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CONTENTS

ARTICLES

CONTENTS

| PUBLISHED ARTICLES

| OTHER PUBLICATIONS

| STATISTICS

France's balance of payments and international investment position in 2007

Balance of Payments Division

In 2007, France's balance of payments showed a current account deficit of EUR 22 billion, i.e. 1.2% of GDP. French direct investment abroad amounted to EUR 164 billion, slightly below the exceptional level recorded in 2000. Foreign direct investment in France reached a record level of EUR 115 billion. Portfolio investment posted net outflows of EUR 132 billion. The current account deficit and the net outflows corresponding to direct and portfolio investment were financed by net inflows of other investment deposits and loans amounting to EUR 161 billion.

The worsening of the current account deficit is related to a EUR 11 billion increase in the goods deficit to EUR 40 billion. It is partially offset by a EUR 1 billion rise in the services trade surplus to EUR 11 billion. The other components of the current account show similar balances to those in 2006, i.e. an income surplus of roughly EUR 29 billion and a current transfers deficit of EUR 22 billion.

French direct investment abroad was still higher than foreign direct investment in France. Overall, net direct investment outflows have increased significantly over the past few years to stand at EUR 49 billion in 2007, after EUR 34 billion in 2006 and EUR 24 billion in 2005.

Net portfolio investment outflows have been on an upward trend since 2005: EUR 132 billion in 2007, compared with EUR 59 billion in 2006 and EUR 15 billion in 2005. In 2007, net purchases of foreign securities by residents stood at EUR 161 billion, down by EUR 110 billion on the previous year. Net purchases of French securities by non-residents declined by EUR 182 billion to EUR 29 billion. These large net outflows recorded in 2007 are partly attributable to purchases by resident banks of securities issued by their foreign subsidiaries. These transactions, conducted within international banking groups, are matched either by transactions in financial derivatives, which posted net inflows of EUR 42 billion in 2007, compared with EUR 3 billion in 2006, or an increase in interbank liabilities.

Like in 2006, the current account deficit and the net direct and portfolio investment outflows were mainly financed by an increase in resident banks' net international liabilities.

Despite being adversely impacted by the current account deficit, the domestic savings rate[1] (obtained by adding the current account as a percentage of GDP and the investment rate) continued its upward trend observed since 2003 to stand at 21% in 2007.

1   *The current account balance is, in accounting terms, the difference between national savings (income minus consumption) and investment carried out in France.*

1| Current and capital accounts

The current account deficit reflects an increase in the goods deficit, which climbed from EUR 29 billion to EUR 40 billion as a result of a deterioration in the trade in cars and intermediate goods. The services trade surplus was up by EUR 1 billion to stand at EUR 11 billion. This improvement stems from a slight increase in the travel and transport balances. The travel surplus reached nearly EUR 13 billion, close to the record surplus of EUR 14 billion recorded in 2000. Conversely, the surplus on "other services" posted a slight decrease, totalling EUR 1.3 billion.[2]

Like in 2006, the income surplus stood at roughly EUR 29 billion. This balance is the highest since 1999. The current transfers deficit has remained stable (at around EUR 22 billion) for the past three years.

1|1 Goods

In 2007, the goods balance still posted a deficit, amounting to EUR 39.7 billion, compared with EUR 29.4 billion in 2006.

The customs trade deficit in fob-fob terms increased further to EUR 10.6 billion. Contrary to what had been recorded the previous year, this deterioration is not attributable to the energy trade deficit. The latter actually declined by around EUR 1 billion as a result of a slight drop in average oil prices and a reduction in imported volumes. The customs trade deficit excluding energy worsened mainly on account of a deterioration of the trade balance in cars (EUR 4.4 billion) and intermediate goods (EUR 4.3 billion). From a geographical perspective, the goods trade with the euro area and China appears to have deteriorated markedly, posting trade deficits of EUR 6.5 billion and EUR 3 billion respectively.

1|2 Services

After having been on a downward trend since the start of the decade, the services trade surplus increased by EUR 1.1 billion to stand at EUR 11 billion in 2007.

This improvement results from a EUR 0.9 billion decline in the transport trade deficit and a EUR 0.7 billion rise in the travel surplus, despite a EUR 0.5 billion decrease in the surplus on other services.

---

2 *Other services mainly correspond to trade in services between companies, such as financial, IT, communication or construction services, royalties and licence fees, and research, technical assistance and study fees. They also include insurance services, personal and audiovisual services and government-related services.*

Transport

Given that receipts recorded much stronger growth than expenditure (4.3% and 0.4% respectively), the transport trade balance fell by EUR 0.9 billion. However, it continued to post a deficit (amounting to EUR 3.1 billion) for the fourth year running.

This improvement is the result of a reduction in the air transport deficit (EUR 0.3 billion) and the maritime transport deficit (EUR 0.4 billion) and a rise in the surplus on other transport (EUR 0.1 billion).

Travel

The travel trade surplus totalled EUR 12.8 billion in 2007, up by EUR 0.7 billion on the previous year, thus standing at the same level as at the start of the decade.

Like in previous years, this surplus stems from France's trade with European Union countries (EUR 15.1 billion), the deficit with Spain being largely offset by the positive tourism balance with the Benelux, the United Kingdom and Germany.

Other services

The surplus on other services fell again in 2007, but to a much lesser degree (EUR 0.5 billion after EUR 4.1 billion in 2006). Expenditure posted higher growth than receipts, which, after having remained almost unchanged in 2006, posted a rise (7.3% and 5.4% respectively).

This surplus is attributable both to international merchanting, which was significantly reviewed in 2007,[3] and royalties and licence fees. It offsets in particular the deficit on "miscellaneous services to businesses".

Chart 1 Current account

(EUR billions, unadjusted)

— Current account   - - - Goods   .... Income   — Services   - - - Current transfers
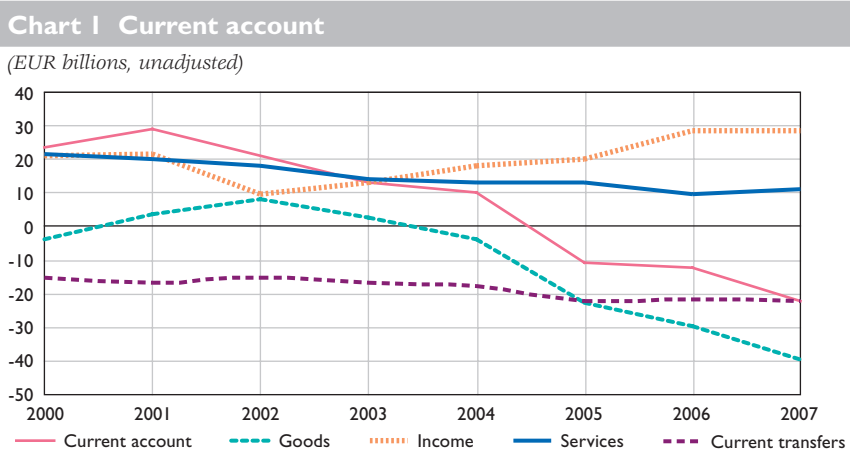
3   See 2007 Annual Report on France's Balance of Payments *Box 3 page 26.*

The balance for royalties and licence fees was up by EUR 0.8 billion, mainly on account of the surplus recorded in the pharmaceutical sector. The construction, insurance and financial services balances also improved. Conversely, the balance for IT services, international merchanting, commercial services and miscellaneous services to businesses worsened. The latter fell by EUR 1.4 billion in 2007, compared with 1.8 billion in 2006, as a result of the changes in the "management fees" item, which records the financing of the operation of subsidiaries or other entities abroad.

1|3 Income

In 2007, the income surplus stood at EUR 28.5 billion, down by EUR 0.3 billion on 2006, when it had increased by EUR 8.6 billion. Expenditure and receipts posted a strong rise (23.0% and 18.5% respectively).

This surplus reflects the traditional surplus on direct investment income combined with the surplus on the compensation of employees.

In 2007, portfolio investment income registered a surplus, after having shown a deficit for the past five years. This improvement stems from a significant rise in receipts.

Conversely, the deficit on other investment income continued to widen.

Chart 2 Investment income balance (incl. reinvested earnings)
(EUR billions)

Direct investment income — Portfolio investment income — Other investment income — Total
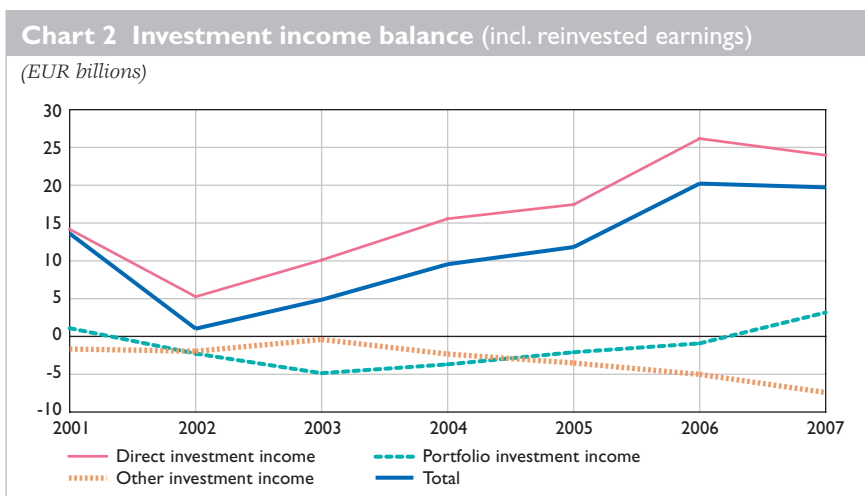
1|4 Current transfers and capital account

In 2007, the current transfers deficit rose by EUR 0.5 billion relative to 2006 to stand at EUR 2.1 billion. Expenditure and receipts dropped by 0.9% and 4.1% respectively.

The capital account recorded a surplus, mainly as a result of the sale by a French company of oil mining rights.

2| Financial account

The financial account records French residents' trade in financial assets with the rest of the world. In 2007, inflows exceeded outflows by EUR 22.2 billion, compared with EUR 70.5 billion in 2006. Like in 2006, this situation was mainly brought about by deposits and loans, which posted net inflows of EUR 161.3 billion. These flows – after taking into account of valuation effects and euro exchange rate variations – resulted in a net external asset position at market value of EUR 254.4 billion (13.4% of GDP), compared with EUR 116.2 billion in 2006 (6.4% of GDP).

2|1 Direct investment

In 2007, direct investment posted net outflows of EUR 48.7 billion, as against EUR 34.4 billion in 2006. The ongoing international merger and acquisition activity has led to an intensification of cross-border relations between affiliated companies regarding both French investment abroad and foreign investment in France.

France's net direct investment position stood at EUR 566 billion, up by EUR 44 billion in year-on-year terms. Assets and liabilities were up by EUR 159 billion and EUR 115 billion respectively. The scale of these changes are in line with observed transaction flows (EUR 164 billion and EUR 115 billion respectively), reflecting the fact that the increase in the prices of shares and other equity offset the euro exchange rate effects.

French direct investment abroad

French direct investment abroad amounted to EUR 164.1 billion in 2007, compared with EUR 96.7 billion in 2006. This is the second highest level after the record high of EUR 192.6 billion registered in 2000. It can largely be attributed to the strong increase in intercompany loans. These transactions appear to have become increasingly interchangeable with equity capital transactions. Nowadays, the major French groups

have an important network of subsidiaries abroad in order to carry out purchases in other geographical areas. These groups are thus able to carry out equity capital transactions abroad, either via a resident structure (parent-company or subsidiary), or via their subsidiaries abroad, which benefit from intercompany loans. In 2007, the share of equity capital transactions (excluding real-estate investment) amounted to 34.5% of total net flows, compared with 60% in 2006; conversely, the share of other capital, i.e. short and long-term loans and cash pooling from French companies to their non-resident subsidiaries, was up by 35 percentage points to 49%. Industrialised countries are still the major recipients of French direct investment abroad.

According to the breakdown by type of transactions, equity capital transactions (excluding real-estate investment) dipped slightly from EUR 55.4 billion in 2006 to EUR 53.2 billion in 2007. Among the main transactions carried out in 2007, it is worth mentioning the acquisition by Danone of Numico (Netherlands), leading European company specialised in baby food and clinical nutrition, and the merger of Unibail and Rodamco (Netherlands).

Other capital stood at EUR 80.4 billion, i.e. roughly six times the net amount recorded in 2006. Lastly, real-estate investment increased to EUR 3.3 billion from EUR 2.9 billion in 2006, and reinvested earnings rose by EUR 2.6 billion to EUR 27.2 billion.

From a geographical perspective, the 27 countries of the European Union and the 13 euro area countries receive 75.5% and 63% respectively of net direct investment flows. The degree of concentration in the euro area appears to be stronger than in 2006. However, the United States is still one of investors' favourite countries and ranks second among the recipients of French direct investment.

In 2007, industrialised countries accounted for over 91% of French direct investment abroad, as against 86% in 2006. The share of industrialised countries is, however, overestimated by the international methodology used to calculate direct investment, based on the principle of first counterpart country.[4] This probably explains why French direct investment in the Asia-Pacific region appears to be so low.

The stock of French direct investment abroad in market value terms grew at a slower pace in 2007 than in 2006 (around 11% compared with 17%). Despite major transaction flows, the value of the stock was reduced by EUR 5.6 billion due to exchange rate and asset price variations. The share of the stock of French direct investment abroad made in listed companies remained stable, amounting to EUR 101.4 billion, i.e. around 8% of the total.

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4 *According to this principle of the 5th IMF Balance of Payments Manual, the country considered as the recipient of French direct investment abroad is not the country of the ultimate beneficial owner of the invested funds but the first country of location when they leave France. In balance of payments statistics, French investment in China transiting through a Dutch subsidiary shall be considered as French direct investment in the Netherlands.*

Chart 3 Direct investment

(EUR billions)

A: French direct investment abroad

B: Foreign direct investment in France

| Equity capital | Reinvested earnings | Other transactions | —— Total |
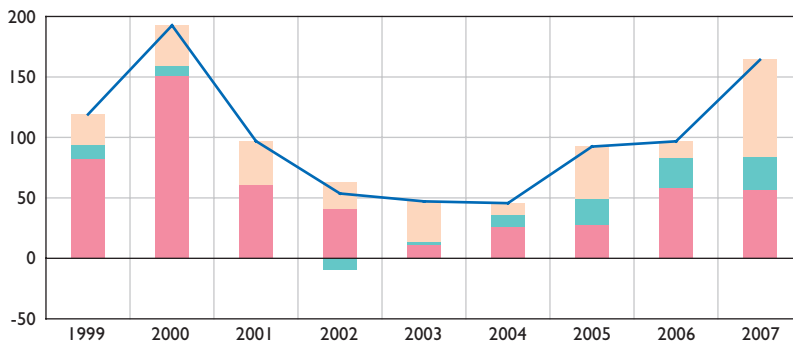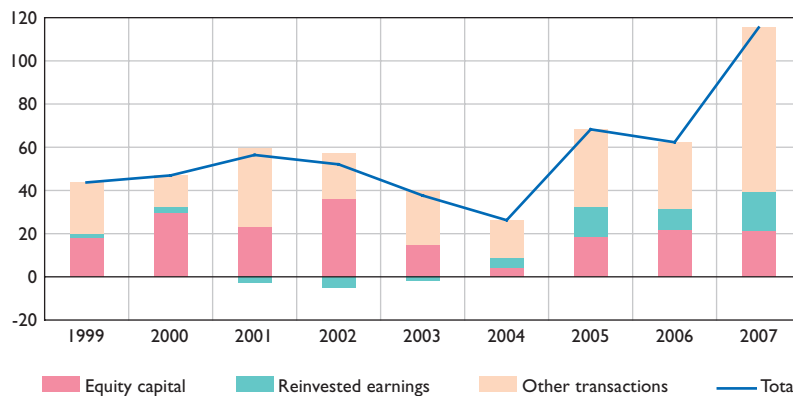
Foreign direct investment in France

In 2007, foreign direct investment in France amounted to EUR 115.4 billion, a record high, compared with only EUR 62.3 billion in 2006. Other capital and, to a lesser extent, reinvested earnings posted a sharp increase, to stand at EUR 76.2 billion and EUR 17.6 billion respectively. Real-estate investment rose by EUR 2 billion to EUR 10.9 billion. Only equity capital transactions remained stable at EUR 21.7 billion. As in 2006, industrialised countries were still the leading foreign investors in France.

Real-estate investment continued to expand despite the ongoing price increase both for residential and commercial property, and the completion of a large number of projects in the past few years.

However, the surge in intercompany loans (147% over one year), which had already been pointed out in the case of French direct investment abroad, should be put into perspective. Indeed, according to the current methodology used by the IMF, if a French group sets up its cash centre

abroad, the funds deposited there by resident entities with excess cash will be considered as French direct investment abroad; similarly, funds made available to resident entities shall be considered as foreign direct investment in France. This leads to an overestimation of direct investment inflows and outflows and skews the geographical breakdown in favour of countries hosting cash centres.

Given the principle of first counterpart country, euro area countries are still the main foreign investors in France, accounting for nearly 62% of total foreign direct investment flows. The Netherlands is the leading investor in France, followed by the United States and the United Kingdom.

The stock of foreign direct investment at market value increased by 11.7%, reaching EUR 1,098.1 billion, almost entirely as a result of inflows since price effects only accounted for EUR 4.1 billion of the total. Exchange rates against the euro have a very limited impact on foreign direct investment in France as only a small proportion of intercompany loans is denominated in foreign currencies.

2|2 Portfolio investment

In 2007, portfolio investment net outflows stood at EUR 131.9 billion, compared with EUR 59.4 billion in 2006.

