Is Exchange Rate Regime Relevant for Transition from Plan to Market?

Laszlo Halpern *

This paper offers guidelines to the future transformation of North Korea from the perspective of the exchange rate regime. For this reason first the paper reviews the relevant features of exchange rate regimes during the first period of transition from plan until the foundation of the major institutions of a market economy. The embarrassingly rich diversity does not explain success or failure, but permits analyzing the evolving role of exchange rate from fighting hyperinflation to arrive at a sustainable inflation with the possibility to join monetary integration. More specifically, exchange rate regimes of Hungary, Vietnam and the German reunification are analyzed. Finally, the options for North Korea are outlined.

Keywords: Exchange rate regime, Transition, Monetary integration, North Korea

JEL Classification: E63, F31, P20

I. Introduction

The history of almost two decades of economic transition from centrally planned to market economy offers quite rich scope of exchange rate regimes spanning from currency board arrangements to fully flexible exchange rate regimes. If the experience of those occurrences are of importance when a country lost its sovereignty, then the German reunification is to be taken into account, hence the monetary integration extends the possible exchange rate regimes beyond currency board

* Deputy Director, Institute of Economics of Hungarian Academy of Sciences, CEPR, CEU, WDI, Budaorsi 45 Budapest 1112, Hungary, (Tel) +36-1-309-2661, (Fax) +36-1-309-2650, (E-mail) halpern@econ.core.hu. This is a revised version of a paper presented at conference on "Experience of Transition Economies and Implications for North Korea" organized by SNU, Seoul, 18 January 2008. Byung-Yeon Kim, two referees and participants of the conference provided helpful comments.
[**Seoul Journal of Economics** 2008, Vol. 21, No. 2]

arrangement.

Impatient readers who jump to the conclusions read the first conclusion starting with the usual caution avoid 'one-size-fits-all' recipes. Does this imply then that all countries are different? Is it true, that the exchange rate regimes are idiosyncratic, only desperate macroeconomists are looking for something common, something general to be applied for other cases at other times.[1] The answer should be somewhere in between.

Transition from plan to market has brought about very similar issues and challenges related closely to exchange rate. First, the liberalization of prices and foreign trade has reshuffled the whole price system deeply. Second, shortage and monetary overhang pushed up the general level of prices, often drastically. Then the first task designated to exchange rate was to put a brake on inflation, to provide the necessary nominal anchor for setting prices. The second task derived from the immediate fulfillment of the first one, to cure the loss of external competitiveness what was the consequence of a radical real appreciation. Finally, after so many turbulent years of transition exchange rates were looking for some safe harbor, a steady state solution for longer term. It turned out that in the meantime the globalization and the general liberalization of capital markets have changed the meaning of safety, fixed exchange rates became speculative targets and floating rates became too volatile. The happy few were looking for monetary integration and able to avoid these two traps by putting on the straitjacket forever.

The paper offers some macroeconomic analysis of the relation between exchange rate regimes and performance. The global assessment is complemented with the detailed analysis of Hungary and Vietnam. These two countries represent very different development patterns and policy choices, as Hungary with fast liberalization, gradual steps towards flexible exchange rate with the final target of monetary integration. Vietnam, on the other hand has no obvious exit strategy, the early steps towards more flexible exchange rate were challenged by domestic and foreign factors. Both offer instructive considerations when designing exchange rate regime for a country looking ahead of transition.

The North Korean liberalization will have many similarities with the German reunification. The use of differentiated conversion rates at monetary integration, the role of wage bargaining institutions at wage setting, the high expectations of the early successful integration have

[1] Tavlas (2003) is an excellent overview of the economics of exchange rate regimes.

led to many undesired outcomes what could have been contained in case of better coordination and more patience. But both were in quite short supply in Germany and will be even shorter in Korea.

The paper outlines different options for potential exchange rate regimes for North Korea. Their costs and benefits, their efficient use will depend on the political and economic environment, and more specifically on the way how different policies — pricing, wage-setting, fiscal policy — will be able to serve the overall aim, that is, to go through transition with the best possible outcome. But partners should be aware that transition has been painful up till now, and this feature will stay with us.

II. Exchange Rate Regimes at the Onset of Transition

In many countries transition started with the creation of a new sovereign state. It implied the introduction of the national currency as one of the major symbols of independence. National currency required the design and creation of supporting institutions — central bank, banking supervision, two-tier bank system, *etc*. — as well. The design of the exchange rate regime was part of the overall monetary regime to be introduced as part of the macroeconomic management. The framework of the exchange rate regime was outlined in the act on central banking.

Transition from a centrally planned economy (CPE) has started with significant liberalization of domestic goods market. The liberalization of services was scheduled to a later stage as the supply conditions were not allowing their instantaneous introduction. Services required large scale investment for the creation of fundamental infrastructure and networks. The liberalization of the domestic goods market was immediately followed by the liberalization of trade flows. As currencies of these countries were not convertible, the liberalization of foreign trade raised this issue right at the beginning. It was rather urgent to create conditions for convertibility gradually. Current account convertibility was considered first and introduced; the full convertibility was implemented afterwards. Interestingly, this latter was not lagging behind more developed economies as it was widely introduced as a consequence of major capital flow liberalization in the second half of the 1980s only.

The liberalization of domestic and foreign goods market was simultaneously accompanied with price liberalization. Prices of goods and services in CPEs had been fundamentally distorted as they had

no relation whatsoever to market conditions; demand and supply, cost and utility were systematically disregarded when prices were centrally and administratively set. This radical liberalization of prices enhanced by monetary overhang has led to one-off price level increases. As rules of price expectations formation and pricing mechanisms were neither established nor anchored the one-off price level increases have obviously translated into escalating or even hyperinflation. High — or hyper — inflation could not last long as no efficient indexation mechanisms could have developed due to the lack of institutional development of economic agents. It made necessary the adoption of macroeconomic stabilization measures.

Stabilization measures have relied on exchange rate as it was the obvious anchor device at disposal to scale down inflationary expectations. Then it is a natural explanation why in most cases transition economies have started with some kind of pegged exchange rate regime. These regimes applied in these countries differed in many respect from each other; reference currencies, the degree of commitment of pegging, the frequency of adjusting the peg, *etc*. The hardest peg is the currency board arrangement (CBA). Even this arrangement can prove to be unsustainable as the recent Argentine case demonstrates. In the early phase of transition no country considered to give up its monetary sovereignty by introducing the legal tender of another country.[2]

Another explanatory factor of the starting exchange rate regime is the preceding history of the country. If institutions and regimes similar of a mature market economy were already introduced as part of earlier measures, then the starting date of the transition might not imply a radical change in the exchange rate regime. This was the case for a small number of countries in Central and Eastern Europe.

