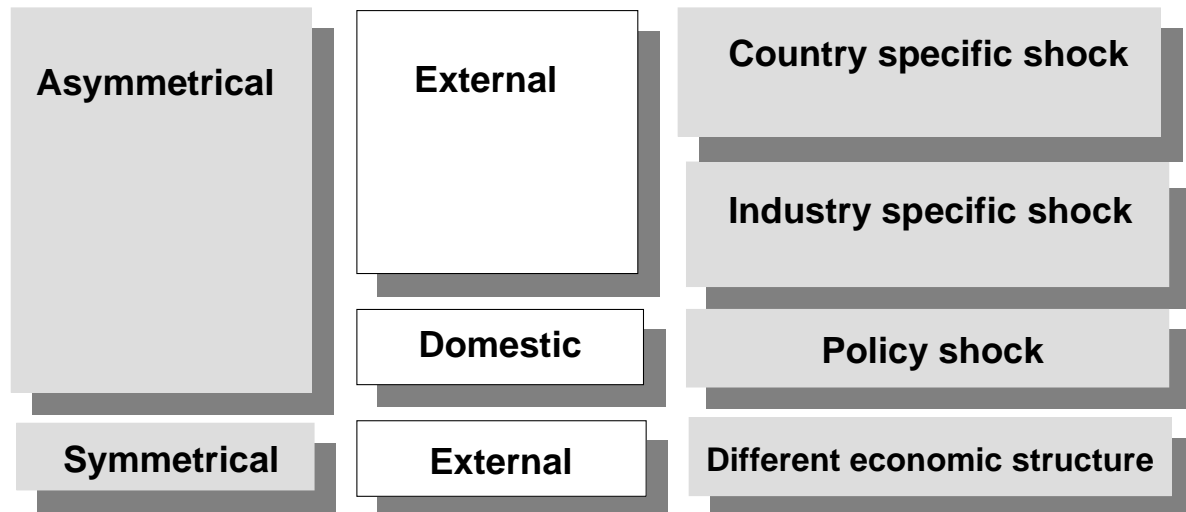


# **Do the Mercosur Countries Form an Optimum Currency Area?**

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## Typology of temporary shocks



In particular, in the context of developing or ‘emerging’ economies policy shocks are imposed comparatively more often by the means of stabilization programs accounting for significant variations in output.

### **Temporary Shocks**

Seen from the view of classical economics the nominal exchange rate does not possess the ability to balance internal and external disequilibria, since in the long run money is neutral. Permanent shocks are thus caused by structural problems requiring other policy responses than a change of the nominal exchange rate.

### **Monetary Shocks**

In particular, in countries with less sound financial and monetary management, monetary shocks are an important source of disturbances.

# The „Old“ OCA Theory

## Assumptions of the Mundellian Approach to OCA Theory

- Contrary to the MF model no distinction between the use of the monetary and fiscal policy instruments was made. He sees both instruments generally as one aggregate demand management.
- A flexible exchange rate always balances internal and external disequilibrium. The exchange rate instrument works efficiently, as well as, effectively.
- Wages and prices are rigid (like in the MF model).
- Factors like capital and labor are internally mobile and externally immobile.
- The three objectives of price stability, full employment and external balance have to be achieved simultaneously.
- No distinction between permanent and temporary shocks are made.

## **Factor Movements:**

Capital Mobility: Adverse short-term capital flows  
Transfer of public funds a la Cohesion Funds illusory for emerging markets and LDCs

Labor Mobility: labor migration is not reversible as required by temporary shocks

## **Openness of the Economy (McKinnon)**

A prerequisite for abolishing a flexible exchange rate regime would be that “*Price stability prevails in the rest of the world*” (Ishiyama, 1975, p. 352). If the main trade partners exhibited volatile price levels or frequently used the exchange rate instrument, they would also export volatility to the domestic economy. Therefore, in a highly volatile environment flexible exchange rates could be of some utility for small open economies in order to insulate them from exogenous shocks.