Equity investment posted net outflows of EUR 44.8 billion, compared with inflows of EUR 14.7 billion in 2006. This swing is attributable to the sale of EUR 16.5 billion worth of foreign equities by residents (after having been net buyers in 2006) on the one hand, and the sale of EUR 61.3 billion worth of French equities by non-residents (also net buyers in 2006). Sales of equities issued in the euro area by French investors registered a substantial increase from EUR 2.4 billion in 2006 to EUR 15.1 billion in 2007.

As regards the other financial instruments, net outflows totalled EUR 87.1 billion, compared with EUR 74.1 billion in 2006. By type of instrument, outflows on mutual fund shares were significantly higher than in 2006: EUR 59.7 billion as against EUR 4.2 billion. Conversely, outflows on debt securities with maturities of over one year and money market instruments recorded a decrease, falling to EUR 22.1 billion and EUR 5.3 billion from EUR 60.2 billion and EUR 9.6 billion respectively.

At end-2007, France's portfolio investment position showed net assets of EUR 112.6 billion, compared with net liabilities of EUR 154.5 billion at end-2006. However, this improvement is largely due to the better statistical

Chart 4 Portfolio investment

(EUR billions)

A: Equity portfolio investment

■ Net purchases of foreign equities by residents
■ Net purchases of French equities by non-residents
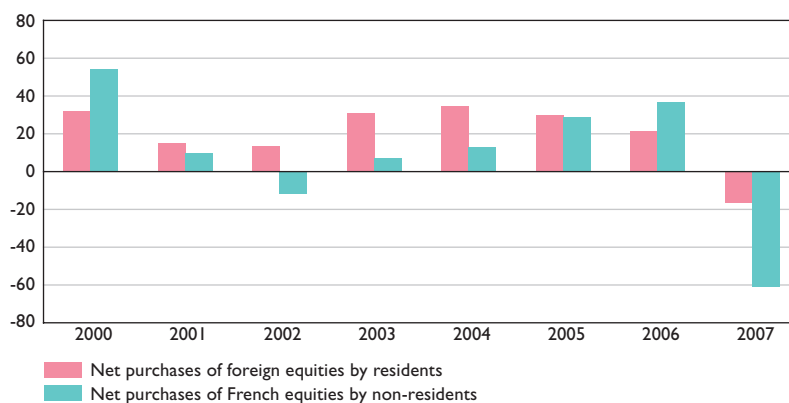
B: Portfolio investment excl. equities

■ Net purchases of foreign securities (excl. equities) by residents
■ Net purchases of French securities (excl. equities) by non-residents
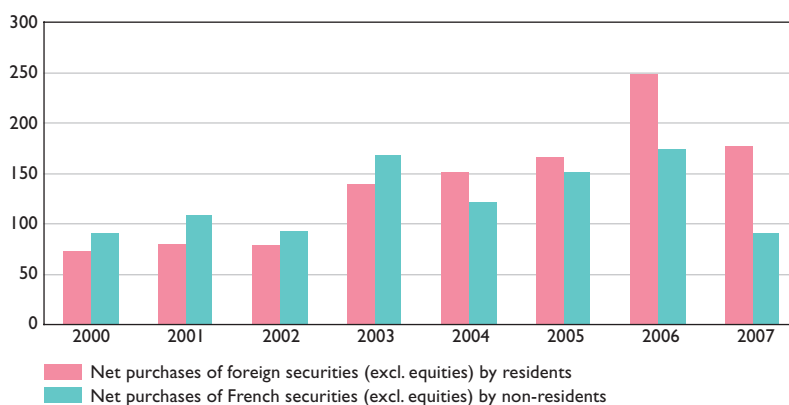
coverage of residents' assets held with French custodians. This has led to a decline in liabilities vis-à-vis non-residents, computed as the difference between residents' securities issuance and investment.

Excluding the statistical effect, net balance of payments flows made a positive contribution of EUR 131.9 billion to the portfolio investment position, which was partly offset by the EUR 37.8 billion negative contribution from valuation effects.

Investment in foreign securities by residents

In 2007, net purchases of foreign securities by residents totalled EUR 161.1 billion, down by EUR 109.3 billion on the previous year.

MFIs' net purchases rose by EUR 17 billion to stand at EUR 102.4 billion. Their investment in equities and mutual fund shares posted a marked increase from EUR 7.9 billion in 2006 to EUR 36 billion in 2007, while their purchases of debt securities with a maturity of over one year dropped from EUR 98.3 billion to EUR 76.8 billion. Overall, the MFI sector accounted for the lion's share of total investment in foreign securities by residents, i.e. 63.6%, compared with 31.6% in 2006 and 38.4% in 2005.

Net purchases by "other sectors" stood at EUR 23.3 billion, i.e. EUR 146.1 billion less than in 2006.

As regards the geographical breakdown, residents' net purchases in 2007 mainly consisted of securities issued by euro area residents (57.6%), slightly more than in 2006 (53.6%). As regards debt securities with a maturity of over one year, those issued in the euro area accounted for 74.0% of purchases, compared with 65.3% in 2006. Conversely, 75% of purchases of equities and mutual fund shares were made up of securities issued by non-euro area residents.

Resident holdings of foreign securities stood at EUR 2,046.9 billion at end-2007, as against EUR 1,863.2 billion at end-2006. In addition to the statistical coverage effect (EUR 77.7 billion), this increase is accounted for by a rise in residents' net purchases.

As regards foreign equities, excluding the statistical effect, holdings decreased by EUR 49 billion, of which EUR 16.5 billion was due to transaction flows. Holdings of mutual funds rose by EUR 64.6 billion, of which EUR 70.9 billion was accounted for by net purchase flows.

Resident holdings of bonds and notes increased by EUR 134.3 billion to stand at EUR 1,338.2 billion, but only by EUR 86 billion if the statistical coverage effect is not taken into account. Transaction flows accounted for EUR 102 billion of the total. However, these purchases mainly covered cross-transactions between a resident parent company and its non-resident subsidiary, with, as a counterpart, sales of financial derivatives by the parent company to its subsidiary.

At end-2007, bonds and notes accounted for 65.4% of total resident holdings of foreign securities at market value, equities 17.9%, mutual fund shares 10.5% and money market instruments 6.1%.

Securities issued in the euro area account for 62.4% of total resident holdings, up from 60.9% in 2006.

Investment in French securities by non-residents

In 2007, net purchases of French securities by non-residents amounted to EUR 29.2 billion, the lowest level since 1999. The highest level was recorded in 2006 (EUR 211.0 billion).

Non-residents sold EUR 50.1 billion worth of equities and mutual fund shares, after having made net purchases to the tune of EUR 58.8 billion in 2006.

Net subscriptions and purchases of bonds and notes by non-residents totalled EUR 79.9 billion, down from EUR 165.5 billion in 2006 They were essentially composed of securities issued by MFIs. These amounted to EUR 53.6 billion, i.e. 67% of the total, compared with EUR 82.6 billion in 2006 (i.e. 49.9% of subscriptions). Net purchases of OATs stood at EUR 11.1 billion, after EUR 26.5 billion in 2006. As regards money market instruments, net purchases of French Treasury bills by non-residents amounted to EUR 3 billion in 2007, compared with net sales of EUR 22.2 billion in 2006. At the same time, purchases by non-residents of short-term securities issued by MFIs fell from EUR 8.7 billion to EUR 3.4 billion.

Non-residents continued to invest massively in euro-denominated bonds (roughly 90% in 2007, after 74.3% in 2006).

As regards money market instruments, investors acquired EUR 13.2 billion worth of euro-denominated securities and sold EUR 13.8 billion worth of foreign currency-denominated securities.

Non-resident holdings of French securities stood at EUR 1,934.3 billion at end-2007, after EUR 2,017.7 billion at end-2006. They dropped by nearly EUR 96 billion as a result of the downward revision of the holding rates by non-residents of bonds issued by the private sector. But this decline was partly offset by the valuation effects, estimated at EUR 7.1 billion for equities and mutual fund shares and 10.2 billion for all other instruments. Consequently, the change in holdings amounted to EUR 83.4 billion.

Bonds and notes made up the lion's share of non-residents' holdings of French securities: 59.2% in 2007 compared with 58% in 2006.

Equities accounted for 29% of holdings, down by 2.2 percentage points on 2006. In 2007, non-residents held EUR 561.1 billion worth of French equities, compared with EUR 630 billion at end-2006. They thus held 38.5% of the capital of French companies listed on the CAC 40, down by 6.8 percentage points relative to 2006.

Non-resident holdings of bonds and notes totalled EUR 1,144.5 billion, compared with EUR 1,172.2 billion in 2006, with a statistical adjustment of EUR 95.8 billion. Holdings of government securities posted a smaller rate of increase than in 2006, leading to a holding rate of government negotiable debt securities by non-residents of 60%.

2|3 Other investment (deposits and loans)

In 2007, other investment net inflows stood at EUR 161.3 billion, relatively close to the level recorded in 2006.

In 2007, the net liabilities of monetary financial institutions (MFIs) totalled EUR 96.4 billion, down by EUR 39.4 billion on 2006. Conversely, the Banque de France recorded net assets of EUR 55.9 billion, up by EUR 35.9 billion on the previous year.[5]

General government posted net inflows of EUR 7.9 billion as a result of a decrease in their net external assets, while other sectors recorded net inflows of EUR 1.1 billion, compared with EUR 9.6 billion in 2006.

Overall, the deposit/loan position posted net liabilities of EUR 430.7 billion at end-2007, after EUR 295.8 billion a year earlier. The net liabilities of the MFI sector rose from EUR 299.4 billion to EUR 370.9 billion over the same period. Furthermore, the Banque de France posted net liabilities of EUR 49.1 billion, compared with net assets of EUR 1.0 billion in 2006.

Deposits and loans of monetary financial institutions

Like in 2005 and 2006, the liabilities of resident MFIs registered an increase, to stand at EUR 280.4 billion. Their assets also rose, climbing from EUR 127.8 billion in 2006 to EUR 184 billion. As a result, MFIs posted net liabilities of EUR 96.4 billion, of which 75% were euro-denominated.

Like in 2006, MFIs were predominantly refinanced, in euro, mainly through transactions with financial counterparties in the United Kingdom. Foreign currency transactions were mainly conducted with the United States. Conversely, resident MFIs were net lenders vis-à-vis the euro area, to the tune of EUR 24.3 billion, the majority of which was denominated in euro and benefited non-financial institutions.

The deposit-loan position of MFIs showed net liabilities of EUR 370.9 billion at end-2007, up by EUR 71.5 billion on the previous year. This increase is solely due to a rise in MFIs' liability position in euro vis-à-vis non-euro area countries, in particular the United Kingdom.

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5   *For further details on the Bank's transactions, see Box 7 of the* Annual Report.

Chart 5 Deposit/loan position of MFIs

(EUR billions)

— Euro position vis-à-vis the euro area
- - - Euro position vis-à-vis non-euro area countries
· · · Foreign currency position vis-à-vis the euro area
— Foreign currency position vis-à-vis non-euro area countries
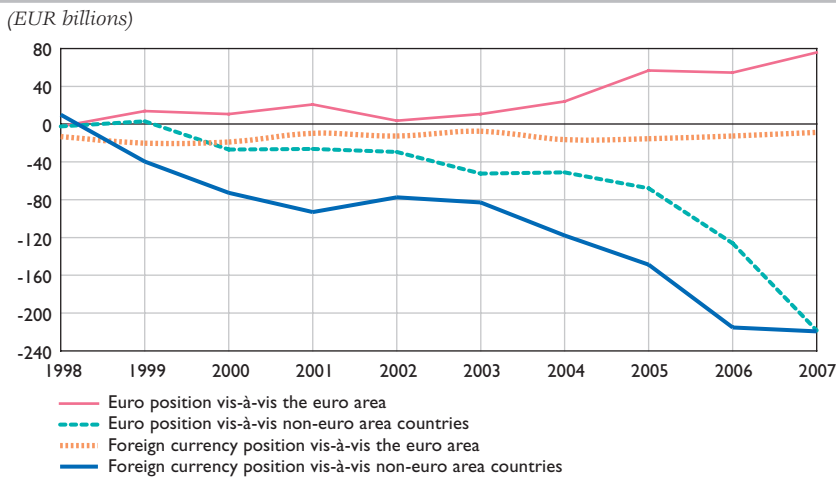
MFIs' liability position in foreign currency vis-à-vis non-euro area countries remained stable at around EUR 230 billion. Indeed, the effect of transactions flows was almost entirely offset by the exchange rate effect with a positive impact of EUR 24.8 billion on the value of the net position.

Deposits and loans excl. MFI transactions (general government, other sectors, Banque de France)

In 2007, general government assets dropped by EUR 7.4 billion, while their liabilities rose by EUR 0.5 billion, resulting in net inflows of EUR 7.9 billion. This can largely be accounted for by the settlement of government short-term investment transactions with non-resident counterparties (EUR 5.1 billion). Trade credits posted net receipts of EUR 1.5 billion, due to the fall in the amount of credit insurance loans.

The general government creditor position dropped by EUR 9 billion to EUR 18.8 billion, mainly as a result of a decrease in assets.

The other sectors, i.e. non-financial corporations, non-monetary financial intermediaries (investment firms, non-money market funds) and insurance companies, posted net inflows of deposits and loans, excl. trade credits, to the tune of EUR 4 billion, compared with EUR 9.6 billion in 2006. This stems from a slower rate of increase in liabilities, which stood at EUR 10.7 billion in 2007, after EUR 15.4 billion in 2006. Four fifths of this amount were made up of net loans – mainly denominated in euro – taken out by investment firms with non-euro area counterparties. Other companies' deposit/loan transactions were close to equilibrium, i.e. EUR 0.7 billion. The deposit/loan position of "other sectors" showed net liabilities of EUR 52.7 billion at end-2007, down by EUR 3.4 billion relative to end-2006. This deterioration is largely due to a EUR 2.2 billion

increase in the liabilities of non-financial corporations and insurance companies.

The liabilities of the Banque de France rose by EUR 70.1 billion, while its assets were up by EUR 14.2 billion, resulting in net inflows of EUR 55.9 billion, compared with EUR 20 billion in 2006. The deposit/loan position of the Banque de France (excl. securities and reserve assets) changed radically in 2007: after having posted net assets of EUR 1 billion at end-2006, it recorded net liabilities of EUR 49.1 billion in 2007. This is linked to the development of its bank intermediation activities (reserve management) for institutional clients.

2|4 Reserve assets

Reserve assets climbed by EUR 0.5 billion, compared with EUR 8.8 billion in 2006. Purchases of non-euro area currencies amounted to EUR 2.1 billion, while net outflows resulting from transactions with the International Monetary Fund totalled EUR 0.3 billion. Sales of monetary gold reached EUR 1.9 billion.

The stock of reserve assets was up by EUR 4 billion to stand at EUR 78.6 billion at end-2007. This increase is mainly due to revaluations (EUR 3.5 billion), in particular that of monetary gold.

Foreign currency reserve assets posted a EUR 1 billion decrease, mainly on account of a foreign currency revaluation (EUR 3.1 billion) for a greater amount than the transactions recorded in the flows.

3| Overall equilibrium of the balance of payments

Like in 2006, external financing needs resulting from the current account deficit and net direct and portfolio investment outflows were covered, but for slightly smaller amounts, by banks' international net liabilities in deposits and loans. However, unlike in the previous year, when the drawing up of the balance of payments had led to an excess of observed liabilities over outflows resulting in a significant adjustment, errors and omissions only totalled EUR 1.7 billion.

Chart 6 Balance of payments equilibrium

(EUR billions)
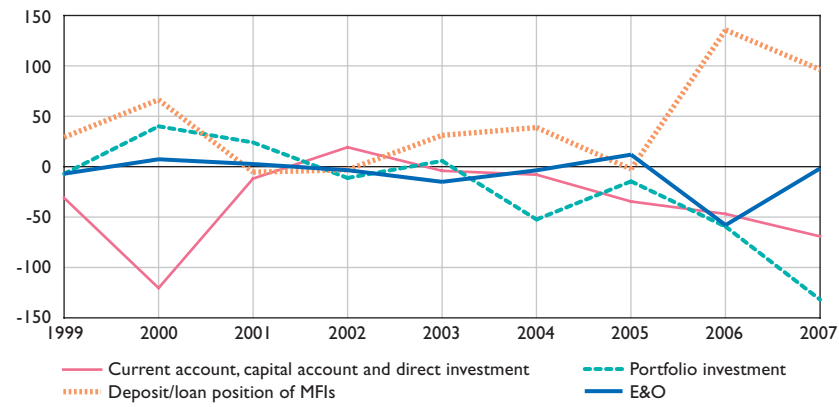
- Current account, capital account and direct investment
- Deposit/loan position of MFIs
- Portfolio investment
- E&O

Despite being adversely impacted by the current account deficit, the domestic savings rate[6] (obtained by adding the current account as a percentage of GDP and the investment rate) continued its upward trend observed since 2003 to stand at 21% in 2007.

