

# Euro – How Big a Difference:

Finland and Sweden in Search of Macro Stability

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## Contents

	Abstract	2
<b>1</b>	<b>Introduction</b>	<b>3</b>
<b>2</b>	<b>Much similarity in the real economy</b>	<b>4</b>
<b>3</b>	<b>Monetary stability has improved in both countries, but more so in Sweden</b>	<b>4</b>
<b>4</b>	<b>What if Sweden had been in the EMU?</b>	<b>7</b>
<b>5</b>	<b>Concluding remarks</b>	<b>12</b>
	Appendix National Institute Global Econometric Model (NiGEM)	13
	References	14

## Abstract

The euro crisis has rekindled questions about the advantages and disadvantages of membership in the European Monetary Union. In the Northern periphery of the EU, the different monetary regime choices of Finland and Sweden have created a particularly interesting testing ground for the benefits of the EMU. The average growth rates were rather similar before the Great Recession that started in the autumn of 2009, while Sweden has grown faster since that. In terms of price stability Sweden has fared somewhat better than Finland in the EMU period. We assess the effects of the regime choice by simulating the behaviour of the Swedish economy with National Institute's Global Econometric Model (NiGEM) on the assumption that Sweden had joined the EMU in 1999. The simulation exercise suggests that the independent monetary regime reduced the impact of the global shock on Sweden. The different monetary regimes cannot, however, explain the growth gap between Sweden and Finland anymore in 2012. Other factors, such as the decline of the Nokia cluster, are needed for that. As a whole, our results suggest that the different choices with regard to the EMU have not affected the macroeconomic outcomes very much.

**Key words:** Finland, Sweden, EMU, simulation, counterfactual

**JEL:** C15, F17, F37, P52

## Tiivistelmä

Eurokriisi on herättänyt uudelleen keskustelun Euroopan rahaliittoon kuulumisen hyödyistä ja haitoista. Talouksiltaan varsin samankaltaisten Suomen ja Ruotsin erilaiset EMU-ratkaisut tarjoavat tässä suhteessa kiinnostavan vertailumahdollisuuden. Molempien maiden talouskasvu oli hyvin samankaltaista ennen syksyllä 2008 alkanutta "Suurta taantumaa". Sen jälkeen Ruotsin talouskasvu on ollut Suomea nopeampaa. Vastaavasti hintakehitys on EMU-aikana ollut Ruotsissa hieman vakaampaa kuin Suomessa. Arvioimme raha- ja valuuttakurssijärjestelmän valinnan vaikutuksia kansainvälisen talouden ekonometrisen mallin (NiGEM) avulla olettamalla Ruotsin liittyneen EMUun vuonna 1999. Simulointitulosten mukaan Ruotsin euroalueesta poikennut korko- ja valuuttakurssikehitys lievensi globaalin shokin vaikutusta Ruotsin talouteen. Rahataloudellisen regiimin erilaisuus ei kuitenkaan selitä kuilua Ruotsin ja Suomen tuotannon tasojen välillä enää vuonna 2012. Siihen täytyy olla muita syitä, kuten Nokia-klusterin heikentyminen. Kaiken kaikkiaan EMU-ratkaisusta johtuvat kokonaistaloudellisen kehityksen erot eivät ole tavattoman suuria.

**Asiasanat:** Ruotsi, Suomi, EMU, simulointi, kontrafaktuaalinen

**JEL:** C15, F17, F37, P52

## 1 Introduction

The euro crisis has rekindled questions about the advantages and disadvantages of membership in the European Monetary Union. While a rather wide consensus exists that a monetary union with appropriate institutions is an overwhelmingly positive thing for the tightly integrated core countries of the European Union, there is much less agreement about whether being part of monetary integration is beneficial for EU's peripheral economies. Many people would now argue that Greece should never have joined or been allowed to join the euro.

In the Northern periphery of the EU, the different monetary regime choices of Finland and Sweden have created a particularly interesting testing ground for the benefits of the EMU. While Sweden is somewhat bigger and its economy is more versatile than that of Finland, the countries have many similarities. In both countries manufacturing is important, highly developed and globally oriented. The core of the euro area accounts for roughly the same share for the countries' foreign trade. Both have extensive social safety nets and the associated high tax levels. Labour unions are strong and play an important role in wage formation.

Importantly, both Finland and Sweden have a history of monetary instability. Periods of rapid inflation and devaluations to restore external competitiveness have been recurrent. The boom following financial liberalisation in the late 1980s and the subsequent financial crisis and deep recession in the early 1990s in both countries underlined the difficulty of monetary management with fixed but adjustable exchange rates and free capital movements. In both countries, monetary policy proved to be impotent in preventing the unsustainable boom. Similarly, both countries were forced to float their currencies after a period of costly defence of their exchange rates with very high interest rates. In both countries the quest for monetary stability accentuated at the same time as EMU membership was on the political agenda.

