No. 85
April 2011

TRÉSOR-ECONOMICS

«Regulating» emerging markets capital inflows?

This study was prepared under the authority of the Directorate General of the Treasury (DG Trésor) and does not necessarily reflect the position of the Ministry for the Economy, Finances and Industry.

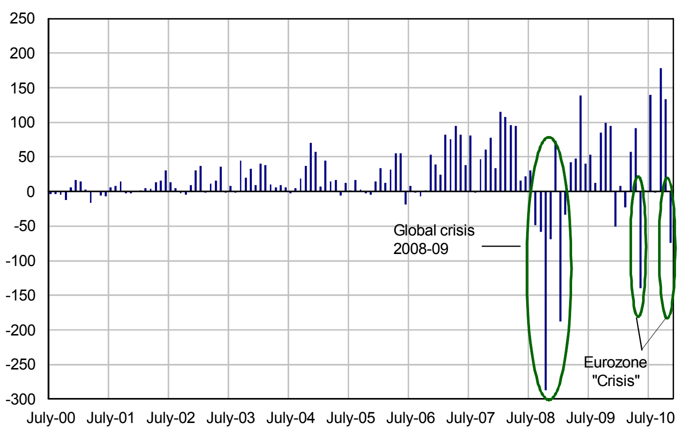
- Capital flows to the emerging countries have been trending upwards since 2003, driven by the significantly greater growth potential of these countries relative to the developed countries. Since spring 2009, indeed, capital inflows have recovered the peaks registered in 2007-2008, when they became so massive that several emerging countries took steps to regulate them more effectively. They exceeded even those peaks in the third quarter of 2010.

- Emerging markets capital inflows are to a large extent reversible. The brutal halt to capital inflows between October 2008 and February 2009 offers a striking illustration of this, but they have remained volatile since that time. The pace and direction of these flows depend in particular on investors' risk tolerance. When risk aversion abates, capital once more starts flowing to the emerging markets due to their distinctly more attractive yields.

- The instability of capital flows creates economic policy dilemmas for the emerging countries. In particular it puts constraints on the central banks in the conduct of their monetary policy. Recently observed capital inflows are also fuelling fears of asset price bubbles, overvalued exchange rates and/or ballooning currency reserves. These risks are at work, mainly in Asia and Latin America.

- Brazil's imposition of a tax on short-term capital inflows (portfolio investments) in October 2009 has sparked a debate on the need for better regulation of capital flows. The International Monetary Fund (IMF) has recently shifted its stance on this issue, spelling out cases in which regulation may be appropriate, supplementing economic policy measures. In such cases, this may involve either stricter prudential regulation or capital controls, provided these do not compromise the open character of the financial account in the balance of payments, or a combination of these two options.

Emerging markets capital inflows (USD Bn)



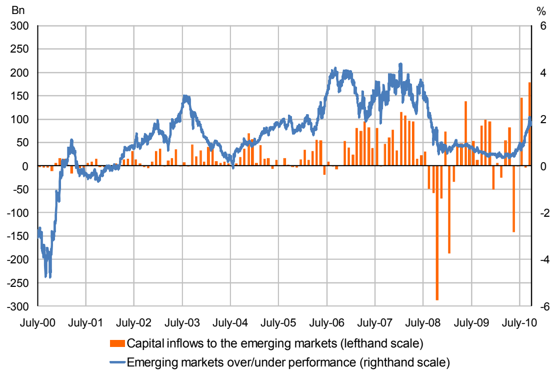
Sources: Global Insight, Reuters, DG Trésor estimates.

1. Capital inflows to the emerging countries are structurally high

1.1 The emerging markets have represented the best risk/return trade-off since 2002, leading to a structural rise in capital inflows to these countries

Capital inflows to the emerging countries have been on an upward trend since 2003, due to their structurally more attractive growth potential relative to the developed countries. In the financial markets, this has materialised since 2002 in the shape of rising returns in the emerging countries, while the volatility of these returns has diminished. The risk-adjusted return[1], which provides a synthetic view of the risk/return trade-off for an investor, began moving in the emerging countries' favour vis-à-vis the developed countries in 2002 (see Chart 1).

Chart 1: Capital flows and the gap in risk-adjusted returns between emerging countries and developed countries



Source: IMF, DG Trésor calculations.