Chart 7 Savings and investment in France between 1990 and 2006

(as a % of GDP)
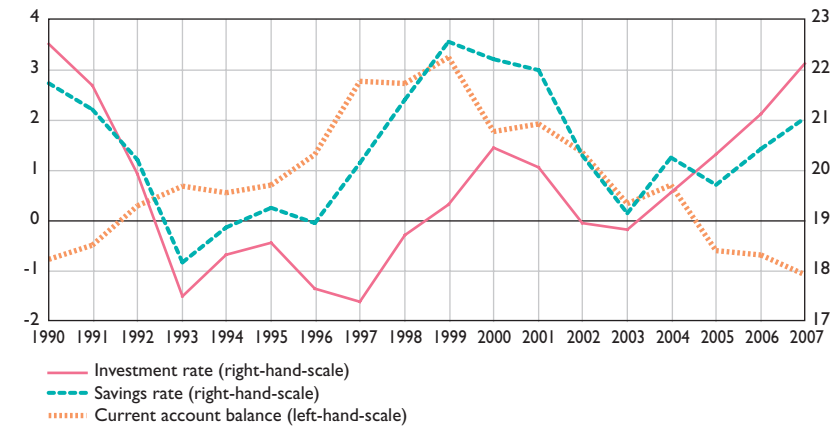
- Investment rate (right-hand-scale)
- Savings rate (right-hand-scale)
- Current account balance (left-hand-scale)

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6 *The current account balance is, in accounting terms, the difference between national savings (income minus consumption) and investment carried out in France.*

Why calculate a business sentiment indicator for services?

Olivier Darné
*Macroeconomic Analysis
and Forecasting Directorate*
Business Conditions Analysis Division
Paris X-Nanterre University (EconomiX)

Véronique Brunhes-Lesage
*Macroeconomic Analysis
and Forecasting Directorate*
Business Conditions Analysis Division

*This article presents a new business sentiment indicator (*indicateur du climat des affaires – ICA) *for market services produced by the Banque de France. The indicator summarises the information contained in the business survey on services in the Banque de France's Monthly Business Survey. It thus provides an early signal regarding economic activity in market services. It also adds to the range of the Bank's short-term and business conditions analysis indicators, notably by providing specific information that complements the ICA for industry.*

Since May 2002, the Banque de France has calculated a business sentiment indicator (ICA) for industry, which is published each month in the Overview of its Monthly Business Survey. However, the services sector has become essential to understand developments in the French economy. Indeed, market services represent about 45% of total output (48% in 2006), with industrial output accounting for close to 30%. Moreover, it has been shown that surveys in the market services sector provide valuable information for forecasting quarterly growth in GDP.[1]

This article details the construction of a business sentiment indicator for market services designed to summarise the information contained in the balances of opinion on market services in the Monthly Business Survey. This ICA for services will be interpreted as a measure of business sentiment as it is perceived by business managers, with a high value indicating a favourable opinion.

Since 1989, the Banque de France has had at its disposal information on market services derived from Monthly Business Surveys. Over the years, the sectors covered and the number of questions in the surveys on services have increased. Currently, surveys on services cover ten sectors of activity: hotels, temporary work, IT engineering, technical engineering, vehicle rental, business and management consulting, advertising agencies and consulting, cleaning services, automotive repairs and road haulage. The questions asked relate to the recent past and business managers' expectations about the future. They make it possible to capture short-term developments in the behaviour of economic agents and to sum up the current situation and the outlook for future developments. In addition, the surveys have the advantage of being a source of rapidly available information, i.e. the results are available much more quickly than the main macroeconomic aggregates. Moreover, they are subject to few revisions.

In order to construct the business sentiment indicator for services seven balances of opinion are used[2] regarding: change in activity compared with the previous month (M/M-1) (*l'évolution de l'activité* – EVACT); M/M-1 change in prices (*l'évolution des prix* – EVACT); M/M-1 change in staff levels (*l'évolution des effectifs* – EVEFF); the cash-flow situation (*niveau de trésorerie* – NIVTRES); the forecast for activity over the coming months (*prévision de l'activité* – PREVACT); the forecast for prices over the coming months (*prévision de prix* – PREVPRIX); and the forecast for staff levels over the coming months (*prévision d'effectifs* – PREVEFF).[3]

These balances of opinion were chosen because they display both a strong correlation between one another – for example, the correlation coefficient

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1 *Bouton and Erkel-Rousse (2003) and Darné and Brunhes-Lesage (2007).*
2 *Other questions are available but their historical series are too short.*
3 *All of the surveys are seasonally adjusted.*

Chart 1 Balances of opinion for all services in Banque de France surveys

Source: Banque de France.
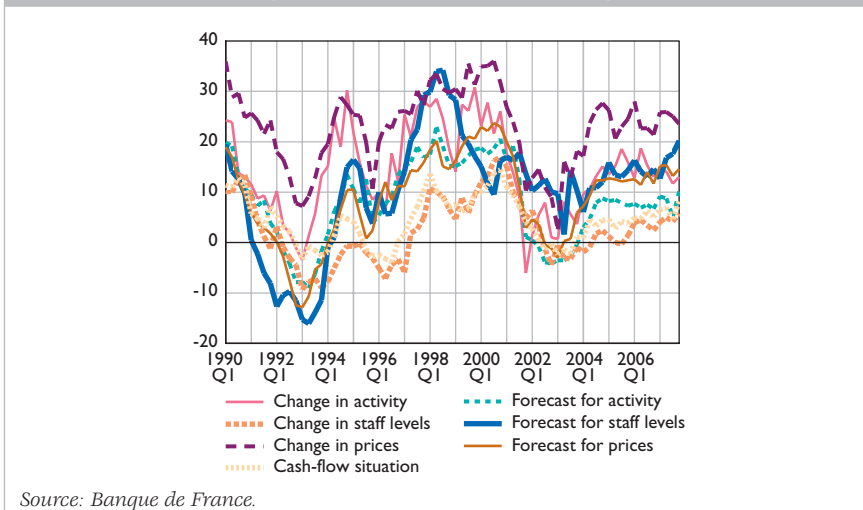
between the EVEFF and PREVACT balances is 0.89 (see Appendix) – and very similar fluctuations (Chart 1), which justifies deriving a common signal from them.

The method used to construct the business sentiment indicator for services is similar to that employed for the ICA for industry that is already published. It consists first in smoothing each balance of opinion, denoted *SOLDi*, with *i* ranging from 1 to 7 for the seven indicators selected, using a three-month moving average:

$$MSOL_{i,t} \ = \ (SOLD_{i,t} \ + \ SOLD_{i,t\text{-}1} \ + \ SOLD_{i,t\text{-}2})/3$$

The second stage consists in carrying out a principal component analysis (PCA) of these smoothed series and taking the first axis, denoted *AXE1_MSOL*. In the final stage, this factor is transformed as follows:

$$ICASERV \ = \ (AXE1\_MSOL \times 10) \ + \ 100$$

This transformation makes it easier to interpret the indicator. If its value is below 100, business conditions in services are unfavourable, and vice versa. The higher this value, the more positive the opinion of business managers in the services sector.

However, a major obstacle is encountered in the construction of this indicator since there was a change in the frequency of survey data on market services during this period, making principal component analysis inappropriate. Having been bimonthly from 1989 to June 2002, these data subsequently became monthly. To address this problem, the series

Chart 2 Business sentiment indicator for services and growth in services output

(year-on-year change)

Services output (left-hand scale)
Business sentiment indicator for services (ICA) (right-hand scale)
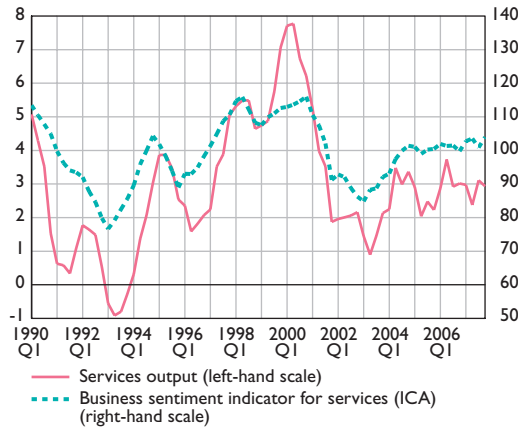
Source: Banque de France.

We can see that the slowdown in market services activity from 1990 to 1993 is closely tracked by the indicator. The strong recovery from 1993 to end-1995 is also reproduced with a slight lead. There was dynamic growth in market services from 1996 to 2000 due in particular to the growing interest in new technologies. This period of expansion was temporarily interrupted from late 1998 to early 1999 by the financial crisis in South-East Asia, thus causing a short trough in economic activity. Subsequently, the sharp slowdown in services activity in 2000-2002 is well reflected by the indicator. However, the brief upturn in services output in 2002 is not reflected. From mid-2003, the indicator corroborates the recovery in services activity, but more strongly. Over the recent period, a discrepancy between services output and the indicator can be observed. Although the overall movement

Table 1 Correlation coefficients between the variation in market services output (year-on-year change) and the Banque de France's and INSEE's business sentiment indicators for services

	Services output	Banque de France's services ICA	INSEE's services ICA (a)
Services output	1.00		
Banque de France's services ICA	0.87	1.00	
INSEE'S services ICA	0.75	0.81	1.00

(a) INSEE's ICA for services is calculated using the technique of dynamic factor analysis. It describes the common component of six balances of opinion (past activity, forecast activity, general outlook, forecast demand, past operating income and forecast operating income). See Cornec and Deperraz (2006) for a detailed description of this indicator.
Source: Banque de France. Period: 1990:Q1-2007:Q4.

Chart 3 Services output and the Banque de France's and INSEE's business sentiment indicators

(year-on-year change)

Services output (left-hand scale)
Business sentiment indicator for services – BDF (right-hand scale)
Business sentiment indicator for services – INSEE (right-hand scale)
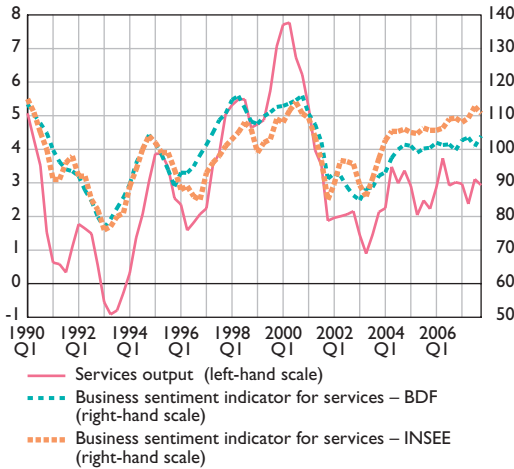
Sources: Banque de France, INSEE.

consists in a rebound in services activity, there are greater fluctuations with respect to output than for the indicator. This pattern can also be observed in the case of INSEE's indicator (Chart 3). This discrepancy reflects the divergence between the opinion of business managers and the economic indicators. Moreover, we can see that the Banque de France's and INSEE's ICA for services display a relatively similar pattern (see Chart 3). In addition, the two indicators are well correlated with developments in services output (0.87 and 0.75 for the Banque de France and INSEE's indicator respectively – see Table 1). Thus, the Banque de France's indicator enables business conditions in services to be well captured.

Moreover, the services business sentiment indicator is well correlated with developments in gross domestic product. Indeed, the correlation coefficient between the indicator and the year-on-year change in GDP

Table 2 Correlation coefficients between GDP (year-on-year change) and the Banque de France's business sentiment indicator for services and industry

	GDP	Services ICA	Industry ICA
GDP	1.00		
Services ICA	0.87	1.00	
Industry ICA	0.82	0.77	1.00

Source: Banque de France. Period: 1990:Q1-2007:Q4.

Chart 4 Business sentiment indicator for services, business sentiment indicator for industry and GDP growth

(year-on-year change)

Gross domestic product (left-hand scale)
Business sentiment indicator – services (right-hand scale)
Business sentiment indicator – industry (right-hand scale)
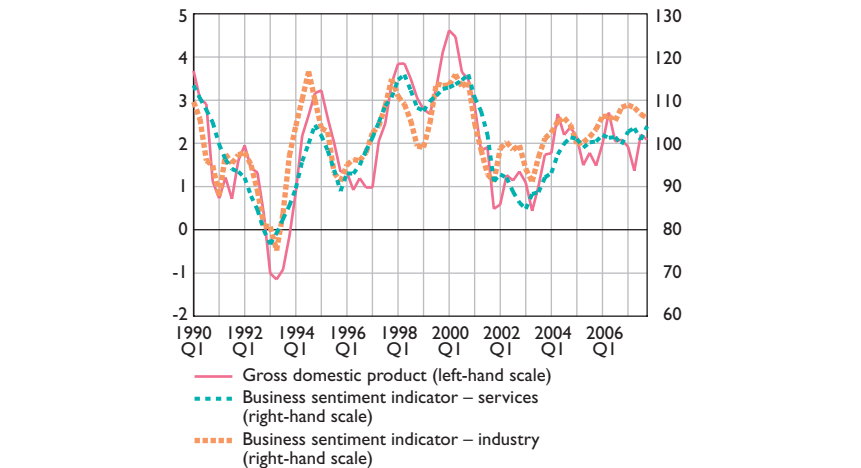
Source: Banque de France.

is 0.87 (Table 2 and Chart 4). The indicator thus makes it possible to capture not only business conditions in services but also macroeconomic conditions more generally. This finding confirms the study by Darné and Brunhes-Lesage (2007), which shows the contribution made by surveys of business conditions in services to the short-term forecasting of economic activity.

This business sentiment indicator summarises the opinions of business managers about business conditions in services. It thus provides an early signal regarding economic activity in market services as it will be updated every month using the new information available in the Monthly Business Survey. It also adds to the range of the Banque de France's short-term and business conditions analysis indicators, notably by providing specific information that complements the business sentiment indicator for industry.

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Appendix

Correlation coefficients between balances of opinion and services output

	EVACT	EVEFF	EVPRIX	NIVTRES	PREVACT	PREVEFF	PREVPRIX	PSERM
EVACT	1.00							
EVEFF	0.84	1.00						
EVPRIX	0.48	0.71	1.00					
NIVTRES	0.61	0.72	0.56	1.00				
PREVACT	0.84	0.89	0.63	0.59	1.00			
PREVEFF	0.77	0.90	0.75	0.79	0.87	1.00		
PREVPRIX	0.60	0.76	0.90	0.54	0.75	0.76	1.00	
PSERM	0.74	0.65	0.47	0.63	0.66	0.71	0.49	1.00

OPTIM: a quarterly forecasting tool for French GDP

Karim Barhoumi, Véronique Brunhes-Lesage, Laurent Ferrara,
Bertrand Pluyaud and Béatrice Rouvreau
Macroeconomic Analysis and Forecasting Directorate
Business Conditions Analysis Division

Olivier Darné
Macroeconomic Analysis and Forecasting Directorate
Business Conditions Analysis Division
Paris X – Nanterre University (EconomiX)

This paper presents a revised version of the OPTIM model (Irac and Sédillot, 2002) used at the Banque de France to forecast French quarterly GDP growth and its main components over two quarters (the "coincident quarter" and the "quarter ahead"). The OPTIM model is designed for use on a monthly basis by integrating monthly economic information through bridge equations of the variables of the quarterly accounts. For each GDP component (for both supply and demand sides), bridge equations are specified by using a general-to-specific approach (Gets) implemented in an automated way by Hoover and Perez (1999) and improved by Krolzig and Hendry (2001). This approach helps to automatically select adequate independent variables from a large data set in an optimal manner. Dynamic forecasting is used to assess the forecasting performance of the revised OPTIM model. The results obtained show that the model outperforms simple statistical models.

Obtaining information as soon as possible about a country's present economic situation and its growth prospects is a pivotal issue for economic and political decision-makers. The broadest measurement of a country's economic activity is quarterly GDP, the official figures for which are published in the national accounts several weeks after the end of the quarter. For example, in France, INSEE, the national institute of statistics, has a publication lag of around 45 days. It is therefore useful for an institution like the Banque de France to be able to make an assessment of the French economic situation before publication of the quarterly national accounts.

With this in mind, the present paper describes a new version of the OPTIM model,[1] developed by Irac and Sédillot (2002), used by the Banque de France to forecast the quarterly growth rate of French GDP and its various components. Its main aim is to produce as accurately as possible a monthly assessment of the GDP growth rate for the "coincident quarter" and the "quarter ahead". From a wide data set available on a monthly basis, the approach consists in first forecasting the main components of the national accounts (both supply side and demand side), then aggregating them in order to forecast total GDP. A breakdown of the components has the advantage of providing quantitative information enabling a more detailed analysis of the economic situation.

Numerous quantitative methods have been proposed in econometric literature in order to forecast the short-term real economic activity of a country. Currently, two main types of approaches are used. The first approach consists in carrying out forecasts with dynamic factor models, such as that developed in the works of Stock and Watson (2002, 2006), Forni et al. (2003) and Schumacher (2007). This approach uses a large number of variables that are broken down into a limited number of common factors and idiosyncratic components. The methodology of dynamic factor models is increasingly popular in econometric literature, particularly as regards macroeconomic forecasting. However, this approach is often perceived by economic forecasters as a "black box" since the results obtained are difficult to interpret from an economic point of view (see Banbura and Rünstler, 2007). The second approach is perhaps less innovative econometrically speaking, but remains more informative in the interpretation of economic fluctuations. It consists in constructing linear bridge equations of the variables of quarterly accounts using monthly data. This type of model, known as a bridge model, has been used by several authors to forecast GDP growth (Sédillot and Pain, 2003, Rünstler and Sédillot, 2003, Baffigi et al., 2004 and Diron, 2006). This is the approach that we have used.

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1 See the article by Barhoumi et al. (2007) for detailed results of the model.

1| Objectives

The first objective is to construct a bridge model that combines the various equations of the main components of French GDP. GDP is disaggregated according to the supply side and demand side components. For each component, a bridge model is estimated from variables selected by an automatic procedure, called the general-to-specific approach ("Gets"): according to the results of statistical tests, a model retaining only the most relevant variables is extracted from the broadest possible initial model. This selection procedure enables economic forecasters to exploit a large set of macroeconomic series and it provides a robust, transparent and systematic econometric framework in the selection of independent variables in the forecasting equations. The components are then aggregated in order to calculate the GDP figure.

