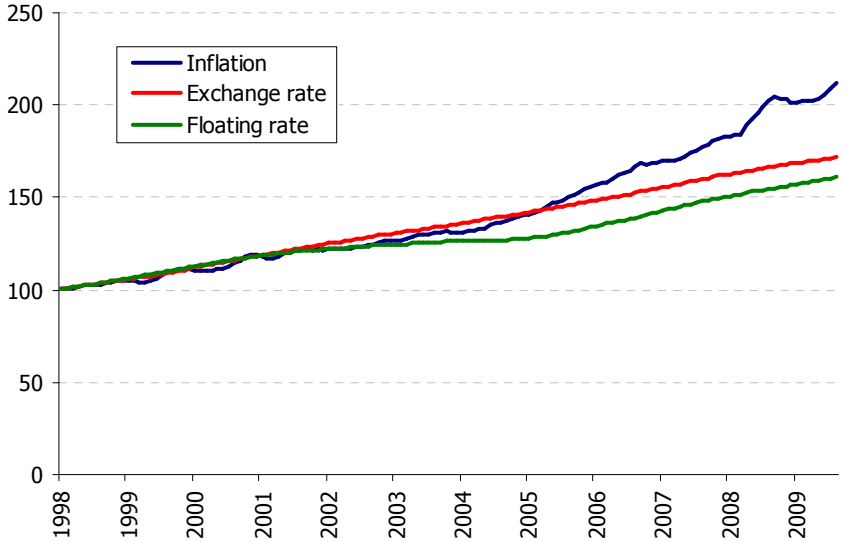


Barbados

Accum. variation Jan-98=100



Belize

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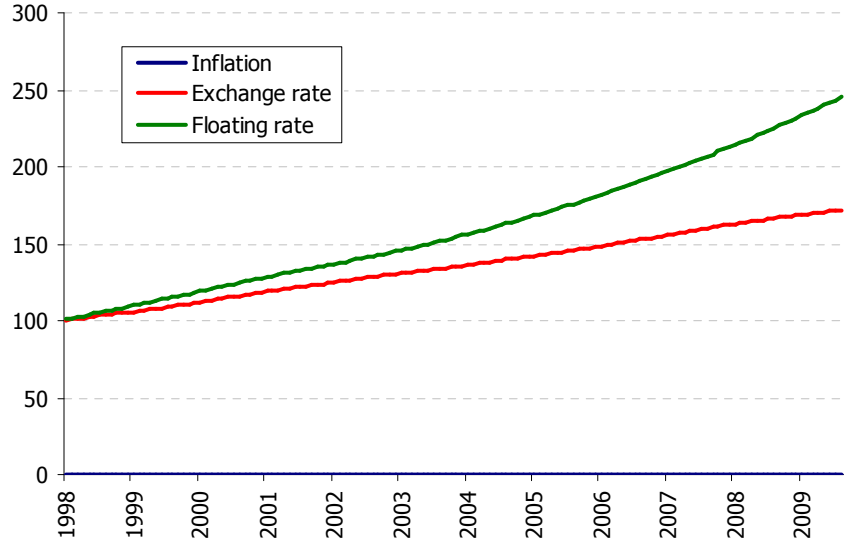

Dominica

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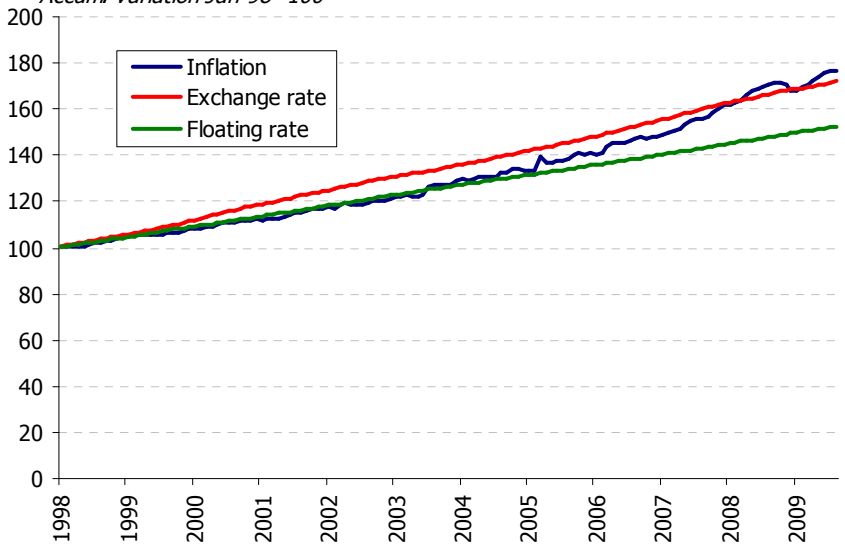