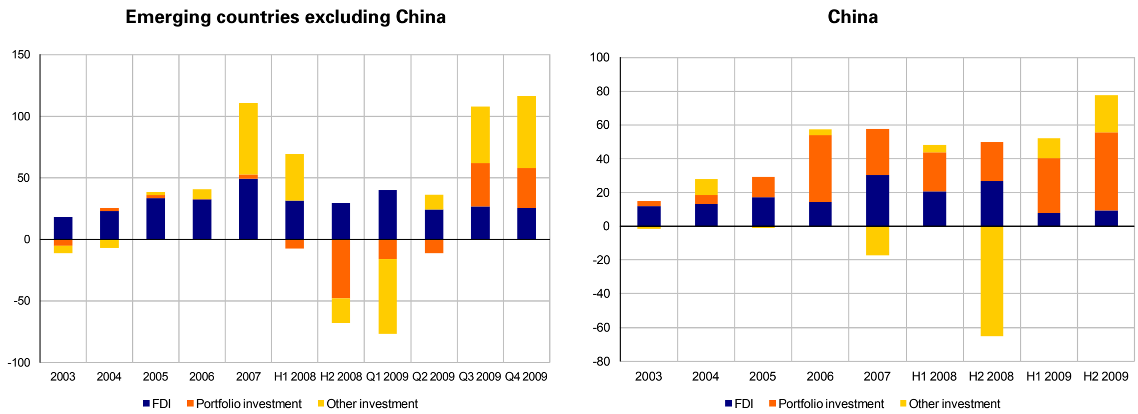
The growth in emerging markets capital inflows has been boosted by a long period of stability, with no crisis between 2002 (Argentina and Turkey) and 2008 (with the impact of the global crisis on the emerging countries), i.e. six years without a crisis, something unseen for several decades. Initially, the emerging markets appealed to asset managers not because of their higher returns, but because of the sharp drop in risk. The fact the emerging countries' risk-adjusted return surpassed that of the developed countries for the first time since 1995 had attracted capital to these markets and thus enhanced the improvement in the risk-adjusted return (via improving returns, see 2.1). Between 2006 and 2008, the perception of very low risk-which, generally in hindsight, has been considered excessive-led to an increasingly clearcut decoupling of stock market indices between the developed and the emerging countries.

Perceptions of risk began rising and major capital outflows occurred as from September 2008 onwards, in the wake of the Lehman Brothers collapse. This illustrates once again the fact that large capital inflows into the emerging markets are frequently followed by sharp outflows. After the crisis, lasting from the final quarter of 2008 to the first quarter of 2009, there are grounds for thinking that much of the very steep capital inflows (with a series of historic highs in May 2009, and in July and September 2010) offset the excessive outflows at the time of the crisis.

1.2 Emerging markets capital inflows are increasingly the result of interbank and portfolio flows. These are inherently less stable than foreign direct investment

The stabilisation of the emerging countries' macro-financial situation from 2002 onwards stemmed the short-term capital outflows (portfolio and other investments) and boosted foreign direct investment (FDI). Subsequently, the bulk of the sharp rise in capital flows observed from 2007 onwards (from 2006 in the case of China) concerned short-term capital inflows (see Charts 2).

Chart 2: Breakdown of capital inflows by type of flow (in quarterly averages and USD Bn)



Sources: IMF, DG Trésor calculations.

(1) This indicator corrects the return on an asset for the volatility of these returns, yielding a truer and synthetic picture of the potential trade-off between different asset classes. Here, the risk-adjusted return for each region is the relationship between the 2-year return on the Morgan Stanley MSCI index (the equity markets benchmark index) and the standard deviation of this return over the same 2 years.

The structure of capital flows differs greatly between China and the other emerging countries. China witnessed a steep rise in portfolio flows starting with the first Yuan revaluation in July 2005. These capital inflows benefited from a relative absence of currency risk and speculated on a larger future appreciation of the Yuan. For the other emerging countries, "other investment" (interbank lending especially) accounted for the bulk of capital inflows from 2007 onwards.

Since the crisis, portfolios flows have taken on greater importance than previously in the emerging countries other than China. These capital inflows are driven by the large-scale debt and equity issuances registered or in progress in these markets (e.g. the major Petrobras capital increase in Brazil in September 2010) and hence reflect a genuine demand for financing on the part of the emerging countries. *Prima facie*, therefore, they appear to be desirable, albeit potentially destabilising in the longer run owing to their reversibility.