To carry out this exercise, we use two types of monthly variables. The first type, known as hard data, are quantitative indicators of real activity, often from accounting sources (industrial production index, household consumption of manufactured goods, etc.), and the second type, called soft data, correspond to data from surveys on households and business leaders. Soft variables have several advantages over hard variables. In particular, they are rapidly available compared to the main macroeconomic aggregates and are hardly revised. Moreover, opinion surveys provide early indications on the recent past and short-term outlook on the behaviour of economic players.

From this bridge model, the aim is to provide a monthly GDP growth rate forecast for the current quarter (or "coincident quarter") and for the following quarter (or "quarter ahead").[2] Since all the information builds up during the quarter, the model should be able to provide a forecast with increasing certainty. We have built a model to forecast the current quarter's GDP and another to forecast that of the following quarter, by trying to select the most relevant indicators in each case.

2| Modelling strategy and data selection

2|1 A detailed forecast

The variables integrated into the OPTIM model are taken from quarterly accounts published by INSEE. The breakdown of GDP data is carried out on both the supply and demand sides. GDP forecasts are established from forecasts of the various components of production and are therefore reliant

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2 *The current or "coincident" quarter refers to the first quarter for which GDP figures have not been published yet.*

only on the supply approach. However, the modelling of demand side components sheds further light on the results and is crucial for analysis of the economic situation.

The breakdown used here is not exhaustive: certain components, which are difficult to forecast using equations based on economic reasoning, have not been modelled. This is particularly the case for the contribution to GDP growth of changes in inventories, which is directly calculated as the difference between GDP growth and the sum of contributions of the other demand side components. Furthermore, certain sub-components, such as non-market services output or intangible investment, are not modelled either. Lastly, intermediary consumption is disregarded: the GDP forecast is based on expected production and not value added. Key monthly data, such as the industrial production index, explicitly bear relation to production, while available information on intermediate consumption and value added is limited. All in all, the modelled components and sub-components are as follows:

Demand side

• Household consumption, calculated from aggregated forecasts of:

  – household consumption of agricultural and agri-food products;
  – household consumption of manufactured goods;
  – household consumption of energy;
  – household consumption of services.

• General government consumption.

• Investment, calculated from aggregated forecasts of:

– corporate investment in machinery and equipment;
– corporate investment in construction;
– household investment;
– general government investment.

• Exports.

Supply side

• Imports.

• Production, calculated from aggregated forecasts of:

– agricultural and agri-food output;
– manufacturing output;
– energy output;

– construction output;
– market services output.

GDP is forecast via an equation on total production.

Thus, production, consumption and investment are aggregated through equations estimated on their sub-components: the weight of the sub-components is estimated from the coefficients of the aggregation equation, which reflect an average of the weight over the estimation period. In order to limit the gap between these estimated weights and the actual weights, relatively short estimation periods have been chosen for the aggregation equations (six years).

2|2 Monthly forecasting exercises

This model has been designed for use on a monthly basis and is founded on explanatory data available each month (the previous version of the model was designed on a quarterly basis and therefore mainly used quarterly data). Since forecasts are carried out each month for the coincident quarter and the quarter ahead, a total of six exercises enable the forecasting of GDP growth for a given quarter. Typically, forecasts are made at the end of the month (just after publication of INSEE's surveys on industry and services and the European Commission's surveys and just before the first ECB Governing Council meeting of the month), the last of the six forecasts being carried out 15 days before the publication of GDP data, i.e. 30 days after the end of the quarter being forecast. The diagram below shows the chronological order of the forecasting exercises for the GDP of the first quarter of a given year.

Generally speaking, for each GDP component, a single equation is used for the three forecasts of the coincident quarter and another for the three forecasts of the quarter ahead. The only exception to the rule concerns equations for the coincident quarter's production: the industrial production index (IPI) carries information relevant for the forecasting of production, but is published with a greater time lag than the survey's data. As a result, equations excluding and including IPI are calculated and are used according to the information available when the forecasting exercise is carried out.

Monthly series are converted into quarterly data, taking the average values of the three corresponding months as the quarterly value. In the closing quarter, when the values of a series are only available for one or two months, the average of available data for the last three months is given.

Chronological order of forecasting exercises for the 1st quarter of a given year

Forecasts made with equations for the "quarter ahead"

Forecasts made with equations for the "coincident quarter"

| 1st forecast Q1 | 2nd forecast Q1 | 3rd forecast Q1 | 4th forecast Q1 | 5th forecast Q1 | 6th forecast Q1 |

November December January February March April May

Publication Q4 GDP

Publication Q1 GDP

2|3 A large data set

The equations are estimated on a quarterly basis, but are based on monthly data. As a result, the series that are available only on a quarterly basis have been excluded. When data are not available for certain months of the current quarter, the missing value of the quarter's series is replaced by the moving average of the last three months available.

The series used correspond both to monthly macroeconomic data (such as household consumption of manufactured goods) and to survey data. As regards import and export equations, specific processing has been applied to the series from the European Commission survey: for the survey's various questions, the corresponding series for each country are not considered separately, but in an aggregated way, by using the weights of the countries in France's imports as weightings (the weights for exports are similar). Only the data relative to the main European trading partners are taken into account (i.e. 59.3% of France's total imports for 2004, which is the year considered for weightings).

The table in appendix 2 shows the sources of the series used for each of the model's equations.

2|4 Equations that lend themselves to economic interpretation

Though OPTIM is not a structural model, the economic significance of econometric relations highlighted is taken into account, so that the

latter may contribute to the economic analysis. Indeed, the aim of these forecasting exercises is not only to provide a precise forecast of the GDP but also to develop a coherent economic scenario. Thus, the coefficients of the selected equations must present signs reflecting economic logic: for example, a negative relationship between unemployment and household consumption. A selection of equations based on economic reasoning also helps to limit the risk of obtaining spurious regressions.

2|5 The data selection method

The data selection method is intended to be as robust as possible and easily reproducible. In fact, statistical relationships can become eroded with time and it is useful to be able to re-estimate them easily. The variables are selected in the following way:

• A set of series, corresponding to a first source of information, is pre-selected. The source in question is chosen for the link that it theoretically has with the modelled variable: for example, for the consumption of services, the Banque de France's monthly business survey for services. The pre-selected series must have a strong correlation with the dependent variable and, on the contrary, as weak a correlation as possible with each other (in order to provide further information).

• Amongst this set of series, the most relevant variables, whether lagged or not, are selected via an automatic general-to-specific procedure (Gets) implemented by Hoover and Perez (1999) and improved by Krolzig and Hendry (2001). This procedure, implemented with the help of the Grocer module (Dubois, 2003) integrated into the Scilab software, systematically carries out a certain number of statistical tests enabling the selection of an equation that is as reliable as possible. The general form of these equations is as follows:

$$y_t = \alpha + \sum_{i=1}^{m} \beta_i Y_{t-i} + \sum_{j=1}^{q} \sum_{i=0}^{k} \delta_{j,i} X_{j,t-i} + \varepsilon_t$$

where Y is the dependent variable and X_j the jth independent variable;

• A new set of series is then pre-selected from another source and merged with the series isolated by the Gets procedure. The same procedure is then applied to the new set in order to come up with a new equation. This operation is repeated in order to obtain, *a priori*, statistically satisfactory equations for different combinations of data sources that appear to be of interest (for example, for the consumption of services: the Banque

de France's monthly business survey for services and INSEE's monthly consumer confidence survey). This procedure of a progressive increase in the data set is linked to the fact that in practice, selection via the Gets method can only work amongst a limited number of series (a maximum of twenty).

• The final equation is chosen by comparing the statistical quality and economic interpretability of the different equations, but particularly by comparing the forecasting performance, by simulating the equations on the past, via recursive forecasts. Thus, the equation is estimated up until a given date and a forecast is made on the following period, then the equation is estimated again until the following date and simulated as a forecast on a further period and so on. The equation's forecasting performance is calculated by using the RMSE.[3] These simulations are carried out by taking into account the availability of independent variables: each estimate and each forecast is carried out by excluding the data for the independent variables that is unknown at the date corresponding to the simulation (for example, during the first forecasting exercise in the first quarter of 2000, considered as a coincident quarter, IPI data is only available up until December 1999). This method can be used to compare the performances of equations derived from different sources, with different publication lags: an equation based on survey data may therefore under perform an equation based on IPI to track changes in the dependent variable, but outperform it in terms of forecasts, due to surveys' shorter publication lag, which provides more complete information at the time of forecasting.

3| Results

All in all, more than thirty equations were specified and estimated on GDP and its components. All of these equations are presented in the paper by Barhoumi et al. (2007). Only four of them are given here as examples: two from the supply side and two from the demand side. These equations have the characteristics sought when the model was created: they use a large range of indicators and are easy to interpret from an economic point of view.

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3 *Root Mean Squared Error, expressed as:* $RMSE = \sqrt{\frac{1}{n}\sum_{t=1}^{n}\left(PIB_{forecast,\,t} - PIB_{actual,\,t}\right)^2}$.

RMSEs are measured from the latest known GDP figures at the date of writing and not from GDP figures provided in real time by INSEE's first results. The performance analysis of the OPTIM model on the first series of publications will be carried out subsequently.

• The equation for manufactured goods output for the coincident quarter including manufacturing IPI, estimated over the Q1 1991-Q4 2006 period, is as follows:

$$PMANU\_GT = 0.082 + 0.371\ PMANU\_GT_{t-4} + 0.910\ IPI\_MANUF\_GT_t + 0.038\ \Delta\,(PRODPREV\_MANUF)_t$$
$t - stat$ (0.989)(7.099)   (13.980)   (3.334)

$R^2 = 0.83;\ SE = 0.55;\ DW = 2.27$

where PMANU_GT is the quarterly growth rate of manufacturing output, IPI_MANUF_GT is the quarterly growth rate of manufacturing IPI and PRODPREV_MANUF is the answer to INSEE's monthly business survey for industry concerning personal production outlook. The presence of manufacturing output with a lag of four quarters takes into account a residual of annual seasonal factors remaining in the seasonally adjusted series. The criteria of the R^2 confirm that this equation is of good statistical quality.[4]

This equation has the advantage of being based on two types of variable: a monthly macroeconomic series, the IPI, which provides reliable information on the changes in the variable to be forecast, but is only available 40 days after the end of the month under review,[5] and a series from a survey, which is less correlated to the variable to be forecast, but is available at the end of the month. If one of these two sources used gives a false indication of economic developments, this may be moderated by changes in the other indicator. Furthermore, the two series are linked to change in production, but are complementary insofar as the IPI concerns

Chart 1 Manufacturing output, manufacturing IPI and production outlook

- Manufacturing output, qoq (left-hand scale)
- Manufacturing IPI, qoq (left-hand scale)
- Personal production outlook – INSEE (difference, right-hand scale)

Source: INSEE.
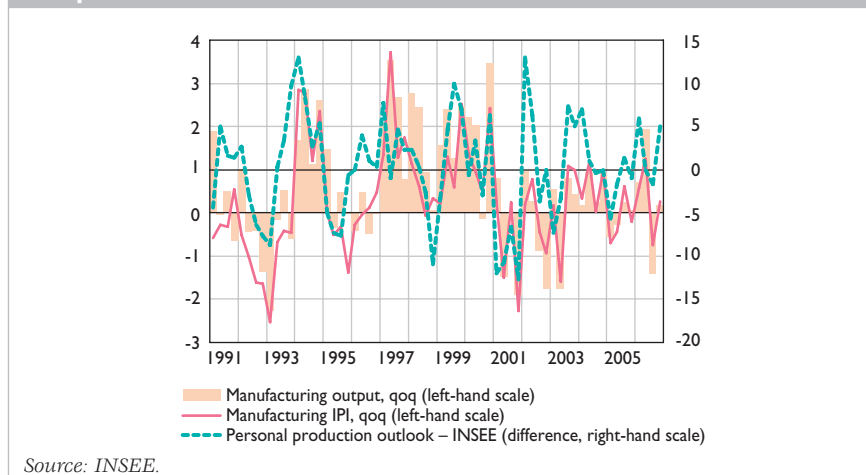
4 *The statistical quality of the models was checked with a number of statistical assessments (see Barhoumi et al.).*
5 *The IPI for the whole of a given quarter is only available a few days before INSEE's first publication of that quarter's GDP.*

the observed change in production while the survey series used is the balance of opinions on production outlook.

The chart above highlights the very strong correlation between manufacturing output measured in the quarterly accounts and the manufacturing IPI. However, in practice, when the first forecast is made for the coincident quarter, the IPI is only available for the last month of the preceding quarter and it is worth using an alternative equation, based solely on survey data. The simulations carried out in this way showed that an equation where the IPI was replaced by the balance of opinions relative to past production provided by INSEE's survey on industry (available at the end of the month) provided greater precision for the quarter's first two forecasts (RMSE of 0.82 versus 1.14 for the first exercise and 0.79 versus 1.07 for the second). For the third exercise, however, the opposite result was obtained (RMSE of 0.79 versus 0.71 for the equation with IPI).

• The equation for market services output for the coincident quarter excluding the IPI, estimated over the Q1 1991-Q4 2006 period, is as follows:

$$PSERM\_GT = 1.53 + 0.24\, PSERM\_GT_{t-1} - 0.20\, PSERM\_GT_{t-4} + 0.04\, \Delta\,(EVACT\_SV)_t + 0.03\, \Delta\,(NIVTRES\_SV)_{t-1}$$

$t - stat$ (5.69) (2.11)   (-2.10)   (5.21)   (3.22)

$$- 0.02\, OPPEPAR_t - 0.012\, CHOMPREV_t$$

(-3.47)   (-4.55)

$R^2 = 0.71;\ SE = 0.31;\ DW = 1.96$

where PSERM_GT is the quarterly growth rate of market services output, NIVTRES_SV and EVACT_SV are the answers obtained from the Banque de France's survey concerning cash flow and past activity in market services respectively, and OPPEPAR and CHOMPREV are the answers obtained from INSEE's consumer confidence survey concerning the timeliness of saving and unemployment outlook respectively. We introduce the first and second lags of the services output growth rate series in order to clear the series of residuals. The quality of the equation measured by the R^2 criterion is high. The presence in the equation of the endogenous variable with a lag of four quarters is due to the trace of seasonal factors still present in the seasonally adjusted data. The survey series' estimated parameters have the expected sign, both for the two consumer survey series and for the two services survey series. In fact, it seems logical that an increase in households' future savings capacity or unemployment outlook would have a negative impact on services output.

The equation is based on two complementary sources: the survey on the services sector applies to the business survey on the situation and outlook in industry, while the consumer confidence survey sheds light on demand vis-à-vis businesses. The variety of series used enables the

focus not to be on a single piece of information that could prove to be erroneous and facilitates economic analysis of change in production: whilst the balance of opinion relative to past activity is directly related to change in production, the cash flow series is related to businesses' financial situation, the timeliness of saving provides an indication of potential demand (depending on income, financial developments, prices etc.), and the unemployment outlook gives an indication of the impact of labour market conditions on demand.

• The equation relative to exports for the coincident quarter, estimated over the Q1 1991-Q4 2006 period, is as follows:

$$EXPORT\_GT = 0.171 + 0.136 \, \Delta \, (EU5)_t + 0.132 \, EVCOME\_I_{t-1}$$

$t\text{--}stat \qquad (0.74) \quad (3.37) \qquad\qquad (6.12)$

$R^2 = 0.53; \; SE = 1.26; \; DW = 2.16$

where EXPORT_GT is the quarterly growth rate of exports and EVCOME_I is the answer concerning changes in foreign orders obtained from the Banque de France's monthly business survey (in terms of differences). The EU5 variable was created from answers concerning production outlook for the months ahead obtained from the European Commission survey for various European countries which are amongst France's major trading partners. The average is weighted according to the relative significance of each of these countries in terms of France's external trade. This variable is therefore fairly close to these countries' demand for French exports.

Chart 2 Exports and production outlook in France's major European trading partners

Exports, qoq (left-hand scale)
EU5 – European Commission Survey,
weighted average of the balance of opinions relative to production
outlook for the France's major European trading partners
(in terms of difference, right-hand scale)

Sources: INSEE, European Commission; Banque de France calculations.
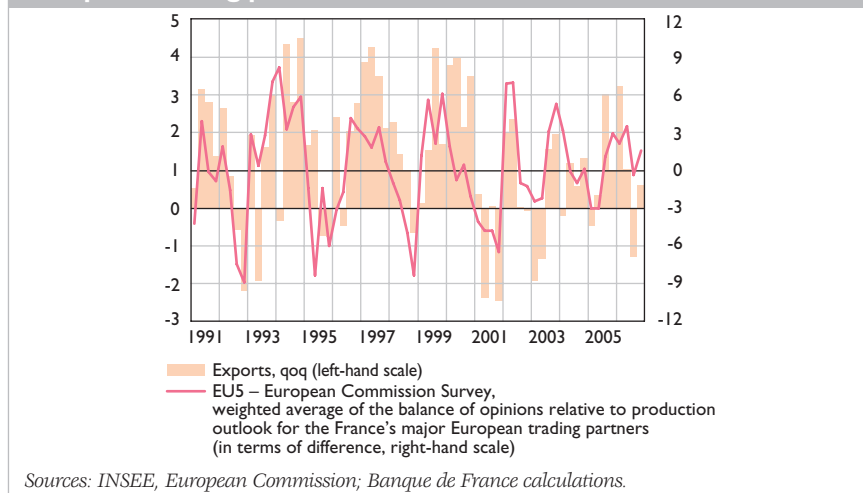
• The equation for imports for the coincident quarter, estimated over the Q1 1991-Q4 2006 period, is as follows:

$$IMPORT\_GT = 0.234 + 0.193\,\Delta\,(EU5)_t + 0.125\,EVCOM\_I_{t-1}$$
$$t\text{--}stat \qquad (1.47)\ (5.71) \qquad\quad (6.64)$$

$$R^2 = 0.56\ ;\ SE = 1.09\ ;\ DW = 1.89$$

where IMPORT_GT is the quarterly growth rate of imports and EVCOM_I is the answer concerning the change in total orders obtained from the Banque de France's monthly business survey for industry (in terms of differences).