Very few countries — Estonia, Lithuania — opted for the most rigid form of peg, a CBA at the beginning (see Table 1). The major argument in favor of this very rigid peg is achieving credibility without incurring the cost of creating a fully instrumental central bank and underdeveloped capital markets. If the 'impossible trinity'[3] is superimposed by the 'fear of floating',[4] then this decision seems rational. In a world of perfect capital mobility the choice is between independent monetary policy and fixed exchange rate. A small open economy is unable to pursue a really independent monetary

[2] Montenegro is a special case; its euroization is rather an exception.

[3] Only two of the three options — free capital market, fixed exchange rate and independent monetary policy — can be chosen freely. See Tavlas (2003).

[4] See Calvo and Reinhart (2000).

TABLE 1
EXCHANGE RATE REGIMES IN TRANSITION ECONOMIES

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
EU Accession Candidates: Central and Eastern European Countries										
Bulgaria	3	8	8	8	8	8	8	2	2	2
Czech Rep.	3	3	3	3	3	3	4	7	7	7
Hungary	3	3	3	3	3	6	6	6	6	6
Poland	3	5	5	5	5	6	6	6	6	6
Romania	3	7	8	8	8	8	8	8	7	7
Slovak Rep.	3	3	3	3	3	3	4	4	7	7
Slovenia	na	(7)	7	7	7	7	7	7	7	7
EU Accession Candidates: Baltics										
Estonia	na	na	2	2	2	2	2	2	2	2
Latvia	na	na	(8)	(8)	3	3	3	3	3	3
Lithuania	na	na	(8)	(8)	2	2	2	2	2	2
Other Central and Eastern European Countries										
Albania	3	3	8	8	8	8	8	8	8	8
Croatia	na	na	3	8	4	4	4	4	4	7
Macedonia	na	na	8	8	3	3	3	3	3	3
Former Soviet Republics										
Armenia	na	na	(3)	(8)	8	8	8	8	8	8
Azerbaijan	na	na	(3)	(3)	8	8	8	8	7	7
Belarus	na	na	(3)	(3)	(7)	7	4	7	7	7
Georgia	na	na	(3)	(8)	7	7	7	3	8	8
Kazakhstan	na	na	(3)	(8)	8	8	8	7	7	8
Kyrgyz Rep.	na	na	(3)	(8)	8	7	7	7	7	7
Moldova	na	na	(3)	(8)	8	8	8	8	8	8
Russia	na	na	(3)	(8)	8	4	6	6	7	8
Tajikistan	na	na	na	(3)	(3)	8	8	8	7	7
Turkmenistan	na	na	(3)	(3)	3	7	7	3	3	3
Ukraine	na	na	(3)	(8)	8	7	7	4	4	7
Uzbekistan	na	na	(3)	(3)	(8)	7	7	7	7	7

Notes: End-year observations. Codes in parentheses refer to the periods when the newly-introduced national currencies have not yet assumed the status as the sole legal tender. Explanations are in Table 2.
Source: von Hagen and Zhou (2005).

policy, so the choice between fix and float does not seem to exist. It is, however, an important issue which macroeconomic variables will take the burden of the shock absorber. The usual candidate is output — hence employment — and losses might be substantial if distortions are accumulated and it is known that welfare cost of adjustment can be rather high.

TABLE 2
IMF EXCHANGE RATE REGIME CLASSIFICATION

	Exchange rate regime	Descriptions
1	Dollarization, euroization	No separate legal tender.
2	Currency board	Currency fully backed by foreign exchange reserves.
3	Conventional fixed pegs	Peg to another currency or currency basket within a band of at most ±1%.
4	Horizontal bands	Pegs with bands larger than ±1%.
5	Crawling pegs	Pegs with central parity periodically adjusted in fixed amounts at a pre-announced rate or in response to changes in selected quantitative indicators.
6	Crawling bands	Crawling pegs combined with bands larger than ±1%.
7	Managed float with no pre-announced path for the exchange rate	Active intervention without pre-commitment to a pre-announced target or path for the exchange rate.
8	Independent float	Market-determined exchange rate with monetary policy independent of exchange rate policy.

Source: IMF (1999).

III. Exchange Rate Regime Changes During Transition

Pegged exchange rate regimes introduced in many transition economies at the beginning had to cope with the usual challenge, that is, to strike a balance between competitiveness and bringing down inflation. It was even more salient in case of an exchange rate based stabilization of a hyperinflation, where the obvious policy dilemma was when and how to give up the peg, whether to shift to an adjustable peg or to enter a totally different regime, like a float.

It is important to note that exchange rate regimes may be different according to their de jure (Table 3) and de facto (Table 4) classifications.[5] In principle peggers are supposed to show higher volatility of international reserves, interest rates or base money, than floaters. According to the data, CEECs show no difference, while the other countries reveal some increasing degree of 'fear of floating'.

[5] The de facto classification and its deviation from the official arrangement made by the IMF since 2005 can be found at the following link http://www.imf.org/external/np/mfd/er/index.asp.

TABLE 3
DE JURE EXCHANGE RATE REGIMES IN TES

	Float %	Intermediate %	Soft peg %	Hard peg %
1993–1995	56.5	10.1	26.1	7.2
1996–1999	52.2	19.6	16.3	12.0
2000–2002	62.3	13.0	11.6	13.0
De jure: CEEC				
1993–1995	36.7	13.3	33.3	16.7
1996–1999	35.0	27.5	10.0	27.5
2000–2002	43.3	16.7	10.0	30.0
De jure: others				
1993–1995	71.8	7.7	20.5	0
1996–1999	65.4	13.5	21.2	0
2000–2002	79.5	5.1	15.4	0

Source: Markiewicz (2006).

TABLE 4
DE FACTO EXCHANGE RATE REGIMES IN TES

	Float %	Intermediate %	Soft peg %	Hard peg %
1993–1995	66.7	21.7	4.3	7.2
1996–1999	30.4	50.0	7.6	12.0
2000–2002	27.5	46.4	13.0	13.0
De facto: CEEC				
1993–1995	36.7	13.3	33.3	16.7
1996–1999	35.0	27.5	10.0	27.5
2000–2002	43.3	16.7	10.0	30.0
De facto: others				
1993–1995	89.7	7.7	2.6	0
1996–1999	38.5	55.8	5.8	0
2000–2002	30.8	53.8	15.4	0

Source: Markiewicz (2006).