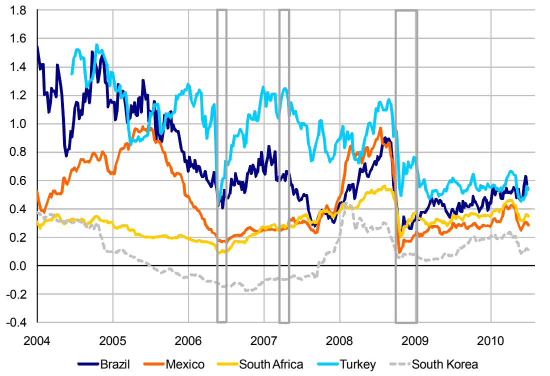
2. At present, capital inflows are being driven partly by carry trade strategies. This exposes the emerging countries to heavy pressure on their currencies and to the risk of asset price bubbles

Emerging countries' financial markets are not always sufficiently deep and liquid to absorb incoming capital. These markets' low absorbent capacity increases the risk of asset bubbles forming and of an overvalued currency, and complicates the task of monetary policymaking.

2.1 Carry trade type arbitrage strategies are profitable because of the narrowness of emerging countries' financial markets

Emerging markets investment strategists seek high returns and low risk. The carry-to-risk ratio[2], which compares the additional return on an investment in an emerging country with a measure of that country's currency risk, provides a synthetic statistical estimate of this trade-off. This indicator suggests that dollar-funded carry trade transactions offer a positive adjusted return *ex ante* for nearly all currencies, with the exception of the South Korean Won before 2008 (see Chart 3). Whereas the return was extremely high before the crisis, owing to the very wide rate spread between the emerging countries and the United States[3], this narrowed sharply at the time of the crisis in 2008, due to increased *ex ante* currency risk. In the recent period, returns on the carry trade have increased significantly, particularly on investments in Brazil, Mexico and South Africa, in connection with persistently low rates in the United States, the progressive tightening of rates in Brazil and Turkey, and the general drop in ex ante currency risk indicators.

Chart 3: 3-month carry-to-risk ratio for a dollar-funded investment



Source: IMF data, DG Trésor estimates.

Partly shaded zones correspond to periods of unwinding of the carry trade, i.e. May 2006, February 2007 and September-October 2008.

These arbitrage activities represent a substantial risk for the emerging countries given the herd-like behaviour of investors in the emerging financial markets. For example, the IMF has shown that, over the long period, capital flows can partly be explained by rising returns, but that these returns are themselves caused by capital flows[4]. This circular relationship tends to breed persistently rising returns, even when less and less justified by fundamentals.

In the same study, moreover, the IMF shows that the narrower the domestic capital market, the higher the returns, thereby increasing the risk of bubbles.

(2) The Carry-To-Risk ratio is calculated as the difference between the 3-month return on target country rates and on those offered by the financing country, divided by the implicit volatility as reflected by currency options. Here we take interbank rates for each currency considered. The Carry-to-Risk ratio measures the return adjusted for ex ante risk, i.e. prior to initiating the transaction.

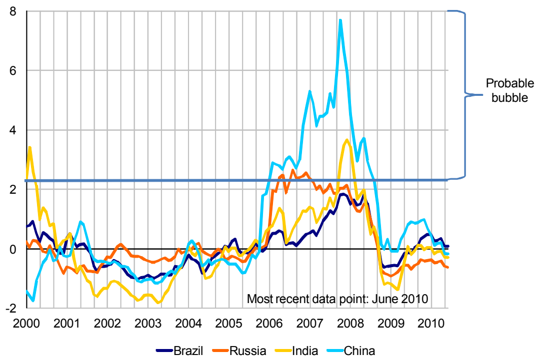
(3) For example, the 3-month rate in Brazil was 16%, 15% in Turkey, and 9% in Mexico, versus 4% in the United States, at the end of 2005.

(4) Global Financial Stability Report, IMF, autumn 2010.