In Sweden, a key study about the benefits and costs of joining the EMU came to the conclusion that the Swedish economy would not adjust smoothly to asymmetric shocks without an independent monetary policy and exchange rate flexibility, at least not without important institutional changes (SOU 1996). In Finland, the risks were recognised, but it was assumed that wage formation and fiscal policies would evolve in ways which would ensure sufficient adjustment capacity (EMU-asiantuntijaryhmä 1997). In addition, there was a strong political will to be in the core of the European Union. As a result, Sweden decided not to seek EMU membership while Finland decided to join from the beginning.

Now there is more than a decade of experience with the relative performance of the two economies since the creation of the EMU, including a major economic recession. It is therefore interesting to compare how the two countries have fared and speculate how they would have developed had they chosen different monetary regimes. In this note we do this by first documenting the evolution of some key macroeconomic variables and then by simulating with macroeconomic model what might have happened in Sweden had it chosen a different monetary regime.

## 2 Much similarity in the real economy

The evolution of GDP and its main components in the first years since the beginning of the EMU does not differ much between the two countries. GDP grew by the same 3.2 per cent a year on average from 1998 to 2006 in both Finland and Sweden (Figure 1).

In 2007 and 2008 Finland grew faster than Sweden, driven by rapidly expanding exports in the midst of the global boom. The strong Finnish export performance reflected the specialisation of the Finnish manufacturing in investment goods which were high in demand during the global boom. Correspondingly, the crash of global demand that started in the fourth quarter of 2008 hit Finland harder: Finland lost 8.5 % of GDP in 2009 against Sweden's loss of 5.0 %. Taken together, there was no difference in the cumulative GDP growth of the two countries in the first decade of the EMU until 2009. Both countries grew at the average rate of 2.2 per cent. Also the initial recovery from mid-2009 to mid-2010 was fairly similar in the two countries.

However, since 2010 Sweden has grown faster, at least until the third quarter 2012. The better growth performance has been driven by both stronger exports and stronger domestic demand. Over the past three years Swedish exports have continued to grow moderately, while Finnish exports have been more or less flat. As a result of the better performance over the last few years, Sweden has grown somewhat faster than Finland in the EMU era as a whole, 2.6 % vs. 2.1 %. In per capita terms, the difference has been smaller, 2.1 % vs. 1.8 %.

Thus the microeconomic benefits that Finland has been able to reap from joining the EMU in terms of reduced transaction costs and increased competition have not been large enough to compensate for other factors that have affected growth in the last 14 years. This is also consistent with the observation that Finland's trade with the (rest of the) euro area has not developed more favourably than that of Sweden. In fact, for both countries, the share of euro area exports out of total goods exports has declined by roughly the same amount in the euro period, reflecting the rapid growth of trade with the emerging economies.

Economic theory suggests that monetary policy should have little if any impact on medium-term growth but could have a more pronounced effect on output variability. Comparing the 13-year EMU period (1999–2012) with the preceding 13-year period (1985–1988), however, suggests that the change in the monetary regime was not very important in this respect, either. The standard deviation of the difference of quarterly GDP from its linear trend was almost identical for Finland (0.062 vs. 0.064) in these two periods containing a major slump each. In the case of Sweden, the standard deviation increased somewhat (from 0.032 to 0.044), but remained smaller than in Finland reflecting most likely the more diversified production structure of the Swedish economy.

## 3 Monetary stability has improved in both countries, but more so in Sweden

The inflation performance has also been pretty similar. Inflation was marginally faster in Finland than in Sweden in the EMU period until the third quarter of 2012. Inflation was on average 1.8 % in Finland and 1.5 % in Sweden measured by the consumer price index and 2.0 % and 1.5 %, respectively, measured by the private consumption deflator.