There were only two countries — Estonia and Slovenia — without any change in their exchange rate regimes. Slovenia has not changed its monetary regime and pursued real exchange rate targeting during the whole period of transition. Whether this option was real for any other country remains unanswered, there are institutional and individual

TABLE 5
INFLATION RATES IN CEE AND BALTIC COUNTRIES

	1994	1995	1996	1997	1998
Czech Republic	9.9	9.5	8.8	8.4	10.7
Estonia	47.7	28.8	23.1	10.6	8.2
Hungary	18.9	28.6	23.4	18.3	14.2
Latvia	35.9	25.0	17.6	8.4	4.7
Lithuania	72.2	39.7	24.6	8.9	5.1
Poland	33.3	28.1	19.8	15.1	11.7
Slovakia	13.4	9.9	5.8	6.1	6.7
Slovenia	21.0	13.4	9.8	8.4	7.9

Source: UNECE.

features what offer sufficient explanation why it has been rather an exception than a rule to be followed for anyone else.

Exchange rate is an interface between foreign and domestic activities; it has impact on all the aspects of economic phenomena. It is tempting to blame every dismal for an inappropriate exchange rate policy. Exporters like it depreciated, while importers prefer appreciated, CPEs discredited the multiple exchange rate regimes, so the bargaining goes for pushing it into the desired direction according to the interest of parties. The overall performance of the economy can be related to the specific exchange rate regime, but this relation is undoubtedly bidirectional. This issue is beyond the topic of this paper, but one link deserves mentioning, the exchange rate-inflation link, just for demonstration. Another reason for it is the particular emphasis of disinflation especially in the early period of transition, so the success or failure was inevitably attributed to exchange rate policy.

Inflation performance of transition economies showed quite a heterogeneous picture differentiated according to regional groupings. CEE and Baltic countries have gone through some inflation spikes of less than 30%, then inflation returned to the vicinity of single digit (see Table 5). Balkan countries show different pattern, as spikes were much higher and few countries have not achieved the inflation stabilization by the end of 1990s. Croatia and FYRM behaved differently with quite low figures (see Table 6). Former Soviet republics fared somewhat similarly to Balkan countries, that is, there were countries fighting with inflation and countries — Armenia and

TABLE 6
INFLATION RATES IN BALKAN COUNTRIES

	1996	1997	1998	1999	2000
Albania	12.7	33.2	20.6	0.4	0.1
Bosnia and Herzegovina	-21.2	11.8	4.9	-0.6	1.7
Bulgaria	121.6	1058.4	18.7	2.6	10.3
Croatia	4.3	4.1	6.4	4.0	4.6
Romania	38.8	154.8	59.1	45.8	45.7
Serbia	95.6	23.3	30.2	42.5	71.1
FYRM	2.5	0.9	-1.4	-1.3	6.6

Source: UNECE.

TABLE 7
INFLATION RATES IN FORMER SOVIET REPUBLICS

	1998	1999	2000	2001	2002
Armenia	8.7	0.7	-0.8	3.2	1.0
Azerbaijan	-0.8	-8.6	1.8	1.5	2.8
Belarus	73.2	293.7	168.9	61.4	42.8
Georgia	3.5	19.3	4.2	4.6	5.7
Kazakhstan	7.1	8.3	13.2	8.4	5.8
Kyrgyzstan	10.5	35.9	19.7	6.9	2.1
Moldova	6.6	45.9	31.3	9.8	5.3
Russian Federation	27.7	85.7	20.8	21.5	15.8
Tajikistan	43.1	27.5	32.9	38.6	12.2
Ukraine	10.6	22.7	28.2	12.0	0.8

Source: UNECE.

Azerbaijan — with unusually good inflation record (see Table 7).

The length of the transition period and the sufficiently large number of countries allowed researchers — von Hagen and Zhou (2005), Markiewicz (2006) — to look for quantitative relationship between exchange rate regimes and macroeconomic variables. Besides the traditional optimum currency area (OCA) arguments factors specific to transition are considered as well. They comprise variables proxying stabilization and currency vulnerability. The expected relationships are shown in Table 8.

The results of von Hagen and Zhou (2005) — Table 9 — confirm that more open countries with geographically concentrated foreign

TABLE 8
DETERMINANTS OF EXCHANGE RATE REGIME CHOICES

Determinants	Preferred regimes
OCA fundamentals	
High degree of economic openness	Fixed
High trade concentration: Commodities	Flexible
High trade concentration: Geographical	Fixed
High level of economic development	Ambiguous
Large economic size	Flexible
High level of financial development	Flexible
Optimal stabilization	
Dominance of real shocks	Flexible
Weak central bank credibility	Fixed
Transitory domestic inflation shocks	Flexible
Risk of currency crisis	
Unsustainable public finance	Flexible
Lack of international reserves	Flexible

Source: von Hagen and Zhou (2005).

trade or with a diversified product structure are more likely to adopt fixed exchange rate regimes. A more advanced financial system favors the choice of flexible exchange rates, as it permits the development of more sophisticated instruments for the conduct of monetary policy. Countries choose a more flexible regime in the face of large real exchange rate shocks. High current inflation rates lead countries to adopt a more flexible regime as expected. The inflation rate does not affect the current regime choice, if the previous regime had a floating or a fixed exchange rate. It matters for countries with intermediate regime previously. When a large stock of international reserves is available, a fixed rate regime becomes more attractive.

There is no full agreement with the results of Markiewicz (2006) — Table 10 — as public deficit has significant effect towards less flexible arrangements which was not the case in the results of von Hagen and Zhou (2005) just as for openness and size what seem to matter in her results. Interestingly, institutional variables — government strength and political stability — make possible to avoid flexible regimes and point rather towards an intermediate regime choice.

