MĀRTIŅŠ BITĀNS

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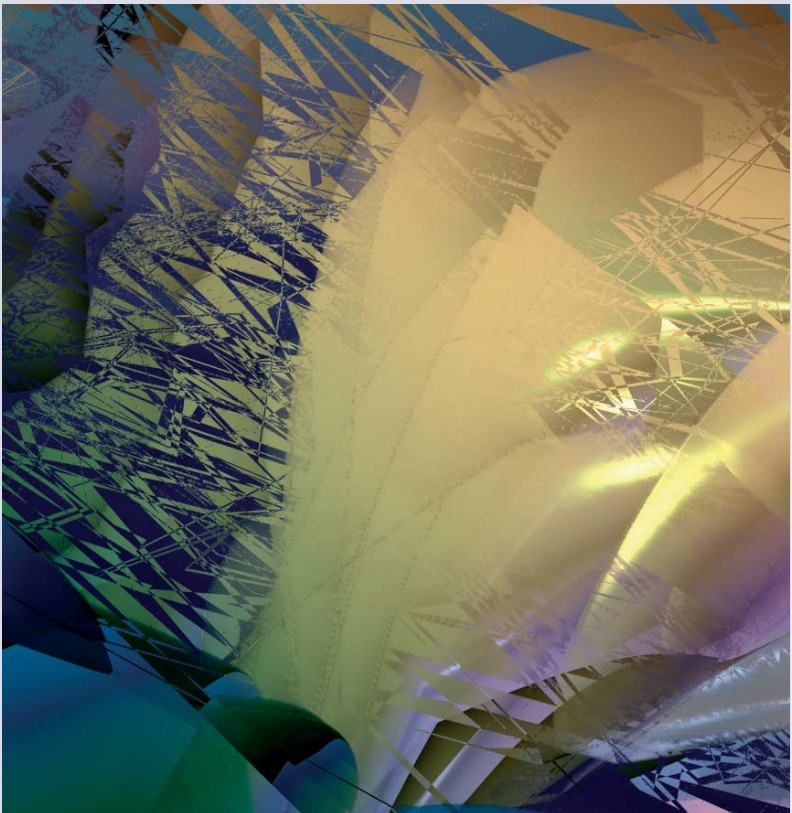

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The views expressed in this publication are those of the author, Head of Monetary Research and Forecasting Division, Monetary Policy Department. The author assumes responsibility for any errors or omissions.

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INTRODUCTION

The Bank of Latvia adopted the fixed exchange rate regime in February 1994, when the Latvian currency, the lats, was *de facto* pegged to the SDR basket of currencies. The fixed peg has remained unchanged since then. Until the end of the 1990s, inflation was higher in Latvia than in the industrialised countries, raising concerns that the appreciation of the real exchange rate in Latvia hurt exporters and might, in fact, dampen the country's long-term growth prospects. Besides, in the light of the appreciation of the real exchange rate, there have been some speculations that the fixed exchange rate regime is not sustainable in the long run.

In this paper, we shall attempt to answer the following questions. To what extent is a real appreciation of the exchange rate taking place in Latvia? Is it a cause for concern? To this end, first, the determinants of the real exchange rate will be analysed to find out whether the current level of the real exchange rate is above or below the short-term equilibrium. Second, the potential impact that changes of the real exchange rate have on economic activity will be estimated. Finally, the real exchange rate will be analysed in conjunction with a broad set of macroeconomic variables.

Chapter I gives an overview of different measures of external competitiveness and their dynamics in Latvia since 1994. In Chapter II, the single equation approach is applied to analyse the factors that may have an impact on real exchange rate developments in Latvia. In Chapter III, the macroeconomic balance approach is used to supplement the analysis of the real exchange rate. The main findings and conclusions are presented in the final chapter.

I. GENERAL OVERVIEW

There are many indicators that can be used to capture the changes in a country's external competitiveness. The concept of the real exchange rate (RER), i.e., the nominal effective exchange rate deflated by some price index or price ratio, is used most commonly. The real effective exchange rate (REER) is obtained by applying the following formula:

$$REER = \frac{P_{LV}}{\prod_{i=1}^{n} (E_i \times P_i)^{w_i}} \qquad [1],$$

where E_i is the nominal exchange rate with respect to country i (defined as the number of units of the domestic currency (the lats) per one unit of the currency of country i), P_{LV} denotes the price index in Latvia, P_i is the price index in country i, and w_i stands for the weight of country i in Latvia's total foreign trade turnover (exports plus imports). By definition, an increase in the REER implies real appreciation, while a decline indicates real depreciation.

It is difficult to single out the best price index, as each of them has its pros and cons. Initially, several price indices will be considered: the consumer price index (CPI), the producer price index (PPI), the unit labour cost (ULC) index, the tradable and non-tradable price ratio (P_{nt}/P_t), and the export and import price deflator ratio (P_e/P_m).

The advantage of using the CPI is the availability of monthly data. Moreover, the CPI has been used in many studies on the real exchange rate, and the results obtained can be compared with the previous findings. The disadvantage of the CPI is that it also includes the prices of non-tradable goods that may not be relevant when analysing external competitiveness.

The PPI excludes, to a large degree, the prices of goods that are not internationally traded, and thus may be a more appropriate indicator of external competitiveness. Unfortunately, the use of the PPI also introduces a potential bias due to the fact that the structure of the industrial sector may differ significantly across countries.

The ULC index defines more precisely the changes in external competitiveness that are associated with one of production factors, labour, while ignoring the other factors of production, capital in particular; and therefore, it is not relevant for the analysis of foreign trade in capital intensive goods.

As regards the advantages of the export and import price deflator ratio, domestic statistical data are only needed for this indicator. Where the structure of imports differs from that of exports, this indicator fails to capture changes in external competitiveness. As Latvian exporters are price takers in the world markets, movements in

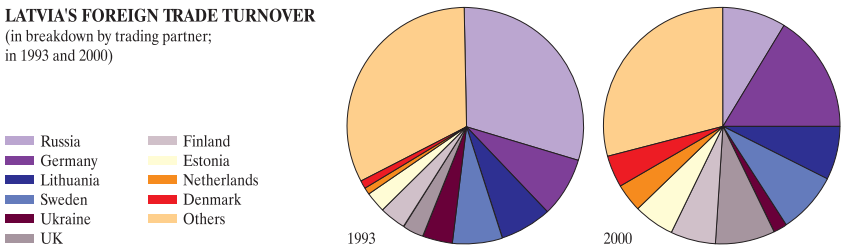
export prices are often exogenous and are not indicative of changing competitiveness. In Latvia, changes in import prices may not translate into changes in external competitiveness, because import goods are an important input for export goods.

The tradable and non-tradable price ratio also requires only the domestic economy statistics. The weak point of this indicator is the arbitrary division of goods into tradables and non-tradables. Moreover, since the prices of non-tradable goods react to the developments in the external sector with some time lag, the indicator that uses the tradable and non-tradable price ratio is probably a rather poor estimate for external competitiveness.

With these arguments in mind, different REER indicators have been calculated for Latvia. Apart from the indictors that use only domestic data (P_{nt}/P_t and P_e/P_m), the total REER index has been obtained by combining bilateral real exchange rates between Latvia and its ten most important trading partners[1], which together account for about 70% of Latvia's foreign trade. In view of changes in the pattern of foreign trade turnover over time (see Chart 1), normalised 4-quarter moving average trade weights have been used instead of fixed weights. Along with the total REER index, the real exchange rate was calculated with respect to several country groups. These groups are: countries of Western Europe (Germany, the United Kingdom, Denmark, Sweden, Finland and the Netherlands), countries of Eastern Europe (Russia and Ukraine), and the Baltic States (Estonia and Lithuania). Chart 2 shows real exchange rate indicators that are based on the CPI.