2.2 No bubble appears to have arisen on the stock markets of the main emerging countries, for the time being

The hefty capital inflows observed in the emerging countries since the end of the crisis have benefited the stock markets more so than before the crisis, but there is no sign yet that these inflows have created bubbles comparable to those that arose in certain emerging countries' stock markets before the crisis. Stock market valuation levels are estimated via the ratio of equity prices to the profits of listed companies (i.e. the price earnings ratio, PER, see Chart 4[5]). Since it is normal for a PER to rise when the economy is strong and to fall when it is weak, the indicator used is adjusted for these cyclical swings so as to reflect structural trends only. The emerging countries' stock market indices have rallied very strongly since the 2008-2009 crisis, but this has not led to excessively high valuations, however, contrary to 2006-2008.

Chart 4: Cyclically-adjusted Price Earnings Ratio (PER) in standard deviations from the historical mean for the period 1998-2010



Source: Datastream, DG Trésor calculations.

In 2007, China's PER diverged from its historical mean by nearly eight standard deviations, suggesting the existence of a bubble at that time.

Three factors may account for the absence of a bubble at the present time:

- the supply of loanable funds was unchanged until the end of the first half of 2010, given that capital flows observed since the end of the crisis, though substantial, initially compensated for the outflows prompted by the crisis. Things could turn out differently if the hefty capital inflows seen in Q3 2010 were to continue;
- demand for loanable funds has increased significantly, since the domestic capital markets have expanded since the end of the crisis, especially the markets catering to businesses in Asia and to banks in Brazil (*letras financeiras*). Major equity issues have also occurred on stock markets of several of the leading emerging countries (Brazil notably). This growth in the capital markets and these large-scale equity issues have helped to absorb the capital flows and reduce the risk of bubbles arising;
- the central banks of most of the leading emerging countries have scrapped the exceptional measures taken to support liquidity during the crisis. Compulsory reserve requirements have thus been raised significantly in China, India and Brazil.

2.3 The instability of capital flows has engendered a high degree of exchange rate variability for countries with floating currencies, and has boosted currency reserves, which are costly to sterilise

Non-resident purchases of assets in local currency often account for a large proportion of emerging countries' capital inflows. However, these inflows put upward pressure on exchange rates, and there are a number of ways in which central banks can respond.

The central bank can intervene in the exchange rate to delay its appreciation, although this raises three difficulties, namely:

- exchange rate intervention can prove ineffective and fuel speculation over a future appreciation of the currency;
- this strategy can lead to an excessive build up of central bank foreign exchange reserves if these are already sufficient, as is the case for several countries[6]. This accumulation of reserves carries an opportunity cost connected with the low yield on reserve assets by comparison with the potential return from investing these amounts in the domestic economy;
- these foreign exchange interventions, which consist in buying foreign currency, create money mechanically. The money thus created needs to be sterilised, by central bank sales of securities in the local currency, to head off any long-term inflationary impact[7]. These sales of securities serve to mop up the excess local currency liquidity. However, this is an expensive process, since the securities sold frequently carry a high rate of interest to attract investors. The currency reserves held, on the other hand, are for the most part invested in risk-free, low-yielding assets. The resulting diffe-

(5) Cyclically-adjusted PERs are calculated by assuming that observed profits can be broken down into a cyclical (observable) component, which depends on a leading cyclical indicator, here the OECD composite indicator, and an underlying (non observable) component. The model is estimated by means of the Kalman filter. For further details on the method of estimation used, see Montagné F. (2007). "Are stock markets still overvalued?" *Trésor-Economics* no. 22, November 2007.

(6) See Colliac S. and Rebillard C. (2011). "Évolution des réserves de change dans les pays émergents et stratégies d'accumulation", *Trésor-Eco*, forthcoming.

(7) The problem is rather similar in both fixed-rate and flexible regimes, insofar as the emerging countries intervene massively in their currency even if they have a flexible exchange rate regime.

rence in returns can represent a hefty financial cost for the central bank.

Admittedly, the central bank can let the exchange rate appreciate. But this has its drawbacks as well:

- a first risk is that the exchange rate enters an upward cycle leading to overvaluation, making the country less competitive. That is because an exchange rate appreciation lifts the ex post returns on non-residents' investments, thereby tending to boost capital inflows;
- more specifically, a cycle of currency appreciation can spell risks for residents too, for in an over-lax prudential framework they may be tempted to take over-large positions on currency derivatives, hoping that the currency will continue to appreciate. A reversal in the currency's direction could spell heavy losses for these residents, as notably happened in Brazil in Autumn 2008. From a broader standpoint, when this kind of trend goes into reverse, the unwinding of positions on currency derivatives can accentuate the slide, turning it into a rout, as occurred in several emerging countries in Autumn 2008 and again in May 2010.