TABLE 9
DYNAMIC ORDERED CHOICE MODEL

Variables	Coefficient	Marginal effect	
		fix	flex
OPENNESS	-16.63**	0.33	-0.54
COMCON	42.72**	-0.85	1.39
PCGDP	13.45***	-0.27	0.44
GDP	-4.27***	0.09	-0.14
OPENNESS*CIS	33.82***	-0.68	1.10
GEOCON*CIS	-269.93***	5.39	-8.80
MONEY*CIS	181.34***	-3.62	5.91
INFLATION*CIS	-22.46**	0.45	-0.73
RERVOL	17.06**	-0.34	0.56
RERVOL*LAGFLEX	-24.10**	0.48	-0.79
RERVOL*LAGFIX	-16.55	0.33	-0.54
INFLATION	26.90**	-0.54	0.88
INFLATION*LAGFLEX	-22.56***	0.45	-0.74
INFLATION*LAGFIX	-41.82**	0.83	-1.36
CUMINF	-1.16	0.02	-0.04
CUMINF*LAGFLEX	-6.96***	0.14	−0.23
CUMINF*LAGFIX	-1.54	0.03	−0.05
RESERVE	-32.78***	0.65	−1.07
RESERVE*LAGFLEX	17.28*	-0.35	0.56
RESERVE*LAGFIX	24.34**	-0.49	0.79
FISCAL*LAGFLEX	156.04***	-3.12	5.09
FISCAL*LAGFIX	-83.60*	1.67	-2.73
LAGFLEX	21.57***	-0.43	0.54
LAGFIX	-13.04**	0.43	-0.31
CISDUMMY	144.86***	-0.63	0.72
THRESHOLD	6.69***		

A positive (negative) sign means that a larger value raises the probability of choosing a more flexible (rigid) regime. Marginal effects are the changes in the probabilities when the fix or flex dummy switches from zero to unity.
Source: von Hagen and Zhou (2005).

TABLE 10
DETERMINANTS OF DE FACTO EXCHANGE RATE REGIMES

Variable	Coefficient	Changes in probabilities			
		float	inter	soft peg	peg
GDP	-0.003**	0.0007	-0.0004	-0.0001	-0.0001
Openness	-0.205	0.0476	-0.0293	-0.0095	-0.0088
Trade	-0.029**	0.0067	-0.0041	-0.0013	-0.0012
FinDev	-0.001**	0.0003	-0.0002	-0.0001	-0.0001
Restrictions	-0.167	0.0388	-0.0239	-0.0078	-0.0072
Deficit	0.115**	-0.0267	0.0164	0.0054	0.0049
Inflation	-0.005*	0.0011	-0.0006	-0.0002	-0.0002
Reserves	-0.043	0.0101	-0.0062	-0.0020	-0.0019
GovStrength	0.116*	-0.0271	0.0166	0.0054	0.0050
PolStab	0.066***	-0.0152	0.0093	0.0031	0.0028
DummyCEEC	-1.929**	0.4285	-0.2532	-0.0882	-0.0871

Source: Markiewicz (2006).

IV. Two Cases: Hungary and Vietnam

These two cases come close together rarely. These countries started their transition from very different starting conditions and have been in dissimilar external environment. Hungary's path towards European integration seemed to be paved smoothly while Vietnam's strategy is much harder to formulate in a similar framework. That is why a detailed presentation of their exchange rate policy might be interesting for a country which will probably face more or less the same type of challenges what these countries had to meet.

A. Hungary

Hungary according to the classifications has not changed frequently its regime, but as the details show that the quiet surface masks rather frequent changes. Nevertheless, the monetary policy was using the exchange rate as an intermediate target over the first decade of transition. The starting exchange rate regime — see Table 11 — was an adjustable peg. The frequency of annual adjustments varied between 3 and 9, with the maximum adjustment of 15%. The first step towards more flexibility was the introduction of a transparent basket — with equal weights of US$ and ECU — and a 1% bandwidth in 1991. With the deepening of capital market and

TABLE 11
EXCHANGE RATE REGIME CHANGES IN HUNGARY, 1989-2001

Date	Devaluation (%)	Basket	Width of band (%)
1 Oct **1981**	Unified exchange rate for HUF		
1 Jan **1987**	Two-tier banking system		
21 Mar **1989**	5.0	Currency invoice share of previous year	0
14 Apr	6.0		
18 Jul	-0.5		
25 Jul	-0.1		
29 Jul	-0.1		
1 Aug	-0.07		
8 Aug	-0.53		
15 Aug	-0.2		
15 Dec	10.0		
31 Jan **1990**	1.0		
6 Feb	2.0		
20 Feb	2.0		
7 Jan **1991**	15.0		
8 Nov	5.8		
9 Dec		USD 50%, ECU 50%,	±0.5
16 Mar **1992**	1.9		
24 Jun	1.6		
9 Nov	1.9		
12 Feb **1993**	1.9		
26 Mar	2.9		
7 Jun	1.9		
9 Jul	3		
2 Aug		USD 50%, DEM 50%	
29 Nov	4.5		
3 Jan **1994**	1		
16 Feb	2.6		
13 May	1		
16 May		USD 30%, ECU 70%	
10 Jun	1.2		
5 Aug	8		±1.25
11 Oct	1.1		
29 Nov	1		
21 Dec			±2.25
3 Jan **1995**	1.4		
14 Feb	2		
13 Mar	9 and 8 import tax surcharge		
16 Mar	Crawling peg: monthly 1.9		
1 July	1.3		
1 Jan **1996**	1.2		

(Table 11 Continued)

Date	Devaluation (%)	Basket	Width of band (%)
1 Jan **1997**		USD 30%, DEM 70%	
1 Apr	1.1		
1 Jul	Import tax surcharge removed		
15 Aug	1.0		
1 Jan **1998**	0.9		
15 Jun	0.8		
1 Oct	0.7		
1 Jan **1999**	0.6	USD 30%, EUR 70%	
1 Jul	0.5		
1 Oct	0.4		
1 Jan **2000**		EUR 100%	
1 Apr	0.3		
2 Mar **2001**	0.2		
4 May			±15
1 Oct	0		

Source: MNB.

more active currency trading coming from mostly foreign sources the widening of the band was inevitable arriving to 4.5% bandwidth in the end of 1994. As part of the macroeconomic stabilization package[6] a crawling peg regime was introduced in March 1995 with a starting 1.9% monthly devaluation. The aim was to rely on the exchange rate regime to bring down the high inflation rate in a sustainable manner. The monetary regime was targeting real exchange rate and for this reason the rate of crawl was gradually decreased until March 2001 to 0.2% parallel with a falling inflation rate.

It was obvious that the crawling peg regime was fully exhausted[7] and in 2001 a new exchange rate and monetary regime had to be introduced. The monetary authorities opted for inflation targeting combined with a fixed 30% bandwidth compatible with the ERMII regime. Textbooks — and IMF experts — reject this regime as in principle the two targets are in conflict with the only instrument. However, there is no clear theoretical consensus what the optimal exchange rate regime is if a country runs inflation targeting with strong preference for exchange rate stability or prefers enjoying some

[6] See the details in Halpern and Wyplosz (1998).