Figure 1a GDP in Finland and Sweden, quarterly data, index 1999/1 = 100

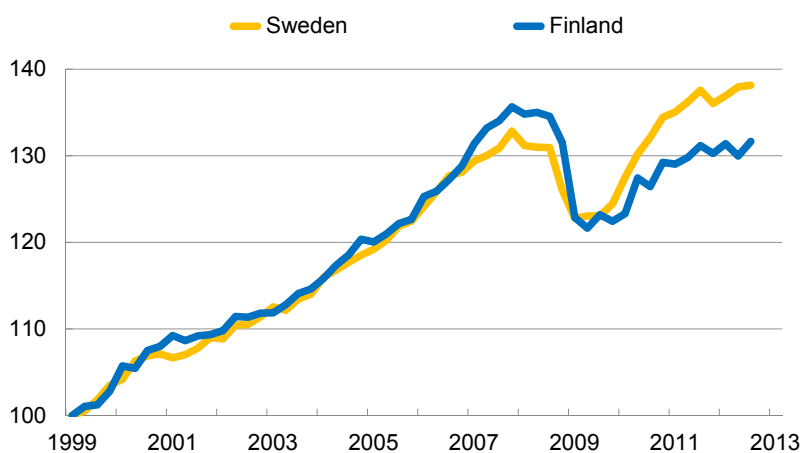


Figure 1b Exports of goods and services in Finland and Sweden, quarterly data, index 1999/1 = 100

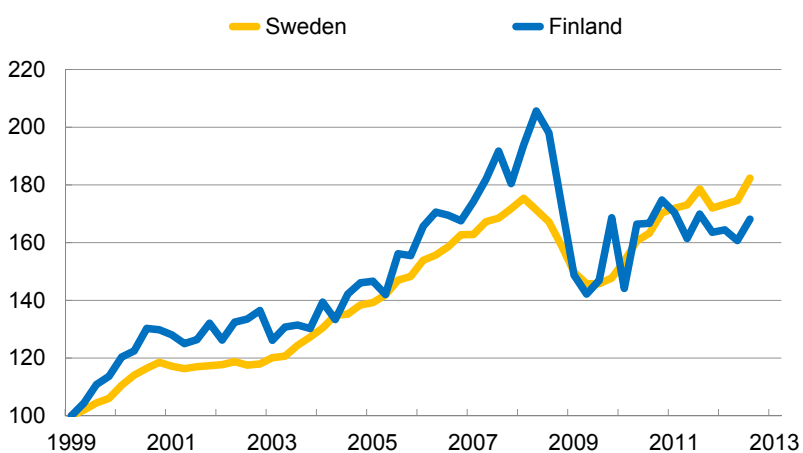
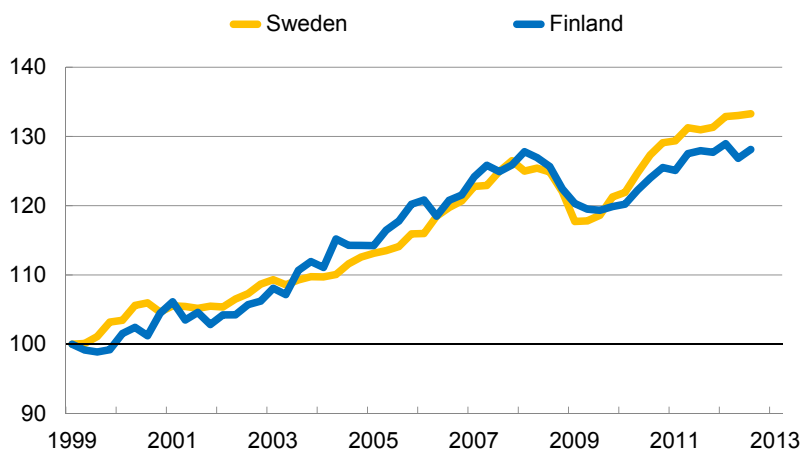


Figure 1c Total domestic demand in Finland and Sweden, quarterly data, index 1999/1 = 100



Sources: NiGEM, ETLA.