3. Increasing capital inflows to the emerging markets has led some of these to take steps to regulate these flows more effectively, reopening the debate on capital controls

Those countries whose exchange rates are appreciating the most in response to capital inflows are those that are running a current account deficit (e.g. Brazil, South Africa and Turkey in particular). Currency intervention in these countries, which operate flexible exchange rate regimes, is largely inoperative. In such cases, regulating capital flows may come to be seen as an attractive option in order to limit capital inflows and modify their structure.

3.1 Certain emerging countries have recently introduced capital controls, Brazil in particular, while others have had measures of this kind in place for some time already

Many countries have structural restrictions on capital inflows. This takes the form of either administrative controls limiting the amount non-residents are allowed to invest (e.g. China and India[8]), or compulsory non-interest bearing deposits with the central bank, as in Argentina[9].

Administrative controls entail partially closing the capital account. This needs to be distinguished from measures penalising certain capital inflows while keeping a capital account open. These last are more flexible and easier to put in place, and then withdraw. This explains why countries that have opted for this solution, such as Brazil, were able to introduce controls when capital inflows surged in 2007-2008, then withdraw them on the eve of the crisis, then reintroduce them when capital inflows surged again.

Various forms of regulation of capital movements are available to emerging countries wishing to reduce net capital inflows.

Some countries have introduced measures aimed at penalising returns on arbitrage strategies, depending on the circumstances. This type of control seeks to counteract capital inflows thought to be high temporarily, and may include a tax on capital inflows (as in Brazil, see Box 1) or higher compulsory reserve requirements on bank deposits for non-residents than for residents (as in Peru).

Another, and possibly complementary, strategy consists in relaxing previously existing controls on capital outflows, making it easier for residents to invest abroad and so offset inflows, e.g. Malaysia, Thailand and South Africa.

Another possibility is to scrap preferential measures benefiting foreign investors. This is not about capital controls, since it aligns the hitherto more favourable regime applicable to non-residents with that applicable to residents. That is what Thailand did in October 2010, when it extended its 15% tax on interest streams and capital gains to non-residents.

Finally, prudential measures can act on the volume of capital flows. In particular, limitations on residents' maximum exposure to currency derivatives, as introduced by South Korea in June 2010, and by Indonesia, are designed to avoid the emergence of self-fulfilling cycles between expectations of currency appreciation, capital inflows and ex post returns on these investments.

(8) In India, these limits apply to debt securities. However, the Finance Ministry has recently raised the annual ceiling on foreign purchases of Indian Treasury Bonds from USD 5 to 10 Bn, and that on foreign investments in corporate bonds from USD 15 to 20 Bn.

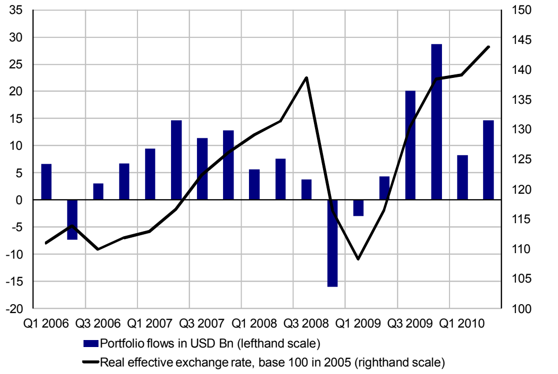
(9) In the past, Chile (via its *encaje* system) and Colombia (2007-2008) were two other examples of this type of control.

Box 1: **Brazil's capital controls**

Brazil ranks among the countries that have attracted the largest capital inflows since Spring 2009. However, the structure of these inflows is more problematic than in the previous phase of heavy inflows, in 2007/2008, insofar as portfolio flows account for a much larger share than previously. This does not appear to have generated asset price bubbles (see 2.2), but it has led to an appreciation of the Real (see Chart 5).

Hefty portfolio inflows and the resulting appreciation of the Real led the Brazilian government to introduce capital controls. These took the form of an expanded version of the tax that had been in force between March and October 2008, now covering all portfolio flows, including both debt and equity securities. The tax was set at 2% in October 2009.