Grenada

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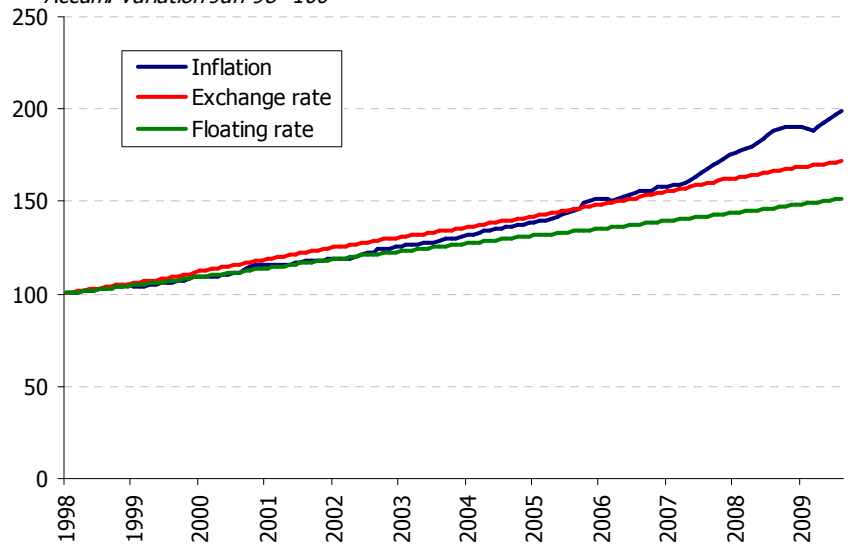

Guyana

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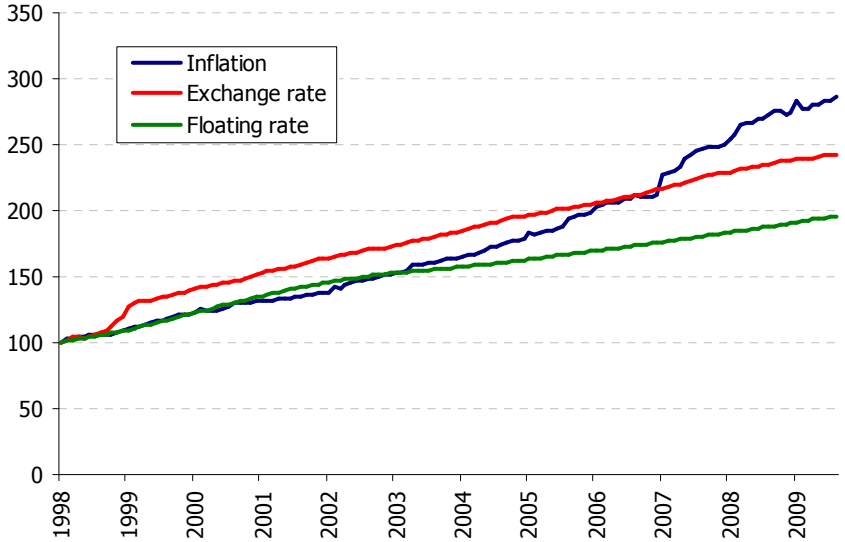

Jamaica

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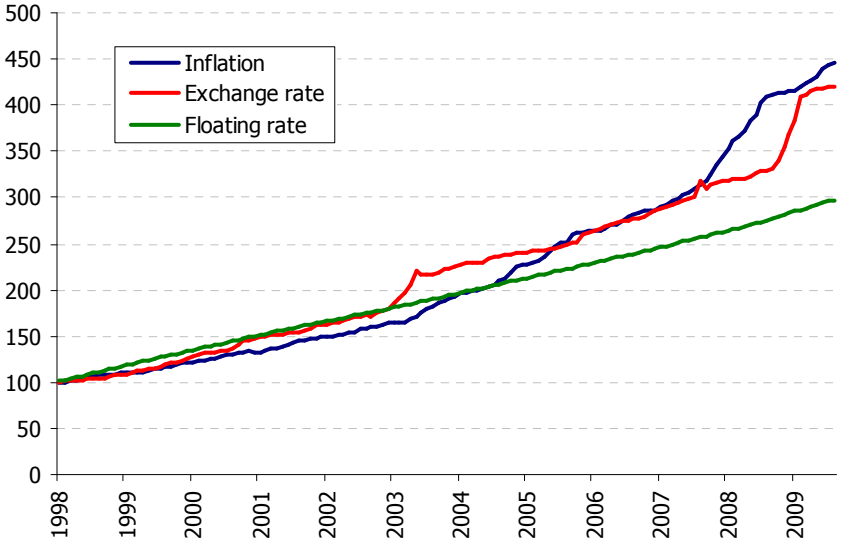
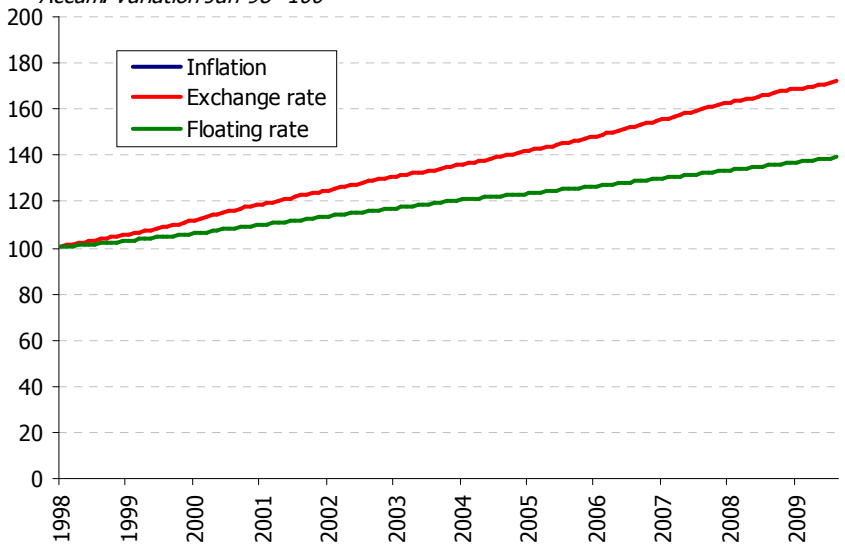