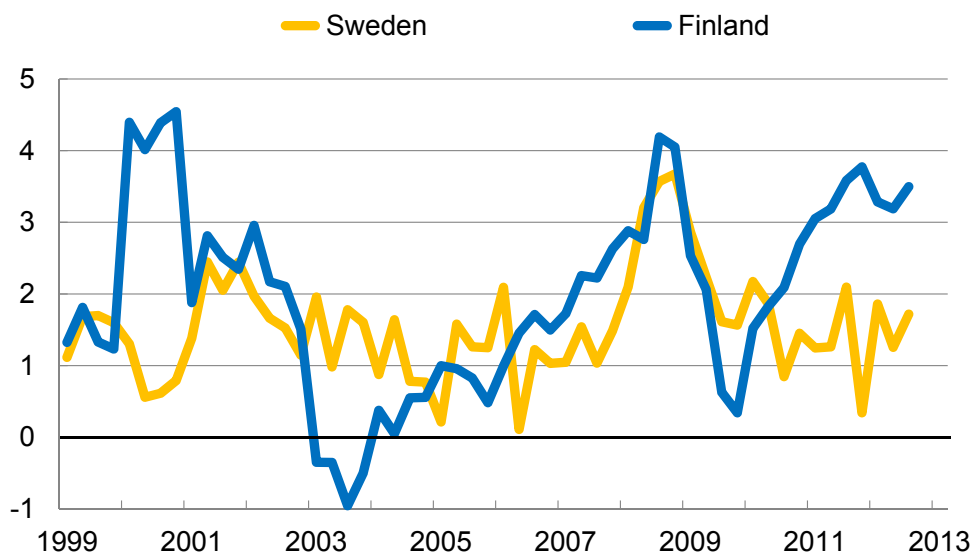
Compared to a similar 13-year period before the EMU membership, the price stability of both countries improved. The decline in consumer price inflation was bigger in Sweden. Also the variability of inflation has declined in both countries although the degree of the decline depends on the exact inflation measure. The standard deviation of the consumer price index is almost identical in the two countries in the EMU period while that of the private consumption deflator is higher for Finland (Table 1).

A similar overall picture emerges when looking at the external value of money. The standard deviation of the effective nominal exchange rate declined markedly in both countries from the pre-EMU period to the EMU period. Again, as with price stability, the decline was greater in Sweden (Table 1).

The behaviour of the effective exchange rate is nevertheless interesting. While the overall variability as measured by standard deviation is smaller in Sweden, there is less cyclical variation in Finland. The Finnish effective exchange rate appreciated in the beginning of the EMU period quite substantially until 2004, and has remained relatively stable ever since. Coinciding

Table 1	Price and exchange rate stability before and after the start of EMU				
		1985/1–1998/4		1999/1–2012/4	
		Sweden	Finland	Sweden	Finland
Inflation (National concept, annual change, per cent)	Mean	4.3	3.2	1.5	1.8
	Stdev	3.2	2.1	1.2	1.3
Private consumption deflator (annual change per cent)	Mean	4.9	3.4	1.5	2.0
	Stdev	3.3	2.0	0.7	1.3
Effective exchange rate, level	Stdev	6.6	6.3	4.3	4.8

Figure 2 Inflation, annual CPI change in Finland and Sweden, quarterly data, %

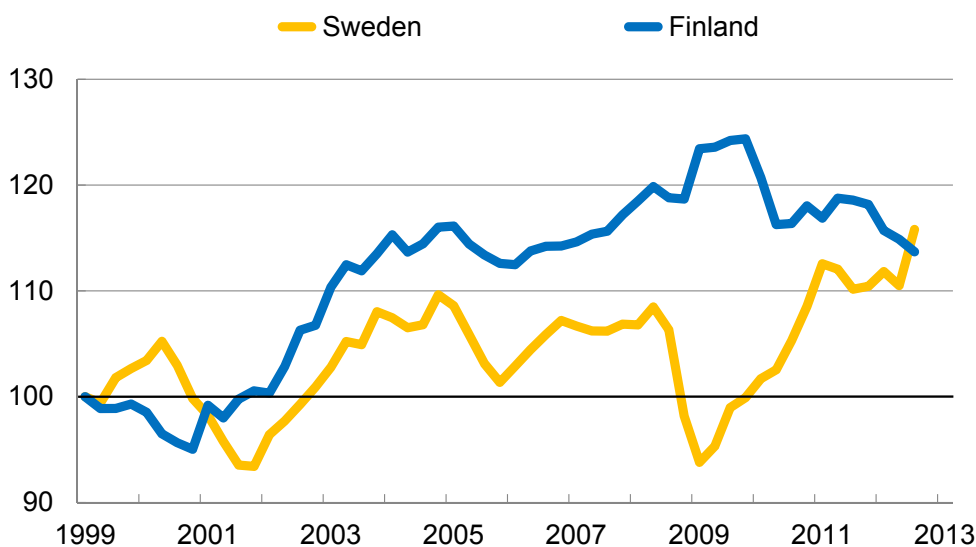


Sources: NiGEM, ETLA.



with the negative external demand shock in 2009, the Finnish effective exchange rate appreciated somewhat while the Swedish exchange rate depreciated substantially to recover more than fully in two years' time (Figure 3).

**Figure 3** Effective exchange rate in Finland and Sweden, quarterly data, index 1999/1 = 100\*



\* Currency strengthens, when index numbers rise.  
Sources: NiGEM, ETLA.

