Developments in East Asia and their implications for the UK and Europe.[1]

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Introduction

The currency turmoil in East Asia over the last six months has involved a major realignment of currencies in the region. It has also meant that the IMF and others have had to take active steps to restructure the debts of some countries in the region. This intervention has been variably successful, and has involved suggestions for institutional reform that have been more or less welcome. So far the financial spillover to the rest of the world have been limited, and the potentially large effects on trade and on Foreign Direct Investment are only just beginning to be seen. This note puts the crisis in context, analyses the events of the last six months, and discusses the implications for UK and Europe, using the National Institute Global Model, NiGEM as a basis for analysis.

It might be asked why growth was so strong in East Asia during much of the 1990s, rather than look for an explanation of why it has slowed. Investment was very high in a number of countries, and this sustained growth. Growth might have been slowed earlier in 1996 and 1997 by the effects of the appreciation of the dollar and the weakness of the yen. However, weaknesses in the external sector was partly offset by rising capital flows. These flows reflected both a perception of high returns by investors abroad, and increasingly mobile global capital. The relatively low cost lending that resulted from these flows buoyed up domestic demand in a number of countries.

The financial fragilities of the Asian economies began to become obvious by the summer of 1997, although there had been signs of stress in late 1996. Once the speculative bubble in Bangkok burst in the summer of 1997, capital flows began to dry up, and a wave of speculation hit the region. Many of the currencies had become overvalued because of a decision to tie their exchange rates to the dollar. Hence

[1] An early version of this paper was given at Project LINK in Kuala Lumpur in September 1997. We would like to thank participants at that conference and at a Bank of England seminar for their comments. Simon Broadbent has also contributed to our understanding of events in the region.

realignment might initially be seen as beneficial. However, in most cases the complex of events involved a financial crisis as well, with bankruptcy becoming widespread. These financial events had consequences for Japan, as Japanese companies and banks have large portfolio and direct investment positions in the region. Hence it was felt possible that the Japanese stock market might fall.

The scope of the potential impact of the sequence of events was significantly magnified when it became apparent that there were strains in the Korean banking system. The Korean economy was suffering from overcapacity and inefficient financial intermediation, and as problems became obvious the won began to fall. This worsened the crisis as there was a considerable degree of exposure to currency risk because of unmatched foreign currency borrowing by banks and large companies. The financial crisis and the existence of significant over-capacity are likely to reduce investment significantly and slow growth a lot. However, the large fall in the won may well offset the effects of the financial problems the economy has faced.

So far the financial problems that have resulted from this crisis have been kept contained within Asia. The IMF has managed a succession of rescue packages with varying results, but its intention has been to keep the financial impact to reasonable limits whilst avoiding the moral hazard involved in the bailing out of bankrupt financial institutions. However, the combination of a fall in demand from East Asia and an improvement in their competitiveness has implication for the UK and Europe as exports fall and imports rise, slowing growth. We attempt to gauge the scale of these effects below.

The Miracle in East Asia

Growth has been exceptionally strong in a number of countries in this region. China has grown at around 10% a year for 20 years, and Korea and Singapore have been growing almost as rapidly for at least as long, The 1990s saw rapid growth spread to other countries. Thailand, Malaysia and Indonesia were growing at over 7% for much of the decade, and India experienced strong growth for five years.

There has bee a long debate about the mainsprings of growth in this region. It appears that there may have been a productivity miracle, and that there is much to learn from the experience of these countries. Krugman (1994) argues that they have grown strongly because the level of investment has been high, and he compares the policies of these countries to those of the former Soviet Union. He argues that in both cases growth has been entirely driven by capital accumulation. This may indeed be true, but the generally open nature of these economies has ensured that their investment was productive and embodied new technologies, and hence output per head has risen rapidly, and in a sustainable way. Crafts (1997) has calculated that between 1966 and

1990 total factor productivity growth accounted for additional growth of 2.3% in Hong Kong, 2.6% in Taiwan and 1.7% in South Korea. This compares favourably, but not overly so, with the Golden Age of European growth in the 1950s and 1960s.

Levels of investment have been high in these economies, and hours of work have also remained high. Crafts calculates that hours per year in Hong Kong in 1992 were around the same as in Australia a century before. Long hours of work have been associated with high levels of domestic saving, with the private sector saving more than 20% of GDP in all these countries. However, levels of investment have been even higher, and have been partly financed by net capital inflows from abroad. Private sector investment has exceeded 25% of GDP in Malaysia for much of the 1990s, and public sector investment was also large. Indonesia also experienced private sector investment above 25% and it exceeded 30% in Thailand. Definitions of the public and the private sector are less relevant in some of theses countries than they are in the rest of the OECD, as much infrastructure investment takes place in the private sector. This is particularly important in South Korea, where the interactions between the government and the Chaebols (large holding companies) are central to the operation of the economy. Total Capital Formation in that country was around 35% of GDP for most of the 1990s. The relation between the state and the private sector has meant that some investment in these countries has been undertaken without a clear idea as to whether there was a market for the products, and this has been a source of problems in recent years.

High levels of investment in these economies has lead to a significant rise in capacity, especially in Korea, but also in Thailand and Malaysia. The link to the US dollar along with a weak yen meant spare capacity was increased as competitiveness declined though 1996 and 1997. The loss of competitiveness is particularly important for these countries because they have a very high export propensity, and declining export growth is likely to have a significant effect on the prospects for output growth. Recent investment in countries like Korea, Malaysia and Thialnd may not have been accompanied by a significant increase in the quality and variety of products they produce. Our work on Korean exports, for instance, suggests that they gained world trade share up until the mid 1980s in an ‘unexplained’ way, but since then their share has been driven by their competitiveness. In a ‘new trade theory’ world of imperfect competition and differentiated products, as described by Krugman (1989), the spare capacity could only be taken up by a reduction in the real exchange rate. Hence recent evidence on real exchange rates and their sustainability, as in Barrell et. al. (1997), may cast a rather optimistic light on the medium term prospects for exchange rates.

It is important to draw a distinction between the experience of the smaller East Asian economies and that of Japan. The latter is a mature economy that has been undergoing

a significant slowdown in activity in the 1990s. It did, however, experience a long period of strong growth based on high levels of investment. Unlike the smaller economies, Japan has been relatively closed, and export still only represent (14%) of total output, and the level was much lower in the 1960s when growth was rapid. Hence exchange rate pressure were less important. Indeed, over much of the period the Japanese real exchange rate appreciated by two to three percent a year, reflecting both rapid productivity growth and the high level of innovativeness of the manufacturing sector, which led to a rapid rise in the quality and variety of goods being produced.