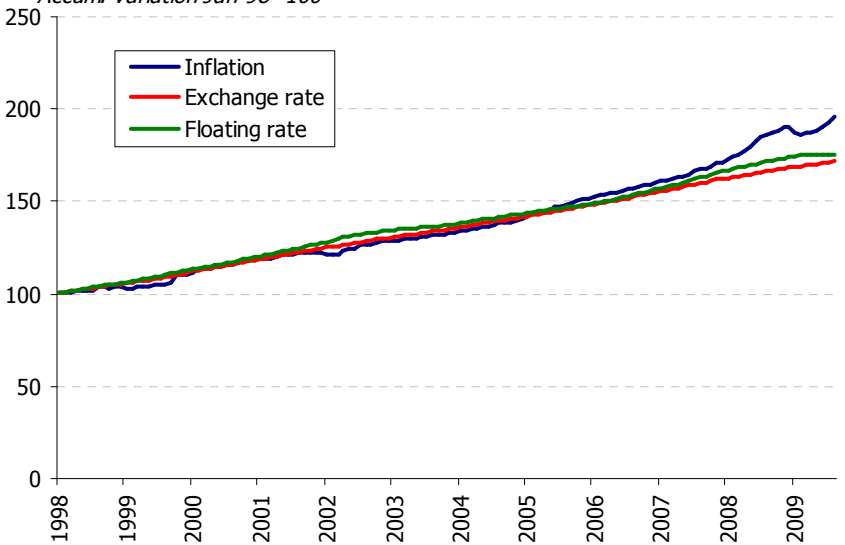
Montserrat

Accum. variation Jan-98=100



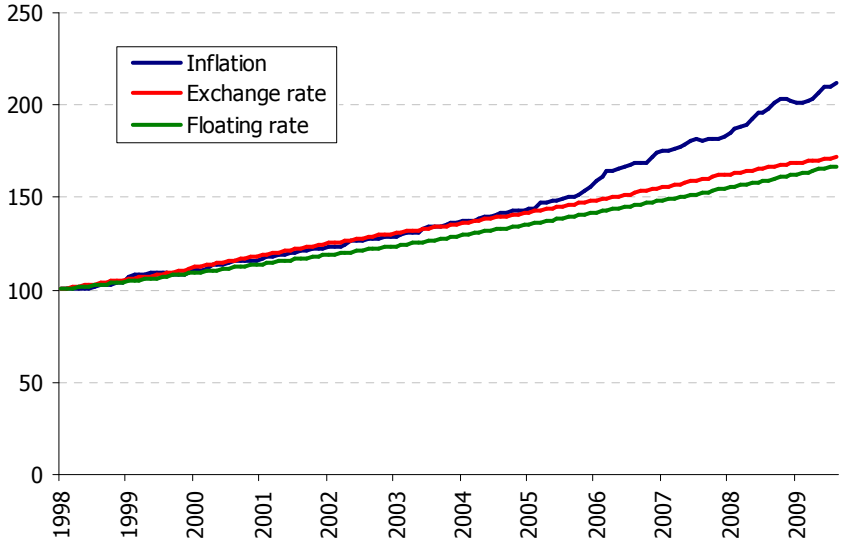
Netherlands Antilles

Accum. variation Jan-98=100



St. Kitts and Nevis

Accum. variation Jan-98=100



St. Lucia

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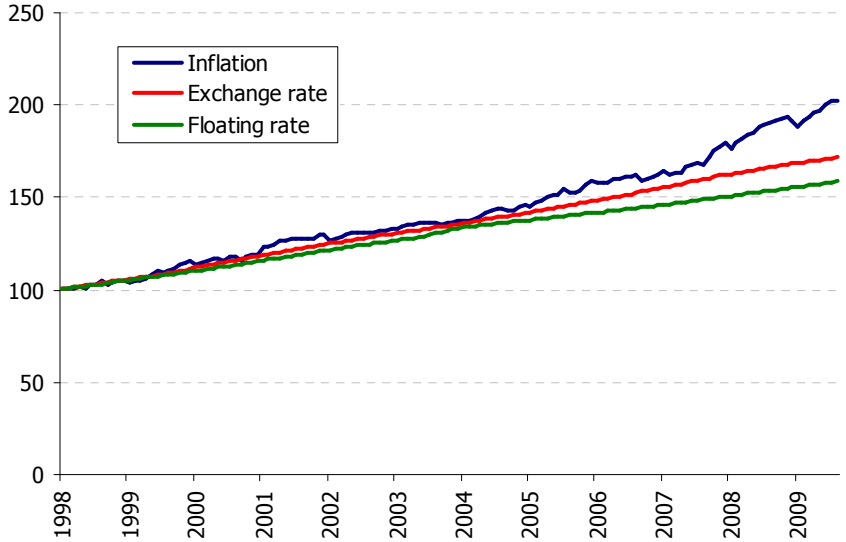