## 4 What if Sweden had been in the EMU?

The comparison of the actual performances of the two economies above suggests that while average growth rates have been rather similar, Sweden has grown faster since the global crisis started. In terms of price and exchange rate stability Sweden seems to have fared better than Finland in the EMU period. Sweden's price and exchange rate stability also increased compared to that prevailing in the pre-EMU period.

If all other factors except the monetary regime had been the same for the two countries, one could conclude that EMU membership has not improved monetary stability or growth performance of a peripheral Nordic country but perhaps weakened it. However, despite the many similarities all other factors cannot be assumed to have been precisely the same. One way to assess the importance of the monetary arrangement is to simulate the behaviour of the Swedish economy assuming that Sweden had joined the EMU. In what follows we do simulation exercises using the NiGEM model; a brief description of the model is provided in an appendix.

Simulating Swedish EMU membership is easier and more reliable than simulating what might have happened in Finland had Finland chosen to stay outside the EMU. In a Swedish simulation, the alternative monetary policy and exchange rate reactions are fairly well known, as the likely impact of a Swedish EMU membership on both the monetary policy decisions of the ECB and the behaviour of the euro exchange rates can be assumed to be negligible. On the other hand, if we assumed that Finland had been outside the EMU, we would have to specify

the monetary policy rule of the Bank Finland, make assumptions about how the markka exchange rate would have behaved and also assumptions about changes in risk premiums. None of these is straightforward.

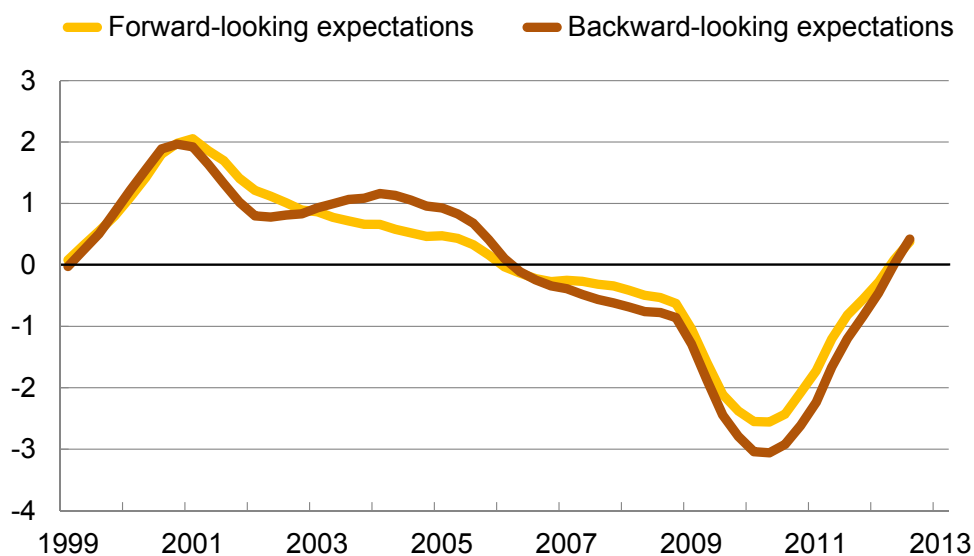
In the simulation of the Swedish EMU-membership we fixed the Swedish central bank rate at the same level as the ECB steering rate and euro exchange rate at the value prevailing in the beginning of 1999 (about 9.5 kroner per one euro). Money market rates were equalised with those of the rest of the euro area. On the other hand, we did not make any adjustments to the long-term rates; Swedish long rates have already stayed close to the German ones implying no potential for reduced risk premiums. As the exchange rates in the NiGEM are USD rates, we calculated the respective USD rate by using the actual krona exchange rate vis-à-vis the USD and the fixing of the euro rate. Naturally, the evolution of Sweden's effective exchange deviates from that of Finland and other euro area countries to the extent Swedish trade patterns differ.

The simulation period was from the first quarter of 1999 to the third quarter of 2012, when we assumed backward looking economic agents. As a robustness check we also run the model with forward looking expectations, in which case the simulation period extended to 2020. Most of the reported results are based on the simulation with backward looking expectations.

The counterfactual suggest that tying the Swedish monetary policy to that of the euro zone had allowed Sweden to grow somewhat faster in the first years of the EMU. The cumulative “growth gain” as a member of the monetary union is 6.6 % of 2011 GDP by the first quarter of 2006, i.e. 0.8 per cent per year, assuming backward looking expectations (Figure 4).

The rest of the period (after the first quarter of 2006) had been less successful for the EMU membership. The cumulative loss since 1999 was 7.7 per cent, i.e. 1.2 per cent per year. EMU membership had reduced GDP particularly in the midst at the global crisis in 2009–2010.