This equation presents the same structure as the exports equation; only the variable relative to the change in foreign orders is replaced by the change in total orders from the Banque de France's monthly for industry. In the case of the imports equation, the presence of the EU5 variable may be explained in two ways: first, a rise in French imports has a direct impact on the economic activity of its main partners and second, a rise in French imports generally occurs during a period of economic expansion, since France's economic cycles are very similar to those of its European neighbours.

Relative forecasting performances

In terms of forecasting, the results obtained concern recursive forecasting on the coincident quarter and the quarter ahead, from Q1 2000 to Q4 2006, i.e. 28 observations. In order to establish comparisons with a benchmark model, we carry out forecasts on each component using a naive approach (the forecast value is the preceding value) and an autoregressive model of the AR(p) type, with a number of lags p≤ 4 (see Appendix 1).

As regards the coincident quarter, RMSEs are weaker than those of naive and autoregressive predictors for all the OPTIM equations. Moreover, we observe that, as expected, the precision of the forecasts increases over time (the RMSEs decrease between the first and the third forecast). As regards aggregated GDP, the RMSEs for the first, second and third forecasts are respectively 0.27 percentage point (pp), 0.25 pp and 0.23 pp. Statistical tests[6] show that the forecasts carried out on the components significantly improve the forecasts of the benchmark models, except for energy and construction output (first two exercises).

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6 *Using the Diebold-Mariano test modified by Harvey, Leybourne and Newbold (1997).*

As regards the quarter ahead, note that the RMSEs are naturally higher than those obtained for the coincident quarter, reflecting greater uncertainty. However, the OPTIM model helps to improve the forecasting performance compared to a naive forecast and an autoregressive model in all cases with the exception of household consumption and imports forecasts (first two exercises). Note also that for most components and particularly for GDP, RMSEs of forecasts do not improve significantly over time. This seems to indicate that during one quarter, the information provided about the quarter ahead is insignificant.

The revised version of the OPTIM model helps to forecast French GDP and its main components from bridging equations covering a wide range of economic indicators. The main features of the model are its use on a monthly basis for forecasts and a selection of variables which, on one hand, is based on a systematic general-to-specific approach and, on the other, takes into account the availability of information via a dynamic simulation.

In terms of RMSE, the new model significantly improves benchmark forecasts (autoregressive and naive models) and thus supports the cyclical analysis of the French economy used by the Banque de France to participate in the Eurosystem's decision-making process.

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Appendix 1

Comparison of OPTIM's performances with an autoregressive model and a naive model, using RMSE

Coincident quarter

Component	1st forecast	2nd forecast	3rd forecast	AR model	Naive model
PIB	**0.27**	**0.25**	**0.23**	**0.38**	**0.51**
Agricultural and agri-food output	0.54	0.54	0.45	0.57	0.68
Manufacturing output	0.82	0.79	0.71	1.28	1.73
Energy output	1.44	1.34	1.21	1.44	2.52
Construction output	0.62	0.60	0.55	0.67	0.76
Services output	0.44	0.39	0.34	0.45	0.59
Household consumption	0.26	0.19	0.19	0.33	0.45
General government consumption	0.23	0.23	0.23	0.23	0.28
Investment	0.80	0.77	0.71	0.87	1.24
Exports	1.46	1.32	1.27	1.62	2.07
Imports	1.23	1.13	1.13	1.31	1.54

Quarter ahead

Component	1st forecast	2nd forecast	3rd forecast	AR model	Naive model
PIB	**0.30**	**0.30**	**0.30**	**0.37**	**0.48**
Agricultural and agri-food output	0.66	0.65	0.67	0.77	1.08
Manufacturing output	1.09	1.06	1.06	1.24	1.57
Energy output	1.51	1.51	1.51	1.51	2.07
Construction output	0.54	0.61	0.61	0.72	0.77
Services output	0.42	0.42	0.42	0.45	0.54
Household consumption	0.37	0.37	0.34	0.33	0.48
General government consumption	0.24	0.24	0.24	0.24	0.28
Investment	0.80	0.81	0.80	0.85	1.24
Exports	1.58	1.53	1.45	1.75	2.33
Imports	1.54	1.50	1.31	1.41	1.54

Appendix 2

Summary of the sources used to forecast the components of GDP

	Survey data									Monthly macroeconomic data				
	Banque de France survey-industry	Banque de France survey-services	Banque de France survey-retail trade	INSEE survey-industry	INSEE survey-services	INSEE survey – construction	INSEE survey-consumer	European Commission survey	FNTP survey-civil engineering	Industrial production index	Household consumption of manufactured goods	Consumer price index	Electricity consumption	Housing starts
Publication lag (number of days after the end of the month in question)	+15*	+15*	+15*	+0*	+0*	+0*	+0*	+0*	+35	+40	+25	+20	+1	+30
Agricultural and agri-food output	C - F									C - F				
Manufacturing output				C - F						C				
Energy output										C - F			C	
Construction output				C - F						C				
Services output		C			F		C - F			C **				
Food consumption	C - F											C - F		
Consumption of manufactured goods	F		F				F				C			
Energy consumption	*Quarter ahead modelled by an autoregressive model*												C	
Consumption of services		C - F					C - F							
General government consumption	*Modelled by an autoregressive model*													
Corporate investment in capital goods	C - F													
Corporate investment in construction						C - F								
Household investment						C - F								C
General government investment									C - F					
Exports	C - F							C						
Imports	C - F		F					C						

C = source used in the equation for the coincident quarter.
F = source used in the equation for the quarter ahead.
* In Banque de France surveys, the questions explicitly concern activity during the month preceding the month in which the data is collected, while in INSEE and European Commission surveys, the respondents are questioned on their activity "over the past three months".
** The industrial production index in the manufacturing sector is used to forecast services output.

The contribution of cyclical turning point indicators to business cycle analysis

Laurent Ferrara
Macroeconomic Analysis and Forecasting Directorate
Business Conditions Analysis Division

In addition to the traditional quantitative tools used for estimating the GDP growth rate, economic forecasters can obtain qualitative information from indicators of turning points in business cycles. After recalling a number of concepts, we will present two indicators developed by the Banque de France in order to monitor, on a monthly basis, fluctuations in the French economy. The first is the probabilistic indicator of the acceleration cycle (IPCA – indicateur probabiliste du cycle d'accélération), which aims to detect economic acceleration and deceleration phases. The second is the probabilistic industrial recession indicator (IPRI – indicateur probabiliste de récession industrielle), which aims to estimate the probability of a recession in the industrial sector, defined as negative growth in industrial activity. This indicator is constructed using a Markov-switching model and incorporates data only from the Banque de France's monthly business surveys. An assessment of these two indicators since 1998 highlights their complementarity and their contribution to business cycle analysis.

The analysis and forecasting tools available to economic forecasters are generally based on quantitative econometric methods. For instance, forecasts tend to identify the correlations between certain variables and aggregates of national accounts with a view to predicting the growth rate of GDP or industrial production. The Banque de France uses a number of quantitative tools, such as the monthly index of business activity (MIBA – see Darné and Brunhes-Lesage, 2007), the OPTIM model (see Irac and Sédillot, 2002, Barhoumi et al., 2007) and the business sentiment indicator (ICA), whose aim is to measure and anticipate fluctuations in the French economy. The MIBA and ICA indicators are published on a monthly basis by the Banque de France.

However, in the past, the quantitative methods used by experts tended to produce errors in analysing current and future developments, in particular during periods of major economic turning points. One of the most striking examples is the last US recession of 2001, which few economists had anticipated. In the case of France, neither the downturn in Q3 2000 nor the recovery in Q3 2003 was predicted by most forecasters. For example, MIBA,[1] whose average error for the GDP growth rate has only been 0.04 percentage point since 1999, overestimated growth by 0.7 percentage point in Q3 2000 and underestimated it by 0.4 percentage point in Q3 2003.

In recent years, many econometric tools have been put forward in the literature with a view to providing qualitative information on the present and future developments in economic cycles. These tools complement the traditional quantitative forecasting tools that seek to predict GDP growth, since they give a rapid indication of the direction of change in GDP growth and reflect the state of the economic cycle on the basis of the latest available data. For the euro area, for example, Ferraton (2006) shows that the two approaches are complementary rather than substitutable. This qualitative information allows forecasters make a more balanced assessment in order to choose between the different alternative scenarios.

The idea of making business cycles the focus of economic analysis is not new. The first major research into business cycles dates back to the early 1900s, with the work of Wesley Mitchell, followed by Arthur Burns of the NBER, and others such as Geoffrey Moore of the Economic Cycle Research Institute, Victor Zarnowitz of the Conference Board and by the OECD with its Composite Leading Indicators (CLIs). The renewed interest in cyclical approaches is linked to the recent development of sophisticated econometric methods that provide, on a monthly basis, the probability of occurrence of a turning point in the business cycle. In particular, Markov-switching models, proposed by Hamilton (1989), are able to reproduce the different phases of the business cycle by estimating

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1 Here, we use the historical MIBA data published by the Banque de France.

at each instant the probability of an observation being in a given growth regime. Many extensions of this type of model have been put forward in the literature in order, for example, to simultaneously incorporate several variables, take account of dynamic transition probabilities or model discrete variables.

1| Taxonomy of economic cycles

The popularity of Hamilton's work stems from the fact that his model makes it possible to date US business cycles in the same way as the NBER Dating Committee. As a result, empirical studies of cycles have increasingly used Hamilton's model. However, in this respect, caution is called for since there is a degree of confusion regarding the definition of cycles. Yet, it is important to determine the exact type of cycle that is to be detected in real time. Three types of cycle are identified in the literature: the business cycle, the growth cycle or output gap, and the acceleration cycle, whose features differ.

In simple terms, the business cycle, as defined by Burns and Mitchell (1946), is an economic activity cycle in which turning points separate expansions (periods of positive growth) occurring at about the same time in many economic activities, followed by recessions (periods of negative growth). According to this definition, the peaks and troughs correspond to the start and end of recessions. This business cycle has significant asymmetries characterised by different behaviour according to the various stages of the cycle. For instance, the duration of expansion or recession phases is asymmetric; the average duration of recessions in the euro area since 1970 (reconstructed using data for all countries) is one year, while that of expansions varies between 8 and 11 years depending on the studies. Similarly, an asymmetry exists between the phases of the cycle in terms of magnitude, with the expansion phases being of greater magnitude. Lastly, it appears that duration dependence is only present in recessions, which means that the probability of an end of a recession increases with time.

The growth or deviation cycle can be defined as the deviation from the long-term trend (see Ilse Mintz, NBER working paper, 1969). The OECD attempts to anticipate this cycle using CLIs. The long-term trend may also be termed potential or trend growth. This type of cycle can be estimated using a number of economic or statistical methods. No single method has clearly emerged, and all approaches have the major drawback of introducing a bias in the estimation of edge effects. The peak of the cycle corresponds to the moment in which growth falls below its potential rate (the output gap is then at a maximum) and, symmetrically, the trough corresponds to the moment in which it rises above (the output gap then reaches a minimum).

Lastly, the acceleration cycle distinguishes between the high and low phases in the growth rate cycle. The peak of this cycle represents the local maximum reached by the growth rate and the trough, its local minimum. This cycle has a higher frequency, in particular for euro area countries, and is thus of particular interest to economic forecasters. However, it is more volatile, and therefore difficult to monitor in real-time. For a more detailed description of the features of these cycles and the sequences of their different turning points see, for example, Anas and Ferrara (2004) or Zarnowitz and Ozyildirim (2006).

2| Dating cycles and their real-time detection

When developing a turning point indicator, it is important to have a reference chronology in order to judge its quality. In the United States, the NBER Dating Committee has developed such a chronology for the US business cycle. This preferred dating technique among experts acts as a benchmark for a wide range of analyses. In the euro area, where no such reference chronology exists, the Centre for Economy Policy Research (CEPR) set up, in 2003, a dating committee of eight experts based on the NBER experience. The role of this committee is to set dates for the turning points in the euro area business cycle. Eurostat also conducted studies in this area (Anas et al., 2006), but has not for the moment proposed a reference turning point chronology. Moreover, many academic studies have also contributed to the debate as to the methodology to be used to create such a chronology. As regards France, there is no reference chronology for dating turning points in cycles, despite a number of studies on the topic (see, for example, Cotis and Coppel, 2005, Cornec, 2006, and Cristadoro and Veronese, 2006). The OECD proposes a chronology of the growth cycle, as well as for France, for most of its member countries, and the Economic Cycle Research Institute (ECRI) has dated business and acceleration cycles for a number of countries. The fact that there is no reference chronology for French cycles is a handicap for cyclical analysis. It would therefore be very useful to develop one.

Several authors have put forward original turning point indicators for the French economy. For example, Grégoir and Lenglart (1998, 2000) created a hidden Markov-switching model, from which they constructed a turning point indicator that is updated every month by INSEE at the time of its monthly industrial survey. Subsequently, this type of methodology has been used to develop other coincident indicators of economic activity for France (Bahu et al., 2006, Bouabdallah and Stelios, 2007), the euro area (Baron and Baron, 2002) and the United States (Bellone et al., 2005). Similarly, Coe-Rexecode (institute for economic research and analysis) provides a monthly leading indicator of the French growth cycle based on the Neftçi

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Markov-switching models

Markov-switching models were made popular in econometric literature by Hamilton (1989). These models detect a certain type of non-stationnarity present in many economic and financial series. Since the work of Hamilton, a large number of empirical and theoretical econometric studies have been conducted on this type of model, in particular in the case of qualitative variables (Grégoir and Lenglart, 1998, 2000). This type of model is interesting since it makes it possible at any date to obtain a probability of occurrence of a certain unobservable variable that takes a value in $\{1,\dots,K\}$, which is assumed to follow a K-state Markov chain. In macroeconomics, the unobserved variable, denoted $(S_t)_t$, is assumed to represent the current state of the economy and the number K of states is generally assumed to be equal to two or three.

The variable $(S_t)_t$ is specified as a K-state Markov chain, i.e. for any date t, S_t depends only on S_{t-1}, i.e: for i, j = 1,.., K:

$$P(S_t = j \mid S_{t-1} = i, S_{t-2} = i, \dots) = P(S_t = j \mid S_{t-1} = i) = p_{ij}.$$

The probabilities $(p_{ij})_{i, j=1,\dots, K}$ are called transition probabilities; they measure the probability of remaining in the same state or moving from one state to another. For a given state i, we obtain the following trivial equality:

$$p_{i1} + p_{i2} + \dots + p_{iK} = 1$$

For each state i, the probability p_{ii} is a measure of the persistence of state i. The parameters of the model are estimated with the maximum likelihood estimation method, using a filter algorithm. This estimation step gives at any date t the filtered probability of being in state i, for i = 1, …, K, $P(S_t = i \ / \ X_t,\dots, X_1, \theta)$. Therefore, at each instant, we can infer that economic activity is in the growth regime with the highest filtered probability.

Using the previous Markov chain $(S_t)t$, we can define different types of econometric Markov-switching models whose structure and parameters depend on the regime of the Markov chain. For example, we define the autoregressive model of order p, AR(p), with regime switches $(X_t)_t$ if the following equation is verified:

$$X_t = \mu(S_t) + \phi_1 [X_{t-1} - \mu(S_{t-1})] + \dots + \phi_p [X_{t-p} - \mu(S_{t-p})] + \varepsilon_t$$

where $\mu(S_t)$ is the average of the process at time t and where $(\varepsilon_t)_t$ is a Gaussian white noise process with unknown finite variance σ^2 that may also depend on the state.

Similarly, the parameters $\phi_1, \dots, \phi_p$ may also depend on S_t.

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approach (1982) applied to a set of variables that are considered to be ahead of the cycle (Anas and Ferrara, 2004). Other institutions, such as the OECD and the Conference Board, have also developed monthly cyclical indicators for France, but they are not based on a regime-switching model.

In this article, we present two probabilistic indicators of turning points in the French business cycle, developed by the Banque de France (see Adanero, Darné and Ferrara, 2007, for the methodological details). These two indicators are based solely on the Banque de France's monthly business survey. The construction methodology of these two indicators is based on a regime-switching model, with the changes determined by a first-order Markov chain. The model assumes there are a finite number of unobservable states for economic conditions and that the probability of belonging to a state at a given date depends only on the regime at the previous date. Both the indicators developed differ in terms of their scope of analysis and the features of the cycle monitored.

3| Probabilistic indicator of the acceleration cycle (IPCA)

The first indicator presented is a probabilistic indicator of the acceleration cycle (IPCA). This indicator, whose value is between -1 and 1, aims to identify the successive phases of acceleration and deceleration in the economy as a whole, i.e. the turning points in GDP growth series. The acceleration cycle is defined by ECRI as the succession of significant prolonged economic acceleration phases (positive second derivative of GDP) followed by deceleration phases (negative second derivative), lasting at least six months. We use ECRI's reference chronology whose deceleration phases appear in grey in Chart 1. According to ECRI, France has experienced four acceleration cycles (from peak to peak) since 1988. The first deceleration phase lasted for over five years, from March 1988 to May 1993. This very long deceleration phase resulted in an economic recession in 1992-93. Aside from this exceptional period, the average length of an acceleration phase is 17 months and that of a deceleration phase is 16 months. This symmetry in the duration of the phases is a feature of the acceleration cycle. Since the turning point in 2000, we have nevertheless seen that acceleration cycles have been less marked, which blurs the economic signals (see Chart 2).