[7] There were voices in favor of continuing the decrease of crawl and turn into monthly appreciation. That mechanical interpretation of the crawling peg regime was rejected.

honeymoon effect of a — credible — target zone.

The practical misdeeds of monetary policy were not really related to this theoretical conflict. In 2002-3 serious errors were committed, while later on in 2006 the monetary policy had to harden its stance against irresponsive fiscal policy, but again the lack of coordination and cooperation between fiscal and monetary policy has contributed to additional increase in risk premium and higher volatility of exchange rate.

The crawling narrow band was able to withstand turmoil — the South East Asian and Russian currency crises in 1997-8 — while policy errors — fiscal loosening, inconsistency between inflation target and fiscal policy, unclear communication of monetary policy-makers, unjustified devaluation of the parity, open conflicts between the government and the central bank — in 2003 led to repeated currency crises in spite of a wide horizontal band. What is more appealing is that the first crisis was an attack against the strong edge of the band while the second one was a speculation against the internal weak edge within the same band.

The most important lessons of the Hungarian experience are that whatever is the formal flexibility of the exchange rate regime, the most decisive recipe for success is the coherent and consistent macroeconomic policy and management, that is, the coordinated cooperation between monetary and fiscal policies.

B. Vietnam[8]

Vietnam started from multiple-exchange-rate system what was transformed into a single exchange rate regime in March 1989. The currency (VND) was pegged to US$ and a 1% band was introduced in August 1991. The currency market was heavily regulated, all foreign exchange earnings had to be deposited with or sold to banks and a permit was required for imports purchase.

To stabilize the economy and to create a nominal anchor to contain inflation, in September 1991, the State Bank of Vietnam (SBV) adopted a fixed exchange rate regime with horizontal band. The SBV intervened to revalue the nominal exchange rate from the peak of VND 14,000 at end-1991 to VND 12,000 per US$ at early 1992, and then maintained fixed exchange rate around VND

[8] This part draws on a PhD thesis of Mai Thu Hien on Solutions for exchange rate policy of transition economy of Vietnam, Halle, July 2007.

10,000-11,000 per US$ in 1993-96. Initially, the trading band was set at ±0.5%. The stability of the exchange rate was considered as a nominal anchor to reduce three-digit to low level one-digit inflation.

The VND was depreciated by 16.3% in February 1998 and to VND 12,998 per US$ (August 1998), the band was widened to 2% in November 1996, to 10% in February 1997 and to 20% in October 1997. The band was narrowed back to 7% width as a response to crisis in August 1998. Even this width proved to be unmanageable and further tightening to ±0.1% was introduced in February 1999. Actually the price to pay for it was a widening gap between black market and official exchange rates especially between 1997 and 1999. The tendency was turned back in July 2002 with a broadening up to ±0.25% and to ±0.5% in January 2007.

As part of wider liberalization measures foreign currency retention quota was increased more or less gradually from 20% (September 1998) to 50% (August 1999), 60% (May 2001), 70% (June 2002), and to 100% (April 2003). Current account transactions are liberalized by accepting the obligations of Article VIII, Section 2, 3 and 4 of the IMF's Articles of Agreement with effect from November 2005.

All in all, the economy of Vietnam fared quite well as the high growth rate was maintained effectively and was accompanied with highly growing exports and imports (see Table 12). Inflation and government budget seemed to be more or less under control in spite of the recent upturns.

Vietnam offers quite a rich experience of a fast growing emerging catching up economy with an early attempt to increase the flexibility of the exchange rate regime after having served the nominal anchor role after successful inflation stabilization. The lesson is obvious, institution development should go hand in hand with liberalization measures and any attempt to make the exchange rate regime more flexible without support from macroeconomic management and currency market development may collapse sooner or later. The shock can come from inside the economy and partly from abroad like the contagion in currency markets what may shatter any system thought to be less prone to crisis.

The task is still immense how to make the exchange rate regime more flexible as the further liberalization of capital markets would make the peg vulnerable. There are different directions at hand, but the trade-offs are not that clear, how high the costs associated with the higher volatility are, how the inflow of FDI exerts upward

TABLE 12

VIETNAM: SELECTED ECONOMIC INDICATORS, 1986-2006

Year	GDP	CPI	VND/US$		Export	Import	Current account balance	Capital account balance	FDI	ODA	Inward remittances	Government budget balance	External debt	Gross official reserves
			value	change										
1986	2.84	774	80	-433.3	-	-	-4.4	-	-	-	-	-6.2	33.7	0.3
1987	3.63	373	368	-360.0	8.4	13.92	-3.3	-	-	-	-	-4.7	34.4	0.3
1988	6.01	223	3,000	-715.2	21.6	12.3	-3.3	-	0.32	-	-	-7.1	68.2	0.3
1989	4.68	34.7	4,300	-43.33	87.4	-6.9	-6.9	3.6	0.53	-	-	-9.9	246.4	0.5
1990	5.09	67.1	6,500	-51.16	23.5	7.3	-3.2	1.5	0.74	-	-	-7.2	290.7	0.5
1991	5.81	67.5	12,742	-96.03	-13.9	-15.1	-1.6	-0.7	1.29	-	0.04	-2.3	246.1	0.6
1992	8.70	17.5	10,719	15.88	23.7	8.7	0.1	0	2.21	-	0.06	-3.2	183	9.6
1993	8.08	5.2	10,841	-1.14	15.7	54.5	-10.6	3.4	3.35	1.81	0.07	-4.6	152.3	5.1
1994	8.83	14.4	11,003	-1.49	35.8	48.5	-11.5	9.1	4.53	1.94	0.25	-2.4	122.6	8.7
1995	9.54	12.7	11,021	-0.16	34.4	35.0	-12.8	11.2	7.70	2.26	0.29	-4.1	86.1	5.2
1996	9.34	4.5	11,040	-0.17	33.2	36.6	-9.9	8.4	9.74	2.43	0.47	-3.0	78.1	6.4
1997	8.15	3.6	11,175	-1.22	26.6	4.0	-6.2	6.2	6.06	2.40	0.40	-3.9	74.5	7.2
1998	5.76	9.2	12,986	-16.21	1.9	-0.8	-3.9	0	4.88	2.20	0.95	-3.4	75.3	6.8
1999	4.77	0.1	14,008	-7.87	23.3	2.1	4.5	-1.2	2.26	2.21	1.20	-4.6	71.4	8.1
2000	6.79	-0.6	14,498	-3.50	25.5	33.2	2.1	-2.5	2.70	2.40	1.76	-5.0	38.6	8.9
2001	6.89	0.8	15,056	-3.84	3.8	3.4	2.2	-1.0	3.23	2.40	1.82	-5.0	37.9	8.3
2002	7.08	4.0	15,361	-2.03	11.2	21.8	-1.2	5.9	2.96	2.50	2.10	-4.7	34.9	7.2
2003	7.34	3.0	15,601	-1.56	20.8	27.8	-4.9	9.0	3.15	2.84	2.70	-6.4	33.8	8.7
2004	7.79	9.5	15,732	-0.84	31.5	26.5	-2.0	6.0	4.22	3.44	3.20	-2.8	33.9	8.5
2005	8.43	8.4	15,867	-0.86	22.4	15.7	0.5	6.2	5.81	3.74	3.80	-5.9	32.5	9.8
2006	8.17	6.6	16,082	-1.35	22.1	20.1	0.3	4.5	10.2	4.45	4.70	-6.3	32.6	13.0