Exchange Rate Policies in East Asia

In the 1990s exchange rate policy has been difficult to manage even for a large economy such as Japan. For much of the middle of the decade the yen was overvalued, and this put downward pressure on growth, and accentuated the effects of the collapse of the asset bubble of the late 1980s. The smaller East Asian economies had more problems in the 1970s, and during the 1980s many of then decided to link their currencies to the US dollar. At first blush a dollar link might seem sensible, as it brought both nominal stability and credibility for the monetary authorities. However, the strength of the dollar brought problems in 1997. These small economies face relatively competitive conditions, and small overvaluations can have a large effect on trade.

The effects of the dollar strength was probably exacerbated by the devaluation of the Chinese yuan in 1994, especially as the US and other dollar linked economies were major markets for China, Korea and East Asia. The defendability of an exchange rate peg for these economies would depend more on who they competed with in their markets than who they sold to. For instance the core European economies represent over 30% of the competition they face in their markets, as compared to being the destination for less than 10% of exports. Hence the appreciation of the won along with the dollar against the DM block reduced Korean competitiveness significantly in 1996 and 1997. Table one gives both the pattern of Korean exports in 1994 and an indicator of the relative importance of their competitors in their markets. The US is the major Korean market, but it only takes just over 21% of total exports (the figures vary from year to year. China and the other countries of East Asia are at least as important as markets, and their devaluations against the dollar will have put Korean exporters under stress, and this will have contributed to the problems facing the economy over the Autumn of 1997.

Table 1: South Korean Trade and Competitiveness in 1994:

Country or World region		Export Share①	Competitiveness weights②
OECD	United States	21.40	19.74
	Japan	14.08	13.82
	Germany	4.49	9.66
	United-Kingdom	1.86	5.87
	Canada	1.45	14.75
	Australia and New Zealand	1.44	4.12
	Mexico	1.34	4.85
	Netherlands	1.17	3.09
	France	1.04	5.83
	Italy	0.79	4.79
	Spain	0.66	1.52
	Belgium	0.43	2.59
	Sweden	0.37	1.69
	Austria	0.29	1.11
	Switzerland	0.23	2.27
	Norway	0.20	0.90
	Denmark	0.18	1.21
	Ireland	0.00	1.03
	Finland	0.00	0.76
	Portugal	0.00	0.41
non-OECD	Far East	23.06	▫
	China	6.46	▫
Miscellaneous developing countries		6.01	▫
	OPEC	5.65	▫
	Latin America	3.85	▫
	Africa	1.85	▫
	Developing Europe	1.31	▫
	Visegrad	0.40	▫

① Korean markets ② Competitors in third markets.

▫ No manufacturing export prices data available on a consistent basis.

It is possible to make estimates of sustainable real exchange rates for a country given a level of capita inflows, and we have attempted to do so in Barrell et. al. (1997). In that paper we describe econometric models of South Korea, Thailand, Taiwan and Singapore. We demonstrate that these economies face very elastic export demand for goods and in some countries for services. Large changes in capital flows can in the longer term be accommodated by rather moderate falls in the real exchange rate, as we might expect. Hence the change in the structure of capital flows that the recent crisis may have engendered should be dealt with relatively easily in the medium term. However, short term problems may be severe.

Financial Markets in East Asia

The crisis in East Asia has appeared to the rest of the world to be largely associated with exchange rates misalignments, but domestic financial developments have been significant. Asset price bubbles appeared in Thailand and Malaysia for instance around the beginning of 1997, and property price and stock markets were buoyed up throughout the region. This was partly the result of net capital inflows, and partly a result of a change in the pattern of financing with more of gross borrowing coming from foreign banks offering relatively low interest loans.

Financial intermediation is relatively underdeveloped in much of East Asia, and domestic borrowing costs have been high partly as a result. The relatively low level of financial development reflects both the recent development of the economy, and the role of the government in the economy. For instance in Korea, as elsewhere, the role of banks has been to help in the overall development strategy, and aid export growth. This reduced their efficiency as intermediaries, which was further reduced by their role as conduits for side payments and bribes. In Korea in particular the banking system and its role in the development strategy has led to a significant reliance on debt finance for industrial expansion, and debt equity ratios are high. This raises bankruptcy risks in the economy, and increases the impact of changes in credit market conditions.

Inefficient intermediation leads to an inefficient allocation of resources in the economy. Pressure from the IMF and the OECD has lead to the opening up of countries such as Korea to outside financial competition. The greater efficiency of, say, US banks has meant that they have become important conduits for funds. There has been an increasing tendency for funds to be invested in overseas banks, and for industrial borrowing to be sourced from overseas. Although the country as a whole is not exposed to exchange rate risk by such intermediation, some sectors are. This exposure raises bankruptcy risk in situations where the exchange rate changes significantly.

The financial crises in East Asia were triggered in part by a reversal of the capital flows that had helped generate them A number of OECD private sector financial institutions

began to realise that they had perhaps underestimated risks in these economies and were overlent. The high spread between domestic borrowing and lending rates was not just an indicator of inefficient intermediation but a better measure of risk than the spread foreign institutions had offered.

If the lender of last resort bails out all banks, then it faces the possibility of destroying the basis of banking, which is the identification of differential risks. The moral hazard effect on banks can only be avoided if some institutions are let go. If they are not, then a repeat of the US Savings and Loans crisis is possible. The Banking Acts of the 1930s in the US guaranteed deposits in these institutions. Hence the owners faced no risk for their depositors whatever their lending strategy. Hence bad lending and fraud became commonplace, and the bailout cost the US taxpayer in excess of $150 billion. The IMF has learnt from this, and it has been clear that some domestic banks, and their equity holders, must lose.

Clearly the moral hazard problem has to be avoided on an international scale as well, with banks making bad loans suffering losses and hence their equity holders losing out. Although this is essential there are some fine judgements to be made. In particular Japanese banks and companies are very exposed in the region. Their degree of exposure differs, because in some countries such as Thailand they are exposed through the activities of subsidiaries, reducing risks, whereas in others such as Korea (which has discouraged foreign direct investment) they are exposed through their loans. This is potentially more serious. In evaluating its strategy the IMF and Central Banks must offset the moral hazard problem against the risk of financial market contagion. In particular it is important to bear in mind the consequences of a collapse in equity prices on a world scale. It is also important, when gauging policy responses in Europe to the crisis in East Asia, to be able to calibrate the scale of the likely effects of both individual events and their overall impact. To that end we proceed by building a 'layer cake' of events and their implications using NiGEM.