The IPCA is constructed using a Markov-switching model proposed by Baron and Baron (2002) and applied to the four following variables in the Banque de France's business survey: industrial output, total orders, order book levels, and inventories of final goods (inverted).

Chart 1 Probabilistic indicator of the acceleration cycle (IPCA) and the reference deceleration phases (in grey) from January 1988 to October 2007
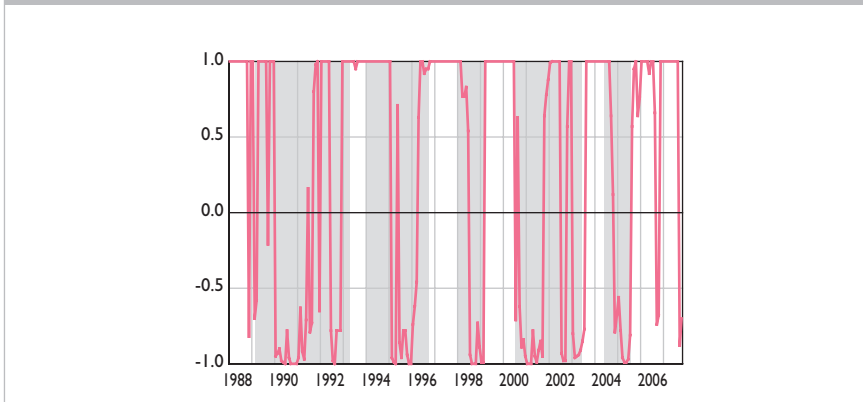
These four variables are those which make the greatest contribution to the first axis of a principal component analysis applied to all the variables of the survey. The model assumes that there is a three-state Markov chain. The IPCA is calculated as the difference between the filtered probabilities of being in the different states and has a value of between -1 and 1.

Using the IPCA, it is possible to identify in real time deceleration phases (IPCA < -0.5) and acceleration phases (IPCA > + 0.5). When the IPCA is such that -0.5 ≤ IPCA ≤ + 0.5, we consider that the economy is in a relatively stable growth phase. Empirically, the duration of the growth stability phase is always very short: the marked symmetry of this cycle is such that the economy is generally in either an acceleration phase or a deceleration phase, but the second derivative of GDP never stays equal to zero for long. The IPCA, presented in Chart 1, correctly reproduces past cycles in a quasi-coincident manner. Indeed, the IPCA does not miss any deceleration phases, but produces some false re-acceleration or deceleration signals that may, however, be explained by economic conditions. For example, as of October 2001, the indicator shows the end of the deceleration period that started in May 2000. This acceleration is visible on GDP (see Chart 2), which rises sharply from 0.34% in Q4 2001 to 0.69% in Q1 2002, suggesting a recovery that was in fact nipped in the bud in the following months. The real end of the cycle did not occur until May 2003. Similarly, the IPCA gives a false deceleration signal in September and October 2006, falling below the -0.5 threshold. This deceleration was linked to the surprising decline in GDP in Q3 2006, which decreased from 0.91% in the previous quarter to -0.06%. While the IPCA attempts to identify the long phases of the acceleration cycle, it also partly reflects the significant volatility observed on quarterly national accounts.

Chart 2 Probabilistic indicator of the acceleration cycle (IPCA) and the GDP growth rate between January 1997 and October 2007

(%, year-on-year)
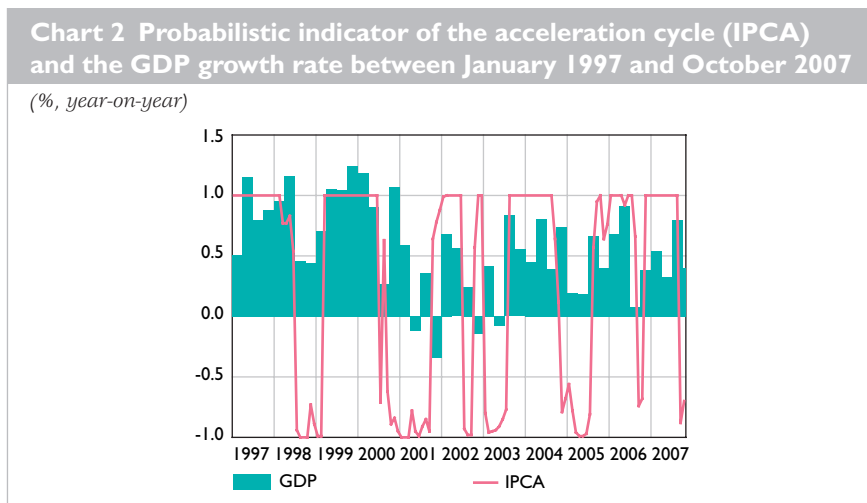
The last point of the IPCA for December 2007 stands at -0.86, after -0.62 in November, -0.69 in October and -0.88 in September, signalling the start of a deceleration phase following the growth rate of 0.8% in Q3 2007. Indeed, quarterly GDP growth in Q4 2007 was only 0.4% according to figures published by INSEE in mid-February 2008. This suggests a downward turning point in the growth rate cycle in Q3 2007 and a decline in the growth rate until at least Q1 2008.

4| Probabilistic industrial recession indicator (IPRI)

The second indicator presented is the probabilistic industrial recession indicator (IPRI), whose value is between -1 and 1. This indicator only concerns the industrial sector. Focused on the business cycle (i.e. phases of expansion and contraction in the level of industrial activity), it attempts to identify recession phases in the industrial sector. The definition used of a recession is that of the NBER dating committee (for the United States) and the CEPR (for the euro area), i.e. a prolonged decline in the level of economic activity, which is of significant magnitude and affecting the industrial sector as a whole. The lack of a reference chronology for France means that we had to define our own business cycle in industry using the algorithm of Bry and Boschan applied to the Industrial Production Index (IPI). We consider three industrial recession phases since 1988; only the first, from early 1990 to end-1993, coincides with an overall economic recession.

The IPRI is constructed using Hamilton's Markov regime-switching model (1989) applied to the Banque de France's Business sentiment indicator (ICA).

Chart 3 Probabilistic industrial recession indicator (IPRI) from January 1988 to October 2007 (the reference industrial recession phases are in grey)
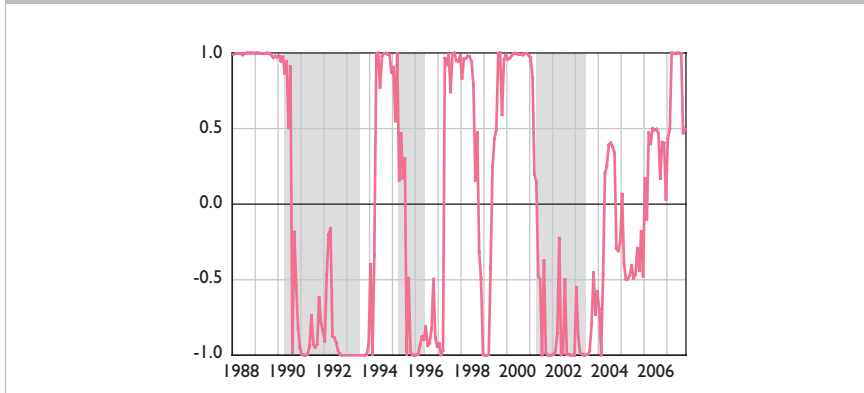
This monthly indicator is calculated using the first axis of a principal component analysis applied to all the variables of the Bank's business survey. The univariate model is specified on the ICA series in levels with a three-state specification. The low regime corresponds to a recession in industry, the intermediate regime to a moderate growth phase and the high regime to a strong growth phase. The IPRI is calculated as the difference between the filtered probabilities of being in the three states in order to summarise this information.

The IPRI detects recession phases in the industrial sector (IPRI < -0.5). When the indicator does not signal a recession (IPRI ≥ -0.5), we consider that the sector is in an expansion phases that is either moderate (-0.5 ≤ IPRI ≤ + 0.5), or strong (IPRI > 0.5). In Chart 3, we observe that the IPRI reproduces the three industrial recession phases seen since 1988. The indicator is almost coincident with the start dates of the recession, but has a lag to identify the recession end dates. This suggests that the business leaders surveyed remain pessimistic for longer at the end of a recession that they should do vis-à-vis national accounts data. The IPRI produced one false signal, of short duration (4 months), at the start of 1999. This signal was linked to the Asian crisis whose impact was small on French industry but which had a greater effect on other European countries such as Germany and Italy.

Since the end of the industrial recession in 2003, we have observed that the moderate growth regime remained predominant until the start of 2007, when the indicator exceeded the 0.5 threshold signalling robust growth. Indeed, over the 2004-2006 period, the average year-on-year increase in the overall IPI was around 1% per year, while over the 1998-2000 period, characterised by strong growth by the IPRI, this rate was around 3.7%

per year. As regards the last points, from March to August 2007, the IPRI remained above 0.5, indicating a vigorous growth phase, but the indicator has returned to an intermediate growth regime since September 2007 (0.47 in September, 0.50 in October, 0.39 in November and -0.06 in December).

Cyclical turning point indicators are useful tools for forecasters because they provide original qualitative information for economic analysis and forecasting that cannot be obtained by quantitative methods. For example, they allow experts to choose between the different alternative forecasts and diverging analyses of business conditions. The Banque de France has developed two probabilistic indicators to monitor on a monthly basis turning points in the business cycle in French industry and those in the acceleration cycle in the French economy as a whole. Indicators of this nature are currently being developed for the euro area as a whole.

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Is credit growth in central and eastern European countries excessive?

Virginie Coudert
Financial Stability Directorate

Cyril Pouvelle
International and European Relations Directorate

Annual credit growth rates of between 30% and 50% have been observed in some central, eastern and south-eastern European countries (the Baltic States, Bulgaria, Romania, Albania and Macedonia). This raises the question as to whether this strong credit growth is likely to result in a credit boom that would be prejudicial to the economy. Or can it be explained by a catching-up process that is normal for countries with a low level of financial intermediation at the time of their transition? With a view to answering this question, we use complementary approaches, based on both deviations from long-term trends and econometric regressions.

In the first approach, we consider current credit growth in relation to its long-term trend. A "credit expansion" is termed a "credit boom" if the credit/GDP ratio exceeds its long-term trend by above a confidence interval. Calculations show that there appears to have been a credit boom in the recent period in a number of countries (the Baltic States, Hungary, Romania, Slovenia, the Czech Republic and Albania). This statistical approach is useful in that it compares recent and historical developments, but it does not take economic fundamentals into account.

In the second approach, which seems to be more appropriate, we assess the "normal" level of credit with regard to fundamentals, based on a large sample of countries. The results show that the credit/GDP ratio remains below equilibrium levels estimated for the majority of central and eastern European countries (CEECs). This appears to indicate that a catching-up process is underway. However, the catching-up has already occurred in Bulgaria, Croatia and the Baltic states. Credit growth is then estimated in terms of a deviation from this "normal" level and from other economic variables, such as GDP growth and the real interest rate. In this respect, recent credit growth largely exceeds estimates in the case of Albania, Bulgaria, Estonia and Romania, which suggests a credit boom. This was also true for Lithuania, Serbia and Slovenia one year earlier.

I n view of the risks posed to financial stability in the central and eastern
European countries (CEECs) by the rapid expansion of credit growth,
the main international financial institutions (the IMF, the EBRD and
the BIS), as well as the ECB, have recently been giving much attention
to this development. These risks concern both CEEC Member States and
the Balkan States.

The economic situation of the CEECs is particular in that they are
experiencing two trends. On the one hand, they are experiencing an
economic catching-up process similar to that of other emerging countries,
whereby levels of per capita income and productivity are gradually
converging towards those of advanced countries. On the other hand, these
countries are in the process of completing their economic transition, which
has transformed their structures from planned to market economies.

The economic trends prevailing in the transition process have generated a
positive growth shock. Against this backdrop, it is not surprising that credit
growth is particularly strong. However, the annual credit growth rates of
between 30% and 50% observed in recent years in these countries may
also prove excessive. This question is especially relevant since, in the past,
very strong credit growth has often preceded financial crises.

Indeed, in economic literature, credit booms are identified as a key factor
behind financial crises, in particular in the more vulnerable emerging
countries (Kaminsky and Reinhart, 1999). Credit booms tend to amplify
internal financial imbalances by fuelling excessive demand, inflationary
pressures and speculative asset price bubbles (Allen and Gale, 2000).
They can also exacerbate external deficits and debt (Duenwald et al., 2005,
Coricelli et al., 2006, Diev and Pouvelle, 2008).

Credit growth in the CEECs can be interpreted in two ways. First, it may
be part of a normal catching-up process: at the start of transition, between
1991 and 1993, the existing credit stock was eliminated by hyperinflation
in some countries (in particular Poland and the Baltic States). Then, during
the stabilisation phase, the pace of financial liberalisation and financial
deepening steadily picked up. For instance, in 1997, the credit stock of
these economies was still very low: less than 20% of GDP in the Baltic
States, Poland and Romania (compared with, for example, 82% in France
and 106% in Germany in the same period, see Charts 1 and 2).

Second, credit growth may also be excessive, leading to an overheating of
the economy and inflationary pressures. This is a concern for countries
that are already EU Member States, official candidates and potential
candidates (Balkan States). These countries are expected to adopt the euro
in the future and must therefore comply with the Maastricht convergence
criteria, in particular the price stability criterion.

Chart 1 Credit ratios

(as a percent of GDP)

1997 Q1
2007 Q2
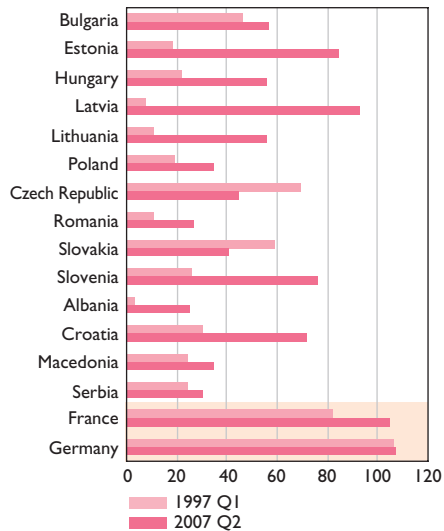
Source: IMF (International Financial Statistics – IFS).

Two types of approach are used in economic literature to identify credit booms. The first is a purely statistical approach, based on deviations of credit series from their long-term trend, such as in Gourinchas et al. (2001), Tornell and Westermann (2002), IMF (2004) and Sa (2006). The second is econometric and seeks to explain the level of credit or credit growth

Chart 2 PPP-GDP as a percent of that of the euro area

1997 Q1
2007 Q4
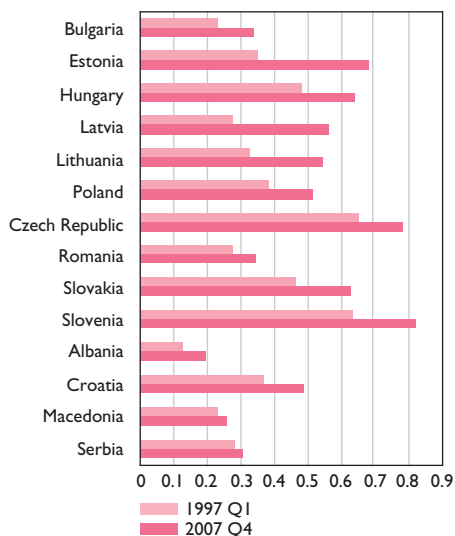
Source: IMF (IFS).

as a function of economic fundamentals (Cotarelli et al. (2005), Boissay et al. (2005), Egert et al. (2006), Kiss et al. (2006)).

This article applies both types of approach using a large sample of emerging and developed countries, with a view to identifying a behaviour pattern that may be specific to countries of eastern and central Europe. In this statistical approach, we test possible thresholds and indicators to define credit boom periods. In the econometric approach, we use an error|correction model. We first determine the equilibrium level of the credit/GDP ratio corresponding to the fundamentals in the sample as a whole. The results show that the credit/GDP ratio has not yet reached its estimated equilibrium level in most CEECs. Therefore, the rapid credit growth may stem from this process of catching-up towards the level compatible with economic fundamentals. Credit growth is then explained as a function of deviations of the credit/GDP ratio from its equilibrium level estimated in the previous stage, and other macroeconomic variables, such as the interest rate and GDP growth. An error-correction model had already been used in a study by the ECB (Boissay et al., 2005). We adapt it here using a large reference sample including both developed, emerging and transition countries. This method enables us to take account of the interactions between the initial level of credit and the speed of convergence towards the new long-term equilibrium.

In the first part, we compare the credit/GDP ratio and real credit growth with their long-term trend; beyond a certain threshold, positive deviations are classified as credit booms. In the second part, we provide econometric estimates of the credit/GDP ratio relative to macroeconomic variables for the CEECs over the recent period, and then estimate the credit growth rates.

1| Deviations from the long-term trend

We define indicators representing credit and compare them to their long-term trend. The deviations of these indicators from their long-term trend are then analysed, in order to identify the most significant ones. If the indicator deviates "significantly" from its long-term trend at a certain date, this signals a credit boom.

We generalise the method adopted by Gourinchas, Valdés and Landerretche (2001), IMF (2004) and Sa (2007). These different studies vary according to the credit indicators used, the way in which deviations from trend are calculated and thresholds defined (for a technical description of our indicators, see Appendix 1).