Chart 5: Intensity of portfolio flows and changes in real exchange rate in Brazil



Sources: Bank for International Settlements (BIS), IMF.

This was broadened to include American Depositary Receipts (ADRs), which are listed in New York and which are convertible into Brazilian shares, taxed at a rate of 1.5 %, insofar as one could circumvent the tax by purchasing ADRs. However, non-residents could still invest in Brazil by betting on the Real's appreciation via intra-group loans, which are not subject to tax since they are recognised as foreign direct investments (FDI), via foreign currency loans to Brazilian residents, or via recourse to currency derivatives. The Real has gone on appreciating since then[a].

The government then decided in October 2010 to raise the tax on non-resident purchases of local currency debt securities issued in Brazil from 2 to 6%. The tax on guarantee deposits applied to non-residents investments in futures contracts (currency derivatives) went from 0.38% to 6.00%. The first effects of this severe tightening of controls appear to have been a widening of spreads (nearly 60 basis points in the early days) and the resumption of Real-denominated debt issuance by the government on the euro-bond markets (to which the tax did not apply). The effect on the exchange rate is hard to ascertain, insofar as a tightening of China's key rates on the day after the announcement of tougher controls sparked a moderate depreciation of all emerging markets' currencies.

a. This appreciation stems also in part from capital inflows connected with a major rights issue by Petrobras.

3.2 Regulating capital flows is one of a range of solutions to these massive capital inflows and their instability

Capital controls are one form of response to these large-scale capital inflows, though not the only one. In particular, if economic policy is what is attracting capital, then it may be preferable to modify this policy, by tightening fiscal policy, for example, and/or by cutting interest rates, before introducing controls. Moreover, these capital inflows could serve as a platform for necessary changes such as an appreciation of the exchange rate (for countries with a current account surplus) and/or increasing currency reserves (as in the case of the emerging European countries, for instance, whose reserves were seriously depleted in the recent crisis).

According to the IMF[10], capital controls could prove appropriate when the following set of circumstances prevails:

- interest rates cannot be cut without sparking inflationary pressures;
- the level of foreign exchange reserves is adequate and any increase would exacerbate global imbalances;
- the country's currency is not undervalued and its appreciation would undermine the competitiveness of its export industries;
- the central bank cannot sterilise all of the liquidity resulting from capital inflows, either because this would be too costly, or because the market is too narrow;
- the capital inflows are not caused by fiscal policy;
- the capital inflows are deemed to be transitory, with capital controls ineffective beyond the short term.

If most of these conditions are met, the introduction of capital controls might be an appropriate economic policy option, supplemented by tighter prudential regulation in order to limit foreign currency borrowing.

(10) See Ostry J.D., Ghosh A.R. et al. (2010). "Capital Inflows: The Role of Controls", *IMF* Staff Position Note SPN/10/04, February. Indeed academic studies have tended to show that capital controls can prove appropriate, e.g. Jeanne O. & Korinek A., (2010). "Excessive Volatility in Capital Flows: A Pigouvian Taxation Approach," *American Economic Review*, American Economic Association, vol. 100(2), pages 403-07, May.

In the light of these elements, on which there is a fair degree of consensus, the strategies emerging countries should follow may be summed up as follows:

- current account surplus countries, chiefly in emerging Asia, should let their currencies appreciate against those of current account deficit countries before considering introducing controls;
- current account deficit countries should start by consolidating their fiscal position, and should adopt capital controls only as a last resort.

Finally, a unilateral tightening of capital controls in certain countries only runs the risk of diverting part of the flows to other emerging countries, which would then come under pressure to take similar measures. That would entail a risk of sparking a cycle of exaggerated restrictions on capital flows. It would further be liable to justify measures better described as financial protectionism (e.g. restrictions on foreign direct investment) than as macroeconomic fine-tuning, with the attendant risk of retaliatory measures by partner countries. A policy coordination framework and a corpus of common criteria governing the introduction of capital controls might be useful, from that perspective.

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Publisher:

Ministère de l'Économie,
des Finances et de l'Industrie

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English translation:

Centre de traduction des
ministères économique
et financier

Layout:

Maryse DOS SANTOS

ISSN 1777-8050

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