Chart 1

LATVIA'S FOREIGN TRADE TURNOVER
(in breakdown by trading partner;
in 1993 and 2000)



Since the end of 1993, the total REER in Latvia has appreciated significantly: in seven years it has risen 60%. The dynamics of the real exchange is different across different groups. The appreciation of the real exchange rate with respect to the countries of Western Europe has been steady throughout the whole period, and the real exchange rate was 80% higher in 2001 than in 1993. After depreciation, the real exchange rate with respect to the Baltic States has been rather stable since 1996. The largest swings can be observed in the real exchange rate with respect to the countries of Eastern Europe: after appreciation in 1994, the real exchange rate declined swiftly and remained

[1] Germany, the United Kingdom, Denmark, Sweden, Finland, the Netherlands, Russia, Ukraine, Estonia and Lithuania.

relatively stable until the Russian financial crisis of 1998. Following the large nominal depreciation in the countries of Eastern Europe in 1998, the real exchange rate of the lats against the currencies of these countries appreciated very rapidly and very significantly. As the impact of devaluation on domestic prices gradually starts to be felt in the countries of Eastern Europe, the real exchange rate of the lats against the relevant currencies gradually reverts to the pre-crisis level.

Chart 2

CPI-BASED REAL EXCHANGE RATE INDICATORS
(Q4 1993 = 1)

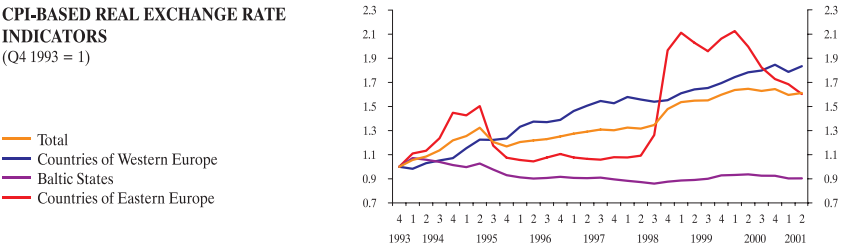
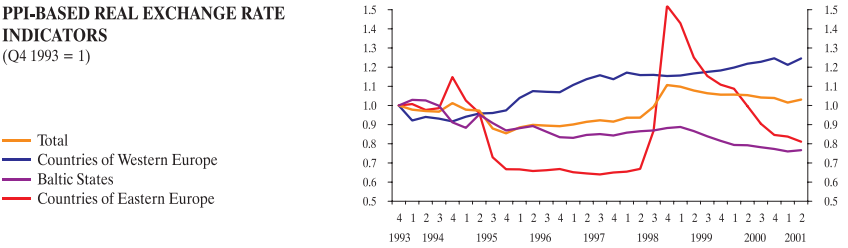


Chart 3 shows estimates for different real exchange rate indicators that are based on the PPI. As expected, these indicators imply that the real exchange rate has been more stable over time. For example, the PPI-deflated real exchange rate with respect to the countries of Western Europe implies an average annual real appreciation of below 3%. The implied adjustment towards the long-term trend is more rapid for the PPI-based real exchange rate than for the CPI-based real exchange rate (as is the case with the real exchange rate with respect to Russia and Ukraine after the Russian financial crisis of 1998).

Chart 3

PPI-BASED REAL EXCHANGE RATE INDICATORS
(Q4 1993 = 1)

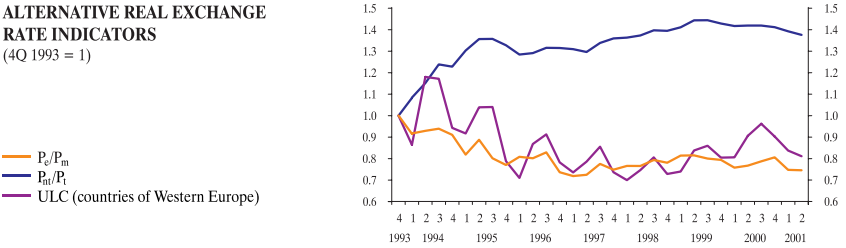


In general, the dynamics of various real exchange rate indicators show appreciation only with respect to the countries of Western Europe. Hence, the common assumption of the constant real exchange rate made by the PPP theory is clearly violated in this case. The real exchange rate with respect to the Baltic States is relatively constant and tends to support the hypothesis of PPP. Also, with respect to the countries of Eastern Europe, the real exchange rate exhibits some trend-reverting behaviours. Thus, the dynamics of prices relative to the nominal exchange rate generally are in line with the predictions of the PPP theory.

Chart 4 shows several other real exchange rate indicators for Latvia that are not based on the CPI and the PPI. According to these indicators, the international competitiveness of Latvian exporters has not deteriorated over the last seven years (since the introduction of the fixed exchange rate regime). On the contrary, these indicators (with the exception of the real exchange rate that is based on the tradable and non-tradable price ratio) imply gain in competitiveness relative to Latvia's main trading partners.

Chart 4

ALTERNATIVE REAL EXCHANGE RATE INDICATORS
(4Q 1993 = 1)



The above assumptions are tested by using the augmented Dickey–Fuller (ADF) unit root tests (for results, see Table 1). T-statistics, shown in Table 1, have been obtained from the equation:

$$\Delta y_t = \mu + \gamma y_{t-1} + \delta_1 \Delta y_{t-1} + \delta_2 \Delta y_{t-2} + \ldots + \delta_p \Delta y_{t-p} + \varepsilon_t \qquad [2].$$

The null hypothesis that the time series have a unit root ($\gamma = 0$) is tested. If the null hypothesis cannot be rejected, the real exchange rate is not constant, and PPP does not hold. The rejection of the null hypothesis would speak in favour of PPP.

The results tend to support the assumption that indicators based on export and import price deflators and the tradable and non-tradable price ratio are more in line with the PPP theory: the unit root is rejected for both variables in one case out of three. In view of this, the subsequent analysis will focus only on the CPI- and PPI-based real exchange rate indicators.

The results presented in Table 1 strongly support the hypothesis that the real exchange rate with respect to the countries of Western Europe is non-stationary: we are not able to reject the null hypothesis for any of the variables considered. Contrary to earlier observations, the ADF unit root tests do not reject the null hypothesis for the real exchange rate with respect to the Baltic States and the countries of Eastern Europe; the null is only marginally rejected in one case. Of course, the results may be biased, as the time series considered are short. In spite of the failure to reject the null hypothesis for all but one CPI- and PPI-based real exchange rate indices at this stage, they will be treated as non-stationary in the subsequent analysis.

The failure of the PPP theory implies that there are some fundamental variables in

Table 1

RESULTS OF ADF UNIT ROOT TESTS FOR THE TIME SERIES OF THE REAL EXCHANGE RATE
(in levels)

		Equation specification		
		No constant, no trend	Constant, no trend	Constant, trend
Total				
REER_CPI	Lags	0	0	0
	T-statistics	1.445	–1.717	–2.225
REER_PPI	Lags	0	0	0
	T-statistics	–1.168	–1.539	–1.842
P_e/P_m	Lags	0	0	0
	T-statistics	–0.169	–3.001[1]	–2.781
P_{nt}/P_t	Lags	1	0	0
	T-statistics	0.161	–4.109[2]	–2.877
Countries of Western Europe				
RER_CPI	Lags	1	0	0
	T-statistics	–0.248	–1.787	–1.153
RER_PPI	Lags	0	0	0
	T-statistics	1.462	–0.433	–2.732
ULC	Lags	2	2	1
	T-statistics	–0.4358	–2.447	–0.462
Baltic States				
RER_CPI	Lags	0	0	0
	T-statistics	–0.241	–1.259	–1.278
RER_PPI	Lags	2	2	0
	T-statistics	1.396	–1.615	–2.098
Countries of Eastern Europe				
RER_CPI	Lags	1	1	1
	T-statistics	–0.727	–1.587	–2.208
RER_PPI	Lags	1	1	1
	T-statistics	–1.832[3]	–2.196	–2.271

[1] The hypothesis of the unit root is rejected at the 5% significance.
[2] The hypothesis of the unit root is rejected at the 1% significance.
[3] The hypothesis of the unit root is rejected at the 10% significance.

the economy that prevent the real exchange rate from reverting to its past values. It also implies that the equilibrium real exchange rate is not constant in the short run, but depends on the changes in the underlying fundamentals. Therefore, to determine

whether the actual real exchange rate is currently undervalued or overvalued one has to find out what the short-term equilibrium or the trend exchange rate is and what its determining factors are.

II. SINGLE EQUATION APPROACH

To evaluate the real exchange rate, the two-step Engle–Granger procedure is often employed. First, the equation characterising the dynamics of the real exchange rate in the long run is estimated:

$$REER_t = \beta F_t + \varepsilon_t \qquad [3],$$

where F_t denotes long-term explanatory variables or fundamentals, β is the coefficient vector, and ε_t stands for the residual.

Then the following short-term dynamic specification of the equation is estimated:

$$\Delta REER_t = \gamma(REER_{t-1} - \beta F_{t-1}) + \mu \Delta F_t + \delta \Delta S_t + \varphi_t \qquad [4],$$

where S_t denotes short-term explanatory variables, and φ_t is the residual.

There is no clear definition of fundamentals, and various authors have used different variables as the factors that affect the real exchange rate. The most commonly used variables are productivity differentials, a country's openness to foreign trade, terms of trade, government expenditures as a share of GDP, real interest rates, investment rate, trade balance, foreign direct investment, and government debt (see, e.g., Brook and Hargreaves, 2001; De Broeck and Sløk, 2001; Feyzioglu, 1997; MacDonald, 1997; Mongardini, 1998; Paiva, 2001).

Of all the variables considered as potential fundamentals for the real exchange rate in Latvia, only some of them have turned out to be statistically significant. The following three variables appear to be driving the real exchange rate in Latvia.

The first one is the openness of the economy (OPEN), and it is measured as the sum of exports and imports over GDP, divided by the relevant weighted average indicator of the trading partners. One should expect to find a negative correlation between the degree of openness and the trend real exchange rate. (As the openness of the economy increases, it may become harder to support an inadequately high real exchange rate. Besides, increasing openness would presumably imply rising incomes and the worsening of the trade balance, which can be offset by depreciating the real exchange rate.)

The second variable is government expenditures (GOVEX), which is measured as a percentage of GDP. Rising government expenditures would, *ceteris paribus*, create extra demand, which would translate into rising imports. A negative correlation, therefore, is to be expected.

Relative productivity (PROD) is the third variable, and it is measured as the ratio of productivity in the tradable sector to productivity in the non-tradable sector, divided by the weighted average relative productivity variable of the trading partners. According to the so-called Balassa–Samuelson effect, countries where productivity growth is higher in the tradable sector than in the non-tradable sector will experience the appreciation of the real exchange rate. Therefore, we expect a positive correlation between the two variables.

The unit root tests for the fundamental variables of Latvia (in logarithms) are reported in Table 2. The total productivity variable shows some signs of non-stationarity. The productivity differential with the Baltic States is almost certainly stationary. The productivity differential with the countries of Eastern Europe exhibits development pattern that is likely to be stationary as well. The productivity differential with the countries of Western Europe, on the contrary, is non-stationary. This result is in line with the economic theory: the Balassa–Samuelson effect is expected to take place between Latvia and the industrialised countries with a higher income level, but there is no reason to expect this effect to occur in relation to other transition economies, where income levels are broadly the same. As for the other two fundamental variables, the null hypothesis of the unit root cannot be rejected convincingly, so they will be treated as non-stationary as well.

Table 3 presents the results of the regression [3] for the total REER and the real exchange rates of the three country groups. As expected, the productivity differential does not appear to be driving the real exchange rate with respect to the Baltic States and the countries of Eastern Europe; however, it is an important factor affecting the real exchange rate of the lats against the currencies of the countries of Western Europe. Thus, looking only at the total REER may sometimes be misleading, especially when the country's trading partners are very heterogeneous, as those of Latvia. For this reason, the relationship between total relative productivity and the total REER is weaker than between relative productivity and the real exchange rate with respect to the countries of Western Europe. Moreover, the equation with respect to the Baltic States produces the coefficient for government expenditures that appears to have a wrong sign. This finding casts some doubt on the relevance of fundamentals in explaining the real exchange rate dynamics between Latvia and its Baltic neighbours.

To test whether the variables shown in Table 3 are co-integrated with the real exchange rate, Table 4 first reports the results of the unit root tests carried out for the residuals of the long-term regressions. Although some variables appeared to be statistically significant in Table 3, the long-term co-integration relationship between the fundamentals and the real exchange rate has been rejected for both the Baltic States and the countries of Eastern Europe. In the case of the countries of Western Europe only, the variables shown in Table 3 may be considered as fundamentals that affect the real exchange rate.

Table 2

RESULTS OF ADF UNIT ROOT TESTS FOR SELECTED VARIABLES
(in levels)

		Equation specification		
		No constant, no trend	Constant, no trend	Constant, trend
Openness of the economy				
Total	Lags	0	0	0
	T-statistics	–0.985	–2.376	–2.372
Countries of Western Europe	Lags	2	0	0
	T-statistics	–0.074	–3.212[1]	–3.144
Baltic States	Lags	0	0	0
	T-statistics	–1.629[2]	–2.509	–2.592
Countries of Eastern Europe	Lags	0	0	0
	T-statistics	–0.797	–1.984	–2.005
Government expenditures				
Total	Lags	0	0	0
	T-statistics	0.367	–2.112	–2.138
Relative productivity				
Total	Lags	1	1	1
	T-statistics	–1.049	–6.251[3]	–6.479[3]
Countries of Western Europe	Lags	1	1	2
	T-statistics	–1.773[2]	–2.678	–0.673
Baltic States	Lags	1	1	1
	T-statistics	–2.147[1]	–2.807[2]	–6.081[3]
Countries of Eastern Europe	Lags	1	1	1
	T-statistics	–0.727	–2.687[2]	–4.149[1]

[1] The hypothesis of the unit root is rejected at the 5% significance.
[2] The hypothesis of the unit root is rejected at the 10% significance.
[3] The hypothesis of the unit root is rejected at the 1% significance.

Another test in Table 4 looks at the error-correction term in the dynamic real exchange rate equation. If the variables shown in Table 3 are to be considered as long-term fundamentals, a deviation from the long-term trend will be necessarily reversed in the following periods. Hence, the error-correction mechanism (ECM) coefficient must be statistically significant and with a negative sign. Table 4 shows that with respect to the countries of Eastern Europe the error-correction term is not statistically significant, albeit with a correct sign. In contrast, the dynamic specification of the PPI-based real exchange rate with respect to the Baltic States yields the error-correction term that is both statistically insignificant and with a wrong sign.

Table 3

REAL EXCHANGE RATE IN LATVIA AND ITS LONG-TERM DETERMINANTS

	Total		Countries of Western Europe		Baltic States		Countries of Eastern Europe	
	REER_CPI	REER_PPI	RER_CPI	RER_PPI	RER_CPI	RER_PPI	RER_CPI	RER_PPI
Openness of the economy								
	–0.637[1] (–4.055)	–0.409[1] (–4.351)	–0.486[1] (–4.875)	–0.279[1] (–5.649)	–0.255[1] (–5.431)	–	–0.712[1] (–4.320)	–0.716[1] (–4.004)
Government expenditures								
	–0.419[1] (–7.430)	–0.117[1] (–3.298)	–0.381[1] (–3.007)	–0.333[1] (–10.655)	0.071[1] (10.711)	0.194[1] (10.594)	–0.877[1] (–6.817)	–0.175[2] (–2.480)
Relative productivity								
	0.654[2] (2.461)	0.337[2] (2.087)	1.209[1] (6.897)	0.851[1] (9.755)	–	–	–	–
Adjusted R-squared								
	0.494	0.423	0.815	0.833	0.629	0.458	0.399	0.425

[1] The significance of the variable is at the 1% confidence level. T-values are given in parenthesis.
[2] The significance of the variable is at the 5% confidence level. T-values are given in parenthesis.

Table 4

RESULTS OF TESTS OF LONG-TERM EQUATIONS

	Total		Countries of Western Europe		Baltic States		Countries of Eastern Europe	
	REER_CPI	REER_PPI	RER_CPI	RER_PPI	RER_CPI	RER_PPI	RER_CPI	RER_PPI
ADF test statistic of residual								
	–3.817 (–4.35)	–2.717 (–3.98)	–4.241 (–3.98)	–4.352 (–3.98)	–3.561 (–4.11)	–1.848 (–3.67)	–2.088 (–4.11)	–2.061 (–3.75)
Short-term ECM coefficient								
	–0.119 (–2.595)	–0.217 (–2.946)	–0.184 (–3.178)	–0.267 (–2.709)	–0.214 (–2.197)	0.017 (0.244)	–0.053 (–0.678)	–0.096 (–0.686)

Note: For residual series, critical values for rejecting the unit root at the 5% confidence level are given in parenthesis. For ECM coefficients, t-values are given in parenthesis.

Thus, the results of the regression suggest that, contrary to the results of the simple unit root test, the real exchange rates with respect to the Baltic States and the countries of Eastern Europe are not determined by fundamentals. Instead, any deviation of the real exchange rate from its long-term trend at any given point in time is likely to be reversed in the following periods.

The real exchange rate with respect to the countries of Western Europe is clearly non-stationary and driven by fundamentals, such as productivity differentials between the different sectors of the economy, the openness of the economy, and government expenditures. Therefore, the reversal of real appreciation in this case is unlikely. According to the long-term regression (see Table 3), real appreciation should not be a cause of concern as long as it is driven by changes in fundamentals. Economic development would only be endangered if the real exchange rate stood permanently above the level consistent with the underlying fundamentals.

The equilibrium real exchange rate with respect to the countries of Western Europe may be obtained from the following equations (see Table 3):

$$RER_{CPI}^{*} = 1.209\ PROD^{*} - 0.486\ OPEN^{*} - 0.381\ GOVEX^{*} \quad [5]$$

or

$$RER_{PPI}^{*} = 0.851\ PROD^{*} - 0.279\ OPEN^{*} - 0.333\ GOVEX^{*} \quad [6],$$

where * denotes the equilibrium value of a variable. To determine the equilibrium values of explanatory variables, a transitory part is often removed (e.g., by using the Hodrick–Prescott filter) and the remaining permanent component of the variable describes the long-term trend that is considered to be an equilibrium value of the specific variable. This approach, however, may not be applicable to transition economies like Latvia, because the fundamental variables that are driving the real exchange rate are only approaching their supposed long-term or equilibrium values. Instead, one may look whether the filtered values of these variables converge on any long-term value that is economically reasonable.

Chart 5 shows the underlying trend for each of the fundamental variables. The Hodrick–Prescott filter was used to obtain the trend, which then was extrapolated by using the simple ARMA (Auto Regressive Moving Average) process. On the one hand, the openness variable (OPEN_HP) seems to have a trend that is rather constant over the medium term. On the other hand, the productivity variable (PROD_HP) is only approaching its supposed equilibrium value. For the government expenditures variable, two possibilities are considered. The first scenario (GOVEX_HP1) assumes that the role of the government will gradually decline in the coming years, and government expenditures will decrease to about 30% of GDP. The second scenario (GOVEX_HP2) assumes that government expenditures will increase, partly due to the need to comply with the EU *acquis communautaire* that in many areas requires extra government spending. This would raise the level of government expenditures up to 45% of GDP.

Putting these equilibrium values of fundamentals into the equations [5] and [6], it is possible to estimate to what extent the value of the real exchange rate that is consistent with the underlying fundamentals is above or below its equilibrium value. The results are shown in Table 5.

Chart 5

FUNDAMENTAL VARIABLES AND THEIR UNDERLYING TRENDS

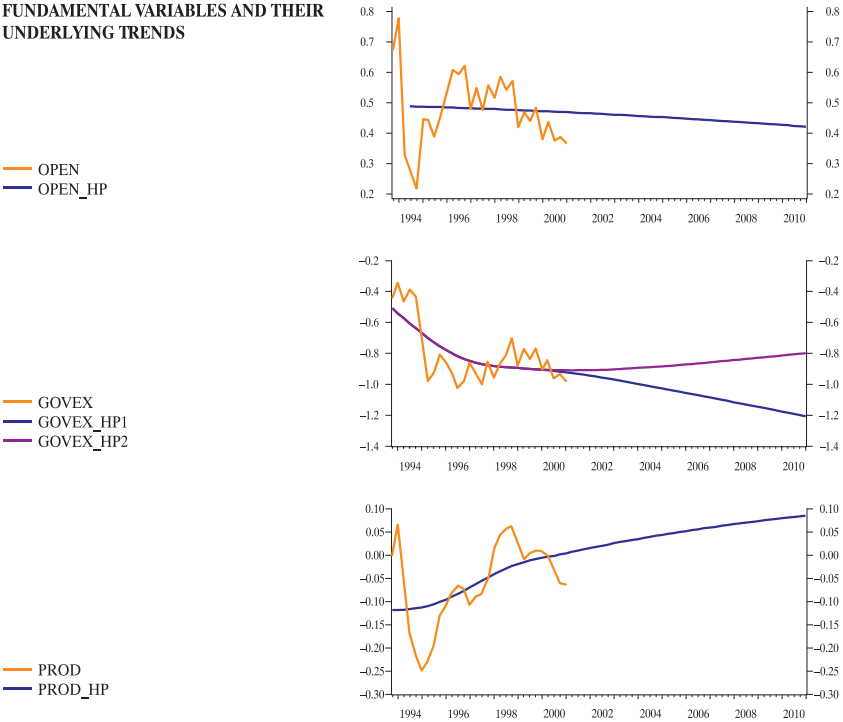


Table 5

RELATIONSHIP BETWEEN TREND AND EQUILIBRIUM REAL EXCHANGE RATES
(%)

		Trend RER vs equilibrium RER		
		Unchanged government expenditures	Increasing government expenditures	Declining government expenditures
RER with respect to the countries of Western Europe	CPI	–19.0	–9.8	–26.3
	PPI	–9.3	–2.7	–16.8
Total REER	CPI	–12.6	–6.5	–17.5
	PPI	–6.2	–1.8	–11.1

The results show that the degree of the possible undervaluation of the currency depends on the path of projected future government expenditures. If government expenditures shrink as a percentage of GDP, there is room for a substantial real appreciation (17% to 26%, depending on the price index applied) that will not threaten stability in the

next five to ten years. In the light of projected spending needs that stem from the eventual membership in the NATO and the EU, it is unlikely that government expenditures as a percentage of GDP will decline considerably in the coming years. It is far more realistic to expect government expenditures to remain unchanged or probably even rise in the medium term. In this case, there is still some possibility for real appreciation that would not threaten stability, albeit a smaller one (it ranges from 3% to 19%, depending on the price index applied).

Since the evidence so far does not allow us to reject the hypothesis of a constant equilibrium real exchange rate between Latvia and the Baltic States and the countries of Eastern Europe, developments of the trend real exchange rate with respect to the countries of Western Europe relative to its equilibrium fully account for deviations of the total trend REER from its supposed equilibrium. Accordingly, the total trend REER is 2% to 13% undervalued under the assumption of unchanged or rising government expenditures in the future.

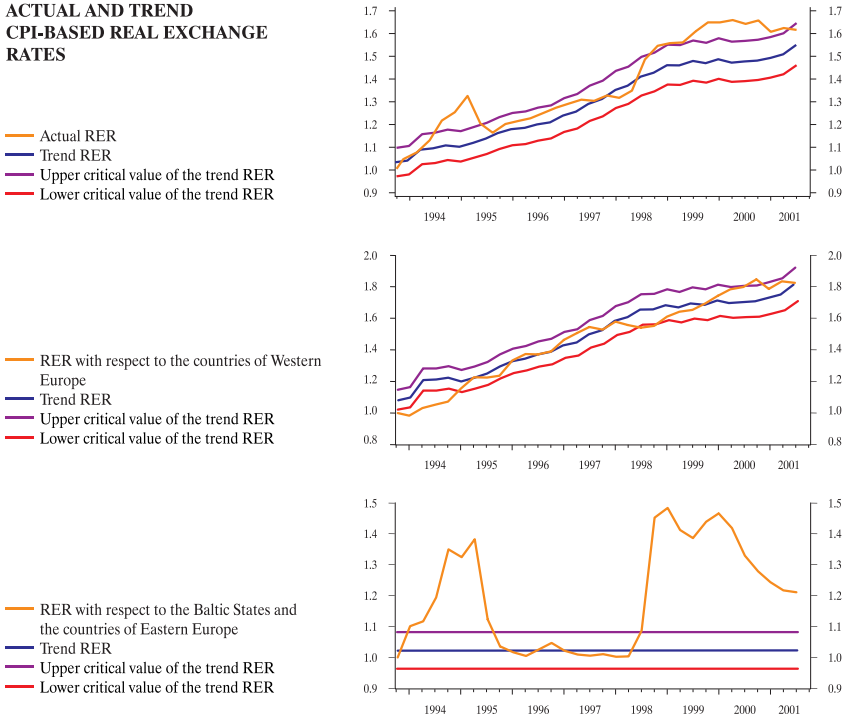
Overall, the results suggest that the current real exchange rate in Latvia is undervalued with respect to the countries of Western Europe, and this translates into the total REER being below its equilibrium value as well. This means that there is room for further real appreciation of the exchange rate, which, if driven by changes in fundamentals, is not harmful to the economy.

Even though the appreciation of the real exchange rate *per se* may not be a sign of deteriorating external competitiveness, a permanent overshooting relative to the level that is warranted by fundamentals should be avoided to remain competitive. Chart 6 shows the deviation of the actual real exchange rate from the trend real exchange rate (i.e., the rate that is consistent with the underlying fundamental factors). The values of the trend real exchange rate with respect to the countries of Western Europe are the fitted values of the regression in Table 3. For the Baltic States and the countries of Eastern Europe, the trend real exchange rate is the average value of the real exchange rate from 1996 to the first half of 1998, when the real exchange rate was relatively stable, and, therefore, can be considered as the medium-term equilibrium. In Chart 6, only the CPI-based real exchange rates are shown, as the PPI-based real exchange rates generally show a rather similar picture.

Until 1995, the real exchange rate with respect to the countries of Western Europe was significantly undervalued in Latvia: the deviation of the actual real exchange rate from the calculated trend real exchange rate exceeds the magnitude that could be explained by the statistical error (see Chart 6). From 1995 until 1997, the actual real exchange rate appreciated along the path prescribed by fundamentals. Hence, this real appreciation did not harm external competitiveness. From 1997 until mid-1998, the real exchange rate was below the underlying trend, thus supposedly giving an extra boost to Latvia's exports to western markets. In 2000, the actual real exchange rate with respect to the countries of Western Europe temporarily moved above the

Chart 6

ACTUAL AND TREND CPI-BASED REAL EXCHANGE RATES



level consistent with the fundamental factors. The explanation for this may be the significant nominal depreciation of the euro that was not offset by inflation differentials between the countries of Western Europe and Latvia. (Inflation both in the countries of Western Europe and Latvia was already low.) This temporary appreciation above the trend was reversed in 2001, partly through the real depreciation of the lats. Moreover, in 2001 productivity increased markedly in Latvia. As a result, the trend real exchange rate with respect to the countries of Western Europe also increased, and at the end of the third quarter of 2001, it was close to the actual real exchange rate. Thus, once again the higher real exchange rate was supported by fundamentals.

The real exchange rate with respect to the Baltic States and the countries of Eastern Europe is considerably less stable, which is a result of the Russian financial crisis of 1998. A sharp real appreciation of the Latvian currency immediately after the crisis was followed by a considerable real depreciation, mainly as a result of inflation differentials between Latvia and the countries of Eastern Europe. Consequently, in the third quarter of 2001, the real exchange rate approached the perceived medium-term equilibrium level. Hence, the adverse impact of the real appreciation on trade flows to the countries of Eastern Europe diminishes gradually.

Overall, it can be said that the appreciation of the real exchange rate in Latvia, especially with respect to the countries of Western Europe, agrees with changes in the economy. In particular, the appreciation of the actual real exchange rate reflects the rising trend exchange rate towards the equilibrium. There are periods when the actual real exchange rate is above the level justified by fundamentals; however, these periods are always temporary, as the difference between the actual and the trend exchange rates disappears sooner or later. This adjustment is not entirely a result of the real depreciation of the actual exchange rate. The rising productivity also contributes to this adjustment substantially. Thus, the real appreciation of the lats against the currencies of the countries of Western Europe does not generally harm foreign trade. In the short term, exporters however may feel an extra pressure when the real exchange rate is above the level supported by fundamentals, while getting an extra boost when the real exchange rate is below the trend level. In reality, the magnitude of these effects will depend on the export elasticity with respect to changes in the real exchange rate[1].

III. MACROECONOMIC BALANCE APPROACH

In contrast to the method discussed in the previous Chapter, the macroeconomic balance approach implicitly evaluates the sustainability of the real exchange rate. As a starting point, the identity CA = S – I (the current account balance is equal to the difference between domestic savings and investments) is employed. Assuming that factors determining domestic savings and investment rates are not related to the real exchange rate and presuming that the existing current account deficit is not sustainable, one needs to look at whether the adjustment is likely to come from increasing savings or declining investments. If it turns out that the current account balance can be brought towards a sustainable medium-term level only by changes in savings and investments that are caused by independent determinants, there is no need for real exchange rate adjustment. If the projections of future development paths of savings and investments imply that the current account deficit will remain below the sustainable level for an extended period of time, the adjustment is likely to come through the depreciation of the real exchange rate, i.e., the current real exchange rate is not sustainable or is overvalued.

As regards this approach, several problems should be noted. Estimates of the sustainable current account balance are always arbitrary. Moreover, to project the future development of the current account, a stable relationship between the savings and investment balances and their determinants should exist. The investment rate may not be independent of domestic savings in the medium to long term, implying that the sustainable current account adjustment must come solely from lower investment (Olivei, 2000).

[1] The task of estimating export and import elasticities goes beyond the scope of the present paper. Preliminary estimates suggest that the real exchange rate appears to be an important variable that helps to explain the performance of net exports in Latvia, though the estimated elasticities tend to be rather low.

The first task is to estimate the sustainable medium-term current account balance in Latvia. A medium term could be defined as the time horizon until the adoption of the euro after Latvia's accession to the EU. Until the adoption of the euro, the overvalued real exchange rate would increase risks of an eventual currency crisis. After the introduction of the euro, the risk of a currency crisis is relatively small, and the worst possible scenario would be low rates of economic growth as a consequence of the overvalued exchange rate. Therefore, the question is this: can Latvia sustain its current account deficit until the euro adoption without abrupt (downward) changes in its real exchange rate?

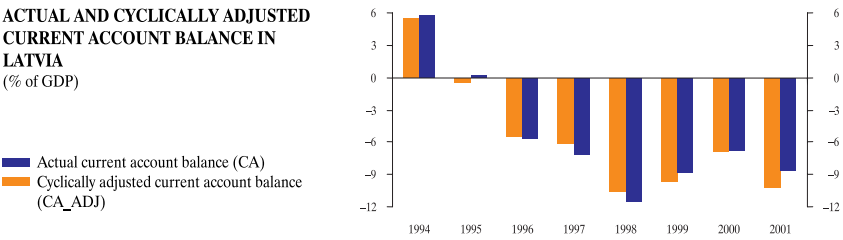
To answer this question, we first look at a cyclically adjusted current account balance (see Chart 7). In doing so, we assume that the current account balance deteriorates when output in Latvia is above its long-term trend (relative to its main trading partners), but this deterioration is temporary and is reversed as output in Latvia converges on its long-term growth path. Hence, the current account balance at potential output is calculated as

$$CA\_ADJ = CA(1 + g^*)/(1 + g),$$

where CA is the current account balance as a percentage of Latvia's GDP, g is the output gap in Latvia, and g* is the weighted output gap for Latvia's main trading partners. The variable g is expressed as a percentage of potential output. The implicit assumption here is that both export and import elasticities with respect to income are equal to unity (the available evidence suggests that import elasticity may indeed be close to one for Latvia). The estimate of potential output (or the long-term output trend) is obtained from the simple regression $\ln(y) = \alpha_0 + \alpha_1 t + \alpha_2 t^2$, where t denotes the time trend.

Chart 7

ACTUAL AND CYCLICALLY ADJUSTED CURRENT ACCOUNT BALANCE IN LATVIA
(% of GDP)



Source: Central Statistical Bureau of Latvia, author's calculations.

In 2001, the actual current account deficit in Latvia increased again after a two-year long decline; however, this increase had a cyclical component, i.e., it was caused by higher growth rates in the economy compared to Latvia's main foreign trade partners. The underlying or cyclically adjusted current account deficit has been more stable over the last three years. Yet, it is still not clear whether these levels of the current

account deficit are sustainable in the medium term. There are several methods for estimating sustainable current account balances. One rather arbitrarily defined threshold suggests that current account deficits in excess of 5% of GDP are always dangerous to the economy. This argument, however, ignores the fact that different economies may have different structural characteristics, such as the level and composition of external liabilities, foreign trade structure, and different preferences towards savings and investments; and therefore, one criterion may not be applicable to countries with different economic structures (Milesi-Ferretti and Razin, October and February 1996).

To estimate the level of the sustainable current account deficit in Latvia, we use several methods: compare Latvia to those countries of Central and Eastern Europe that are regarded as high deficit countries, consider the level of the current account deficit that can be financed by long-term capital inflows, and apply the models of current account sustainability.

Current account balances in 18 countries of Central and Eastern Europe[1] and Cyprus and Turkey have been observed during 1995–2000. For each year, a group's third quartile is used as a cut-off point, and a country with a deficit exceeding the third quartile is classified as being a high deficit country. Moreover, the persistence of these high deficits is also important: (at least until 1997) no country in Central and Eastern Europe and very few throughout the world have been able to sustain a high current account deficit for five years in a row (Edwards, 2001). Hence, the country that has been classified as a high deficit country for a number of consecutive years is running, according to this approach, a risk of an inevitable current account deficit reversal, either through an adjustment of savings and investments, or through a currency crisis.

In Table 6, Latvia's actual current account deficit is compared with the critical threshold. Despite improvements in the current account, Latvia can still be classified as a high deficit country, if we look at the last four years. Hence, the data in Table 6 imply that a further narrowing of the current account deficit may indeed be required.

Table 6

CURRENT ACCOUNT DEFICIT
(% of GDP)

	1995	1996	1997	1998	1999	2000	2001
Third quartile of the countries of Central and Eastern Europe	5.5	9.2	10.1	8.9	5.3	5.8	5.6
Latvia	0.4	5.5	6.1	10.6	9.6	6.9	10.1

Source: Central Statistical Bureau of Latvia, International Financial Statistics.

[1] These are: Albania, Belarus, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Macedonia, Malta, Moldova, Poland, Romania, Russia, Slovenia, Slovak Republic, Ukraine.

Another approach looks at the ways of financing the current account deficit, not the levels of deficit *per se*. It acknowledges that any current account deficit can be sustained as long as it is offset by long-term inflows of foreign capital. If the current account deficit is financed mostly by portfolio investment inflows, which can be reversed very quickly, the country may potentially be subject to a currency crisis. Therefore, one may look at the long-term capital flow projections, which, if this view is correct, would show the level of the current account deficit that the country may have without provoking fears of a possible currency crisis.

Among all types of capital flows, foreign direct investment is considered as the least vulnerable to sudden and dramatic reversals, and, therefore, the best safeguard of current account stability. To estimate the potential sustainable current account deficit in Latvia in the medium term, we may be interested in projecting the future flows of foreign direct investment to and from Latvia.

Given Latvia's commitment to EU integration, as a first exercise we look at foreign direct investment flows to Latvia, and Greece and Portugal, the EU member states that have similar characteristics, such as a small size, income levels below the EU average, and high return on capital (see Table 7).

Table 7

GROSS FOREIGN DIRECT INVESTMENT INFLOWS IN SELECTED COUNTRIES
(% of GDP)

	1994	1995	1996	1997	1998	1999	2000
Latvia	5.9	4.0	7.4	9.2	5.9	5.2	5.7
Greece	1.0	0.9	0.9	0.8	0.6	0.7	1.0
Portugal	1.4	0.7	1.6	2.5	2.8	0.9	3.4

Source: Central Statistical Bureau of Latvia, Bank of Latvia, International Financial Statistics.

Table 7 shows that Latvia enjoys very high inflows of foreign direct investment (on average around 6% of GDP in the period under review) compared to its peers in the EU. If the current flows of foreign direct investment to Latvia are attempts to explore the opportunities stemming from Latvia's accession to the EU even prior to the actual EU membership, the comparison done in Table 7 is not relevant. Therefore, in Table 8, we compare the possible impact of EU accession on changes in foreign direct investment flows by looking at direct investment flows to Greece and Portugal and those countries that have joined the EU only recently three years before and after EU accession.

The comparison of foreign direct investment flows in different periods and different countries may be misleading as well (see Table 8). First, the accession of Greece and Portugal took place in the 1980s, a period very different from the late 1990s and beyond

in terms of global capital flows. At the time of EU enlargement in the 1980s, the importance of cross-border capital flows and foreign direct investment flows was much smaller. Thus the example of Greece and Portugal may lead to a (probably misleading) conclusion that EU accession is irrelevant for foreign direct investment flows. Second, all countries that have joined the EU recently (e.g., Austria, Finland and Sweden in 1995) had income levels that were above the EU average and the expected return on investments was rather low at the time of their accession. For this group of countries, EU membership, therefore, has led to higher investment outflows, so that the net foreign direct investment balance has actually deteriorated and become even negative.

Table 8

FOREIGN DIRECT INVESTMENT FLOWS IN SELECTED COUNTRIES BEFORE AND AFTER EU ACCESSION
(% of GDP)

	Average of 3 years prior to accession	Accession year[1]	Average of 3 years after accession
Greece	1.5	1.4	1.3
Portugal	1.0	0.7	2.1
Austria	0.8	0.8	1.8
Austria (net)	*0.1*	*0.3*	*1.0*
Sweden	1.7	6.2	4.9
Sweden (net)	*0.3*	*1.5*	*–0.7*
Finland	1.0	0.8	4.0
Finland (net)	*–1.3*	*–0.3*	*–3.2*

[1] Greece in 1981, Portugal in 1986, and Austria, Finland and Sweden in 1995.

Source: International Financial Statistics.

Based on the experience of the countries that have joined the EU recently, we may conclude the following. On the one hand, the volume of inward foreign direct investment flows is likely to grow as the country approaches EU membership. On the other hand, accession to the EU implies greater opportunities for outward direct investment as well. Thus the net effect is not certain. In light of the recent experience of the present EU member states, the level of foreign direct investment inflows in Latvia is above what one could consider as a steady medium-term level. This means that the level of the current account deficit that will be supported solely by net foreign direct investment inflows in the future is likely to be below 7% of GDP.

The second exercise is to look at the models of current account sustainability. These models assume that the level of the sustainable current account deficit depends on the net international demand for the country's liabilities. Thus, under some simplifying assumptions and the standard portfolio theory, the following ratio of the sustainable current account deficit can be obtained (see, e.g., Edwards, 2001):

$$(C/Y)_j = (g_j + \pi^*)\gamma^*_j,$$

where g is the sustainable growth rate for country j, π^* is approximately equal to international inflation, while γ^* denotes the amount of country j's external liabilities that foreigners are willing to hold (as a percentage of GDP). This equation can be used to evaluate Latvia's current account. It is very difficult to obtain reliable estimates of the latter variable (γ^*), especially for transition countries, and hence for Latvia; however, one can use the estimates obtained in other studies on similar countries. The study conducted by the investment bank *Goldman Sachs* and reduplicated in Edwards (2001) suggests that estimates of γ^* for transition countries in Central and Eastern Europe range from 31.3% (for Czech Republic and Hungary) to 55.4% (for Poland). In Table 9, we have made several calculations under the assumption that the international demand for Latvia's liabilities lies within the above range. In addition, the third column of Table 9 shows the maximum affordable current account deficit for Latvia, assuming that γ^* rises to nearly 65%, which is an estimate for Thailand and the highest rate among the countries included in the study (except China).

As seen from Table 9, a long-term current account deficit of over 5% of GDP would require the country to have a continuous growth of the economy of about 7% and a very high international demand for the country's external liabilities. More conservative assumptions yield the estimated sustainable deficit within the range of 2%–4% of GDP. Currently, the current account deficit in Latvia is above these thresholds.

Table 9

ESTIMATES OF THE SUSTAINABLE CURRENT ACCOUNT DEFICIT UNDER DIFFERENT ASSUMPTIONS

	$\gamma^* = 31.3$		$\gamma^* = 55.4$		$\gamma^* = 64.6$	
	$\pi^* = 1$	$\pi^* = 2$	$\pi^* = 1$	$\pi^* = 2$	$\pi^* = 1$	$\pi^* = 2$
g = 4	1.6	1.9	2.8	3.3	3.2	3.9
g = 5	1.9	2.2	3.3	3.9	3.9	4.5
g = 6	2.2	2.5	3.9	4.4	4.5	5.2
g = 7	2.5	2.8	4.4	5.0	5.2	5.8

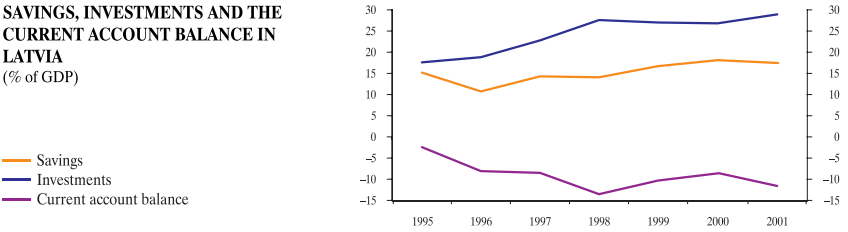
Thus all three approaches lead to similar conclusions: the estimates for the current account deficit that Latvia can sustain in the medium to long term are below the current level of deficit. This implies a need for the narrowing of the current account deficit over a long-term time horizon. It is, therefore, necessary to investigate whether the adjustment will be provided by changes in fundamental factors that are driving the development of the current account. Otherwise, the adjustment will have to go through the real exchange rate channel.

Chart 8 shows the development of the current account balance in Latvia as a result of changes in savings and investments. The worsening of the current account balance

(e.g., in 1997, 1998 and 2001) is associated with a rise in the investment rate in the economy, while the narrowing of the current account deficit has been achieved mainly due to an increase in the domestic savings rate (e.g., in 1999 and 2000).

Chart 8

SAVINGS, INVESTMENTS AND THE CURRENT ACCOUNT BALANCE IN LATVIA
(% of GDP)



Source: Central Statistical Bureau of Latvia.

The comparison of the current account balances in Latvia and the EU member states (see Table 10) shows that in 2000 the investment rate was relatively high in Latvia. As mentioned above, these high investment rates have been largely achieved due to significant inflows of foreign direct investment, which are stimulated by the expected EU accession and relatively high marginal return on capital. EU accession motivated investment inflows may increase as Latvia comes closer to its accession to the EU, while return on investments is likely to decline as the capital-labour ratio grows over time. Hence, the exact change of the investment rate in the medium term is not clear. As Latvia still remains a country with considerable investment needs it is not very likely that during the coming years the investment rate will decline significantly.

The savings rate in Latvia is significantly lower than the EU average. This observation implies that the current account adjustment should come from an increasing rate of domestic savings, if the current healthy investment rates are sustained. This conclusion may contrast with the previous findings, which show that reversals of the current account deficit are primarily caused by the adjustment of investments, since any permanent increase in savings in the long run is accompanied by a similar increase in investments, but not vice versa (Feldstein, 1992; Olivei, 2000). In view of the fact that the large amounts of foreign direct investment will probably decline in the coming years, the needs of the economy will require domestic investment rates rise. This, in turn, will call for an increase in the domestic savings rate.

Empirical studies on the subject of current account sustainability have often used such variables as the fiscal position of the government, the stage of development, the volatility of the terms of trade and demographic developments as the main fundamental factors driving a country's savings rate. Some of these factors, however, affect (at least in theory) investments as well. It has been argued, for example, that an increase in government savings has a positive impact on investments, and the overall impact on the current account is close to zero (Faruqee and Debelle, 1998).

Table 10

SAVINGS, INVESTMENTS AND CURRENT ACCOUNT BALANCES IN LATVIA AND THE EU MEMBER STATES IN 2000

	Savings (% of GDP)	Investments (% of GDP)	Current account balance (% of GDP)	Income per capita (% of the weighted average in the EMU)
Luxembourg (1999)	38.9	22.4	16.5	201
Denmark	27.5	21.9	5.6	146
Sweden	23.2	17.1	6.1	118
Germany	23.0	21.4	1.6	114
Austria	23.9	23.7	0.2	114
Ireland	38.7	23.6	15.1	112
Netherlands	27.5	22.3	5.2	112
Belgium	25.2	21.5	3.7	110
Finland	29.7	19.3	10.4	109
France	22.6	19.7	2.9	108
United Kingdom	15.9	17.7	–1.8	108
Euro Area (average)	23.3	21.3	2.0	100
Italy	21.6	19.6	1.9	91
Spain	23.6	25.6	–2.0	68
Greece	14.3	23.7	–9.3	52
Portugal	20.6	28.2	–7.5	51
Latvia	18.4	24.6	–6.1	12

Source: International Financial Statistics.

In the empirical regression, we therefore use the overall current account balance over GDP instead of two separate equations for savings and investments. The results of the current account regression are reported in Table 11. It turns out that only demographic developments[1] are a statistically significant determinant of the current account balance. This result supports the assumption that other factors (surplus/deficit in the government budget or income per capita) affect both investments and savings, and thus have no impact on the current account. Another reason for this result may be the time period considered, which is too short to obtain any long-term relationship that is statistically significant.

If the equation in Table 11 is a correct description of the dynamics of the current account, improvements in the current account balance until 2001 could largely be attributed to the decreasing share of non-working age population. According to the

[1] Demographic developments are measured by the dependency ratio (DEM), which is the ratio of the rest of the population over to the population aged between 20 and 64, smoothed by using the Hodrick–Prescott filter.

Central Statistical Bureau of Latvia, the dependency ratio has declined in Latvia, from 0.76 in 1995 to 0.70 in 2001. This decline, however, has been mainly brought about by the shrinking number of population under the working age: its share dropped from 0.21 in 1995 to 0.17 in 2001. Given the implications of these demographic developments on the labour force in Latvia, it is very likely that in the coming years the decline of the dependency ratio will be reversed. The current account equation predicts that the rising dependency ratio will worsen the current account balance through a decrease in the domestic savings rate. For example, long-term elasticity implied by the regression in Table 11 predicts that the current account deficit will increase to 9% of GDP if the dependency ratio reverts to 0.75.

Table 11

CURRENT ACCOUNT REGRESSION IN LATVIA
Dependent variable: CA_Y
Sample (adjusted): Q1 1995–Q4 2001
Included observations: 28

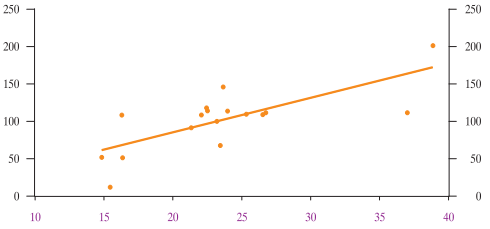
Variable	Coefficient	Standard error	T-statistic	Probability
DEM	–4.314400	0.966621	–4.463384	0.0002
Seasonal dummy	–4.170798	1.352004	–3.084900	0.0051
Lagged CA_Y	0.455576	0.095076	4.791715	0.0001
Dummy 98[1]	–4.047425	1.520538	–2.661838	0.0136
R-squared	0.716972	Mean dependent variable		–6.875554
Adjusted R-squared	0.681593	Standard deviation of the dependent variable		4.956901
Standard error of regression	2.797058	Akaike information criterion		5.026577
Sum of squared residuals	187.7648	Schwarz criterion		5.216892
Log likelihood	–66.37208	Durbin–Watson statistic		1.455545

[1] The dummy variable is 1 for the period from the third quarter of 1998 to the second quarter of 1999 (capturing the impact of the Russian crisis) and 0 otherwise.

Focusing only on the analysis of time series would ignore the findings of the previous cross-country studies that have shown a statistically significant relationship between the current account deficit and other variables (Faruqee and Debelle, 1998). One of these variables is the stage of economic development of the country, which is captured by income per capita. As countries get richer, they usually tend to save more, either because of attempts to smooth consumption over time, or because more sophisticated financial markets provide more attractive savings opportunities. Chart 9 shows the relationship between income per capita and determinants of the current account in the EU member states. It confirms the assumption that a higher level of income is associated with a lower current account deficit or higher surplus, and the impact mainly comes from savings.

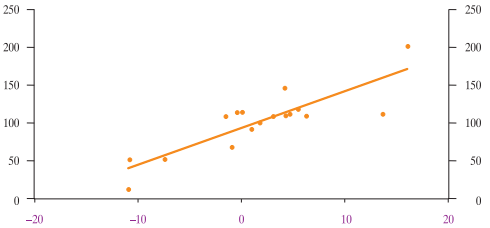
Chart 9

RELATIONSHIP BETWEEN PER CAPITA INCOME AND SAVINGS IN THE EU MEMBER STATES



RELATIONSHIP BETWEEN PER CAPITA INCOME AND INVESTMENTS IN THE EU MEMBER STATES

RELATIONSHIP BETWEEN PER CAPITA INCOME AND THE CURRENT ACCOUNT BALANCE IN THE EU MEMBER STATES



Given this positive relationship between the rising level of income and the rate of savings and assuming that this relationship will hold in the future, it is possible to estimate different development scenarios for the economy, depending on the growth rate in the coming years. Table 12 shows different projections for the domestic savings rate in Latvia six years ahead, taking into account the average growth rate of the economy during this period. A six-year period has been chosen because the earliest possible

Table 12

PROJECTED IMPACT OF ECONOMIC GROWTH ON THE CURRENT ACCOUNT DEFICIT IN LATVIA

Average rate of growth (% per annum)	Savings rate (% of GDP)	Current account deficit (% of GDP)
4	19.6	6.4
5	20.1	5.9
6	20.7	5.3
7	21.3	4.7

Source: Author's calculation.

date of Latvia's accession to the Economic and Monetary Union is 2006. Projections of the current account balance assume that the investment rate in Latvia remains around 26% of GDP. If these projections are correct, robust growth rates in Latvia alone could ensure that the current account deficit converges on a sustainable medium-term level.

Another common assumption is that the total savings rate in the economy is closely linked to the government's fiscal position. The existence of the so-called twin deficits in many transition and emerging countries have led many economists to a conclusion that total domestic savings would rise and the current account deficit would narrow if the government always kept its budget balanced over the economic cycle. In Latvia, however, it was not possible to detect any long-term relationship between the government's budget deficit and the total savings rate. (Johansen co-integration tests reject the long-term relationship at all conventional confidence levels.) Given Latvia's commitment to joining the NATO and adopting the EU *acquis communautaire*, the emphasis is on increasing government spending, rather than undertaking fiscal consolidation. Besides, the fiscal deficit has been rather low in Latvia in recent years. Hence, even if there was a close link between the fiscal deficit and the current account balance, fiscal consolidation alone would probably not narrow the current account deficit sufficiently.

The pension reform started in Latvia recently might have a positive impact on the domestic savings rate. In particular, it is expected that the transition from the PAYG (Pay-As-You-Go) pension system to the fully funded and tax-financed pension system will raise the country's savings rate through several channels. First, the existing credit constraints (i.e., the fact that households in most cases will find it difficult to borrow against their future income) are likely to ensure that transition to the fully funded pension system will squeeze consumption and raise savings. Second, the introduction of the fully funded pension system is likely to lead to deeper and more effective capital markets and thus contribute to higher savings (Samwick, 1999). Moreover, theoretical literature shows that for a tax-financed pension reform to increase the domestic savings rate, individuals must have a relatively short forward-looking time horizon (Schimmelpfennig, 2000).

This seems a reasonable assumption for Latvia. First, a relatively low level of income implies that people are consuming all (or a constant share of) their disposable income every year. Second, instead of saving for life-cycle reasons to ensure constant consumption during a lifetime, it is more probable that savings are made for precautionary reasons to safeguard against possible disruptions in income flows. These arguments imply that the transition to the fully funded pension system could potentially raise the savings rate. In addition, the introduction of the fully funded system could counteract the myopia of the population and raise the awareness of the importance of saving (ibid). Thus, although the precise impact of the pension reform on the rate of domestic

savings is difficult to quantify (this is clearly the area for further research), the net effect is likely to be positive.

Overall, it can reasonably be assumed that the factors pointing to a higher savings rate in the future (such as high growth rates and the pension reform) will more than offset the adverse impact of factors that are not in favour of growth in savings (such as demographic developments). A rising domestic savings rate will allow the country to substitute higher domestic investment for lower foreign investment. Thus, it would support high total investment rates needed for economic restructuring, while at the same time contributing to the narrowing of the current account deficit. Under this scenario, the stability of the exchange rate will not be threatened.

IV. SUMMARY AND CONCLUSIONS

The analysis of the real exchange rate in Latvia presented in this publication covers a period from 1994 until 2001. The analysis has been based on two commonly used methods: the single equation approach and the macroeconomic balance approach.

The predictions of the PPP theory that the real exchange rate must be stable in the long term have been analysed. The analysis was complicated because of the diverse structure of Latvia's foreign trade partners, in view of which the total real effective exchange rate is not the best measure of external competitiveness. For example, the results of the analysis tend to support the hypothesis that the real exchange rate with respect to the Baltic States and the countries of Eastern Europe is relatively stable in the long run, thus supporting the PPP theory. By contrast, the real exchange rate against the countries of Western Europe is not constant, and is affected by changes in the economy. The country's openness to foreign trade, the level of government expenditures and productivity differentials in different sectors of the economy were found to be related to changes in the real exchange rate. Based on the analysis, two conclusions have been made.

First, although the basic proposition stemming from comparisons based on purchasing power (namely, that the lats is about two times undervalued relative to its equilibrium value) is valid in the long run, the fundamental variables that affect the real exchange rate (especially the productivity level) have not yet reached their equilibrium values. Hence, the existing fundamental variables in the economy warrant the exchange rate that is undervalued relative to its equilibrium. Therefore, the current exchange rate in Latvia (with respect to the countries of Western Europe) generally corresponds to the current stage of economic development.

Second, the real appreciation of the exchange rate with respect to the countries of Western Europe is in line with the appreciation of the trend exchange rate, which is driven mainly by rising productivity in the tradable sector. Therefore, the appreciation

of the real exchange rate from 1994 until 2001 has not generally harmed foreign trade. As long as real appreciation is supported by underlying fundamental variables in the economy, it does not endanger macroeconomic stability and growth.

The macroeconomic balance approach has been employed to estimate the appropriate level of the real exchange rate that is based on the sustainable domestic savings and investment rates. Preliminary conclusions suggest that starting from 1998 the current account deficit has been higher than any reasonable range of sustainable levels. These conclusions are confirmed by several approaches. Hence, the current account deficit requires adjustment in the long run, and this adjustment must come from either a higher level of domestic savings or/and declining investment rates.

With a view to the still existing considerable restructuring needs in the economy and unusually high inflow of foreign direct investment into the country in the last decade, this study raises a question whether domestic savings would increase enough to support economic growth and stabilise the current account, if inflows of foreign direct investment started declining. To answer this question, different factors affecting the domestic savings rate have been analysed.

It has been concluded that demographic factors are not in favour of a rise in the domestic savings rate in the future, as the current downward trend in the share of population under the working age that was observed until 2001 implies that labour force will decline in the future. Moreover, although fiscal consolidation is often suggested as an effective policy tool to stabilise the current account, it is argued that in Latvia fiscal consolidation on its own will not deliver the improvement of the current account balance towards the levels that are considered as sustainable in the medium to long term.

On the positive side, it is argued that high average growth rates in the economy in the coming years will boost the savings rate and thus help to stabilise the current account. The pension reform currently carried out in Latvia will most likely have a favourable impact on domestic savings. Overall, the macroeconomic balance approach supports the view that the improvement of the current account balance in Latvia is plausible without adjustments in the nominal exchange rate. In Latvia the appreciation of the real exchange rate, therefore, is not currently the cause of serious concern, yet it should be monitored closely.

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