## **Benefits of a diversified Economy (Kenen)**

Emerging Markets tend to be less diversified than industrialized countries (more dependence on price movements in the international commodities markets)

# **The „New“ OCA Theory**

## **Endogeneity of the OCA Criteria**

Frankel and Rose(1996) and Artis et al. (1999).

Evidence exists that a region, that before the start of an economic integration project, was less of an optimum currency area can over time become one. This view fundamentally changes the way optimum currency area is looked at. But even the latter approach faces some limitations. It is unknown how fast trade structure and openness within a monetary union will change. Further, it is uncertain which degree of trade integration (unilateral reduction of tariffs, customs union, common market, etc.) will influence the degree of openness and the change in trade structure most.

## **Endogeneity of the Optimum Currency Area Criteria, Monetary Union and the Degree of Political Integration**

Even on intuitive grounds one would not bet, despite the optimality of the currency area, on the success of a monetary union where a low degree of political cohesion (cooperation) prevails. Thus, it is essential to include political considerations into the analysis, whilst thinking about the creation of a monetary union. De Grauwe(1984) puts it even more stringently: *„Therefore, it is utopian to separate the problem of monetary union from political unification... Monetary union is an essential part of political union.“*

## **Time Inconsistency, Stabilization and Monetary Union**

An '*irrevocably fixed exchange rate*', as such, simply does not exist. Nonetheless, a fixed exchange rate proves a valuable stabilization instrument by which, at least over the short run, credibility can be '*imported*'. Only a monetary union-cum-unification of the currency will deliver perfect credibility and consequently be close to costless disinflation. If before joining a monetary union interest rates had been high, due to inflation expectations and, interest payments of foreign debt relative to debt repayment had been high, positive effects on the fiscal accounts may even occur.

# **The New OCA Theory in the Context of Developing/Emerging Countries**

## **Preconditions for Endogeneity**

(1) Economies that formerly were relatively closed and that employed import-substitution programs will, despite having rapidly removed their barriers to trade, require some time to change their trade structure. Industries will have to adapt in order to compete on a regional scale and possibly on a global scale. Not only the structure of trade but also the level of trade flows will most likely increase. As a result fundamental equilibria are also likely to change. Therefore, some adjustment valves have to be provided until the new equilibria are established.

(2) The finding, that OCA criteria are endogenous, could be of a mixed blessing for developing/emerging countries. Many developing/emerging countries look back to a long period of negative endogenous policy shocks that resulted either from economic mismanagement or from subsequent stabilization attempts. If the respective countries are capable of successfully stabilizing their economies and capable of maintaining relatively consistent macroeconomic policies at a national level, an important source of asymmetrical endogenous shocks can be removed, thus, rendering these countries more optimal for a common currency area

Assume formerly closed economies, that adhered to the ‘*hypothesis of conflict*’ in order to be independent from the rest of the world, may find it relatively difficult to turn to more cooperative policy schemes. Firstly, they might have to *concentrate on consolidating their formerly unstable economic and monetary policies*. Secondly, they will have to establish a framework for new rules of cooperation. It will *take time to negotiate and subsequently implement this framework*.

In a similar way the reasoning goes that there is a *long way from economic cooperation to setting up common political entities with common policy objectives*.

### **Import of Credibility for a Common Central Bank of a Group of Developing/Emerging**

If a group of developing/merging countries decides to form a monetary union, usually none of their members can look back to a history of credibly pursued monetary policies. Thus, the benefit for one developing country to import the credibility of one another is likely to be low. The probability is low that one of the members has a long record as a ‘*conservative*’ central banker that deserves tying one's hands to.



# **Traditional OCA Criteria and the Optimality of MERCOSUR**

## **Symmetry of Shocks**

### *Data Considerations*

Frequent endogenous shocks that followed political instability, credit restrictions originating from the external sector, changes of the economic model (Convertibility Plan, Plan Real), etc.