Simulating the Effects of Events in East Asia: A Framework

We wish to look at the effects of these events, and we need to describe a policy environment in which they take place. In order to analyse the issues we use our October baseline, as discussed in the October Institute *Review*. The policy responses of the authorities matter a good deal when analysing the effects of events such as these. We assume that monetary policy is set to target some nominal aggregate in each of the US, Japan, Canada, core Europe, the UK and Sweden[2], with some immediate impact of inflation on interest rates. Short term interest rates adjust in relation to the difference between targets and actual outcomes. Hence an unplanned for slowdown in

[2] We assume that the last two countries stay outside EMU for the next few years.

activity or fall in inflation would be met by a relative fall in nominal short term interest rates.

Interest rate changes have to be fed into the rest of the financial system. They should have an impact on long term interest rates, equity prices and exchange rates. NiGEM can be used in scenario analyses in various ways, depending upon the views of the user and the situation in hand. It is most commonly used under the assumption that expectations in financial markets are rational, in that they are fully consistent with the outcomes of an event given the reactions of policy makers. We adopt those assumptions here. An anticipated and sustained fall in interest rates in Japan, say, will cause the Yen/dollar rate to jump in the first period[3]. The size of the jump depends upon the interest differential that opens up. The anticipation of lower short term rates will cause long term rates to fall as well, and they will fall by the forward convolution of short term interest rate changes. Equity prices will when interest rates are anticipated to fall. Hence any shock that is anticipated to slow down activity will have its effects partly offset by the automatic shock absorbers in the monetary system.[4]

Other assumption for the scenario are less significant, but they have to be made. Labour markets are assumed to embody rational expectations, at least where we have evidence that bargainers use forward expectations. Governments are assumed to slowly adjust tax rates to offset any changes in their deficit from its target trajectory, and hence they remain solvent in the simulation. All countries in the OECD, including South Korea, are separately modelled, as is China. There are regional blocks for East Asia, Latin America, Africa etc, as in table 1. The whole model is solved simultaneously in forward mode.

The Decline in Capital Flows into East Asia

Capital flows into East Asia (excluding S. Korea) have been high in the last few years. During 1997 a number of institutions began to re-evaluate their risks in this region, and capital flows began to be redirected. This change in the pattern of flows was the cause of the sequence of crises that began in Thailand in the summer of 1997, and spread to Malaysia, Indonesia, Singapore and a number of other countries. The crisis has had a differential impact on the countries of the region. In our analysis we abstract from these differences as we wish to concentrate on the implications for the rest of the world.

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[3] The nature of the forward solution is discussed in Barrell and Sefton (1997).

[4] Policy responses explain some of the difference between our analyses and those of other. If an analyst assumes nominal interest rates are fixed, then the effects of the crisis will be larger. The same is true of the OECD analysis (1997) where it is assumed that real interest rates are constant. This assumption is hard to justify in a situation where the redirection of capital flows from East Asia is likely to result in lower real interest rates in the OECD.

Our model of East Asia concentrates on trade flows, with imports in the long run depending on export revenue, invisibles, and the current account that would be needed to match structural capital flows. We assume that there is change in structural capital flows of around $80 billion a year. This seems to us consistent with the scale of flows we observed into the region in the mid 1990s, and we assume much of this will stop. Adjustment lags affect the pattern of response, and hence the initial effect on the current account is less than the long run impact, and in the first year we assume capital flows only fall by $40 billion, with some accommodating flows remaining to offset the decline in structural flows. Imports fall, as can be seen from chart one, and world trade also drops below baseline. The effects on individual countries depend on their patterns of trade as well as the flexibility of their economies. Chart two plots the effects on the major exporters to East Asia, and chart three plots the effects on the level of GDP in Japan (the worst affected) the UK and the OECD as a whole.

Chart One: The Effects Of a Decline in Capital Flows on Trade

Percentage difference from October baseline

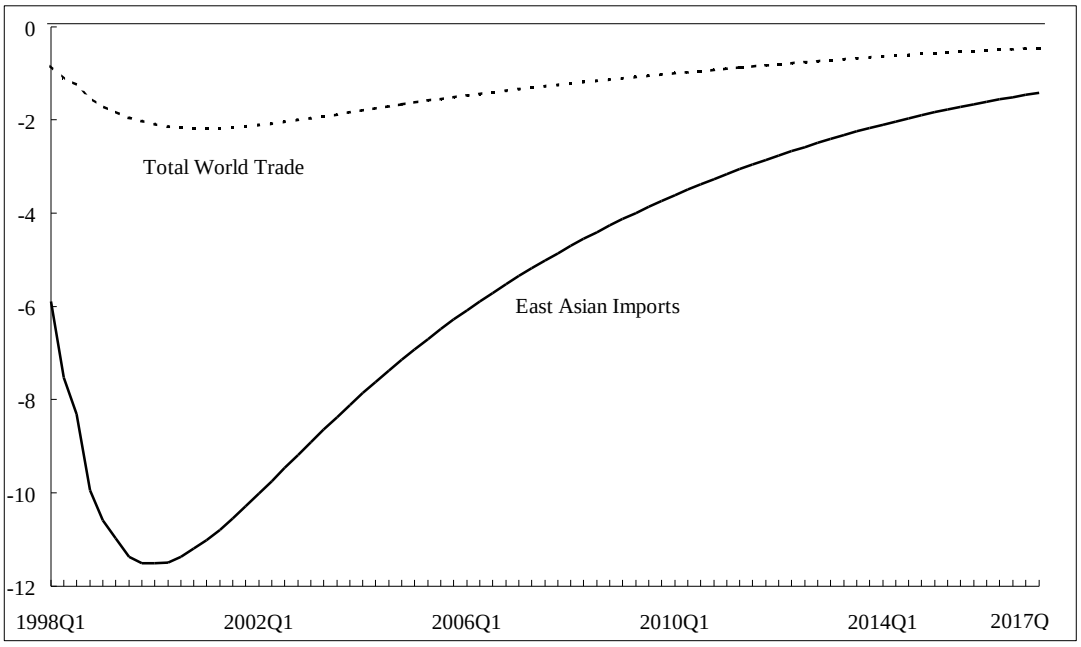


Chart Two: The Effects of a Decline in Capital Flows on Exports

Percentage difference from October baseline

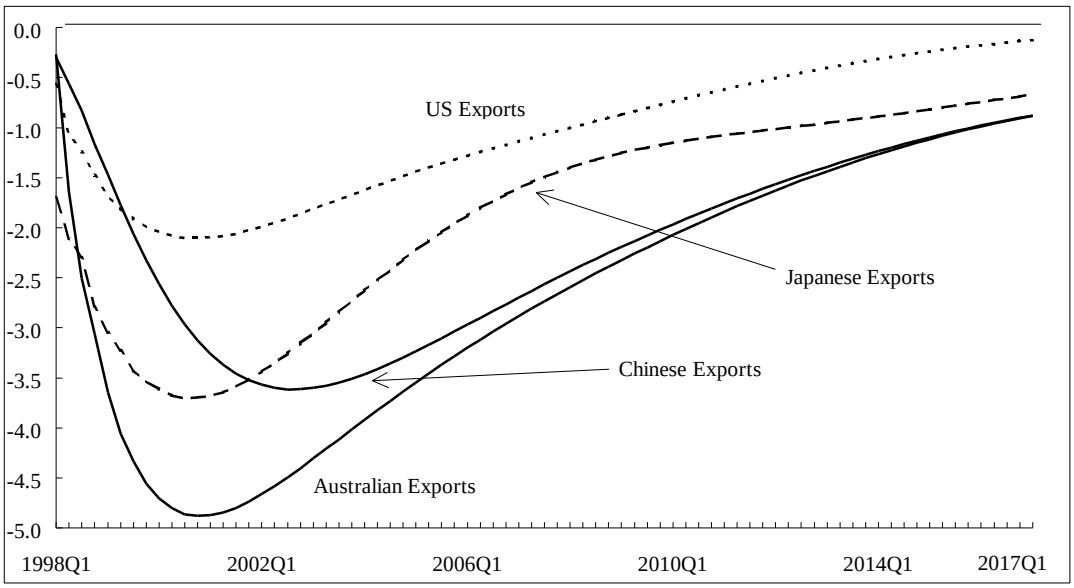
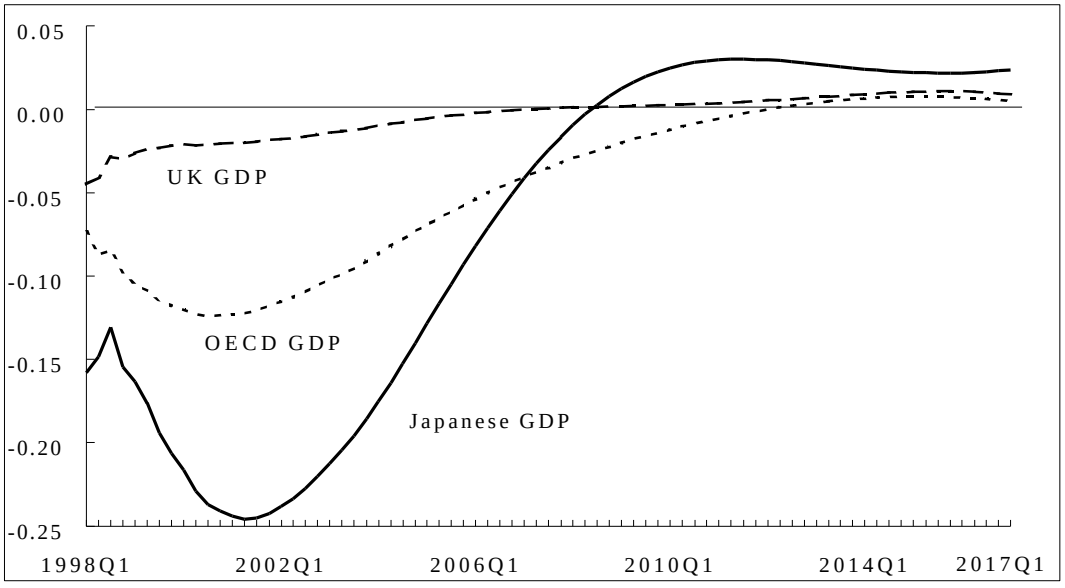


Chart Three: The Effects of a Decline in Capital Flows on GDP

Percentage difference from October baseline

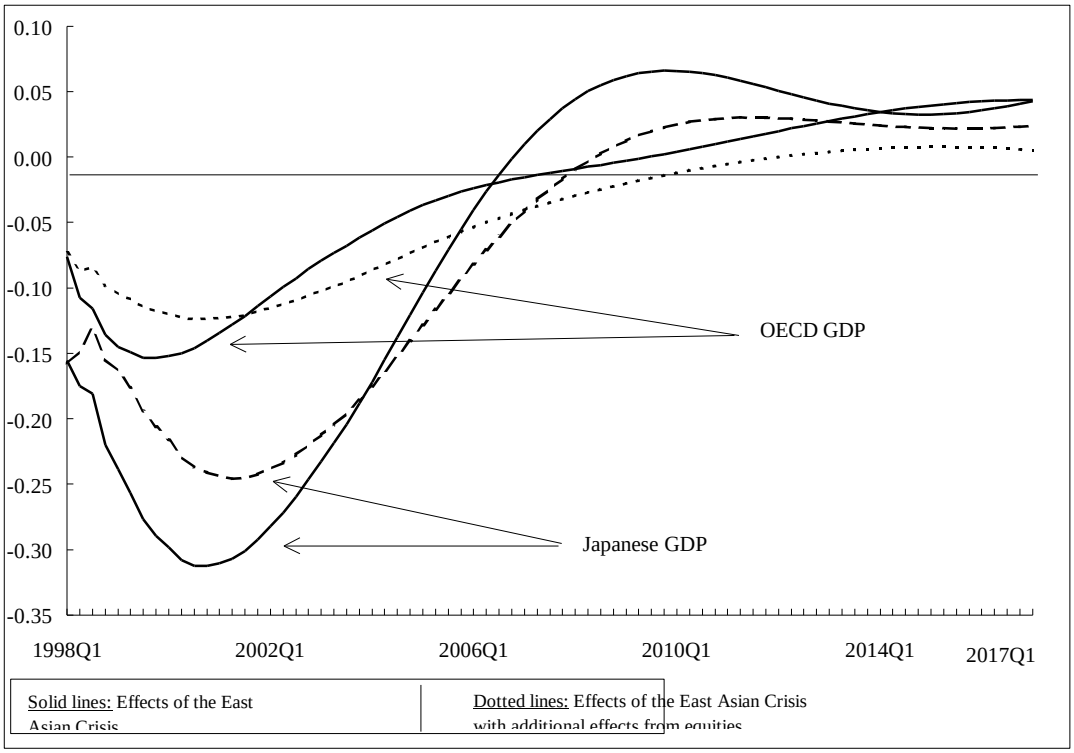


The effects of the shock are small despite the fall in world trade. This in part reflects the flexibility of response with interest rates falling in the OECD. It also reflects our assumption that the capital flows are redirected to within the OECD rather than to, say, Latin America. As a result the net OECD saving balance improves and real interest rates fall, offsetting some of the effects of lower trade on growth. The World Chapter in the January National Institute *Review* discusses the recent fall in long term interest rates in the OECD, some of which stems from events in East Asia. If all we had seen was a redirection of capital flows then there would be little that was serious to discuss. However, as we have stressed, there are financial market implications for other countries, and especially Japan.

We assume that some of the fall in the Japanese stock market over the last few months has been associated with events in East Asia. In order to assess the impact we simulate the effects of a temporary 20% fall in Japanese equity prices, which is slowly reversed. If equity prices fall in Japan then our model feeds the effects through wealth into consumption. The major wealth effects is obviously in Japan, but Japanese equities are also held elsewhere, and the fall is reflected in wealth in other countries as well. As can be seen from chart four, the effect of the crisis on Japanese and OECD output is magnified, but it is not large. This is partly because a stock market fall isolated in one country is partly offset by the system shock absorbers. Interest rates in Japan fall more than elsewhere, the exchange rate depreciates, and as a result there are offsetting effects on overall demand. These shock absorbers are much less powerful if world stock markets fall together as a result of financial contagion.

Chart Four: Overall Effects of Lower Capital Flows and Lower Japanese Equity Prices

Percentage difference from October baseline



The Collapse of Demand in Korea

The Korean economy came under pressure in early 1997 and, the authorities wisely let the exchange rate drift. Evidence had been building up that the exchange rate was overvalued, but perhaps only by 10 to 15 percent, as is argued in The World Economy

chapter of the January 1998 National Institute *Review*. The economy had also perhaps become less efficiently managed than it had been. The export orientation described, for instance in Rodrik (1997), was impressive, but it had become less focused in recent years. The Korean economy is still managed on indicative planning lines with strong interpenetration between business and political elites, and their decisions had recently seemed to drift even further from market realities.

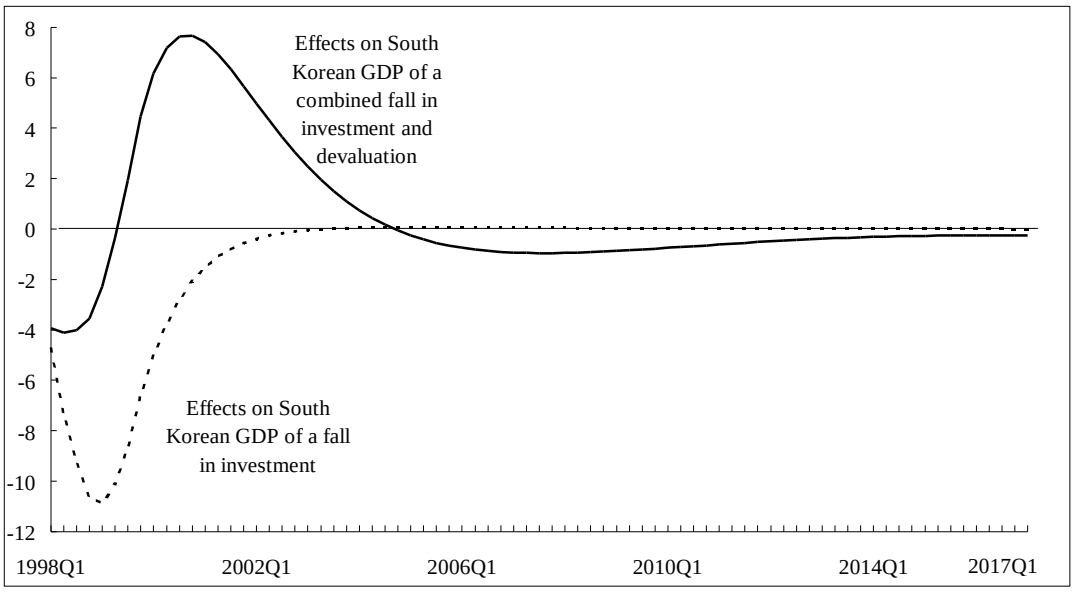
The financial problems associated with the industrial and exchange rate policies were becoming obvious during the year. The banking system had been put under pressure because of government directed lending to small and medium sized enterprises and to associates of the governing group. Many of these loans could not have been justified on commercial grounds, and by the end of 1996 known non-performing loans already matched 70% of bank equity, and the underlying situation was probably much worse. Excessive investment in steel and autos helped push a number of Chaebols into bankruptcy in 1997, and by October 1997 it appears that over 20% of bank loans were in doubt. The combination of these problems and sectorally differential foreign exchange exposure left the economy under severe pressure at the end of 1997, and domestic investment collapsed. The associated collapse in domestic activity would clearly be marked with such a high investment ratio, and if nothing else had happened we would be projecting a significant fall in output in 1998[5].

However, the fall in investment was associated with a 50 percent fall in the value of the won. Korea is a relatively large country, and its trade price elasticities are high, and it has a flexible labour market. It also has a significant amount of spare industrial capacity as a result of over-investment in the last few years. A devaluation of this size is certain to have a significant effect on the prospects for the economy. There will be no unexpected price pressures, no particular bottlenecks, and as a result the devaluation on its own would have a significant impact on the economy, as can be seen from chart five which reports the effects on output of the fall in investment and then adds the effects of the devaluation on output.

Chart Five: Effects of the Collapse in Investment and Devaluation on South Korean GDP

Percentage difference from October baseline

[5] Our simulation of the effects of the fall in investment alone using our October baseline gives a fall in output in 1998 as compared to 1997 of 2%.



The overall effects on the Korean economy are likely to be positive. Chart six plots the effects on the devaluation alone on Korean imports and exports, and compares them to the effects of the elements of the scenario added together. There is likely to be a large gain in Korean world trade share. There will be some countries who lose trade share as a result, and they will be the economies that compete most with Korea. Chart seven plots the effect of events in Korea on export price competitiveness for Japan, the US, Germany and the UK. (A rise indicates a decline in competitiveness.) The UK is least affected by the change in the value of the won and the resulting fall in Korean export prices, as the UK competes less with Korea in its export markets than do the other countries charted.

The overall effects on output reflect patterns of exports and imports as well as competitiveness, and chart seven plots the effects on output in the US, the UK, France and Japan. The Japanese clearly suffer the most because of the pattern of their trade as well as the effects on competitiveness. The effects on GDP reflect both the direct effects of trade and competitiveness, the efficiency of the automatic policy shock absorbers in the country in question, and also the flexibility of the real side of the economy, and especially the labour market, in response to shocks. The flexible US economy appears to respond well to the change in Korea, whilst France, like a number of other European economies, suffers in part because of its real rigidities in response to nominal shocks.

Chart Six: Effects on South Korean Trade

Percentage difference from October baseline

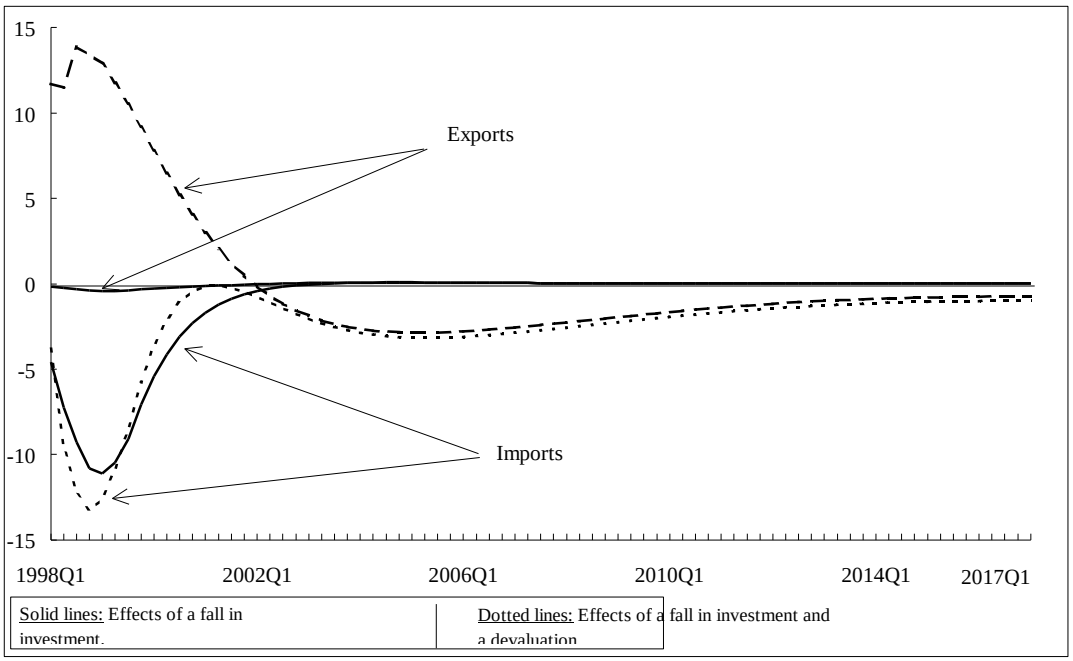


Chart Seven: Effects on Export Price Competitiveness

Percentage difference from October baseline

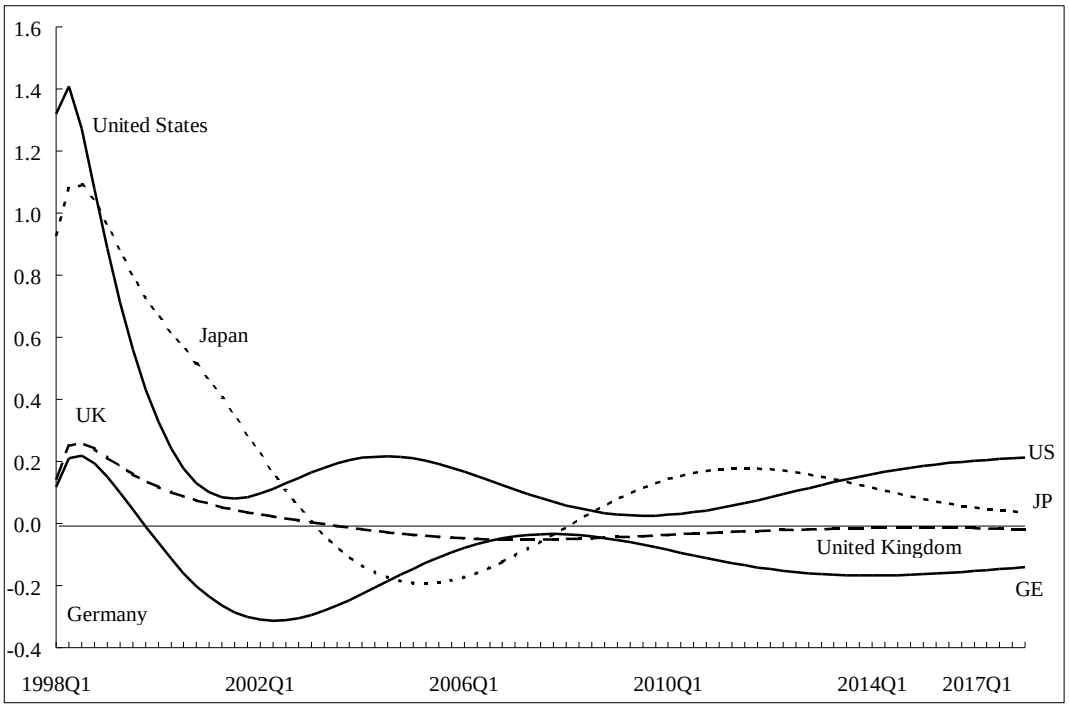
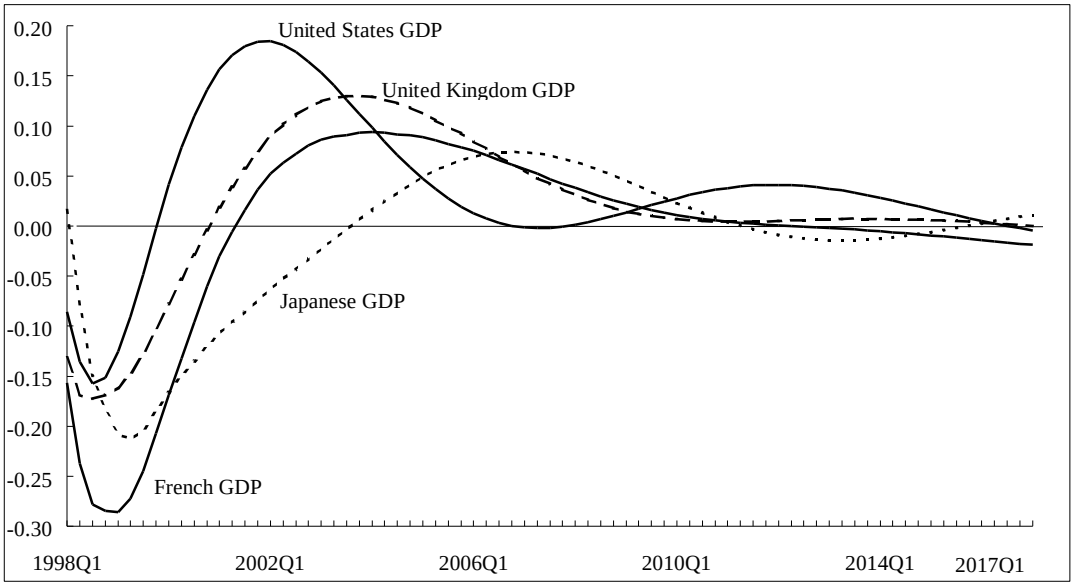


Chart Eight: Effects on Output of the South Korean Downturn

Percentage difference from October baseline



Of course, as with all nominal shocks, the effects disappear in the long run, and competitiveness in Korea is eroded by price rises. However, our simulation may miss some aspects of the situation. The fall in the exchange rate could have been the result of a number of different forces. Given the financial problems of the Korean economy, a fall in the exchange rate may have helped the government in its negotiations with the IMF, and it may have engineered the fall. There also could have been a financial panic, causing the exchange rate to over-adjust. Alternatively, the fall could have been the result of an increase in the perceived probability of unification between the two Koreas happening in the next decade. This would be very different from German unification, and the analysis in Barrell, Pain and Hurst (1996) would not apply. The very poverty of the north would require a major diversion of resources and a massive rise in imports, causing the exchange rate to fall. However, it is beyond the scope of this paper to analyse this possibility.

Putting it All Together

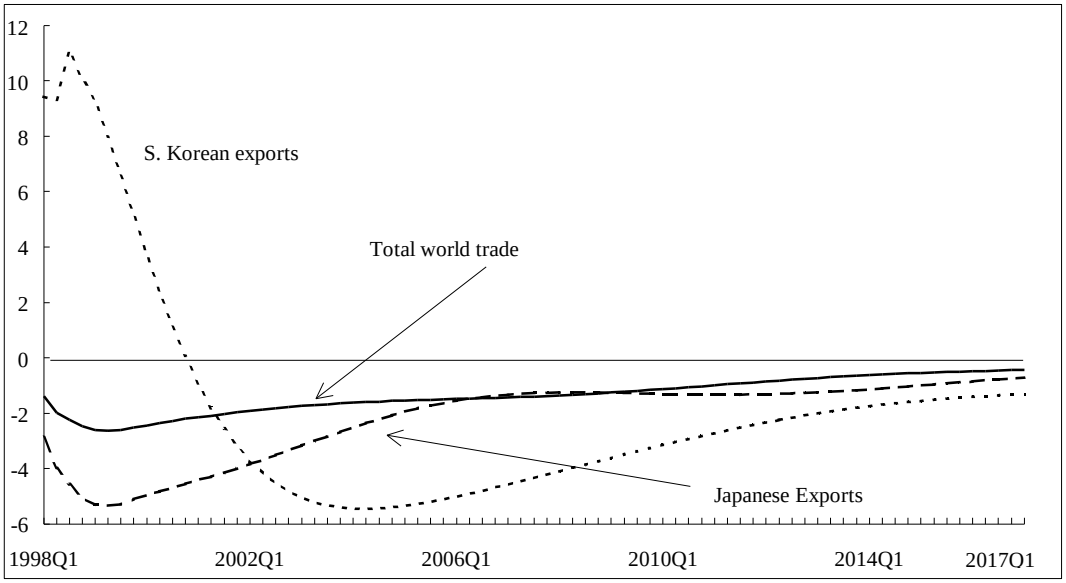
We have analysed the effects of the elements of the sequence of events in East Asia and Korea. The former caused world trade to fall, whilst the latter has had an effect on the pattern of relative competitiveness in the world economy. Both are likely to slow growth. If we put them together we can gauge their overall effects. There are several caveats to draw first. There are a number of events in Japan over the last year that we think are slowing growth independently of the events in the rest of the region. The financial system is fragile, and government policy has been contractionary. We have also only analysed those element of the potential scenario that we think have happened.

There may be a world stock market collapse, and their may be a flight to quality, with the dollar appreciating strongly and the yen falling. However, although these are easy to analyse, we have not included them.

The overall effects of our sequence of events in East Asia, at least those outside Japan, are to slow growth in the rest of the world. In particular, world trade growth would slow by two percent in the fist year after the events and by a further half a percent the year after, as can be seen from chart eight. Despite this, Korean exports rise strongly as competitiveness improves, and there would be a major gain in world trade share, at least in the medium term. In addition, Japanese exports fall, as they are major competitors with S. Korean in many markets[6].

Chart Nine The Effect of Recession and Devaluation in Korean on Trade

Percentage difference from October baseline

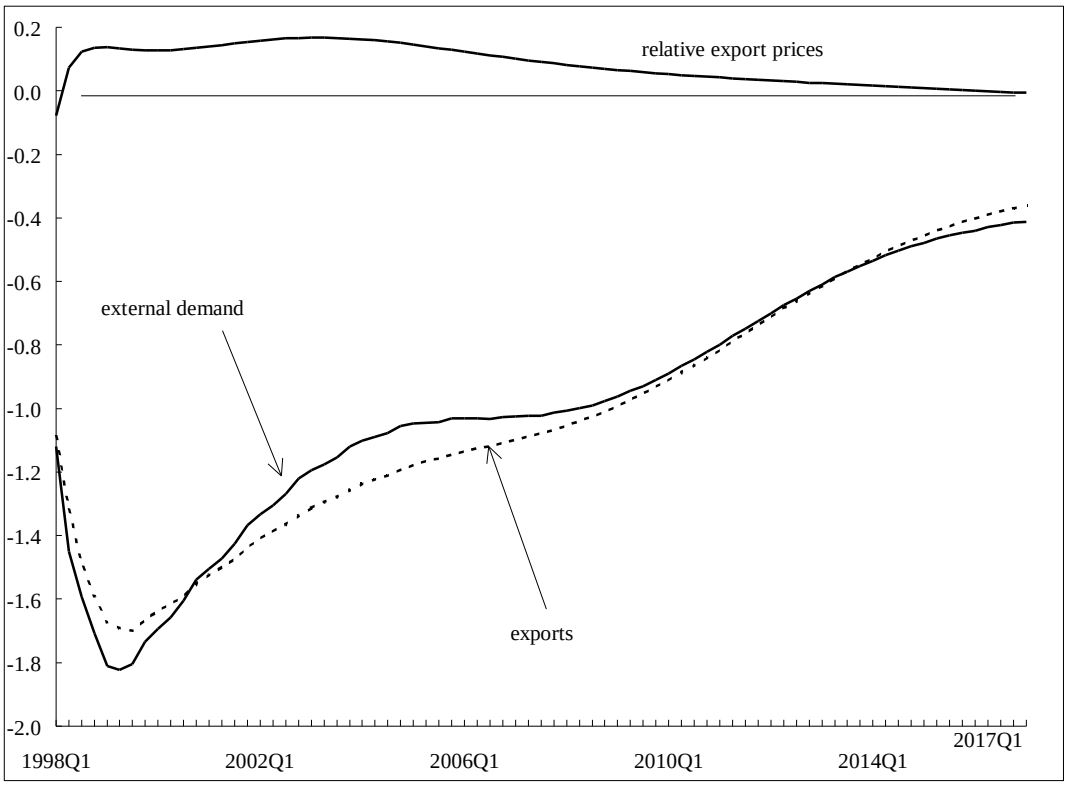


The effects on different countries depends upon trade patterns, competitiveness, and the flexibility of the economy. The competitiveness of the UK deteriorates, as can be seen from chart ten, and export demand, as weighted by UK markets, falls, albeit rather less than the fall in world trade. As a result UK exports also fall by almost one and a half percent in the first year, as can be seen from the chart. However, they begin to recover quickly. The change in the pattern of capital flows that is embedded in this scenario reduces the level of world trade in the long run. This might normally have a deleterious effect on the level of output, but in this case it is not clear that this is the overall effect.

[6] Our results may underestimate the effects on Japan as we do not have reliable competitiveness indicators for the smaller East Asian economies. To the extent that they are price takers in export markets, they will not have become more competitive, rather their industries will have higher profitability after their devaluations.

Chart Ten: Overall Effects on UK Trade and Competitiveness

Percentage difference from October baseline



The overall effects on GDP in the OECD, Europe, and the UK can be gauged from chart eleven, which plots differences from our October baseline. These effects are marked, but they are congruent with those in the National Institute *Review* World Economy forecast chapter for January 1998. Output growth in the UK slows by a quarter of a percent in the first year, and by less thereafter. Output in the EU falls more, reflecting larger and slower responses in the core European economies, but even then EU GDP is only 0.4 percent below our baseline in 1998, suggesting growth would slow by this much.

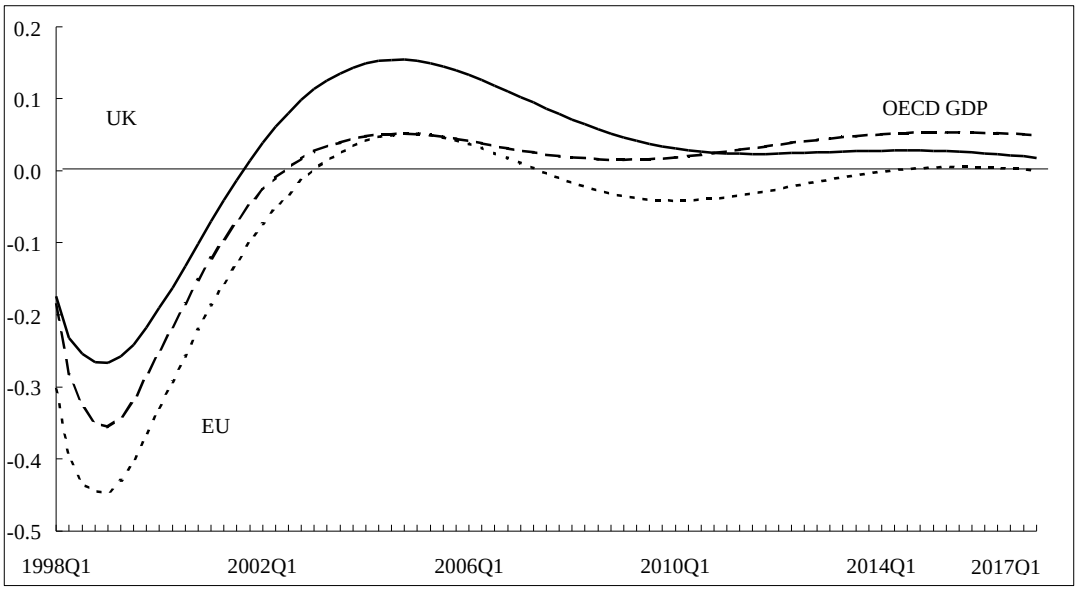
The effects depend upon the environment in which we have undertaken our analysis. They require no more than the policy responses we have already seen, with the Federal Reserve and the Bundesbank displaying more caution in relation to interest rates than domestic conditions alone might merit. The overall effects are also limited because we let automatic shock absorbers work.

If we repeated our analysis with either fixed real or nominal interest rates and exchange rates, the overall effects would be larger, and perhaps much more marked in Japan. As we have stressed, we have also excluded events in Japan that we believe

have happened autonomously[7]. The banking system has shown itself to be very weak, and equity markets have reflected this. Domestic demand has also been weak in addition to the effects on consumption that we would expect from falling equity prices. The slowdown in Japan is bound to have additional effects elsewhere in the world economy. The yen has weakened somewhat for similar reasons, and many European and North American producers will find themselves in an even more competitive environment than that described here.

Chart Eleven: The Overall Effects of Events in East Asia on Output

Percentage difference from October baseline



Conclusions

We believe that the effects of the dramatic events in East Asia will remain limited. However, this belief rests on the hope that the monetary authorities act sensibly. A collapse of the banking system or a world-wide equity market collapse world have far reaching effects. For instance, a 20% fall in world equity prices would have at least as much effect on OECD output as the events we have analysed. There are additional topics of interest for the UK and for Europe. In recent years Japanese, Korean and Taiwanese firms have invested heavily in Europe, bringing new technologies and new processes. These have been important for UK growth in particular. Our research on Japanese companies[8], as well as on other countries, suggests that domestic financial conditions have a significant effect on the ability and willingness of firms to invest

[7] The OECD in the December 1997 Economic Outlook appear to have included events in Japan in their analysis, and they also assume fixed real interest rates for their analysis. This can only be justified if it is firmly believed that capital flows will be redirected from East Asia to elsewhere outside the OECD. Other real interest rates would have to fall.

[8] See Barrell an Pain (1998) for our work on Japan, and Barrel and Pain (1996) for similar results on the US.

abroad. In the early 1990s the fall in the Japanese stock market reduced direct investment outflows to less than forty percent of their peak. We are likely to see a similar fall in the near future.

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