Notes: GDP, CPI, export, import percentage annual changes; current and capital account, government budget balance, external debt and in percentage of GDP; FDI, ODA and inward remittances are in billion US$; gross official reserves are in weeks of next year's imports. Figures for 2006 are forecasts.

Source: Mai Thu Hien: Solutions for exchange rate policy of transition economy of Vietnam, PhD thesis, Halle, July 2007.

pressure on the currency which is difficult to counterbalance with appropriate reactions.[9] And finally it is not easy to design an ideal system what could be aimed at. Inflation targeting seems rather fragile and difficult to manage for this type of economies.

[9] See Begg *et al.* (2003).

V. The Role of Exchange Rate Conversion in German Reunification

The German reunification especially its consequences for the Eastern Landers may be analyzed under the heading of transition. The New Landers went through radical institutional changes of transformation what were quite similar to that of Central and Eastern European countries and former Soviet Republics. The major difference, however, was that the German reunification has extensively relied on the West German institutions and sources, what requires qualifications when the lessons and experiences are to be formulated and transposed to any other situation or country. Fortunately the perspective of this paper is rather limited and allows us to consider it in some details.

The most important dilemma of German reunification from the perspective of exchange rate regime was the sequencing: whether monetary and economic unification should follow the transformation and upgrading. This dilemma is not specific to German reunification only, it is important to recall how often it emerges in relation with EU integration of new member states. The reference to one extreme position of this dilemma is the so called "coronation theory" which postulates that countries aspiring to become full members of a more mature economic and monetary integration should first converge in both nominal and real terms. This view claims that countries should only be allowed to enter the club of privileged ones when both their economic development and nominal stability are commensurable with that of the already members. This view pretends that countries with similar macroeconomic and managerial performance and record do not jeopardize the stability of the common goals and currency. The view — still popular within EU administration and few EU central banks — has got neither the official EU approval, nor the theoretical support from economics. However, its informal power still has impact on decision making.

The political considerations have dominated the discussions on economic cost and benefits of the German reunification. While the benefits of integrating the Eastern states into the monetary and financial system of the Federal Republic have been quite direct *e.g.*, in the possibility to avoid potential inflationary effect of transformation the costs incurred in fiscal deficit. Fiscal deficit of Germany then pushed inflation up what ultimately had contributed to the destruction

of the European exchange rate mechanism.

West German economists were concerned that the flow of funds could dampen private initiative and support a penchant to rely on the federal government to solve the transformational problems. Instead — as they claimed — policy should have encouraged private initiative of Western investors and new East German entrepreneurship. Economic opportunity must be created to satisfy the legitimate expectations of the East German citizenry and discourage the ongoing emigration from East to West. Excessively generous financial support of the transformation process will extend its duration of excessively, and the generous social net could reduce the flexibility of the labor market. Even Helmut Schmidt has expressed a concern that the vast flow of West German funds has largely bolstered consumption rather than investment spending.

In these conditions the talks about the currency union seemed rather premature since such an arrangement should follow the prerequisites as claimed the governor of Bundesbank.[10] But the political decisions answering the very radical and popular request of fast unification have set totally new agenda and schedule for the monetary and financial integration. The task was then transformed into the determination of the framework of this monetary integration. In this paper the terms and conditions confined to the currency conversion are discussed. Even this limited scope is able to offer interesting insights.

The technical details are the following: the exchange rate of one East German mark to one West German mark could be applied up to 4,000[11] marks only, all savings beyond that amount and insurance policy values were converted at a 2 East mark to 1 West mark rate. The effective personal exchange rate in the July 1, 1990 currency reform was 1.8 East marks to 1 West mark. The pensions were converted at one to one up to 70% of the most recent withdrawals. Wages were also converted at this rate. Small businesses as well as state-owned industries had their liquid assets converted at 2 East marks to 1 West mark while their debts were converted at a 1:1 rate.

This differentiated conversion rates demonstrate the difficulty of setting a single conversion rate. Black market exchange rate was

[10] See Thoma (1990) for details.

[11] For adults only. Child's threshold was set at 2000, while retired person's threshold was at 6000.

about 12:1, labor productivity differences — measured at biased output indicators — were at somewhere 3:1, purchasing power ratio — again at a biased assessment, disregarding the quality differences — was closer to 1:1. It is now quite easy to claim that no unique exchange rate could have served all the conflicting objectives: ensure some competitiveness for able East German plants, competitive wages and meet high purchasing and social transfer expectations.

The overwhelming neglect of economic arguments led partly to some undesired consequences.[12] According to Pohl (1991) three factors were not taken into account properly: (i) East German consumers switched to a far larger extent than expected to imported (West German) goods, "abandoning themselves" as producers; (ii) Wage settlements, resulting from collective bargaining agreements, increased wages by one-third during 1990, and another third during 1991, raising pre-tax wages to about one-half West German levels by mid-1991; (iii) Exports to the Soviet Union, which had been counted upon to maintain employment during the transition, sharply declined with the switch to convertible currency trade in early 1991, and the economic dislocation within the Soviet Union.

Product quality differences measured by comparable prices were overridden by shifts in consumer preferences. The collapse of the Comecon trade together with a fall of domestic demand resulted in a massive, about 2/3 loss of output within short span of time. The consequences of output loss are straightforward on the employment too, which were exacerbated by high wage requests evidently. The inability to resist to high wage requests was explained by high potential of migration. Observers add that no feasible regulation of migration was at hand.

The dilemma of sequencing was transformed into the choice between gradual versus big-bang monetary unification. Big-bang unification does not allow setting priority list and assigning proper instruments, the only possibility is to enter this bargain over different conversion rates which should inevitable err on the overvaluation side as short term political considerations overrule all the economic arguments. It is more or less obvious that the gradual approach was not a real option in case of German reunification.