- (1) the available series are integrated by different orders, display structural breaks, etc.
- (2) The application of multivariate time series techniques is highly data consuming. With respect to MERCOSUR large samples do not exist due to the simple fact that MERCOSUR was founded 10 years ago. Consequently larger samples would include Pre-MERCOSUR data.
- (3) Large representative continuous samples are hardly available for MERCOSUR countries at all.

## *Beveridge Nelson Decomposition*

$$w_t = z_t - z_{t-1}$$

The optimal linear predictor  $z_{t+k}$  is represented by the sum of the contemporaneous  $z_t$  and the predicted  $w_t$  accumulated  $w_t$  to  $w_{t+k}$ :

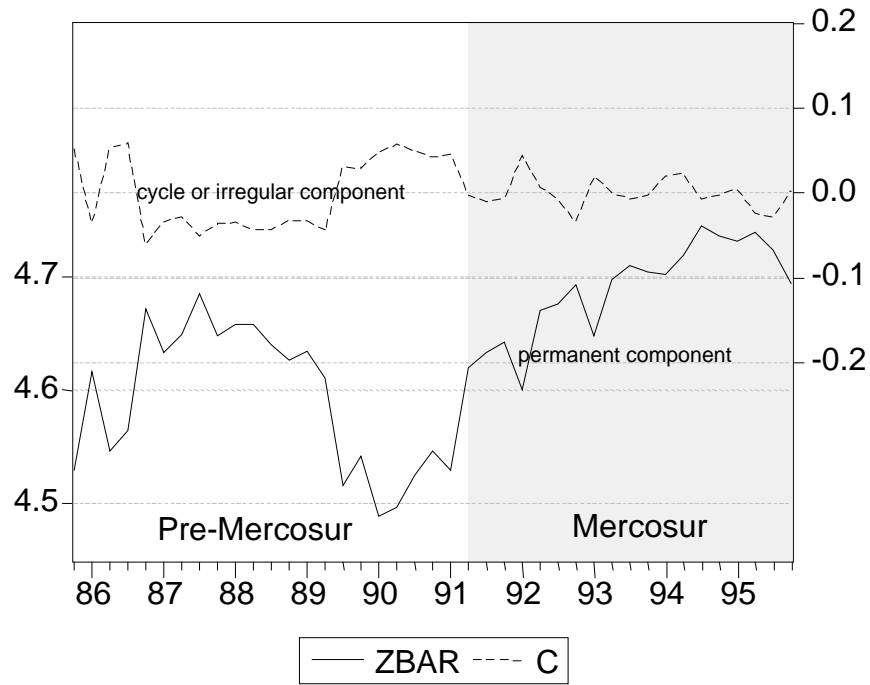
$$\hat{z}_t(k) = z_t + \sum_{j=1}^k \hat{w}_t(j)$$

As indicated before  $w_t$  is stationary and consequently asymptotically a linear function in  $k$ . The function has the slope  $\mu$  (the rate of drift of the series) and the intercept  $z_t$ , which is the permanent or the trend component of  $z_t$ , or in the words of Beveridge and Nelson (1981, p. 156) „*The permanent component is ... the long-run forecast of the series adjusted for its mean rate of change ...*“