The sample includes 52 countries: 21 developed countries, 17 emerging countries excluding Europe and 14 emerging countries in central, eastern

and south-eastern Europe. Data are quarterly over the Q1 1980 to Q2 2007 period, or at a lower frequency where not available. For the CEECs, we only consider the period after Q1 1993. Given the lags required to calculate the year-on-year data and the long-term trend, the estimate only starts four years after the date of data availability. The series used for credit is the stock of domestic bank loans to private sector residents. The list of countries, the data, their sources and their periods of availability are given in Appendix 2.

For each country, we consider two indicators: the credit/GDP ratio and real credit growth.[1] We estimate their long-term trend using a Hodrick-Prescott filter; then we calculate the deviations from trend. We then identify credit boom periods by setting the thresholds using two methods.

1st approach

In the first approach, we construct an interval proportional to the standard deviation around the trend in order to define the threshold (see Appendix 1). We identify 4.9% of credit booms for the credit/GDP ratio in the overall sample and 4.3% for real credit growth (Table 1).

If, for one of the countries, an indicator is above the interval, this period corresponds to a credit boom. Charts 3 show that this is indeed the case for the Baltic States in the recent period according to the credit/GDP indicator (left-hand column of Chart 3). Charts for the other CEECs appear in the Appendix 3.

Table 2 lists the dates of credit boom episodes in the CEECs according to the two indicators. The credit/GDP ratio shows booms above all at the end of the period. Since the start of 2006, according to this indicator, credit booms have been identified in the three Baltic States, Hungary, the Czech Republic, Romania, Slovenia and Albania (see also charts in Appendix 3, left-hand column). This assessment is in line with those made by observers of these markets (in particular Boissay et al. (2005), Egert et al. (2006), and Kiss et al. (2006)).

Table 1 Number of booms as a percent of total observations, identified with method 1 (a)

(credit/GDP and real credit growth as a %)

Country groupings	Number of observations (a)	Credit/GDP	Real credit growth
Total sample	3,848	4.9	4.3
Developed countries	1,968	5.0	4.8
Emerging countries	1,880	4.8	3.8

(a) Booms are the observations corresponding to deviations from the trend that exceed 1.75 times the standard deviation.

1 *We calculate real credit growth in year-on-year terms, which enables us to eliminate seasonal factors and because it is less volatile than quarter-on-quarter data.*

Chart 3 Credit/GDP and real credit growth for the Baltic countries
Observed value, long-term trend and interval of 1.75 times
the standard deviation around the trend

(as a %)

Credit/PIB **Real credit growth**

Estonia

Latvia

Lithuania

Credit/GDP — — — Long-term trend • • • • Lower threshold
— — — Upper threshold —— Real credit growth rate
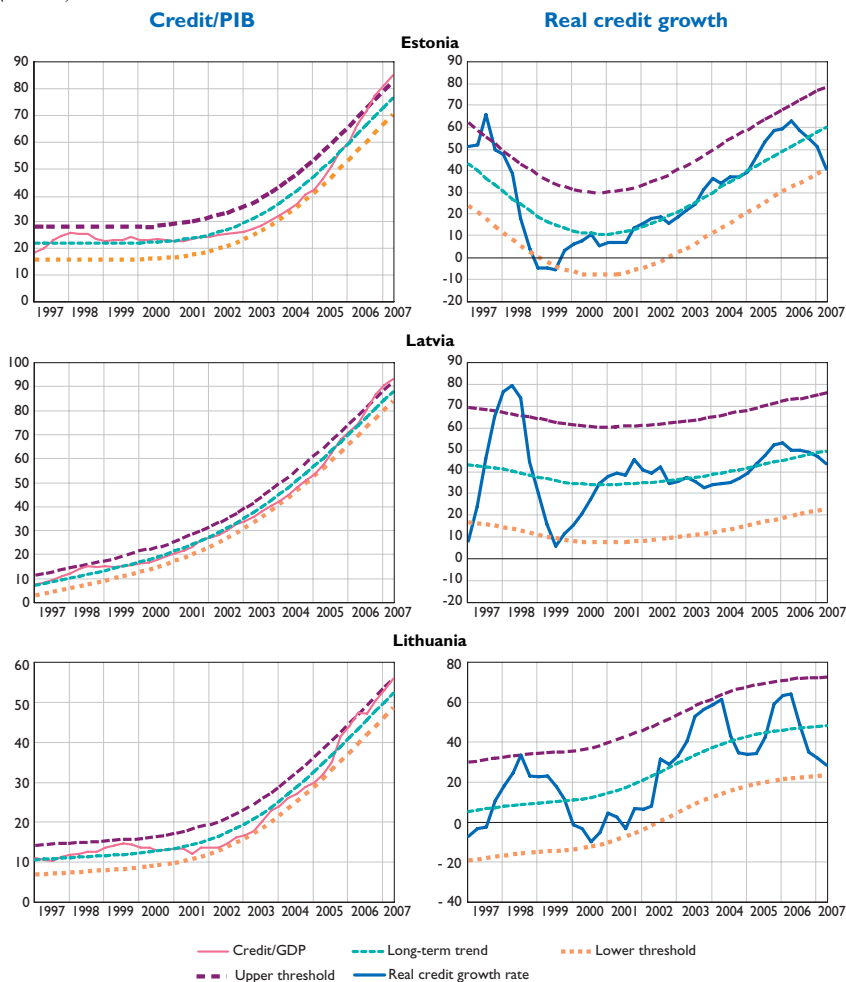
Sources: data IMF (IFS), authors' calculations.

The conclusions are very different if we consider real credit growth. There would not be any credit booms in the CEECs in the recent period (Table 2 and Charts in Appendix 3, right-hand column).

This conclusion may seem strange. Chart 3 (column 2) shows that credit booms obtained by this indicator are concentrated at the start of the period (1997 or 1998) for the Baltic States. The same is true for the other countries (Albania, Bulgaria, Croatia, Estonia, Romania, Slovakia and Slovenia), as shown in Table 2 and the Charts in Appendix 3. This is due to the fact that

Table 2 Dates of credit booms identified in CEECs with method 1

Countries	Credit/GDP	Real credit growth
Bulgaria	1997: Q1	1998: Q2-1999: Q2
Estonia	2006: Q4-2007: Q2	1997: Q3
Hungary	2006: Q2-Q3	2000: Q3-Q4
Latvia	2006: Q4-2007: Q2	1998: Q1-Q3
Lithuania	2006: Q2-2007: Q2	1998: Q3, 2003: Q2, 2004: Q2
Poland	2000: Q2	2005: Q4
Czech Republic	2007: Q2	–
Romania	1998: Q4-1999: Q1, 2006: Q4	1998: Q4-1999: Q1
Slovakia	2000: Q3-Q4	1997: Q1-Q2, 2002: Q3
Slovenia	2006: Q2-Q3	1998: Q4, 1999: Q2
Albania	2006: Q4-2007: Q2	2000: Q3, 2005: Q3
Croatia	1998: Q2-Q4	1997: Q4-1998: Q1
Macedonia	1997: Q4-1998: Q1	1999: Q3-Q4
Serbia	2000: Q2-2001: Q3	2000: Q3

credit growth was particularly strong at the start of the period in transition countries, owing to the very low initial credit stocks. For this reason, real credit growth is probably not a good indicator.

Another drawback of credit growth rates is their high sensitivity to the business cycle; this is particularly the case for deviations from trend as well. Economic slowdowns and episodes of credit rationing may result in a negative bias, which would lead to credit booms being incorrectly identified as soon as a recovery starts. Very low growth rates may thus appear to be credit booms if they are preceded by a period in which the growth rate was negative.[2]

Use of the growth rate in the indicator therefore generates biases, which could be avoided by using the credit/GDP ratio. This is why the latter variable seems more relevant for signalling possible credit market booms.

2nd approach

In the second approach, we identify a threshold beyond which the deviation of credit from its long-term trend gives a certain percentage of booms in the sample. We calculate for different thresholds the corresponding percentage of credit booms (Table 3). For instance, if we wish to obtain around 5% of booms in the sample, which corresponds to a boom per country every 20 years, the threshold must be set at 5 percentage points of GDP for the credit/GDP indicator; we then obtain 4.6% of credit

2 *This is notably the case in Bulgaria, 1998: 04-1999: 02, Romania 1998: 04-1999: 01, Slovakia 1997: 01-02 and 2002: 03, Macedonia 1999: 03-04 and Serbia 2000: 04.*

**Table 3 Number of credit booms identified
with method 2, with different thresholds** (a)

(threshold in GDP points or as a %, credit/GDP and real credit growth as a %)

Threshold	Credit/GDP	Real credit growth
3	10.9	24.9
4	6.9	19 .9
5	4.6	16.3
6	3.4	13.3
10	1.1	6.9
13	1.1	5.0
15	0.4	3.9

(a) Booms are the observations corresponding to deviations from the trend that exceed the threshold indicated in the first column.

booms in the sample. For real credit growth, the threshold must be set at 13% in order to obtain 5% of booms in the sample.

The results of the two methods may therefore be made equivalent in terms of the number of credit booms identified. Setting the threshold at 1.75 times the standard deviation or an interval of 5 percentage points for the credit/GDP ratio, or 13% for real credit growth gives more or less the same percentage of 5% of booms in the sample. The two methods nevertheless give different results in terms of individual observations. In the first method, for instance, the thresholds are calculated for each

**Table 4 Dates of credit booms identified
in CEECs with method 2** (a)

(as a %)

Countries	Credit/GDP	Real credit growth
Bulgaria	1997: Q1-Q2, 2005: Q1	1998: Q4-1999: Q3, 2003: Q2, 2005: Q1, 2007: Q2
Estonia	2006: Q3-2007: Q2	1997: Q3-1998: Q1
Hungary	–	2000: Q3-Q4
Latvia	2006: Q4-2007: Q2	1997: Q4-1998: Q4
Lithuania	–	1998: Q2-1999: Q2, 2005: Q4-2006: Q2
Poland	–	–
Czech Republic	2007: Q2	–
Romania	–	1998: Q2-1999: Q1
Slovakia	1999: Q4, 2000: Q3-Q4	1997: Q1-Q4, 2002: Q3-Q4
Slovenia	–	–
Albania	–	2000: Q3, 2001: Q4, 2002: Q2, 2005: Q2-2006: Q2
Croatia	–	1997: Q4-1998: Q2, 2002: Q4-2003: Q1
Macedonia	–	1999: Q3-Q4
Serbia	–	–

(a) Booms are the observations corresponding to deviations from the trend that exceed 5% for the credit/GDP indicator and 13% for the real credit growth.

country, while in the second, they are the same for all the countries in the sample.

The results of this method for the CEECs are different from those obtained previously (Table 4). Over the recent period, only Estonia, Latvia and the Czech Republic are identified as experiencing a credit boom using the credit/GDP indicator. There are fewer CEECs showing credit booms than in the previous approach.

Conversely, the credit growth indicator detects a credit boom in Bulgaria, Lithuania and Albania in the recent period, while this was not the case before. This means that real credit growth exceeds its long-term trend by more than 13% in these countries. In comparison, we can therefore conclude that the threshold previously calculated on a country-by-country basis (1.75 times the standard deviation) was greater than 13%, due to the high credit volatility in these three countries. The first method that sets the thresholds by country seems more relevant for identifying credit booms. It is the approach that we adopt henceforth.

Credit booms and busts

Episodes of booms and busts, which are typical in financial markets, are also observed in credit distribution. Phases of investor euphoria are followed by sudden surges in risk aversion, as the loans taken out turn out to be less profitable than expected. Empirical literature shows that banking crises are typically preceded by lending booms, but very few lending booms end in a banking crisis (Gourinchas et al. (2001), Tornell and Westermann (2002), Bordo and Jeanne (2002), Borio and Lowe (2002), and IMF (2004)). Rapid credit growth therefore generally appears to be a necessary but not a sufficient condition for a banking crisis.

In order to be in line with this observation, a good credit boom indicator should therefore detect fewer boom periods followed by contractions than contraction periods preceded by a boom. We verify this for the indicators constructed using method 1 by taking a definition for episodes of credit contraction symmetrical to that of credit booms: a credit contraction exceeding 1.75 times the standard deviation of the fluctuation below the trend.[3] Episodes of credit contraction may therefore be seen in Chart 3 when the indicator exceeds a certain interval below the trend.

Overall for the whole sample, the percentage of credit booms followed within two years by a contraction is 16% for the credit/GDP ratio (Table 5). This percentage may be interpreted as a probability that credit booms are followed by a credit contraction. The probability that a contraction

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3 *The main methodological difference with the existing literature lies in the credit contraction variable, which we derive here from credit growth rates, in order to be consistent with the previous approach, whereas the authors cited above use lists of identified banking crises.*

Credit/GDP	Real credit growth
Table 5 Probability of a credit contraction in two years following a boom and vice versa	
(as a %)	
Credit/GDP	**Real credit growth**
Percentage of booms followed by a contraction within two years	
16.0	24.7
Percentage of contractions preceded by a boom in the two previous years	
26.0	25.2

Note: Booms are the observations corresponding to deviations from the trend that exceed 1.75 times the standard deviation; contractions are the observations corresponding to deviations below the trend that exceed 1.75 times the standard deviation.

is preceded by a boom is more likely, i.e. 26% for the credit/GDP ratio. This is in line with expected results. For the real credit growth indicator, however, both probabilities are more or less the same, i.e. 25%. These results confirm our preference for the indicator based on the credit/GDP ratio.

By way of illustration, let us consider the results given by these indicators around the Asian crisis in 1997 and that of Brazil in 1998 (Table 6). With the indicator based on the credit/GDP ratio, three out of the four Asian countries considered had credit booms at the time of the crisis with contractions afterwards. The Brazilian crisis was also preceded by a credit boom and followed by a contraction. It is true that for Indonesia and Singapore, episodes of credit booms are lagged in relation to the onset of the crisis. The credit boom that is identified appears to stem more from the sharp fall in GDP, produced by the crisis, which mechanically increases the credit/GDP ratio, than from credit market developments. By using the credit growth rate indicator, only one in five countries is identified as recording a credit

Table 6 Credit booms and contractions identified in countries affected by financial crises

Countries In brackets: the year of the crisis	Credit/GDP		Real credit growth	
	Periods of credit booms before or during the crisis	Periods of credit contractions after the crisis	Periods of credit booms before or during the crisis	Periods of credit contractions after the crisis
South Korea (1997)	–	–	–	1998: Q2-Q4
Indonesia (1997)	1998: Q1-Q3	1999: Q2-2001: Q1	1998: Q2	1999: Q1-Q4
Philippines (1997)	1997: Q4-1998: Q2	–	–	1998: Q4-1999: Q2
Thaïland (1997)	1997: Q3-1998: Q4	2000: Q3-Q4	–	2000: Q3
Brazil (1998)	1997: Q3-1998: Q2	1998: Q4	–	1998: Q4-1999: Q2

Note: Booms are the observations corresponding to deviations from the trend that exceed 1.75 times the standard deviation; contractions are the observations corresponding to deviations below the trend that exceed 1.75 times the standard deviation.

boom before the crisis. This indicator nevertheless seems more relevant for identifying credit contractions in the two or three years after the crises.

All in all, none of these indicators seems very satisfactory for reflecting the stylised facts of credit booms before the Asian crisis and credit busts afterwards.

Limitations of the method

The main criticism that can be made of the calculations based on credit growth rates is that they do not take account of the initial level of credit. Credit growth is more or less acceptable depending on its level as a percentage of GDP. In particular, it is normal that the financial deepening, which accompanies the catching-up of emerging countries, causes a temporary acceleration in credit growth, as they generally start from a very low level.

In this respect, the credit/GDP ratio may be a more reliable indicator. However, these calculations are not without flaws, since estimating long-term trends using a Hodrick-Prescott filter often lacks robustness when the series are short and prone to trend breaks. In particular, these calculations may be subject to edge effects, making estimates on the first and last points of the series fairly unreliable. This problem is particularly acute for the transition countries.

Thus, credit boom indicators based on a purely statistical approach do not appear sufficient to assert that there was a credit boom in the countries under review. It is necessary to supplement them with an econometric approach, which relates the credit market to fundamental variables.

2| Credit indicators as a function of fundamentals

2|1 The approach

The credit/GDP ratio tends to increase along with economic development. Starting from an initially low level in the CEECs, the credit/GDP ratio is likely to increase in line with real convergence, as Charts 1 and 2 above show. In order to explain the credit growth rate, this phenomenon must be taken into account. This is why we adopt a two-stage approach. In the first, we estimate the credit/GDP ratio as a function of a certain number of fundamental variables, and in particular the level of economic development. The estimated level of this ratio is considered to be "normal" or the equilibrium level relative to fundamentals. If the value observed

is less than its estimated value, the country should "catch up" with the normal level through a higher credit growth rate. This is why, in the second stage, the real credit growth/GDP ratio is explained by the deviation of the credit/GDP ratio from its "normal" value and from a certain number of fundamentals. We therefore use an error-correction model.

A number of studies have already adopted this type of approach. Some have attempted to define credit/GDP ratios that are compatible with economic fundamentals (Cottarelli, Dell'Ariccia and Vladkova-Hollar, 2005; Egert, Backé and Zumer, 2006). To do this, the ratio is regressed on a set of explanatory variables generally including: per capita GDP in PPP, public debt, inflation, interest rates, etc. Qualitative variables are sometimes added, such as financial deregulation, countries' legal systems, etc. However, these studies do not estimate the credit growth rates.

Two recent papers use an error-correction model to estimate a long-term relationship between the variables in levels and explain the credit growth rates themselves. Kiss et al. (2006) for instance estimate long-term growth in credit/GDP ratios, but do not display the results of the model, whereas Boissay et al. (2005) have attempted to directly model the credit growth rate using fundamentals.

2|2 Estimate of the credit/GDP ratios

In the first stage, we assess the "normal values" of the credit/GDP ratio as a function of the fundamental variables of each country, and then we calculate the position of the different countries relative to these "normal values" (see the description of the econometric models used in Appendix 4, section 1).

The values estimated by the two previous models M1 and M2 are compared to the credit/GDP ratios observed in the CEECs at the end of the period (Charts 5 and 6).

Credit/GDP ratios are far below the values estimated by the two models for most of the transition countries over the recent period. Poland and the Czech Republic, in particular, have especially low levels of credit (34% and 44% of GDP respectively), which are 30 percentage points of GDP below the values estimated in the two models. Slovakia also has a low level of credit relative to its level of development, i.e. 25 to 30 percentage points of GDP below the estimated values. To a lesser extent, this is also the case for Hungary, Macedonia and Serbia, which have credit ratios of 10 to 20 percentage points below the results of the models. These results are in line with a number of studies on the subject (Cotarelli et al. 2005, and Egert et al. 2006), showing that the level of credit in the CEECs still appears to

Chart 5 Observed and estimated credit/GDP ratios, in 2007: 02 (a)

(as a %)

Bulgaria
Estonia
Hungary
Latvia
Lithuania
Poland
Czech Republic
Romania
Slovakia
Slovenia
Albania
Croatia
Macedonia
Serbia

0 10 20 30 40 50 60 70 80 90 100

■ Observed credit/GDP
■ Estimated with M1 model (cointegration)
■ Estimated with M2 model (instrumental variables)
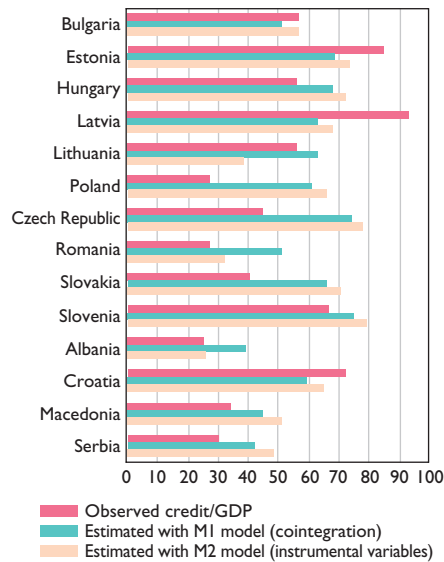
(a) Except for Romania: 2007: Q1.

be in a catching-up phase. Slovenia and Bulgaria have credit ratios close to the estimated values.

Chart 6 Gaps between observed and estimated credit/GDP in 2007: 02

(as a % of GDP)

Bulgaria
Estonia
Hungary
Latvia
Lithuania
Poland
Czech Republic
Romania
Slovakia
Slovenia
Albania
Croatia
Macedonia
Serbia

-50 -40 -30 -20 -10 0 10 20 30 40

■ Gap with M1 model
■ Gap with M2 model
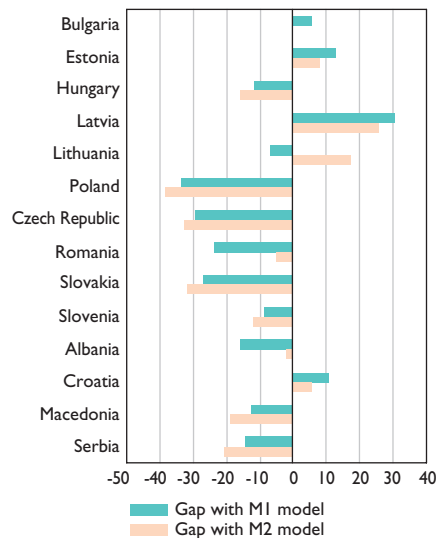
However, the very rapid credit growth in recent years has changed the situation for Latvia, Estonia Croatia, and even Lithuania. These countries now have credit ratios above the estimated values, which suggests that their credit growth is currently stronger than what would be justifiable by a catching-up process. This is particularly the case for Latvia, where the outstanding stock of credit (93% of GDP) now exceeds the model's estimates by 26 to 30 percentage points.

2|3 Estimate of the credit growth rate as a function of fundamentals

We shall now estimate changes in the credit/GDP ratio and the real credit growth rate as a function of gaps between previously estimated levels and economic fundamentals. Two methods will be used: an error-correction model (ECM) and an instrumental variables model (IV), whose description is given in Appendix 4, section 2.

We shall compare the credit growth rates recently observed in the CEECs to the models' estimates (Charts 7 and 8). Two periods are considered: the last available period, i.e. year-on-year 2007: 02 and that of the previous year 2006: 02. To facilitate the comparison, all of the values simulated are expressed in terms of year-on-year growth in nominal credit (taking into account the observed value of inflation and GDP growth).

The credit growth rate is the most moderate in Hungary, at around 10% per year, according to the latest available figures. This is below estimated values. In Slovakia and Serbia, credit growth rates of around 20% per year also seem low in comparison with the results from models. For these two countries, as for Hungary, the credit growth rate has slowed markedly compared with the previous year.

In all of the other CEECs, i.e. 11 out of 14, credit growth exceeds the results estimated by at least one of the models. However, it is important to distinguish between two different cases: countries where the values observed are close to those estimated, which reveals credit levels in line with economic fundamentals, and countries for which the levels exceed the economic fundamentals significantly, which suggests a credit boom.

The group of countries that has credit growth close to estimated values includes Latvia, Lithuania, Poland, Czech Republic, Slovenia and Croatia.

In Latvia, for example, credit growth of 56% per year in 2007: 02 might seem abnormally high, but this figure is in fact quite close to values

Chart 7 and 8 Year-on-year nominal change in credit, observed and estimated by the two models (error-correction model: ECM; instrumental variables: I.V.) in 2007: 02

(as a %)

in 2007: 02 (a)

in 2006: 02 (b)

Legend:
- Observed value
- ECM model
- I.V. model for credit/GDP
- I.V. model for real credit growth
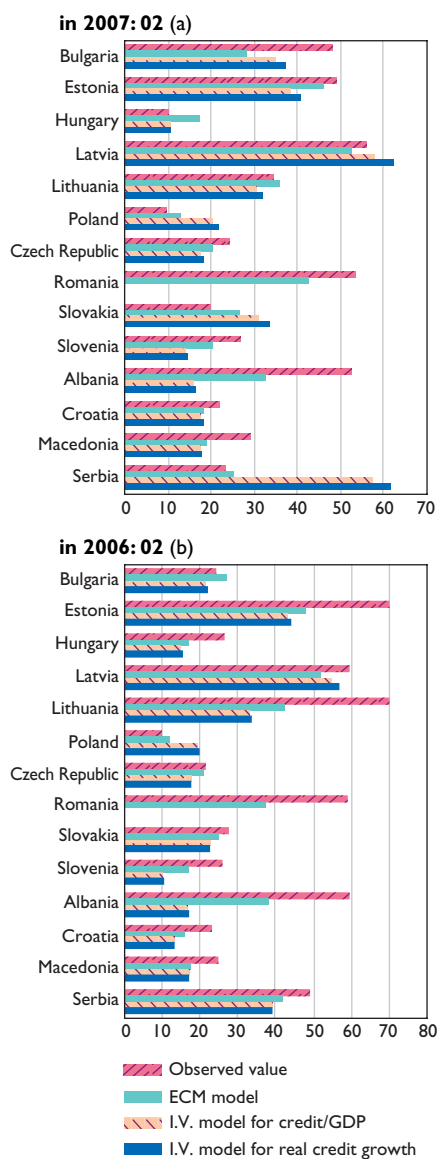
(a) Romania: 2007: 01; Serbia: 2006: 04 for the I.V. model.
(b) Macedonia: 2006: 01 for the I.V. model.

estimated in light of the country's economic fundamentals. Annual real GDP growth of around 15% and very low real interest rates account for the high level of credit growth in this country. There is also the question as to whether such GDP growth is sustainable. The answer may be negative

if the economy as a whole is overheating in addition to the credit market. In this respect, we should point out that our method enables us to determine whether credit growth is in line with economic fundamentals, and not whether the growth of the fundamental variables themselves is sustainable. In this regard, the approaches used in Duenwald et al. (2005) and Diev and Pouvelle (2008) are complementary, as they consist in determining the effect of credit growth on the current account deficit, which is one of the main sources of vulnerability in emerging Europe. However, if the question of the sustainability of fundamentals is not resolved, our method at least has the advantage of allowing us to identify sufficient conditions for credit booms.

A second group of countries has higher gaps between observed and estimated credit growth, suggesting a credit boom. In Bulgaria and Albania, this gap is over 15 percentage points and as much as 37 percentage points in the I.V. model for Albania. In Romania and Macedonia, observed values considerably exceed estimated values (by 8 to 10 percentage points). In Estonia, observed credit growth exceeds the values estimated by the I.V. model by 13 percentage points.

However, credit growth has generally slowed since its peak in 2006 (in 9 countries out of 14, see Chart 8). The credit "boom" was thus more marked in 2006: 02 in several countries, notably in Estonia, Hungary, Lithuania, Romania, Slovenia and Serbia. For these countries, the gaps between the observed rates and the estimated rates during this period ranged between 10 and 37 percentage points, although they have fallen since. Conversely, the credit boom has gained considerable momentum in Bulgaria since early 2006. However, changes in the model's results between 2006 and 2007, which were very marked for Bulgaria and Serbia, stem more from observed developments in credit than from the volatility of our estimates.[4]

One criticism of this method is that it assimilates the positive residuals of estimates to "credit booms", while they could stem from the models' inadequacy. One way to respond to this would be to check whether the periods that we identify as credit booms have particularly high residuals in comparison with the rest of the sample. We can check if the gaps between observed values and those estimated by the model over the recent period for certain CEECs are particularly large or whether they are within the normal range of the model's residuals. To achieve this, we compare the models' latest residuals for the CEECs to the residuals for the whole of the sample. We consider them to be "abnormal" if they are above 95% of the residuals of the whole sample (see Charts 9 and 10).[5]

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4 *In Serbia, the swing from a credit boom in 2006: 02 to a considerably low level of credit growth in 2006: 04 seems to be the result of the tightening of macro-prudential regulations on consumer credit, instituted by the National Bank of Serbia at the end of 2006-beginning of 2007, which appears to have slowed credit growth at least temporarily. Conversely, the increase in the credit boom in Bulgaria seems to stem, on the one hand, from a private investment boom, characterised by a 10-point increase in the private investment/GDP ratio in five years, and on the other hand, from the Bulgarian National Bank's removal of administrative limits on growth in bank loans at the end of 2006-beginning of 2007.*

5 *95% of the residuals have a value lower than 14.1 percentage points for the ECM Model, 21.4 points for the instrumental variable model for credit/GDP and 22.2 points for the I.V. model for real credit growth.*

Chart 9 and 10 Gaps between observed credit growth rates and estimates

...of the ECM model (2007: 2) (a)

Threshold of 95% of residuals

Bulgaria	
Albania	
Macedonia	
Romania	
Slovenia	
Poland	
Czech Republic	
Latvia	
Croatia	
Estonia	
Lithuania	
Serbia	
Slovakia	
Hungary	

-10 -5   0   5   10   15   20   25

...of the I.V. model (for real credit growth) (2007: 2) (b)

Threshold of 95% of residuals

Albania	
Bulgaria	
Estonia	
Slovenia	
Czech Republic	
Poland	
Lithuania	
Croatia	
Latvia	
Macedonia	
Hungary	
Slovakia	
Serbia	

-40 -30 -20 -10   0   10   20   30   40

(a) 2007: 01 for Romania.
(b) 2006: 01 for Macedonia, 2006: 04 for Serbia.

Albania alone exceeded this value in Q2 2007 in both models. Bulgaria exceeded the value in the ECM model, indicating an abnormally large gap, which is the sign of a credit boom. The gap observed in 2006: 02 in both models was also abnormal in Estonia and Lithuania.

This article uses a number of methods to detect possible excessive credit growth in central and eastern European emerging economies. We use complementary approaches, based both on measures in levels and in trends, on calculations of deviations from long-term trends and econometric regressions on fundamentals.

An initial statistical analysis shows that credit/GDP ratios and real credit growth rates have largely exceeded their long-term trend over the recent period in several CEECs. This indicator thus identifies excessive credit growth in the Baltic States, Hungary, Bulgaria, Romania, Slovenia, Czech Republic and Albania. These purely statistical indicators are useful to place current credit trends within their historical context, but do not take into account the economic developments in these countries.

For this reason, we carry out a second, econometric analysis, enabling us to evaluate credit growth in relation to fundamental economic variables, such as GDP growth, real interest rates and catching-up effects due to the relatively recent economic transition. For instance, a nominal credit growth rate of 50% per year in Latvia, which is considered as excessive in relation to the long-term trend, is not so if we take into account this country's dynamic economy, where real GDP is growing by 15% per annum. However, recent credit trends largely exceed the models' estimates in certain countries such as Albania, Bulgaria, Estonia and Romania. This was also the case in Lithuania, Serbia and Slovenia a year earlier.

The underlying question to this evaluation of credit "booms" regards the solvency of lenders. As the distributed volume of credit increases, lenders' solvency is likely to deteriorate, as either the same lenders become more indebted, or new lenders who may be less solvent have recourse to credit. Here, we have examined this issue indirectly by using macroeconomic fundamentals as explanatory variables. The implicit hypothesis is that the overall solvency of lenders improves in line with GDP growth. One way of improving this research would be to analyse the composition of loans in more detail and compare them to the solvency indicators of the groups of lenders concerned.

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Appendix I

Description of the credit boom indicators

1| The indicator used in levels or in changes

In order to identify credit boom periods, we use a sample covering a set of countries, denoted i = 1,.., n, over a period t = 1,.., T. The first relevant indicator is the credit/GDP ratio, as a percentage, denoted C^1_{it}:

$$C^1_{it} = 100 \ C_{it} \ / \ Y_{it} \qquad (1)$$

where C_{it} denotes the outstanding stock of loans of country i at date t, and Y_{it} its GDP. This is the indicator used by Gourinchas, Valdés and Landerretche (2001).

The second possible indicator is the real credit growth rate:

$$C_{it} = 100 \left[\frac{C_{it} \ / \ C_{it-1}}{1 + \pi_{it}} - 1 \right] \qquad (2)$$

where π_{it} denotes the inflation rate of country i in t. Tornell and Westermann (2002), IMF (2004) and Sa (2007) use this indicator.

2| Calculating the deviation from the trend

The long-term trend, denoted C^{pj}_{it}, is generally estimated by a Hodrick-Prescott filter. The deviation from the trend is equal to the difference between the indicator and its trend.[1] We use a smoothing parameter of l = 1600, which is usual for quarterly series.

$$e^k_{it} = C^k_{it} - C^{pk}_{it} \qquad (3)$$

It is therefore expressed as a percentage, corresponding to GDP percentage points for C^1_{it} and real growth points for C^2_{it}.

By definition, we consider that a credit boom is identified at period t in country i if the deviation e^k_{it} exceeds a certain threshold S^k_i:

$$e^k_{it} > S^k_i \qquad (4)$$

The thresholds S^k_i are set for each of the countries or are the same across the sample, depending on the method used. If we define a variable that indicates the credit boom, denoted I^k_i, equal to 1 when the country experiences a credit boom, and to 0 otherwise, we obtain:

$$I^k_i = 1, \text{ si } e^k_{it} > S^k_i$$
$$= 0 \text{ otherwise.} \qquad (5)$$

---

[1] For the credit/GDP ratio, the deviation may also be defined in relative terms: $\tilde{e}^k_{it-1} = (C^k_{it} - C^{pk}_{it}) \ / \ C^{pk}_{it}$. We do not apply this method in this study in order to simplify the equations. However, all the previous calculations were made using this relative deviation, but as the results were very similar, they are not presented.

3| The two methods for defining the thresholds

By varying the threshold S^k_i, the definition of the credit boom is more or less restrictive: the higher the threshold, the rarer the cases of credit booms. The thresholds can be defined in two ways.

The first method defines them as a multiple of the standard deviation of credit fluctuation around the trend:

$$S^k = a\, \sigma^k_i \qquad\qquad (6)$$

$$\sigma^k_i = \sqrt{\mathrm{Var}(e^k_{it})}$$

where σ^k_i denotes the standard deviation of the credit fluctuation around the trend for country i, a is an arbitrarily chosen coefficient. In IMF (2004), this approach is used, by setting the coefficient a at 1.75, as there would be a 5% probability that the gaps would lie outside the standard deviation, assuming a normal distribution. A credit boom is thus defined as credit growth that exceeds its long-term trend by 1.75 times the standard deviation of the fluctuation around the trend.

The second method consists in calibrating thresholds to obtain a given percentage p of boom episodes in the sample.

$$S^k \text{ such that } \frac{100}{NT} \sum_{i=1}^{N} \sum_{t=1}^{T} I^k_{it} = p \quad (7)$$

In this case, the threshold is set as a single value for all countries. This is the method used by Gourinchas, Valdés and Landerretche (2001), who take a sample of 91 countries over the 1960-1996 period and set different thresholds in order to obtain a given number of booms.

Another more expeditious technique consists in choosing arbitrary thresholds for the credit growth in all countries (Tornell and Westerman, 2002). These authors take three different definitions of a boom: period of cumulative real credit growth over the two previous years of more than 20%, 30% and 40%, based on a sample of 39 countries, over the 1980-1999 period.

Appendix 2

Data description

The sample includes 52 countries:

• 21 developed countries (Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom and the United States);

• 17 emerging countries outside Europe (Argentina, Brazil, Chile, China, