Financial globalisation: key trends and implications for the transmission mechanism of monetary policy

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Introduction

It is widely acknowledged that the transmission mechanism of monetary policy will evolve as domestic financial markets develop and mature. This development will in turn affect the relative effectiveness of different monetary instruments. Thus the interest rate channel of monetary policy[2] will tend to be weak when domestic bond markets are underdeveloped and banks dominate intermediation of short-term domestic credit and foreign currency denominated funds. In this setting, monetary policy will mainly affect the economy through exchange rate management and/or changes in the domestic money supply. Direct measures, such as politically decided discreet changes in the exchange rate (mostly old style devaluations), and quantitative instruments (eg reserve requirements) will be the dominant tools of monetary policy.

However, the importance of the interest rate channel of monetary policy transmission will grow as domestic financial markets develop and both firms and households finance their expenditure and investment to a greater degree in terms of domestic currency and at ever longer maturities, either in bond markets or through bank credit. This will in turn enhance the role of market-based indirect instruments, primarily interest rates on short-term lending by central banks to commercial banks, and create the conditions for market-determined exchange rates.

There is some debate regarding to what degree, and under what conditions, the external liberalisation of domestic financial systems will further promote the development of the financial system. However, in spite of some financial stability risks, it seems that countries generally benefit through economies of scale, increased competition and deeper and more liquid financial markets, at least if certain minimum conditions are met.[3] The cross-border financial integration triggered by external financial liberalisation will thus in most cases give a further boost to domestic financial market development and, in doing so, to the interest rate channel of monetary policy transmission. However, we also know from economic theory that co-movements of asset returns will increase as cross-border financial integration progresses, which, for small countries that are unable to affect global asset returns, will mean that domestic interest rates at longer maturities will increasingly be affected by global rates. In other words, although cross-border financial integration might initially give a boost to the

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[2]   In this paper the interest rate channel refers to the effects of monetary policy action on inflation that occur through changes in those interest rates that are relevant for demand and employment.

[3]   See, for instance, Kose et al (2006).

interest rate channel due to favourable effects on the development of domestic capital markets, it will eventually be its demise.

This paper is concerned with the progress of financial globalisation and the effect it might be having on the transmission mechanism of monetary policy.[4] It focuses mainly on two sets of countries: small and medium-sized developed countries that have adopted a floating exchange rate and inflation targeting (IT) and selected emerging market countries.

The reasons for focusing in the first instance on the mature IT countries are three-fold. First, countries with developed and open financial systems should in general be more closely integrated with the global financial system than emerging market countries. This should therefore bring the effects of financial globalisation as such into sharper focus. In emerging market countries the signs of such effects might be blurred by problems related to structural and institutional vulnerabilities, partly reflected in high and variable country risk premia. Second, both theory and experience demonstrate the trilemma that those countries operating pegged exchange rates and open capital accounts lose control over domestic financial conditions. They neither have nor seek the opportunity to operate independent monetary policy. The issue being investigated in this paper is therefore not strictly speaking relevant for these countries. Third, focusing on the above set of countries makes it possible to use long data series.

However, we are also interested in the degree to which financial globalisation is affecting the transmission mechanism of monetary policy in emerging market countries. Therefore an attempt will be made to replicate some of the analysis for those emerging market countries that come closest to the mature IT countries, either by having adopted an IT regime or by having relatively developed and open financial sectors.

The main questions that will be addressed in the paper are the following:

- How might financial globalisation be expected to affect the transmission mechanism of monetary policy in countries that are developed and financially sophisticated, but not large enough to significantly affect global financial conditions?

- What does the data indicate on the development of the interest rate channel of monetary policy in the chosen sample of countries?

- What is the evidence on the exchange rate channel? To what degree have exchange rate movements been part of a desired monetary policy transmission and economic adjustment, and to what degree have they been decoupled from fundamentals and thus become a source of instability?

- In as much as ongoing financial globalisation creates problems for macroeconomic management in small and medium-sized financially open countries, is there a set of changes to institutions, frameworks and policies that would, at least partly, address such problems?

The rest of this paper is organised as follows: the next section defines financial globalisation and discusses how its progress could be measured. Section II then surveys key trends and looks at different aspects of the progress of financial globalisation.[5] Section III provides a

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[4]   There is a growing discussion among central bankers and academics on the implications of globalisation for monetary policy (see for instance Bernanke (2007), BIS (2006), Bollard (2007), Rogoff (2006) and Weber (2007)). This debate has two strands: the effect that real globalisation is having on the inflation process and the effect that financial globalisation is having on the transmission mechanism. This paper is concerned with the second aspect.

[5]   Financial globalisation is a multifaceted phenomenon. This paper focuses on those aspects that are most relevant for the transmission mechanism of monetary policy. However, there are also important financial stability issues involved, especially in connection with the globalisation of financial institutions. The latest BIS

discussion of the implications of financial globalisation for the transmission mechanism of monetary policy. Section IV provides some evidence on the evolution of the interest rate channel among small and medium-sized IT countries and a selected group of emerging market economies. Section V discusses the exchange rate channel. Section VI examines some policy issues and Section VII concludes.

I.   What is financial globalisation?

A fully integrated market is one where economic agents face a single set of rules, have equal access and are treated equally. By implication, the law of one price would hold in such a fully integrated market, ie risk-adjusted real returns on assets with the same maturity and other characteristics would be equal. Note, however, that frictions could still be present, but they should be symmetric, ie the same for all agents, sectors and locations (in the case of spatial integration).[6] Using this definition we could define financial integration as the process by which financial markets and institutions become more tightly interlinked and move closer to full integration, under which the law of one price would hold. Finally, given the above definitions, financial globalisation is cross-border financial integration that is reasonably spread around the globe.[7]

It is important to bear in mind that the above definition implies that financial globalisation, or cross-border financial integration, is a process rather than a state of nature. Furthermore, this process is only partly driven by governmental action. Governments can in principle lift legal restrictions on capital movements overnight (although it would in most cases not be advisable to do so). They could possibly also move relatively quickly to harmonise diverse rules, regulations and practices that are impediments to cross-border financial integration, although in practice this is often a drawn out process and differences in legal systems and business practices tend to be significant impediments to free flow of capital. Furthermore, legal freedom to practise financial innovation could be expected over time to reduce frictions to the flow of capital. The abolition of government-imposed restrictions to the flow of capital will thus not instantaneously result in the law of one price holding across countries. It will at least require several years of a market-driven integration process. And even then, the theoretical limiting case might never be reached.

The potential implications of cross-border financial integration provide us with candidate measures of its ongoing process. Some of these implications are:

- Covered interest parity should hold.

- Stronger co-movement of asset returns across countries.

Annual Report includes a special section on the internationalisation of banking where key trends are surveyed and relevant policy issues discussed (see BIS (2007)). IMF (2007a and b) also provides an interesting analytical examination of the financial stability aspect of the internationalisation of financial institutions and asset management. BIS (2006) also covers several aspects of financial globalisation. Finally, the author of this paper discussed both the financial stability and monetary policy aspects of financial globalisation in a recent speech (see Gudmundsson (2007)).

[6]   This definition is a slightly adapted version of the one provided by Baele et al (2004) in their study on financial integration in the euro area.

[7]   Cross-border financial globalisation involving only a few countries (eg the US and Canada) with the bulk of the world being financially insular would thus not meet the criteria of financial globalisation. Using the same terminology we define regional financial integration as cross-border financial integration that is contained within a specific region.

- Greater scope for risk sharing across countries through output and/or consumption smoothing.

- Greater potential to decouple domestic saving and investment.

These implications provide several potential measures of ongoing cross-border financial integration. Below is a taxonomy of tendencies that would be consistent with a higher degree of cross-border financial integration:

1. Legal or regulatory measures:

   - Lower level of legal restrictions on capital flows.

   - Lower level of other legal and regulatory-based impediments to cross-border financial integration, including taxation and the design of monetary instruments.

2. Price-based measures:

   - Covered interest rate parity holds.

   - Increased co-movement of asset returns.

3. Quantity-based measures:

   - Higher level of gross cross-border capital flows.

   - Higher level of cross-border assets and liabilities.

   - Reduced home bias in domestic portfolios.

   - Lower correlations of domestic saving and investment.

   - Lower correlations of domestic consumption and GDP.

Taken individually, there are significant caveats associated with several of the measures above.

Taking price-based measures first: measuring real risk-adjusted returns is complicated in the absence of good measures of inflation expectations and direct measures of risk premia. In practice we tend to look at correlations of changes in nominal interest rates of similar maturity and risk or correlations of equity returns. There will thus be a measurement bias, which should, however, stack the cards against detecting the effects of financial integration, due to the statistical result that it biases estimated coefficients towards zero. Additionally, observed co-movements might not have anything to do with ongoing financial integration and might instead be reflecting the existence of common shocks.

The measurement problems might be somewhat smaller in the case of the quantity-based measures. Several of these also have the additional benefit of being available and relatively comparable across a range of countries and time periods. However, there is no clear benchmark in the case of gross capital flows or cross-border assets and liabilities and it is possible to construct examples where these would increase without progress in financial integration, as defined above, and also examples to the contrary, where they would be constant in the face of such financial integration. However, cross-border assets and liabilities would in general be expected to increase, at least so long as financial integration reduces home bias.

## II.   The progress of financial globalisation

Due to the above-mentioned caveats one should preferably look at a broad range of measures when assessing the progress of financial globalisation. The picture that emerges from such a broad perspective is one that is consistent with significant progress in financial

globalisation during the last decade and a half. This is not particularly surprising given that several mature economies still had capital controls in place in the middle of the 1980s that were lifted in the following few years and that a string of emerging market countries removed restrictions to capital movements in the 1990s. Correlations of changes in long-term interest rates have increased significantly during this period, although this could, at least partly, be due to other reasons than financial globalisation. Additionally, both gross capital flows and gross external positions (measured by the sum of foreign assets and liabilities as a percentage of GDP) have increased strongly during this period. Let us now survey the key trends in more detail.

De jure measures

There are several studies that demonstrate the lifting of formal barriers to cross-border trade in financial assets in recent decades. Thus Stulz (2005) quotes an index of formal restrictions on capital movements based on IMF data that takes the value of 12 when a country is completely financially open and 0 when it is completely closed. This index was 3.5 for the UK in 1950 but reached 12 in 1979. For a constant sample of mature countries it was 4.2 in 1950 but 11.6 in 1999. For a constant sample of 68 emerging and developing countries the index was 5.6 in 1973, but reached 8.3 in 1997. In 2005, the emerging and developing economies were on average at the same level as mature economies were in 1970. This average, however, hides a lot of variation.

Graph 1

Legal restrictions on capital mobility[1]
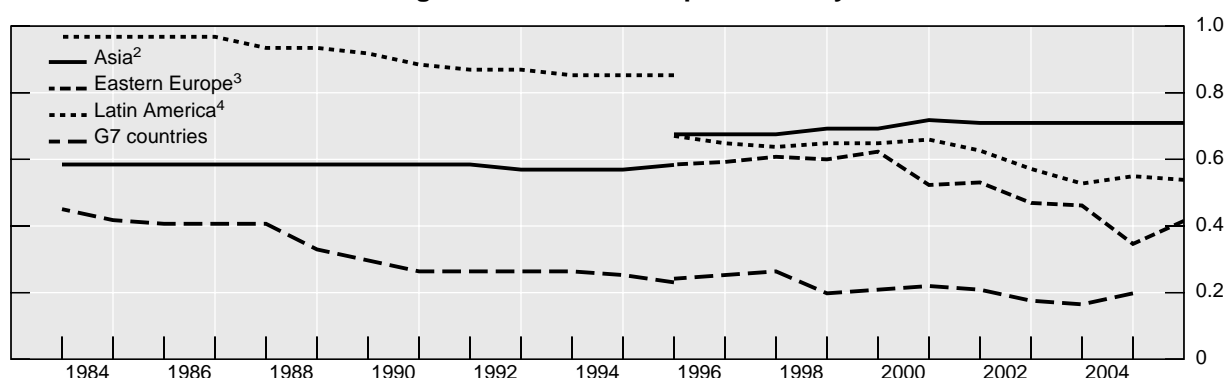
[1] Average of 1/0 dummy variable indicating the existence of controls on capital account transactions; data for 1983–1995 are from Miniane (2004); data for 1995–2005 are from various editions of the IMF's *Annual report on exchange arrangements and exchange restrictions*. [2] China, Hong Kong SAR, India, Indonesia, Korea, Malaysia, the Philippines, Singapore, Taiwan (China) and Thailand; prior to 1995, excludes China, Indonesia, Taiwan (China) and Thailand. [3] New EU members, ie Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia. [4] Argentina, Brazil, Chile, Colombia, Mexico, Peru and Venezuela; prior to 1995, excludes Peru and Venezuela.

Source: García-Herrero and Wooldridge (2007).

Graph 1, which is adopted from Garcia-Herrero and Wooldridge (2007), shows the development of legal restrictions on capital movements among the G7 and regional averages of emerging market countries. The index varies from 1 (full control) to 0 (no restrictions) and is an average of several categories of restrictions that each take the value 1 or 0 according to the IMF's Annual Report on Exchange Rate Arrangements and Exchange Restrictions. It shows a significant fall in such restrictions in Latin America and emerging Europe, but less of a change in Asia, which also has a higher level of restrictions than the other two regions. This reflects the fact that there are still significant capital controls in place in several emerging Asian countries, not least in China and India.

Covered interest rate parity

Covered interest rate parity states that the interest rate differential of any specific maturity between two countries is equal to the percentage difference between the forward exchange rate of that same maturity and the spot exchange rate. This is a pure arbitrage non-risk relationship and should hold more or less exactly if capital is free to move between bank deposits and fixed income markets in the relevant countries.[8] It is therefore an elementary test of cross-border financial integration and the relationship holds between financially open mature economies. García-Herrero and Wooldridge (2007) look at 3-month money market rates for a selected group of emerging market countries. They find that covered interest rate parity tends to hold where legal restrictions on capital movements have been lifted, whereas there are sometimes sizeable deviations where capital controls are still in place.[9]

Co-movements

There are, as mentioned in the last section, several caveats associated with using co-movements of asset returns as indicators of the progress of financial integration. First, we have measurement problems. Second, observed co-movements could be due to other factors, such as common shocks. Third, correlations of stock returns, in particular, tend to increase in bear markets and during periods of heightened volatility in world financial markets. Fourth, correlations of stock returns usually do not correct for differences in industry structure. Bekaert et al (2005) demonstrate the difficulties that these caveats can create for the interpretation of co-movements of equity returns. Only in the case of Europe do they find evidence of a significant positive trend in correlations of stock returns. They conclude that there is no definitive evidence that cross-country correlations of these stock returns are significantly and permanently higher than they were 10 years ago.

Graph 2

Correlations of major global asset classes and credit spreads
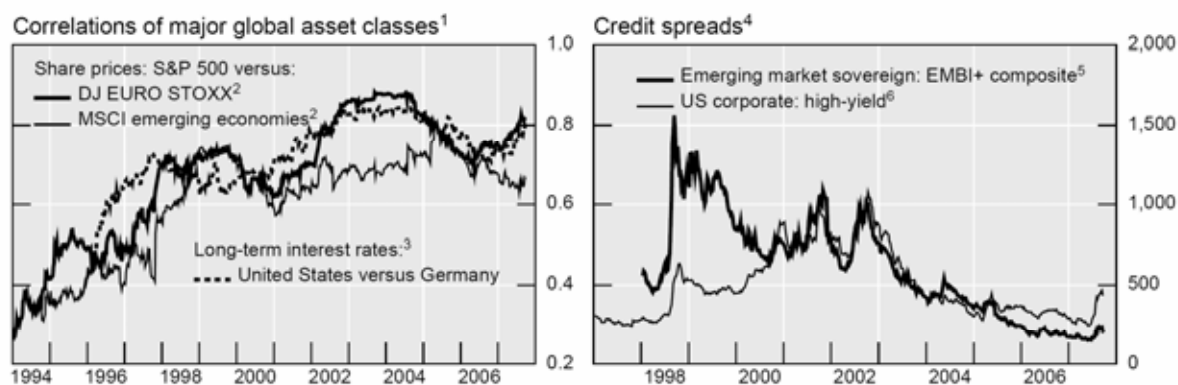
[1] Weekly changes using a 2-year moving window.   [2] In terms of US dollars.   [3] Ten-year government bond yields.   [4] Over government bond yields, in basis points; weekly.   [5] Stripped spreads as calculated by JPMorgan Chase.   [6] Option-adjusted spreads as calculated by Merrill Lynch.

Sources: Bloomberg; Datastream; JPMorgan Chase; Merrill Lynch; national data.

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[8]   Transaction costs might create some divergence.
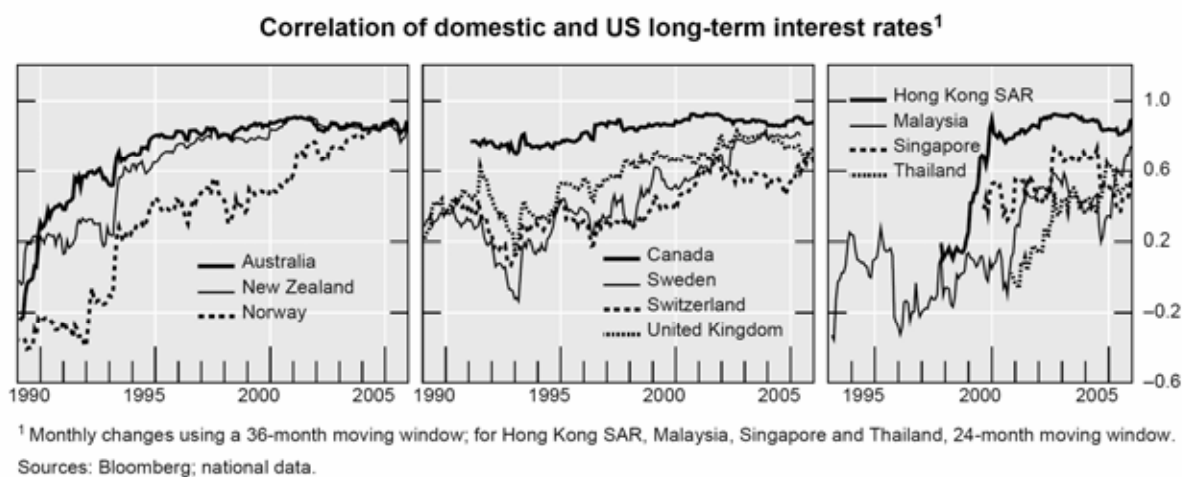
[9]   Note in this context that the covered interest rate parity test is only partial as far as overall capital account liberalisation is concerned. It would for instance hold at short maturities for a country that heavily restricted equity flows and foreign direct investments, so long as a forward exchange rate market existed and money market flows were unrestricted.

In spite of these caveats it is a worthwhile exercise to look at the evolution of co-movements of asset returns. Apart from the measurement problems in the case of bond yields, most of the caveats are asymmetric in the sense that observed increases in co-movements might not be due to increased cross-border financial integration, whereas the converse is not true, ie there cannot be significant progress in financial globalisation without it tending to increase co-movements. It is therefore a useful check to see if the trend in co-movements is at least consistent with the financial globalisation story.

First we look at the development of correlations of returns on some major global asset classes. Graph 2 (left hand panel) shows that the correlations of stock returns in Europe and among emerging markets with those of the US increased to a relatively high level in the latter half of the 1990s and have broadly remained at that level, although there has been some weakening of the correlation vis-à-vis emerging markets since the middle of 2006. A broadly similar pattern emerges in the case of German and US long-term government bonds. Graph 2 (right hand panel) shows the emerging market sovereign spread and the US high-yielding corporate spread vis-à-vis US treasuries since 1997. The correlation has been rather close this decade, whether that is due to financial globalisation or other factors.

Next we look at correlations of monthly changes in long-term government bond yields with those of US government bonds of the same maturity. Graph 3 shows these for a sample of seven mature inflation targeting economies over the period 1990–2005 and for selected emerging market economies for a shorter period. The correlations have risen significantly among the mature inflation targeting countries, except in those cases where they were already high at the beginning of the period. Correlations have also risen somewhat among the selected emerging market economies, although, as expected, they are lower than among the more globally financially integrated mature inflation targeting countries, except in the case of Hong Kong SAR, which has a currency board vis-à-vis the US dollar.

Graph 3

Correlation of domestic and US long-term interest rates[1]

[1] Monthly changes using a 36-month moving window; for Hong Kong SAR, Malaysia, Singapore and Thailand, 24-month moving window.
Sources: Bloomberg; national data.

Gross external positions

Gross external positions, ie foreign assets and liabilities as a percentage of GDP, have, following Lane and Milesi-Ferretti (2006) and recommendations by Kose et al (2006), become popular in the literature as measures of the cross-border financial integration of individual countries and regions. However, as discussed in the last section, this measure has its caveats. Graph 4 shows gross external positions since the beginning of the 1990s for different regions of the world. It shows a marked increase in all regions and reveals that emerging Asia is more integrated, on the basis of this measure, than either emerging Europe or Latin America.

Home bias

The high level of home bias in domestic asset portfolios in spite of open capital accounts has remained somewhat of a puzzle. Stulz (2005) and Kho et al (2006) attribute home bias to agency problems in corporate governance, and in particular to the role of corporate insiders, but also to governmental action that can reduce the payoff to corporate outsiders. Kho et al find support for this theory using firm-level data for Korea. If this is case, then home bias might remain high in equity portfolios, even if, at the same time, financial globalisation produces a convergence of returns in fixed income markets, which are to a certain degree more important for the transmission mechanism of monetary policy. In addition to country home bias, the data indicates that there is a regional bias in foreign portfolio allocations (see for instance García-Herrero and Wooldridge (2007)).

Graph 4

Gross external position[1]
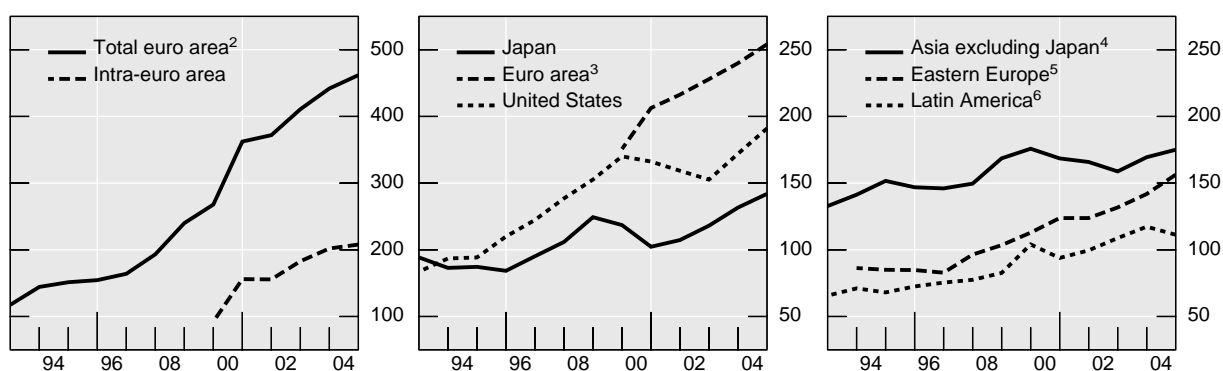
[1] Foreign assets plus foreign liabilities, as a percentage of GDP.   [2] Including intra-euro area assets and liabilities.   [3] Excluding intra-euro area assets and liabilities.   [4] China, Hong Kong SAR, India,Indonesia, Korea, Malaysia, the Philippines, Singapore, Taiwan (China) and Thailand.   [5] New EU members, ie Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia. [6] Argentina, Brazil, Chile, Mexico, Peru and Venezuela.

Sources: P R Lane and G M Milesi-Ferretti, "The external wealth of nations mark II: revised and extended estimates of foreign assets and liabilities 1970–2004", *IMF Working Paper 06/69*, March 2006; IMF.

Saving-investment correlations

The correlation of saving and investment in individual countries is potentially the most general indicator of the degree of cross-border financial integration. If risk-adjusted real rates of return on capital were equalised across countries then there would not need to be any relationship between the level of saving and investment in a particular country, as all investment projects, independent of location, would have access to the global pool of saving at uniform rates. Feldstein and Horioka (1980) use this idea to assess the degree of global capital market integration by estimating the correlation of saving and investment as a percentage of GDP among 16 OECD countries during the period 1960–74. Their estimates were much lower than implied by full capital market integration, with the coefficient on the savings ratio (or savings retention coefficient) being typically above 0.8, whereas full global financial integration would imply zero.[10]

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[10] Feldstein (2005) has described how his estimation was prompted by a meeting of experts that he attended at the OECD 30 years ago, where the assumption of full cross-border financial integration seemed to be taken as a correct description of the real world.

There are some indications that the original Feldstein-Horioka puzzle has become less prominent. Feldstein (2005) reports new research indicating that the segmentation of global financial markets has persisted among bigger mature economies but has been significantly reduced among the smaller ones. Interestingly, García-Herrero and Wooldridge (2007) report that the savings retention ratio seems to have fallen significantly during the 1990s and this decade for a representative group of emerging market countries. For the whole period 1982–2006, they also report that the savings retention ratio is lowest in Latin America among regions of emerging market countries, being close to zero, whereas it is highest in Asia, at around 0.5.

Summary

Let us now draw some overall conclusions from the different indicators of cross-border financial integration. The main thing to note is that although the evidence is consistent with significant progress of financial globalisation in the last decade and a half, it also indicates that countries are in general a significant way off from the limiting case of full integration. Thus, even if international co-movements of asset returns have increased strongly during this period, in most cases the situation is some way from being perfect. However, there are a few small and medium-sized mature countries where correlations of changes in long-term interest rates with US rates have in recent years reached almost 90%. Furthermore, it seems that this development can only partly be explained by common shocks as some of these countries (eg New Zealand and Australia) were dealing with demand pressures at the same time as the US was trying to revive demand. That raises the question addressed in the next section of what will happen to the transmission mechanism of monetary policy as financial globalisation progresses.

III. Financial globalisation and the transmission mechanism of monetary policy

Taking a highly stylised view, monetary policy in mature economic systems can be seen to affect domestic demand through two channels.[11] The first of these is what this paper calls the interest rate channel: interest rates at medium and long maturities are partly driven by unanticipated current and expected future changes in short-term rates, which are in turn tightly aligned to policy rates, at least in normal times. This effect on longer-term rates is important as investment and consumption demand is generally much more responsive to medium- and long-term rates than to short rates. The second is the exchange rate channel: changes in policy rates change the interest rate differential vis-à-vis abroad, which in turn affects the exchange rate. For a small open economy that is not able to influence global interest rates, economic theory predicts that financial globalisation will gradually weaken the interest rate channel, and could even block it completely. However, the exchange rate channel would still be available to hit any inflation target in the medium to long run and potentially retain some countercyclical force in the short run, provided of course that the authorities allow the exchange rate to be flexible.

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[11] These effects are in general only short- to medium-term. Thus in this paper it is taken as given that monetary policy has no long-term effects on variables like demand, output, employment and the current account. However, it has short-run effects on demand and output and hence shifts actual and expected inflation around. In the long run monetary policy thus only determines the inflation rate. However, in order to do so it has to either have a short-term effect on demand or affect price determination directly, for instance through changes in the exchange rate.

The prediction that financial globalisation will weaken the interest rate channel in small open economies might seem puzzling if it is assumed that the central bank will retain control of interest rates at the very shortest maturities. Note that this assumption is needed for the mechanism through which changes in policy rates are assumed to affect the exchange rate, ie through changes in the short-term interest rate differential. Furthermore, it seems to be well supported by experience. Thus those countries that have experienced weaker effects of short-term rates on longer-term rates have not been constrained in moving policy rates and have in general been able to control short-term rates rather tightly (eg New Zealand). If that is the case and interest rates at longer maturities are driven by expected short rates, how then can financial globalisation block the interest rate channel? The answer might be that it is expected global short-term rates, rather than domestic short-term rates, that increasingly drive domestic long-term rates in small open economies as financial globalisation progresses. If indeed financial globalisation is responsible for the observed high correlation of, for instance, New Zealand and US long-term rates,[12] even though the monetary stance of these two countries moves on occasions in the opposite direction, then it is due to current and expected US policy rates mattering more for New Zealand long rates than New Zealand policy rates, and not because the expectations theory of long-term rates as such is no longer relevant.

Let us assume a world of full financial globalisation and a number of floating currencies. In this scenario, investors will be able to transfer huge amounts of funds between countries at negligible transaction costs. They will do so based on comparisons of expected real risk-adjusted returns across assets that are denominated in different currencies. They will thus have to form expectations about exchange rate movements over the relevant maturities. They will calculate real returns in terms of their own consumption baskets. For the average investor in each currency area, this is equivalent to comparing nominal risk-adjusted returns in terms of their home currency. The implication is that, for the average investor, expected real risk-adjusted rates of return will tend to equalise. What it means for actual risk-adjusted real returns measured in terms of different currencies and price levels (eg New Zealand real interest rates versus US real interest rates) depends, however, on how expectations are formed and how price levels behave.

One interesting benchmark is that of simultaneous full real and financial globalisation. In a similar fashion to the definition of financial globalisation we can define real globalisation as the cross-border integration of markets for goods, services and factors of production. In the extreme case, ie when real side globalisation has run its full course, all goods would be traded, ie there would be no domestic non-traded goods sector. Furthermore, there would be instant factor mobility, implying that factor returns are equalised across borders and that the domestic output gap becomes irrelevant and meaningless. In fact, there would be no specific national resource constraint. This state of affairs would probably be incompatible with national nominal rigidities and purchasing parity would hold at all times. Given "reasonable" assumptions about expectations (ie on average correct over the medium to long term) then this would also mean that equalisation of real risk-adjusted rates of return in terms of the currency of the investor will also imply such equalisation in terms of all currencies.

For the small open economy that is unable to affect global financial conditions this means that monetary policy will not be able to affect domestic real interest rates, at least not at longer maturities. Its ability to affect domestic demand through the interest rate channel would then, in the most extreme case, disappear.

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[12] As discussed in other parts of this paper it is still an open question to what degree this high correlation is due to financial globalisation as such or other factors (eg correlated shocks or even global convergence of inflation targets and monetary policy frameworks as suggested by Berg in discussing an earlier version of this paper).

Any weakening of the countercyclical force of monetary policy that this would entail need not be a problem. The reason is that countercyclical policy is not called for here as there is no domestic output gap that needs to be stabilised. However, monetary policy would be able to use the exchange rate channel to deliver any inflation target that the authorities would want. By creating deviations of the domestic nominal policy rate from the global rate, the domestic inflation rate can be made to diverge from the global interest rate. The law of one price would still hold, ie there would be real interest rate parity and purchasing power parity would be in force. This is really back to the world of perfect markets and the quantity theory. Monetary policy has no real effect. The only effect it has is to determine the inflation rate, which is also neutral in its effect on the real economy.

The above case is of course a theoretical abstraction and the countries of the world are in most cases still far from this state of affairs. However, the result regarding the tendency of real risk-adjusted rates of return to be equalised will also hold in many other cases where there is full financial globalisation, in the meaning of negligible transaction costs and speedy arbitrage across national financial markets and currency zones, but still not full real side globalisation. Thus if longer-term nominal rates tend to be correlated due to financial globalisation, and nominal price levels are sticky, then there would also be a tendency for real rates to co-move, measured in terms of each country's currency.

These results are of course not new. Bob Mundell demonstrated in a series of articles in the early 1960s (eg Mundell (1963) and Mundell (1964)) that for the small open economy monetary policy working only through the exchange rate would be a powerful stabilisation tool when the exchange rate floats but totally ineffective when it is fixed. The reverse would hold for fiscal policy. Mundell's model was heavily "Keynesian". He assumed that money, wages and the price level were fixed as there were unemployed resources and constant returns to scale. The implication is that there is no pass-through from changes in the exchange rate to the price level and there is no need to make the distinction between nominal and real interest rates. Furthermore, there was only one interest rate in the model and monetary policy operated through changes in the money supply. Given these assumptions and that of totally free capital movements, the domestic interest rate was pegged at the global level.[13]

This section has demonstrated that financial globalisation will under many plausible conditions weaken the interest rate channel of monetary policy transmission in small open economies and, in the most extreme cases, block it completely. To what degree that is a problem will depend partly on how well the exchange rate channel operates. If it works smoothly then there might not be much cause for concern. However, if there is excess volatility and exchange rates show tendencies to be decoupled from fundamentals then there is more to worry about. It is interesting in this regard that in some of the countries that seem to have been more strongly subject to the forces of financial globalisation, like New Zealand, there has been concern about the potential overburdening of the exchange rate channel and about excess volatility and misalignments potentially having detrimental effects on the traded goods sector. We will come back to this issue in Sections V and VI.

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[13] Mundell realised the extremity of this case, but also that what we now call financial globalisation is a process rather than a state of nature. In his own words: "I assume the extreme degree of mobility that prevails when a country cannot maintain an interest rate different from the general level prevailing abroad. This assumption will overstate the case but it has the merit of posing a stereotype towards which international financial relations seem to be heading" (Mundell (1963)). "I hope my assumptions are unrealistic. If they were not, I could not have made a contribution to theory" (Mundell (1964)). Making extreme assumptions is of course paramount to economic theory making but this has to be kept in mind when applying the theory to actual economic conditions. Macroeconomic textbooks rightly make the jump from totally controlled capital movements to frictionless capital movements from one page to the next. However, it might create the wrong impression that such an overnight transition can be made in the real world by governments abolishing all restrictions with a stroke of a pen.

IV. Recent evidence on the interest rate channel

This section investigates the evolution of the interest rate channel of monetary policy transmission for a group of mature and emerging inflation targeting countries, mostly with open capital accounts. The focus is on the relative influence on domestic long rates of policy rates on the one hand and a representative global rate on the other. The analysis is based on a few assumptions that need to be spelt out. First, it is assumed that neither monetary policy nor the long rates of each of the countries in our sample affect the global long rate. That means that the global long rate can be taken to be exogenous for the determination of the domestic long rate. Second, it is assumed that central banks are able to exercise tight control over domestic short-term money market rates. Again, that means that the domestic short rate can be taken to be exogenous for the purpose of determining the domestic long rate.

It has to be stressed that the correlations and econometric relationships investigated in this section cannot give definite results on whether financial globalisation is weakening the interest rate channel in small open economies or not. At best, it can tell whether the data is, or is not, consistent with the financial globalisation story. When coupled with plausible stories and auxiliary evidence, we might get further.

It has already been mentioned that stronger co-movements of long-term interest rates could be due to other factors than financial globalisation, such as common shocks. However, if we were to observe the opposite, no strengthening of co-movements, or even a weakening, then we would have a pattern in the data that would be hard to reconcile with the financial globalisation story. Similar reasoning applies to the effect of changes in policy rates on longer-term rates. In a small open economy, a weakening of the relationship, and in the most extreme case its disappearance, could be due to financial globalisation where longer-term rates reflect more and more global, rather than domestic, current and expected future policy rates. But it could also be due to something else, where a credible fully anticipated monetary policy is a prime candidate. However, again, no weakening or even strengthening of the relationship would on the face of it be inconsistent with the financial globalisation story.

Mature inflation targeting economies

The assumptions above (ie open capital accounts, flexible exchange rates, etc) and data availability issues limit the sample to small and medium-sized mature economies and a few emerging market economies. For the first group of countries the investigation looks at monthly data for the period 1990–2006 for Australia, Canada, New Zealand, Norway, Sweden, Switzerland and the UK.

Graph 5

Correlation of domestic short-term interest rates and domestic long-term interest rates[1]
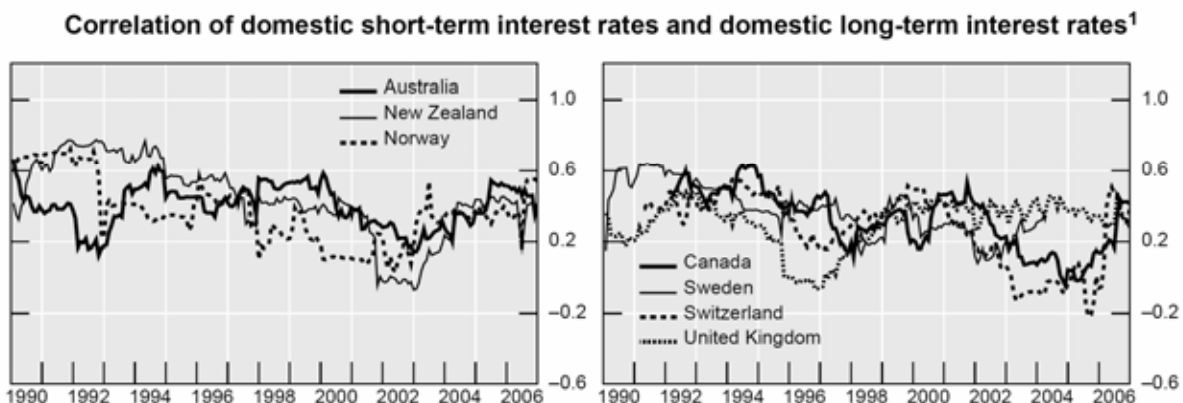
[1] Monthly changes using a 36-month moving window.

Sources: Bloomberg; national data.

First we look at simple rolling correlations of interest rate changes (36-month window of monthly data) for the sample of developed countries (see Table 1 and Graphs 3 and 5) during the period 1990–2006. Three sets of domestic interest rates are considered, ie 3-month money market rates, medium-term (2- to 3-year) government bond rates and long-term (10-year) government bond rates. The correlations reported are the following: domestic short-term and medium-term rates, domestic short-term and long-term rates, domestic long-term and US long-term rates and domestic medium-term and US medium-term rates. Across the maturity spectrum and locations the following pattern should be expected:

- Domestic short-term rates being more strongly correlated with medium-term rates than long-term rates.

- Domestic long-term rates being more strongly correlated with US long-term rates than domestic medium-term rates are with US medium-term rates.

The pattern through time that would be consistent with ongoing financial globalisation is the following:

- Domestic long-term and medium-term rates becoming more correlated with US rates, with the tendency being more pronounced in the case of long-term rates.

- The link between domestic short-term and long-term rates becoming weaker (and possibly also that between short-term and medium-term rates).

<div align="center">

Table 1

Correlation of domestic and foreign interest rates[1]

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	Domestic short-term and longer-term rates				Domestic and US rates			
	1990–93	1997–99	2001–03	2004–06	1990–93	1997–99	2001–03	2004–06
Medium-term								
Australia	...	0.6	0.2	0.4	...	0.5	0.6	0.3
Canada	...	0.4	0.5	0.4	...	0.8	0.7	0.8
New Zealand	0.9	0.7	0.6	0.5	0.2	0.6	0.6	0.4
Norway	0.9	0.6	0.6	0.7	0.0	–0.1	0.4	0.7
Sweden	0.8	0.6	0.6	...	–0.3	0.3	0.7	...
United Kingdom	0.6	0.5	0.6	0.3	–0.1	0.7	0.8	0.5
Long-term								
Australia	0.5	0.6	0.3	0.4	0.5	0.8	0.9	0.9
Canada	0.5	0.2	0.1	0.4	0.7	0.9	0.9	0.9
New Zealand	0.7	0.4	0.2	0.4	0.2	0.8	0.8	0.8
Norway	0.4	0.2	0.3	0.5	–0.1	0.4	0.7	0.8
Sweden	0.5	0.3	0.3	...	–0.1	0.6	0.8	...
United Kingdom	0.4	0.4	0.4	0.3	0.2	0.7	0.8	0.7

[1] Monthly changes.

Sources: National data; BIS estimates.

The results are broadly consistent with these priors. As can be seen in Table 1, domestic short-term rates are in general more correlated with medium-term rates than long-term rates and the correlation with US rates increases with maturity. It further emerges that correlations of domestic long-term rates with US rates have in most cases been increasing through time but that the tendency is less clear in the case of medium-term rates. Finally, there seems to be some tendency for the correlation between domestic short-term rates and long rates to weaken. However, the tendency is not uniform and there are clearly periods where it weakens significantly and then comes back, which is not consistent with progressing financial globalisation.

Simple correlations of the above type can at best be only indicative. They do not address issues of causality, although our assumptions, if correct, take care of that. Neither do they take into account lags in the relationships or joint determination by several variables. In order to deal with these added complexities an error correction model of the domestic long-term interest rate is specified below. Although plausible, it is somewhat arbitrary by assuming two co-integrating vectors where only one of the exogenous variables (domestic short rates and US long rates) enters each. These restrictions remain to be tested at a later stage but for the current investigation of the evolution of the interest rate channel we let it be.

$$\Delta i_t^l = \alpha + \beta_s \left(c_1 + i_{t-1}^l - \gamma_s i_{t-1}^s \right) + \beta_g \left(c_2 + i_{t-1}^l - \gamma_g i_{t-1}^{lg} \right) + \sum_{i=0}^{T} \phi_i \Delta i_{t-i}^s + \sum_{i=0}^{S} \lambda_i \Delta i_{t-i}^{lg} + \sum_{i=1}^{R} \theta_i \Delta i_{t-i}^l \qquad (1)$$

i = nominal interest rate, l stands for long, s stands for short and lg stands for global long (proxied by US rates).

Equation (1) could be simplified by constraining both the γ's to be equal to 1. This is not a strong assumption as any other value will imply that there is a trend increase (or decrease) in the slope of the domestic yield curve and the long-term interest rate spread vis-à-vis the US. Neither is plausible given the sample period and the countries involved. Given this constraint we get (2),

$$\Delta i_t^l = \alpha* + \beta_s \left(i^l - i^s \right)_{t-1} + \beta_g \left(i^l - i^{lg} \right)_{t-1} + \sum_{i=0}^{T} \phi_i \Delta i_{t-i}^s + \sum_{i=0}^{S} \lambda_i \Delta i_{t-i}^{lg} + \sum_{i=1}^{R} \theta_i \Delta i_{t-i}^l \qquad (2)$$

where $\alpha* = \alpha + \beta_s c_1 + \beta_g c_2$

The βs are measures of adjustment speeds to the long-run equilibrium levels (provided they exist). They should therefore have negative signs. If a β is not significantly different from zero then there is no long-run relation. Care should be exercised in interpreting the implications of non-significant β, especially in the case of the short-long relation. It does not mean that there is no interest rate channel. We do not expect monetary policy to be able to exert long-run influences on long-term real interest rates. If inflation expectations over the medium term are anchored at a stable inflation target, as should be the case in the current sample of countries, then the same would apply to nominal long rates. All that is required for there to be an interest rate channel is for monetary policy to have influence on longer maturity rates over the short and medium term.[14]

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[14] Note that what is being tested here is different from the tests of monetary independence in Obstfeld and Taylor (2004). They look at the ability of countries to set short-term interest rates different from a base country. That ability is not being questioned in this case. All these countries have floating exchange rates and one has only to look at the short-term interest rate differentials to see that they can set different rates from the US. Frankel et al (2002) are also of relevance in this connection. They look at a large sample of developing and industrialised countries during the period 1970–99 and find in most cases full long-run transmission of international interest rates to domestic rates, even for countries with floating exchange rate regimes. The only exceptions are the very largest developed countries, which can thus benefit from independent monetary policy

Equation (2) is estimated for seven mature small and medium-sized inflation targeting countries, both with and without the error correction terms. The results are given in Tables 2 and 3. The regressions explain 40–70% of the changes in domestic long rates, with the error correction terms not adding much explanatory power.[15]

Table 2

Coefficients on long-run relations

	Short and long interest rates (β_s)			Long domestic and US interest rates (β_g)		
	1990–2006	**1990–98**	**1999–2006**	**1990–2006**	**1990–98**	**1999–2006**
Australia	–0.01	–0.01	0.01	–0.02**	–0.02	–0.04*
Canada	–0.02**	–0.03**	–0.00	–0.01	–0.05*	–0.01
New Zealand	–0.02*	–0.04**	0.01	–0.04***	–0.04**	–0.04**
Norway	–0.02*	–0.02	–0.02**	–0.04***	–0.06*	–0.01
Sweden	–0.02	–0.02	–0.07	–0.03***	–0.04*	–0.03
Switzerland	–0.02***	–0.02**	–0.02	–0.04**	–0.04	–0.05
United Kingdom	–0.01	–0.02	0.02	–0.01	–0.03	–0.06*

Sources: National data; BIS estimates. *, **, *** denote coefficients significantly different from zero at the 10%, 5% and 1% level, respectively.

Table 2 gives the results for the coefficients on the error correction terms (β_s and β_g). Looking first at the coefficient on the short-long relation, for the whole period there is only a strongly significant relationship in the cases of Canada and Switzerland. Splitting the sample gives some indication of a weakening relationship. The main exception is Norway, but these results are probably coloured by the fact that Norway operated a fixed exchange rate policy until the late 1990s. The results for the coefficient on the level relationship between domestic and US long rates do not give a particularly clear pattern. There is some indication of a faster adjustment speed and/or a more significant relationship in some countries (Australia and UK), weakening in others (Canada, Norway and Sweden) and unchanged in two cases (New Zealand and Switzerland).

The cumulative impact of first difference terms only might provide additional indications (see Table 3). There seems to be an almost uniform tendency of a weaker cumulative impact of first differences of short-term interest rates on the corresponding change in the long-term interest rates, with it almost disappearing in the case of Australia, Canada and New Zealand. The only exception is Norway, but then it operated exchange rate targeting until the late 1990s. The cumulative impact of the first differences of US long-term rates on the change in the domestic long rates is high for the whole sample period. However, in most cases it is lower in the second half of the sample period than in the first half. This might seem to contradict the results of the simple correlation.

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in the medium to long run. However, all we need for monetary policy to play a role through the interest rate channel is short- to medium-run monetary independence. Again, Frankel et al use short-term rates.

[15] All the estimated equations include one lag of the dependent variable (domestic long-term rate), current value of the domestic short-term rate and up to two lags, and current value of the US long-term rate and two lags.

Emerging market economies

Mohanty (2007) summarises findings at the BIS and discussions from a December 2006 meeting of Deputy Governors from emerging market countries on recent changes in the transmission mechanism of monetary policy in emerging market economies.[16] For the same meeting Moreno (2007) looks specifically at the issue of the determination of long-term rates in these countries and the relative influences of policy rates and global long rates (proxied by US rates). Not surprisingly, the picture that emerges is mixed. Many emerging market economies are still in the phase where the development of the domestic financial system is strengthening the interest rate channel of monetary policy transmission and several of them still have significant capital controls. However, at the same time some emerging market countries are experiencing a stronger influence of global long rates on domestic rates, which in some cases is stronger than the influence of the domestic policy rate. These influences were both confirmed by answers to a questionnaire and econometric estimation. Thus Moreno (2007) estimates a vector autoregression system in first differences of the domestic short-term and long-term rates and the long foreign rate using daily data from the beginning of 2001 to the end of September 2006. Different maturities of long-term rates were used, ie 1-, 3-, 5- and 10-year, for India, Korea, Malaysia, the Philippines, Thailand, Brazil, Mexico, the Czech Republic, Hungary and Poland. Although there was significant country variation in the results it emerged that foreign long-term rates sometimes have a larger impact than domestic short-term rates and the influence of foreign rates has increased with time.

Table 3

Cumulative impacts[1]

	Short-term interest rates on domestic long-term interest rates			US long-term interest rates on domestic long-term interest rates		
	1990–2006	**1990–98**	**1999–2006**	**1990–2006**	**1990–98**	**1999–2006**
Australia	0.18	0.16	0.02	0.92	1.04	0.79
Canada	0.14	0.14	0.04	0.89	1.06	0.63
New Zealand	0.25	0.27	–0.01	0.72	0.73	0.74
Norway	0.22	0.22	0.31	0.68	0.60	0.76
Sweden	0.17	0.16	0.16	0.84	0.88	0.75
Switzerland	0.38	0.47	0.25	0.83	0.88	0.75
United Kingdom	0.29	0.30	0.21	0.67	0.76	0.49

[1] Calculated as the ratio between the sum of the coefficients of contemporaneous and lagged domestic short-term interest rates and one minus the sum of the coefficients of lagged domestic long-term rates. Monthly changes in domestic long-term interest rates were regressed on monthly changes in domestic short-term interest rates, monthly changes in lagged long-term domestic interest rates and monthly changes in long-term interest rates of the United States.

Sources: National data; BIS estimates.

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[16] A similar meeting a few years earlier discussed in broad terms the progress and effects of financial integration in emerging market countries (see Andersen and Moreno (2005) for an overview). One of the papers for that meeting addressed the issue of whether financial globalisation had reduced monetary independence in emerging market economies (see Mohanty and Scatigna (2005)). Wooldridge et al (2003) analyse the changing links between mature and emerging financial markets.

Summary

The results of this data exercise are not conclusive. There is evidence of a close and strengthening relationship between domestic and US long-term rates. There is also some evidence of a weak and/or weaker relationship between domestic long-term rates and current and lagged short-term rates. Both of these tendencies are consistent with ongoing financial globalisation but also with common shocks and more credible and more anticipated monetary policy. In general, even if the interest rate channel might be getting weaker, it cannot be proclaimed dead.

V.   The exchange rate channel

In Section II it was shown that cross-border financial integration will make the domestic interest rate channel of monetary policy transmission weaker, and in the most extreme cases, inoperative. However, this will still leave the exchange rate channel to determine, in the long run, the inflation rate. Depending on the state of real cross-border integration and short-run wage and price rigidities it could also provide some short-run stabilisation through its effect on the traded goods sector.

How well the exchange rate channel will work in this regard will to a significant degree depend on how closely exchange rates are aligned with fundamentals. That is, however, where the concerns seem to arise. Evidence seems to suggest foreign exchange markets exhibit excess volatility and that exchange rates diverge from fundamentals for lengthy periods. The existence of carry trades can in some sense be taken as evidence of this, as it involves a bet that interest rate differentials are not fully compensated by exchange rate movements, ie that uncovered interest rate parity does not hold. According to the theory of uncovered interest rate parity, low-yielding currencies should be expected to appreciate and high-yielding currencies to depreciate. However, what we observe over lengthy periods is the reverse, followed by sharp corrections.[17] In this regard, one could reflect on the yen versus the New Zealand dollar.

The basic problem is that the exchange rate has a dual nature. On the one hand it is a macroeconomic adjustment tool and probably the most important relative price of small and medium-sized open economies, and on the other hand it is an asset price with all the potential problems that can be associated with that. This means that the exchange rate can potentially be both a tool for stabilisation and a source of shocks. What aspect dominates in this regard is ultimately an empirical question and will in specific cases depend on structural features of individual countries and might be affected by the constellation of monetary, fiscal and prudential policies.[18]

The Great Moderation (greater stability of real growth and inflation) does not show up much in real exchange rates. Table 4, however, indicates that the volatility of real effective exchange rates at a monthly frequency is less for the majority of the countries included in the Table during the last five years than it is for the two preceding six-year periods starting in

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[17] Plantin and Shin (2006) provide a theoretical analysis of carry trades and speculative dynamics. Their findings suggest that markets such as the foreign exchange market, which combine significant costs of carry and low "resiliency" have the pre-conditions for large and persistent deviations of prices from fundamentals, followed by abrupt reversals. Their model predicts that UIP will fail and that a high-yielding currency will go "up by the stairs" and come "down with the elevator".

[18] Ho and McCauley (2003) give a good review of the experience of inflation targeting emerging market economies in living with flexible exchange rates and provide an interesting discussion of the associated policy issues.

1990. However, there are a few examples among the IT countries where volatility is higher (Canada, New Zealand, Norway and Chile). Furthermore, visual inspection of Graph 6 seems to indicate that although the high-frequency volatility might in many cases be lower in the last few years, the overall swings do not seem to have been noticeably reduced. To take examples, both Australia and New Zealand had two exchange rate cycles during this period. If the amplitude of each cycle is measured by the average of the changes from peak to bottom and back again, then in the case of Australia the first one was 15% and the second 28%. The respective figures for New Zealand are, strikingly, 27% and 41%.

Table 4

Volatility of real effective exchange rate[1]

	1990–95	**1996–2001**	**2002–06**
United States	1.49	1.17	1.40
Japan	2.64	2.73	1.46
Germany	0.98	0.93	0.74
Australia	2.16	2.21	1.65
Canada	1.23	1.12	1.51
New Zealand	1.29	1.82	1.94
Norway	0.76	1.11	1.63
Sweden	1.97	1.32	1.10
Switzerland	1.42	1.19	0.88
United Kingdom	1.81	1.48	1.13
Hong Kong SAR	1.47	1.57	1.30
Korea	1.47	4.52	1.38
Malaysia	1.46	2.99	0.98
Singapore	0.85	1.38	0.93
Thailand	0.82	3.84	0.95
Chile	2.22	1.75	2.15
Mexico	4.83	2.32	1.90
South Africa	1.32	3.15	3.89
All economies[2]	1.68	2.03	1.50
Mature IT countries[2]	1.57	1.51	1.34
Selected emerging Asian economies[2]	1.21	2.86	1.11

[1] Measured as the standard deviation of monthly changes; in terms of relative consumer prices.
[2] Unweighted average.

Sources: Central banks; IMF; BIS.

How much does this matter? The real economic costs of exchange rate volatility have proven hard to quantify. Estimates of the effects on trade and growth are usually much smaller than seem to be implicit in the discussions of many politicians and businessmen.[19] Furthermore, there does not seem to be a significant trade-off between exchange rate volatility and the volatility of important macroeconomic variables.[20] On the other hand there is a literature that indicates that the existence of separate currencies might be a significantly stronger impediment to trade. Thus, Andrew Rose has in several empirical papers found that membership in a monetary union increases trade with the other members very significantly at the same time as trade diversion seems to be small. Increased trade in turn increases growth.[21] Further evidence is provided by Frankel and Wei (1995), using a gravity model of bilateral trade, who find that membership in the EU increases trade with other EU members by at least 60%.

One possible way to square these results is to say that if you do have your own currency then its volatility within the bounds usually observed does not matter that much. However, if de facto and expected volatility vis-à-vis natural trading partners goes all the way to zero then the effects will be strong. It is only at that point that expected exchange rate volatility goes to zero and associated risk premia in domestic interest rates disappear.

A possible conclusion from all of this is the following: the exchange rate channel will work at the end of the day, although financial globalisation might be making the road bumpier. That might not matter too much, partly because financial globalisation is also providing the instruments (hedging etc) to reduce the cost of exchange rate volatility. However, if the cost of excess volatility in exchange rates is judged to be too high for small countries to bear, then they might consider entering a monetary union.

VI.   Some policy issues

The problems and challenges created for macroeconomic management in small but financially developed economies by ongoing financial globalisation can on the basis of the discussion in the sections above be summarised as follows:

- It is becoming more difficult to be out of sync with the rest of the world;

- The interest rate channel of monetary policy is becoming weaker and less predictable;

- Speculative capital flows are creating volatility in the exchange rate and at times significant decoupling from fundamentals;

- Such exchange rate volatility and overburdening of the exchange rate channel can have detrimental effects on the traded goods sector.

This short section will not provide a lengthy discussion of the potential policy responses to these problems. There is already an interesting discussion of those in several countries, not the least in New Zealand. Thus, for instance, the authorities in New Zealand have initiated a major review of its macroeconomic and prudential policies (see, for example, Reserve Bank of New Zealand (2006)). However, we can sketch the general directions that small and

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[19] See, for instance, Rogoff (1998). Levine and Carkovic (2001) obtain similar results in a panel study of the growth equation covering 73 countries over the period 1960–95.

[20] See Flood and Rose (1995).

[21] See Frankel and Rose (2002). These results have also been strongly disputed.

medium-sized countries can take when faced with a weakened interest rate channel and a misbehaving exchange rate. It seems that they have basically three options.

First, they can decide to live with it. After all, they will eventually be able to deliver their inflation target. The road will be bumpy in terms of exchange rate volatility and potential misalignments but it is not clear how strong the detrimental effects on the traded goods sector really are, partly because a sophisticated financial sector can provide hedging instruments.

<div align="center">Graph 6</div>

Real effective exchange rate developments[1]

[1] In terms of relative consumer prices; 1986–2006 = 100.

Sources: Central Banks; IMF; BIS.

Second, they can try to sharpen and realign existing instruments in order to reduce the burden on monetary policy and exchange rate adjustment with the aim of reducing adverse effects on the traded goods sector. This would involve measures like shifting the policy mix in the direction of fiscal policy, recalibrating prudential instruments with a view to minimising procyclicality, reviewing the tax and incentive structures of asset markets, particularly housing, and maybe even an occasional foreign exchange intervention. This seems to be the road upon which New Zealand, the pioneer of inflation targeting, is currently embarking. However, it remains to be seen how much mileage can be got out of measures of this type; there are, for instance, political economy problems with using fiscal policy for short-run stabilisation purposes, especially if there is already a significant fiscal surplus.

Finally, they could radically change the framework by entering a monetary union. Each country faces different options and its particular pros and cons in such regard. However, it is clear that, as both real and financial globalisation progress, the relative attractiveness of entering a monetary union increases, everything else being equal. The reason is that the world is heading in a direction where, for small economies that are unable to influence global interest rates, countercyclical monetary policy will be both impossible and unnecessary.

However, in many cases, especially among emerging market economies, we are still far from that state of affairs, and might never completely get there.

VII.   Conclusions

The interest rate channel of monetary policy will strengthen as domestic financial markets develop. Furthermore, liberalisation of capital movements will in most cases provide an additional impetus to domestic financial market development, thus strengthening the interest rate channel still more. However, theory predicts that financial globalisation will gradually weaken the interest rate channel in small open economies that are unable to affect global financial conditions, and in the most extreme cases block it completely. That will leave the exchange rate channel to deliver the inflation target and provide some short-run stabilisation.

Financial globalisation is a process and not a state of nature. It is therefore important to attempt to measure where individual countries and the world as a whole are in the process. This paper has surveyed various measures based on legal and regulatory frameworks, prices and quantities. What emerges is a mixed picture. Although there has been significant progress in financial globalisation in the last decade and a half, most countries are a significant way off from the limiting case of full integration. However, there are a few small and medium-sized mature economies where correlations of domestic long-term bond yields with global yields have become very high. This is consistent with the financial globalisation story but might also be caused by other factors, such as common shocks. However, there are a few cases (eg Australia and New Zealand) where common shocks cannot plausibly explain the correlation.

The data indicates that the effects of changes in policy rates on interest rates at longer maturities have become weaker among small and medium-sized mature inflation targeting countries. Similar, but weaker, effects can be found among emerging market economies. However, the data does not yet support proclaiming the interest rate channel dead. Moreover, although this trend is consistent with ongoing financial globalisation, it is also consistent with other explanations, such as more strongly anticipated credible monetary policy. It remains a challenge, and a matter for further research, to statistically distinguish between these two.

A weakening of the interest rate channel might be seen as a problem if the exchange rate channel is not well behaved due to excess volatility and decoupling from fundamentals. There is currently a lively discussion of the associated policy issues. Broadly speaking, small open economies face three options: to live with the situation, sharpen and realign existing policy instruments, or enter a monetary union. It will be interesting to observe how the policy discussion will unfold in the years to come.

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