**Figure 4 Simulated GDP level and deviation from the baseline in Sweden, quarterly data, %**

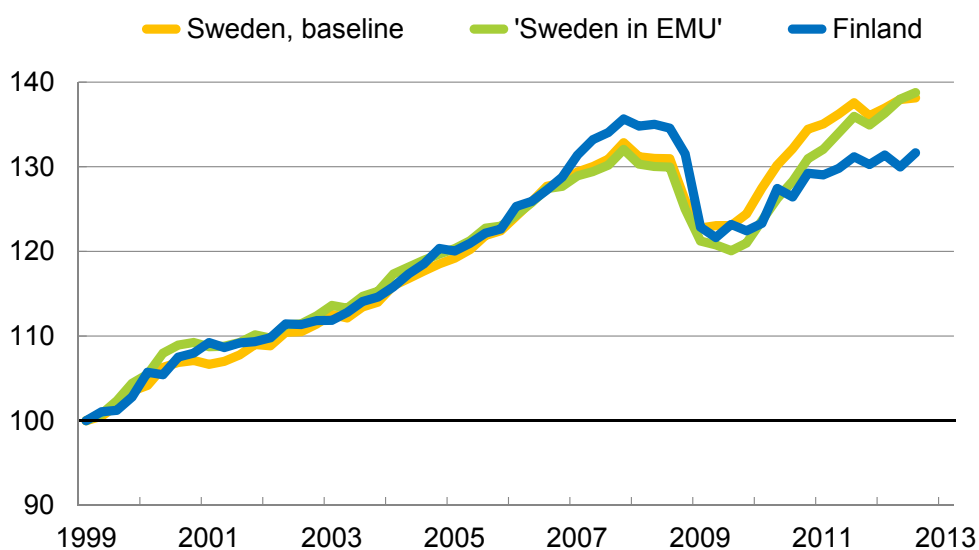


Sources: NiGEM, ETLA.

Thus over the whole EMU period the EMU-Sweden had grown at almost the same rate as it did in reality. Assuming forward-looking expectations would smoothen the development, but the results remain qualitatively the same.

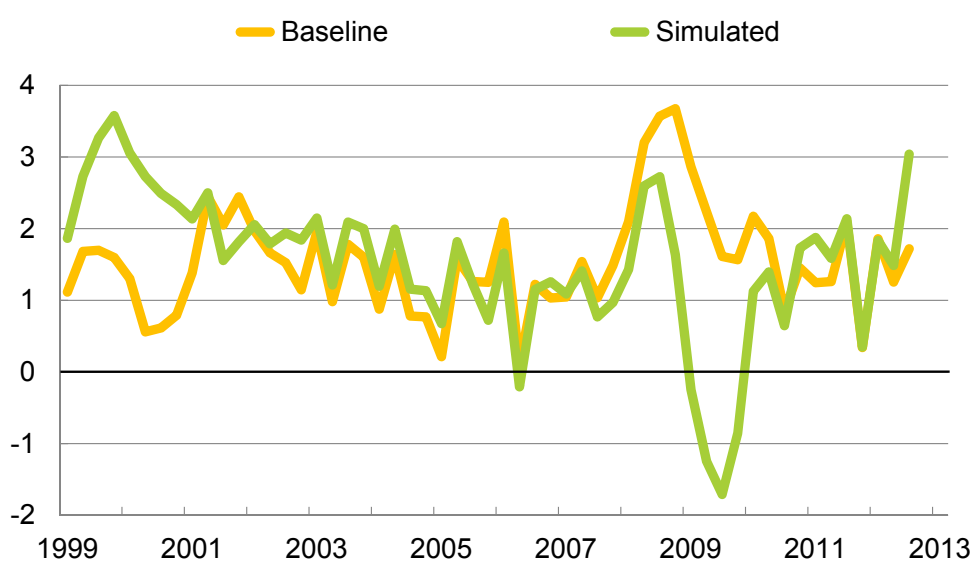
Looking at the simulated GDP and baseline GDP in levels highlights the role of the independent monetary regime (Figure 5). Retaining the krona appears to have mitigated the im-

**Figure 5** Simulated and baseline GDP for Sweden and baseline GDP for Finland, quarterly data, index 1999/1 = 100



Sources: NiGEM, ETLA.

**Figure 6** Simulated and baseline inflation rate\* in Sweden, quarterly data, %



\* Private consumption deflator.

Sources: NiGEM, ETLA.