[12] The above threshold half conversion rate for the savings was introduced at the request of the central bank.

VI. Exit Strategies

Perhaps the starting point of any strategy is the unofficial view of late Rudiger Dornbusch that less developed small open economies can not afford a 'luxury' of having their own currency. This unusual formulation can easily be reconciled with the difficulty of managing any exchange rate regime within globalized capital markets and high volatility of capital, and that of exchange rates. That is why these countries have to consider always possible exit options when designing their exchange rate strategy.

Exchange rate regime is designed for establishing and regaining credibility while being able to deliver its all functions. Sometimes too much is required from the exchange rate regimes; they may become the symbol of stability or the economic strength of the country. Exchange rates are quite often abused in political business cycles; governments with populist policies like to see currency appreciation up to the election and depreciation afterwards.

Economic development and external economic environment may necessitate the change of the exchange rate regime. There is a general message, that it is better to do it when there is no pressure on a pegged exchange rate. Typical example is that it is rather wise to widen an exchange rate band when it is away from the edge. On the other hand when there is a currency crisis an orderly shift to another regime is always difficult and incurs additional costs. The consequences are capital flight, massive speculation against the currency, overshooting, *etc*. Crisis literature sends very general message, it is in the interest of the country to avoid the so-called grey area of vulnerability where the chances of crisis are out of control.

It is demonstrated that quite large number of countries have given up intermediate exchange rate regimes during the 1990s.[13] Sustainability of intermediate regimes has become more expensive and difficult to manage. However, this view is also challenged as another observation was made that for some countries the gap between officially declared exchange rate regime and the de facto operation has widened. It was quite often the case for the so-called floaters who recurred to some type of intervention in different forms. This behavior was mainly led by the large fluctuation of major currencies what laid important burden of adjustment on small open economies.

[13] See Fischer (2001).

International agencies promote more flexible exchange rate regimes. The IMF recommends four factors guiding for a successful, orderly transition to flexible exchange rate regimes for emerging countries: (i) a deep and liquid foreign exchange market, (ii) a coherent intervention policy, (iii) an appropriate alternative nominal anchor, and (iv) adequate systems to review and manage public and private sector exchange rate risks (see IMF, 2004). It is, however, quite difficult to operationalize these guidelines, as emerging countries often face difficulties when live with deep foreign exchange markets which can easily become fertile soil for speculation. It is rather costly to operate institutions which are able to address and handle risks coming from different sources.

Countries with clear economic and monetary integration on their agenda are in a slightly better position concerning their exit strategies. This is the case with the European integration, but this was not always like that.[14] The adequacy of requirements for the monetary integration — the so-called Maastricht-criteria — is hotly debated; the requirements are theoretically inconsistent[15] and miss the fundamental issue, the support for sustainable real convergence. Transition specific features are not addressed properly, as the consequences of fast catching up are penalized.[16] Whatever is the intellectual content of these rules, the process seems working as countries were able joining it without incurring major costs apparently.

VIII. North Korean Transition and the Choice of Exchange Rate

In spite of the extremely limited knowledge, few starting conditions for North Korean transition are quite easy to foresee and is evident that serious transition specific issues will have to be addressed. These issues will be more difficult to handle than ever for any other

[14] Few years ago European institutions required CBA countries to enter the full ERMII, that is, to introduce a wide band to test whether their CBA exchange rate was rightly determined. Fortunately this double exit requirement was cancelled.

[15] There are too many nominal targets: exchange rate, its volatility, interest rate and inflation and these targets together with public debt to GDP ratio are unable to assess all the maturity aspects of potential for a successful monetary integration. The procedure, however, leaves quite many options for the assessment of sustainability at the cost of difficulties in its interpretation.

[16] See Begg *et al.* (2003).

transition. It is obvious that there will be very scarce and unreliable data on assessing the performance and stance of North Korean economy and society. In spite of lacking data it is known that the income gap between North and South Korea is high, much higher than what was observed in case of Germany before unification. When transition in North Korea will start massive transfers from South Korea and from international development agencies will flow which will open huge potential for intra-Korean trade. Needless to mention these transfers and the whole transition will not leave the South Korean economy and society unaffected.[17]

Without entering the detailed analysis of the possible future outcomes of political and societal changes in North Korea there seems to be that there are three major possible scenarios for unification which will have deep impact on the transition:

A) North Korea's sovereignty will remain intact;
B) Spontaneous big-bang unification with South Korea;
C) Gradual unification with South Korea.

These unification scenarios leave relatively open three potential options for exchange rate regime when North Korea is opening up significantly. These are the following:

1) Sovereign monetary policy by anchoring to an economically larger country's stable currency;
2) Dollarization/Wonization
   a) mutually agreed with the currency country on the division of seignorage revenue,
   b) spontaneous;
3) Monetary integration
   a) Big-bang
      i) unified conversion rate
      ii) differentiated conversion rates
   b) Gradual
      i) unified conversion rate
      ii) differentiated conversion rates.

The possibility of the floating option is excluded. Why? Because if we assume that some degree of liberalization starts then the gap

[17] See Noland (2000).

TABLE 13
EXCHANGE RATE REGIMES AND INTEGRATION STRATEGIES

		Exchange rate regime		
		Peg (1)	Dollarization (2)	Integration (3)
Unification	No (A)	Provision of international reserves	Splitting seignorage	Agreement on common issues
	Big-bang (B)	Speculative target	Stability	Conversion rate
	Gradual (C)	Frequency and size of realignments	Exit strategy	Sequencing

between official and market exchange rates will be very high and rather unstable. As it was presented for the other transition economies during the early phase of price and trade liberalization the anchoring function of the exchange rate will be fundamental for North Korea too. It does not mean that some flexibility is excluded at a later stage of transition after having installed the basic institutions of a market economy.

Now let us combine the potential scenarios of unification with that of exchange rate regimes in the following table by adding the most important policy question at hand in each cell.

One should not forget about the dynamic feature of potential interactions, like gradual unification may increase the probability of monetary integration as compared to the no-unification case. The aim is to capture the most imminent decision problem on exchange rate.