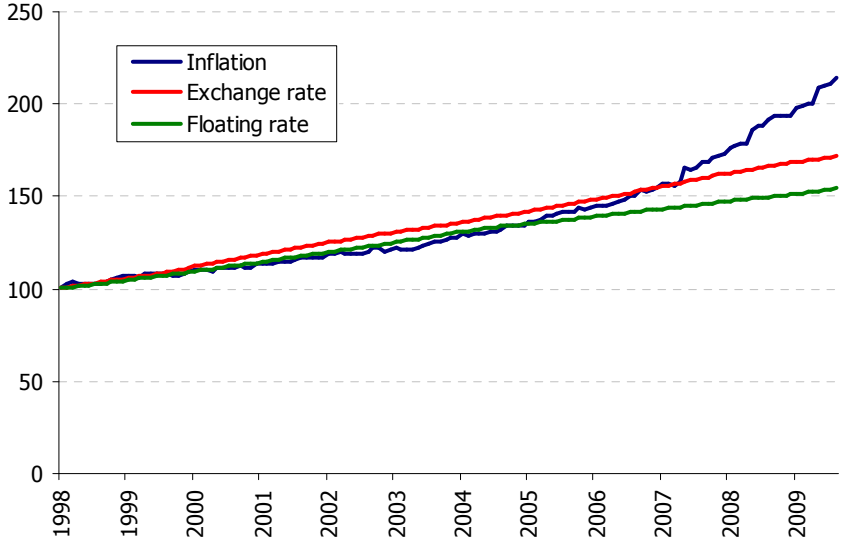


St. Vincent & Grens.

Accum. variation Jan-98=100



Suriname

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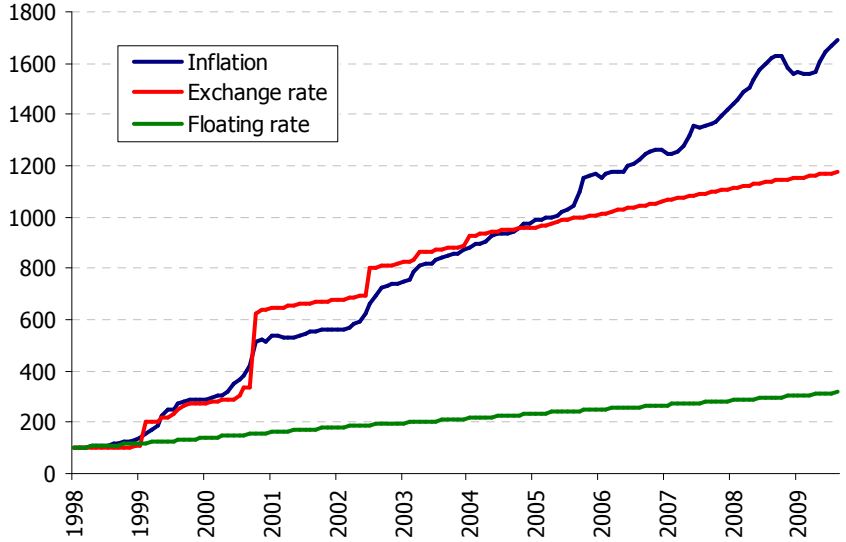

Trinidad and Tobago

Accum. variation Jan-98=100