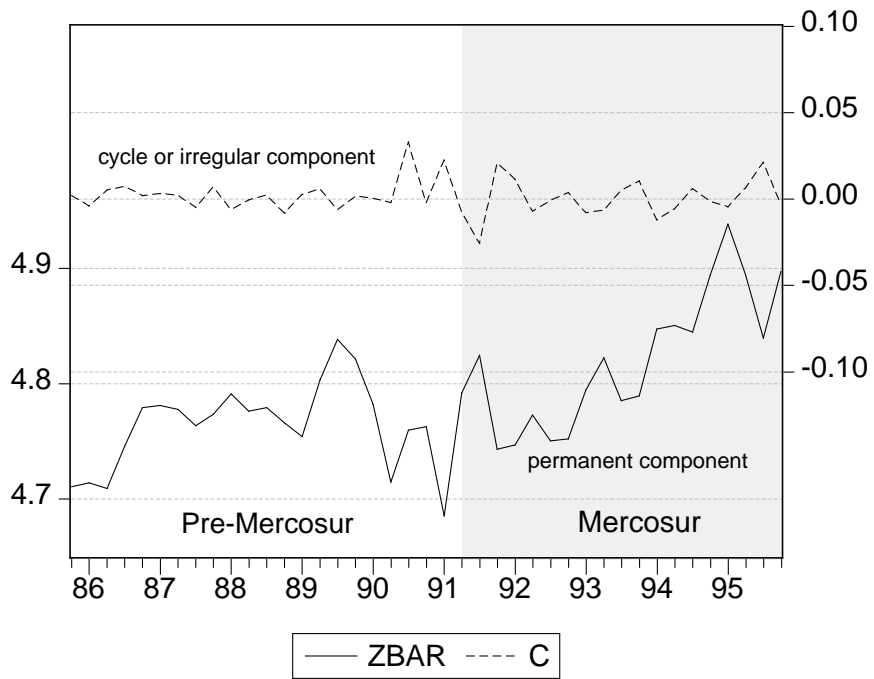
$$\bar{z}_t = z_t + \lim_{k \rightarrow \infty} \left[ \sum_{j=1}^k \hat{w}_t(j) - k\mu \right]$$

The *cyclical or transitory component* is obtained by the difference between the contemporaneous permanent component  $\bar{z}_t$  and the contemporaneous observation  $z_t$ .

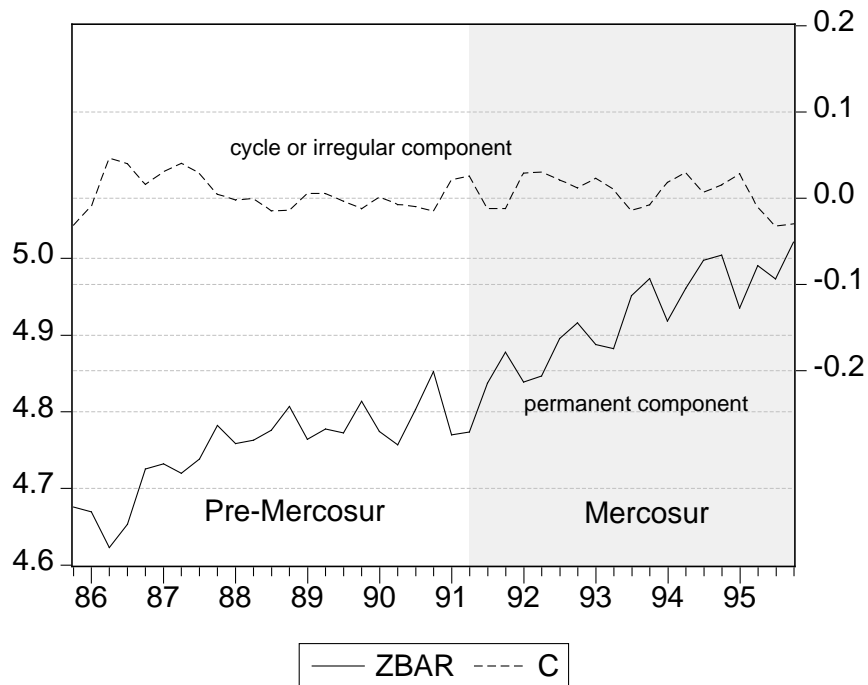
$$c_t = \bar{z}_t - z_t \quad ( 0-1 )$$



Beveridge-Nelson decomposition of the Argentinean GDP  
1985:4 – 1995:4 (RATS 4.0 ® @BNDECOMP)



Beveridge-Nelson decomposition of the Brazilian GDP  
1985:4 – 1995:4 (RATS 4.0 ® @BNDECOMP)



Beveridge-Nelson decomposition of the Uruguayan GDP  
1985:4 – 1995:4 (RATS 4.0 ® @BNDECOMP)

Correlation-Matrix		$GDP_{Arg}$	$GDP_{Bra}$	$GDP_{Ugy}$
$c$				
<b>Whole period 1985:4-1995:4</b>	$GDP_{Arg}$	1.000		
	$GDP_{Bra}$	0.150	1.000	
	$GDP_{Ugy}$	0.087	-0.117	1.000
<b>Pre-Merecosur 1985:4 – 1991:1</b>	$GDP_{Arg}$	1.000		
	$GDP_{Bra}$	0.352	1.000	
	$GDP_{Ugy}$	-0.069	0.149	1.000
<b>Merecosur 1991:2 – 1995:4</b>	$GDP_{Arg}$	1.000		
	$GDP_{Bra}$	-0.250	1.000	
	$GDP_{Ugy}$	0.566	-0.372	1.000

Correlation matrix of  $c$   
calculated by RATS 4.0 ® @BNDECOMP procedure

## **Symmetry of Recent External Shocks to Latin American Economies**

The *real domestic credit* variable was chosen due to the assumption that the Mexican crisis induced a *liquidity crisis*, at least in Argentina. Consequently high domestic interest rates and a decrease in real domestic credit should *proceed decreases in production*. The *international reserves* variable was analyzed due to the assumption that a high degree of external short-term capital is placed in the MERCOSUR countries. If foreign investors perceive higher risk for their short-term investment, for example, due to herd behavior they would either expect higher interest rates and/or withdraw their capital from the country. International reserve losses would be the consequence.

## Mexican Crisis

Country	$\Delta RES$ (11.d)					$\Delta RCREDIT$ (32)					$\Delta PROD$				
	94:3	94:4	95:1	95:2	95:3	94:3	94:4	95:1	95:2	95:3	94:3	94:4	95:1	95:2	95:3
Argentina	-	+	-	+	+	+	-	-	+	-	+	+	-	-	-
Brazil	+	-	-	-	+	+	+	+	+	+	+	+	+	-	-
Paraguay	-	+	-	+	+	+	+	+	-	-	n/a	n/a	n/a	n/a	n/a
Uruguay	-	+	+	-	+	+	+	-	-	-	+	-	-	+	-

The evidence is strong that signs in the financial and real variables reflect the impact of the Mexican crisis on all four MERCOSUR countries.

## South East Asian and Russian crisis

Country	$\Delta RES$ (11.d)						$\Delta RCREDIT$ (32)						$\Delta PROD$					
	97:3	97:4	98:1	98:2	98:3	98:4	97:3	97:4	98:1	98:2	98:3	98:4	97:3	97:4	98:1	98:2	98:3	98:4
Argentina	-	+	-	+	+	+	+	+	+	+	+	+	+	+	-	+	-	-
Brazil	+	-	+	+	-	-	+	+	+	+	+	+	+	-	-	+	-	-
Paraguay	-	-	-	+	-	+	+	+	+	-	-	-	n/a	n/a	n/a	n/a	n/a	n/a
Uruguay	+	+	+	+	-	+	-	+	+	+	+	+	-	+	+	-	+	-

The South East Asian crisis can also be perceived as a relative symmetrical exogenous shock, which affected all MERCOSUR countries - less notably Uruguay.

The repercussions of the Russian crisis on the MERCOSUR economies were symmetric in nature and seem to be more pronounced than the effects of South East Asian crisis on the MERCOSUR countries.

## Labor Mobility

Scarce labor migration data

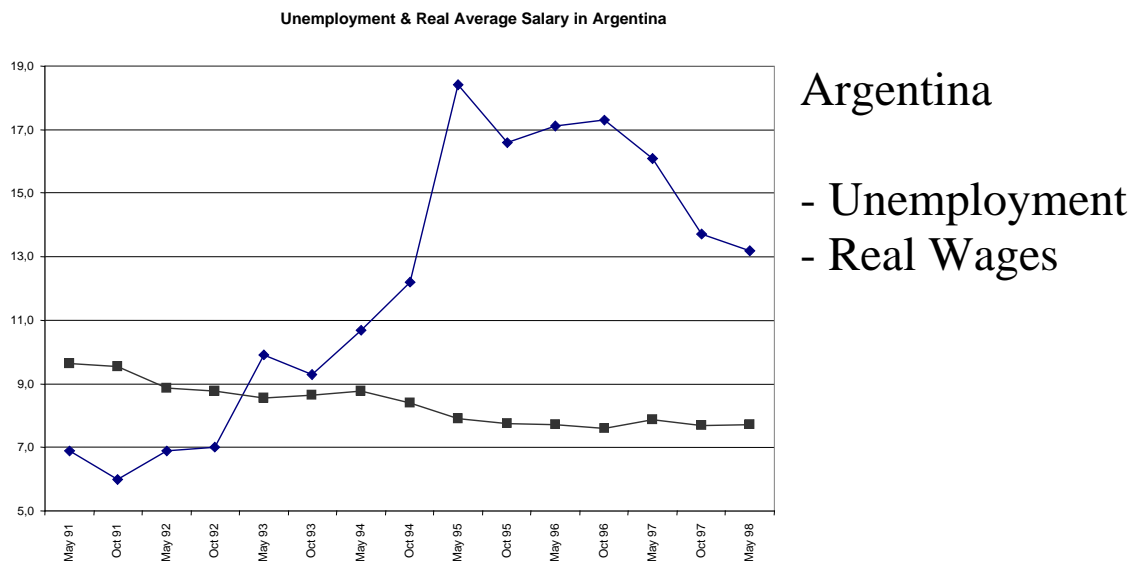
The fraction of Brazilian immigrants in Argentina was small throughout the observation period. In 1991 0.02% of the Brazilian population emigrated to Argentina.

In 1991, a recession in Brazil and in Uruguay and a starting recovery in Argentina, following the introduction of the Convertibility Plan.

According to the cyclical data a higher fraction of Brazilian immigrants could have been expected, if Brazilian laborers were mobile and if labor mobility were facilitated by the respective labor laws

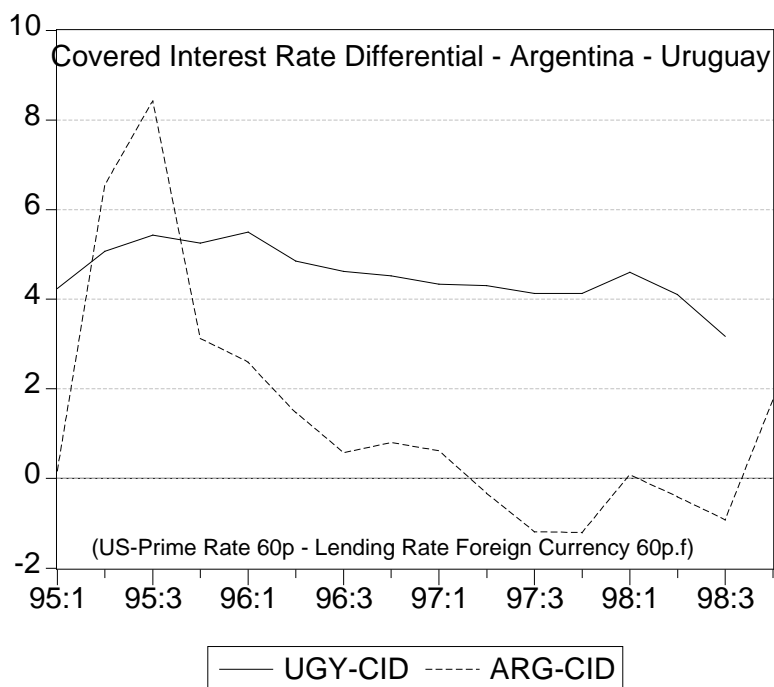
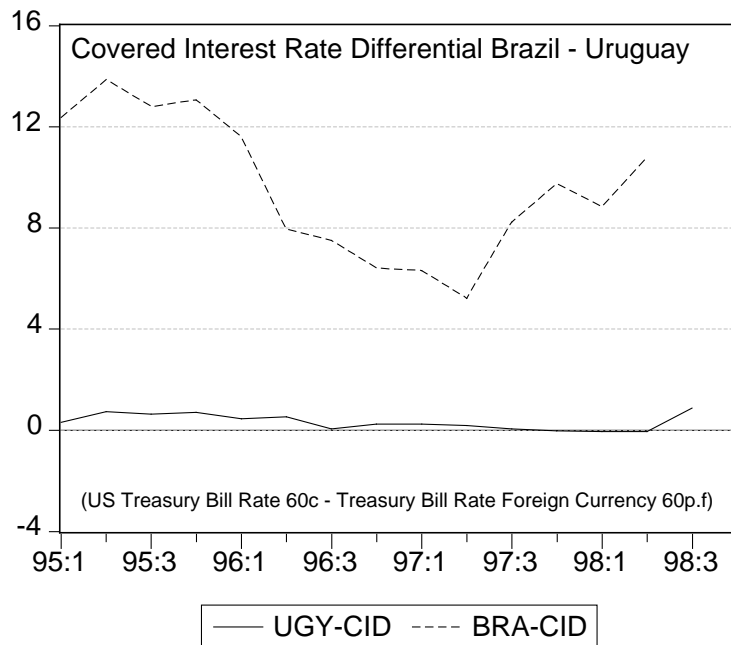
## Wage Flexibility

Levi Yeyati and Sturzenegger(1999a, p.12) cite correlations of 1.12 for Argentina and 1.01 for Brazil between inflation and nominal wages. These numbers would indicate overly rigid wages in the two countries.



# Integration of Financial Markets

## *The Covered Interest Rate Differential*



before Argentinean crisis and corralito



## *The Feldstein-Horioka Equation*

Data only for Argentina available

Pre-Convertibility Plan period (from 1980:1 to 1991:1)

$$i_t = 0.023 + 0.807s_t + e_t$$

(0.295) (2.09)

Convertibility-Plan period (from 1991:2 to 1995:4).

$$i_t = 0.182 + 0.125s_t + e_t$$

(2.775) (0.317)

Durbin-Watson coefficient of 0.15 indicates serial correlation of the residuals.

Further  $\bar{R}$  has little explanatory power with a value equal to 0.093.

The use of the Engle-Granger methodology confirmed the findings of the simple Feldstein-Horioka equation. In the Pre-Convertibility Plan period the investment and the savings ratio are cointegrated. The significance level of the adjustment coefficient is at a still acceptable level but the significance is not very strong.

## *Cointegration of Stock Markets*

<b>Coefficients of adjustment</b>	<b>Argentina</b>	<b>Brazil</b>	<b>USA</b>
No dummy(1976-1998)	-0.0202	-0.0033	0.0040
With dummy (1976-1998)	-0.0188	-0.0032	0.0029
Pre-October 1987 (1976-1987)	Rejection of single cointegrating vector		
<b>Post-October 1987 (1987-1998)</b>	<b>-0.487</b>	<b>0.0712</b>	<b>0.0581</b>

Adjustment coefficients indicating stock market integration in MERCOSUR

Source: Sanchez Valle(1998)

## *Summary of tests on financial integration in Latin American countries*

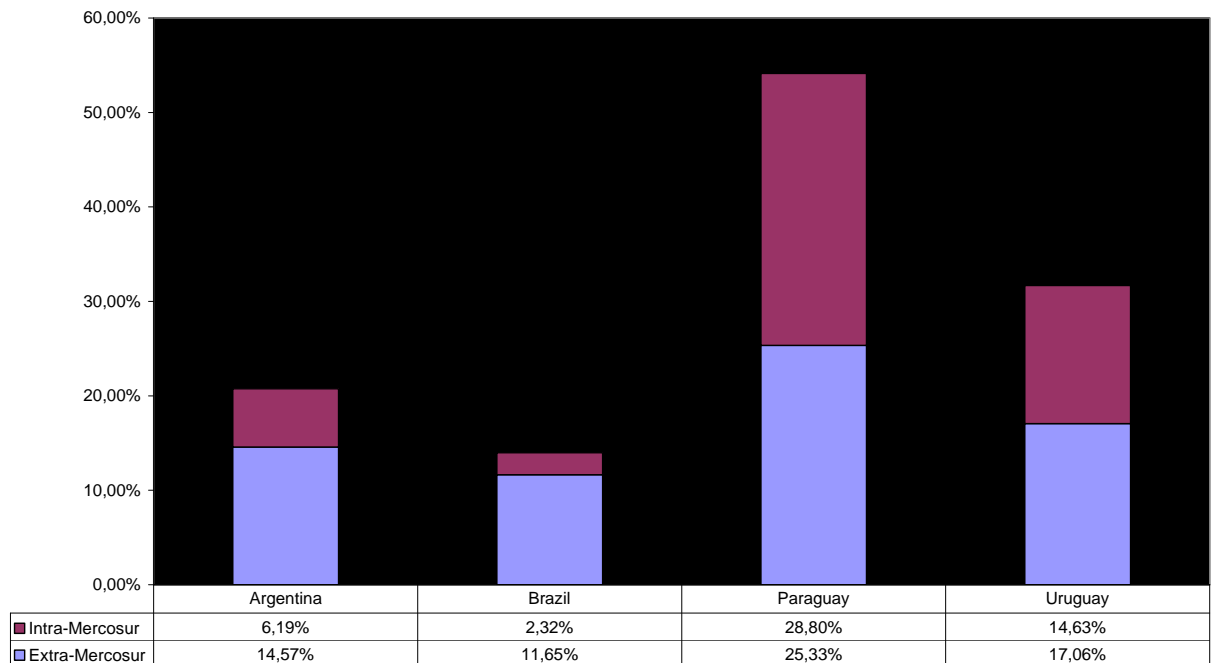
<b>Study</b>	<b>Type of Test</b>	<b>Argentina</b>	<b>Brazil</b>
Obstfeld(1994)	Correlation of changes in domestic and world consumption (1951-72)/(1973-88)	low/low	n/a
Haque and Montiel(1991)	Uncovered interest rate parity (1969-1987)	n/a	intermediate
Montiel(1994)	Cross capital flows/GDP Saving-investment correlations (1970-1990) – Uncovered interest parity differentials(1985-1990)	high	low medium
World Bank(1997)	Composite index of financial integration (1985-1987)/(1992-1994)	medium (-)/high	low/high

Summary of tests on financial integration in Latin American countries

Source: Levi Yeyati and Sturzenegger(1999b)

# Openness of Trade

Trade as share of GDP - Intra- and Extra-Mercosur



## *Intra-Industry Trade*

Baumann(1998). calculated the share of intra-industry trade between Argentina and Brazil

1992: 36% (3 digits)

1993: 47% (3 digits) and 41% (5 digits)

1996: 56% (3 digits) and 45%.(5 digits)

The computation of the respective shares was done with a varying number of products.

## Conclusion

The application of the traditional OCA criteria to the MERCOSUR countries would render MERCOSUR straight forward a non-optimal currency area.

The endogeneity argument for MERCOSUR is very important. Economic models in all MERCOSUR countries were subject to major and minor changes during the last three decades. Without frequent endogenous shocks MERCOSUR may look much different.

Efforts in deepening the integration scheme have virtually come to a halt. Yet MERCOSUR represents nothing more than a customs union.

One of the crucial questions for MERCOSUR monetary union will be whether the largest MERCOSUR country will cede sovereign rights to supranational MERCOSUR entities.

Obviously, political consensus on a possible future common exchange rate will require a great deal of negotiation in MERCOSUR.

For real word considerations, however, the De Grauwe-citation: *„Therefore, it is utopian to separate the problem of monetary union from political unification... Monetary union is an essential part of political union.“* is very true. If economic disequilibria combined with the absence of consensus on monetary and economic policy prevail impulses rather for disintegration can be the consequence. As a consequence of the Argentinean crisis financial markets have already disintegrated.

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