It is clear from the above classification that the lender of last resort responsibility would remain with North Korea in case of A1, while it can be somehow shared in A2 and should be shared in A3. It seems premature to opt for any of the above options, as it is evident that the decisive factors lay somewhere outside economics. The difficulty with A1 is that it has never been really tested in case of transition with large development gap between countries involved. The usual reference to the Austrian way to peg to German mark can be used halfheartedly. The large income gap may exert quite an important strain on the exchange rate regime after having gone through the major price adjustments and may lead to frequent realignments which undermine the so required credibility and anchoring function. There are some cases similar to A2, but they

were mostly introduced without any support from the currency country. The case of A3 reminds the long standing monetary union between Belgium and Luxembourg, but obviously its lessons are difficult to be used here.

The other two options — B and C — mean that the country is ready to give up its sovereignty, monetary included. B1 and C1 are difficult to make functioning smoothly, while B2 needs some mechanism to ensure its ordered working. Whatever option is evolving the best is in favor of an orderly arrangement. The policy consequence is that the cooperating authorities have some degree of freedom in choosing the best sequencing. It should be noted that if this procedure is far away from the political orders and the citizen's expectation, then the seemingly orderly arrangements can be wiped away and lose momentum. These are the threats and risks with B3 evoking the spontaneous acceleration of German unification when setting the conversion rates. C2 can exist for a while, but it is obvious that it may sooner or later shift to C3 what seems to offer time for preparation of gradual and orderly unification. However, the difficulty how to set conversion rates should not be underestimated.

There are different intellectual speculations about the desired direction of actions. Let me quote here one of them: 'Adopt dual monetary conversion. Aim for slight undervaluation conversion for North Korean won to maintain competitiveness, thereby making North Korea an attractive location for investment. Convert personal savings at an overvalued rate (effecting a wealth transfer)' Noland (2000) p. 360-1. This is a clear vote for the monetary integration — B3 or C3 — at any speed with differentiated conversion rates. The message from the German reunification is important in this respect as the relevance of the conversion rate depends on the accompanying measures and the chosen rates and thresholds will have primary role in the subsequent period.

Finally, as it was clear from all the experiences that exchange rate regimes and the pace of liberalization of current account and capital account transactions depend on each other. Whatever anchoring role is devoted to the exchange rate the appropriate timing of liberalization should be meticulously designed.

VIII. Conclusions

All the lessons of transition from plan to market are at our

disposal to device an exchange rate regime for a country which will sooner or later transform its extremely rigid economic system to a more flexible one by relying on market signal, private ownership and political democracy. This seemingly routine design requires an in-depth knowledge of the way how the institutions will be transformed and how the citizens and social environment will react to the changes in the early period of transition. It makes the task of designer a bit more cumbersome.

Exchange rate regime was quite an important macroeconomic factor during transition and its specific importance came from different sources, the only reliable factor price in the early periods and the conversion factor to assess performance in international framework. But whenever the exchange rate was artificially separated from the macro- and microeconomic linkages and used beyond its competence the harmful consequences came later in form of welfare losses.

The German reunification experience thought us that there were short and long term effects of conversion rates. In such a historic time the discount rates are generally rather low in spite of the more promising future after decades of isolation and repression, distant consequences matter much less. It was evident that there was no single conversion rate appropriate for the overall conversion, but this indeterminacy became even more complex when the use of multiple rates became reality and urgency. Multiplicity offered fertile ground for hammering out compromises when each participating partner was able to achieve partial success at the other's expense. It seems that the lack of inherent consistency, conflicting outcomes could yield much lower welfare than any value of a single conversion rate. It was even more valid for longer terms.

Exchange rates have been relevant during transition, but paradoxically this was not a virtue, but rather a burden as the less relevant they were the more successful the transition was. A well functioning exchange rate regime seems irrelevant, while in an inflation-ridden, crisis-prone country the exchange rate is always an issue.

The North Korean transition requires coordinated cooperation with all the partners with due patience and careful weighing of different outcomes and efforts. It relates to the choice of exchange rate too. If unification seems excluded or rather distant in future, then the selection of the exchange rate depends on the scope and depth of

cooperation between North and South Koreas. If unification is on the agenda, then its speed becomes the deciding factor. Big-bang unification entails decision on the multiplicity, rules and values of conversion rates. The German example demonstrates that it will not be easy at all. Gradual unification leaves time for authorities to prepare the necessary steps. The speed of unification, however, can not be chosen at will, what makes the design and preparations even more complicated.

(Received 7 January 2008; Revised 25 March 2008)

References

Begg, David, Eichengreen, Barry von Hagen, Juergen, Halpern, Laszlo and Wyplosz, Charles. Sustainable Regimes of Capital Movements in Accession Countries. CEPRE Policy Paper No. 10, London, 2003.

Calvo, Guillermo C., and Reinhart, Carmen M. Fear of Floating. NBER WP 7993, 2000.

Fischer, Stanley. Exchange Rate Regimes: Is the Bipolar View Correct? *Journal of Economic Perspectives* 15 (No. 2 2001): 3-24.

Halpern, Laszlo, and Wyplosz, Charles. "The hidden Hungarian miracle", In L. Halpern and C. Wyplosz (eds.), *Hungary: Towards a Market Economy*. London, U.K.: Cambridge University Press and Centre for Economic Policy Research, pp. 1-19, 1998.

International Monetary Fund. *Exchange Rate Arrangements and Currency Convertibility*: *Development and Issues*, Washington, D.C.: IMF, 1999.

International Monetary Fund. From Fixed to Float: Operational Aspects of Moving Toward Exchange Rate Flexibility. Monetary and Financial Systems Department, http://www.imf.org/external/NP/mfd/2004/eng/111904.htm, Followed by a Public Information Notice, http://www.imf.org/external/np/sec/pn/2004/pn04141.htm, 2004.

Markiewicz, Agnieszka. "Choice of Exchange Rate Regime in Transition Economcs: An Empirical Analysis." *Journal of Comparative Economics* 34 (No. 3 2006): 484-98.

Noland, Marcus. Avoiding the Apocalypse: The Future of the Two

Koreas. Peter G. Peterson Institute for International Economics, Washington D.C., p. 456, 2000.

Pohl, Gerhard. Economic Consequences of German Reunification: 12 Months after the Big Bang. The World Bank Policy Research Working Paper Series No. 816, 1991.

Tavlas, George S. "The Economics of Exchange-Rate Regimes: A Review Essay." *The World Economy* 26 (No. 8 2003): 1215-46.

Thoma, Franz. 1:1 - mit Risiko, Suddeutsche Zeitung 24.04. p. 4, 1990.

Von Hagen, Juergen, and Zhou, Jizhong. "The Choice of Exchange Rate Regime: An Empirical Analysis for Transition Economies." *Economics of Transition* 13 (No. 4 2005): 679-703.