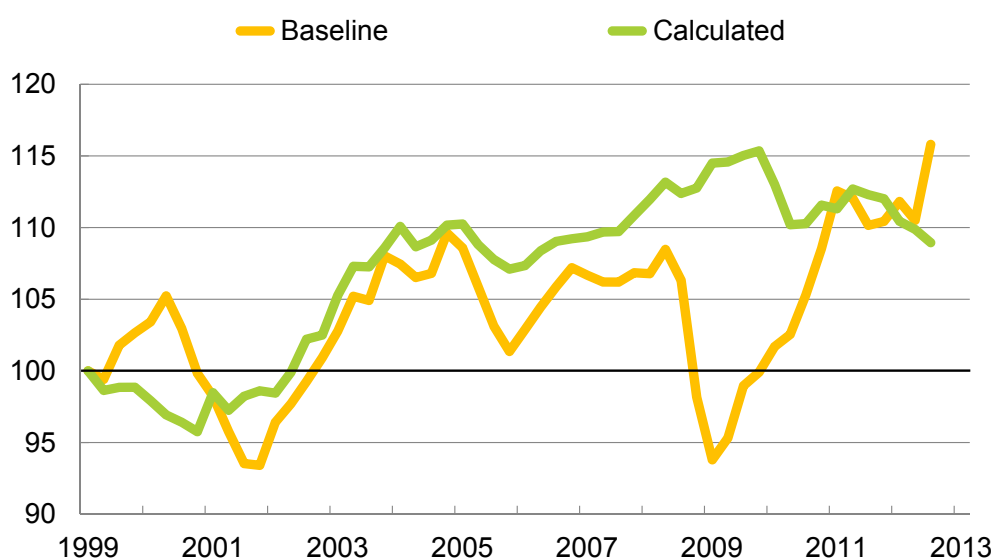
part of the global shock in 2009 and allowed Sweden to recover at a higher GDP level in 2010 and 2011. At the same time, comparing the Swedish simulated and baseline trajectories with the Finnish GDP baseline scenario suggests that other factors than the monetary regime have been the primary cause of the weaker GDP development in Finland since mid-2010: Sweden does better in this period than Finland irrespective of the monetary regime, and the positive impact of the independent monetary regime on the Swedish GDP disappears completely by the second quarter of 2012.

A plausible explanation for the weaker Finnish growth is the decline of the Nokia cluster and the weakening income generation capacity of the forest industry, compounded by high wage agreements just when the global crisis hit. Neither Nokia's difficulties nor the secular decline of demand for the types of paper in which the Finnish industry has specialised have much to do with the monetary regime.

Inflation had also been the same on average under the EMU scenario as with independent monetary policy; the average simulated inflation rate (private consumption deflator) in Sweden is the same 1.5 % as it is in the baseline scenario. As with GDP, inflation would have been stronger in the early years and lower in the midst of the global crisis had Sweden been part of the EMU.

The simulated effective exchange rate is stronger than the actual one for almost the whole period. A particularly wide gap of this nature emerges in the fourth quarter of 2008 and remains there until mid-2010. The only significant periods of a weaker simulated exchange rate are in 1999–2000 and in late 2012. On the other hand, the simulated Swedish short-term interest rate has several periods both below and above the actual rate the difference remaining typically less than 1 percentage point.

**Figure 7** Calculated and baseline effective exchange rate in Sweden, quarterly data, index 1999/1 = 100\*



\* Currency strengthens, when index numbers rise.

Sources: NiGEM, ETLA.

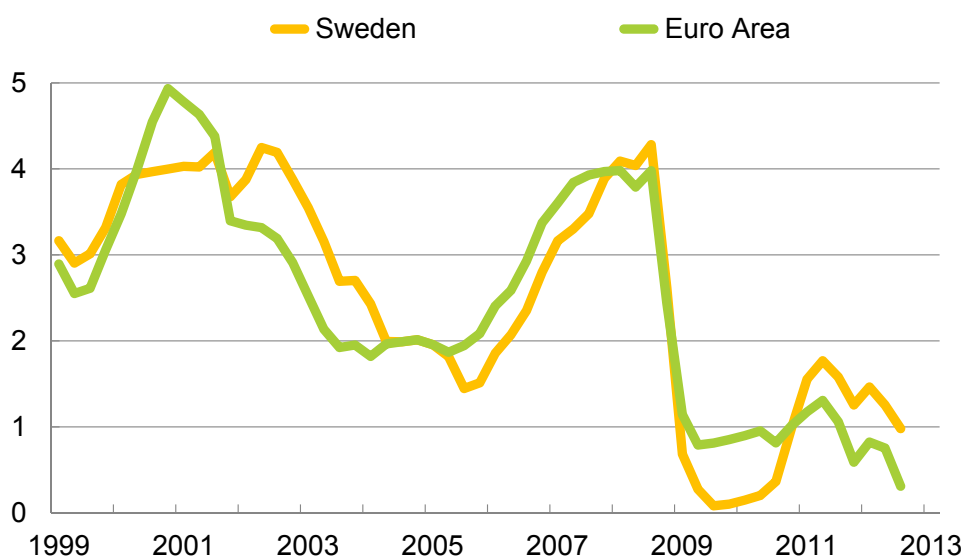
These patterns suggest that the stronger simulated growth until 2005/2006 is due to lower EMU interest rates. From 2006 onwards until 2011 both higher interest rates and a stronger currency contributed to the weaker growth in the counterfactual. The weaker growth performance of the EMU-Sweden in 2009 through early 2011 would seem to be associated at least as much with the exchange rate appreciation as with the interest rate development.

This last observation is important as the monetary authorities probably have less influence on the exchange rate than on short-term interest rates. It is quite plausible that the weakness of the krona from late 2008 until 2010 reflected mainly market reactions to bad news on the Swedish economy, such as the state of the car industry and Swedish banks' exposures to the Baltic economies. These expectations helped to stabilise the economy on this particular occasion but it is not obvious that expectations would always work in this way.

While the simulated GDP and inflation patterns look rather sensible, the evolution of the key demand and supply components is less plausible. Exports deviate very little from the baseline scenario; they are very insensitive to the significant exchange rate changes in 2008–2010. The weak growth in the counterfactual in 2009–2011 is associated with both weaker domestic demand and a weaker trade balance. A substantial increase in imports is thus associated with the outcome. The strong asymmetry of export and import reactions to the change in the effective exchange rate is doubtful and warns against drawing too far-reaching conclusions on the basis of this particular simulation.

An advantage of NiGEM over a single country model is that it allows analysing interactions between different countries. The Swedish EMU membership obviously has potential repercussions for the Finnish economy through trade reactions. The simulated impacts turned out to be modest, however. In the slump that started in late 2008, Finland had benefitted somewhat from the stronger Swedish imports.

**Figure 8** Three-month interest rates in the Euro Area and in Sweden, %



Sources: NiGEM, ETLA.

## 5 Concluding remarks

The Swedish and Finnish GDP data do not suggest that the different choices on the monetary regime have been very important from a macroeconomic perspective. Until 2009 the average growth was almost identical. In 2009 and 2010, the independent monetary regime limited the impact of the global shock on Sweden. The different monetary regimes cannot, however, explain the steadily increased growth gap anymore in 2012. Other factors, such as the decline of the Nokia cluster, are needed for that.

Our simulation exercise suggests that the stabilisation of Swedish output in 2009 and 2010 emanates at least as much from the reaction of the exchange rate as from the movements of the short-term rates. It is not obvious that the foreign exchange market reactions would always be stabilising.

In any case, Sweden has achieved a lower average inflation rate in the EMU period and in fact improved its price stability more than Finland did when compared to the years prior to the EMU. Thus, as a whole, monetary independence has not been detrimental to macroeconomic stability in Sweden. If anything, Sweden has fared somewhat better than it had done in the EMU and definitely better than Finland. As the Swedish economy is bigger and more versatile than that of Finland, this is not yet conclusive evidence that Finland would have achieved a similar outcome outside the EMU. Also, the proximity and closer economic links to Russia could make financial market conditions in a non-euro Finland more volatile than those in Sweden. Nevertheless, our observations do not support the argument that being part of the EMU is necessary for the macroeconomic stability of a small EU country.

## **Appendix    National Institute Global Econometric Model (NiGEM)**

National Institute Global Econometric Model (NiGEM) is a New Keynesian structural model describing economies in national accounts framework. It is based on estimated behavioural equations with a number of exogenous variables and identities. Demand determines production in the short-term.

Consumption is based on the real disposable income and real net housing and other wealth including foreign net assets. Investments consist of housing and business. Both depend on output, user costs, capital stock and changes in working-age population in forecasting, while in simulation it's past values.

Volumes of exports and imports of goods and services are a function of market shares, change of the market size and relative non-commodity export prices. The non-commodity import prices depend on domestic inflation and competitor's export prices.

Interaction between economies takes place through trade and competitiveness, interacting financial markets and international stocks of assets. Shifts in the domestic price level or the exchange rate feed into relative trade prices, allowing net trade to offset shifts in domestic demand.

The model description of the Swedish and Finnish economies is similar to that of bigger economies, although less detailed.

More: <http://nimodel.niesr.ac.uk/>

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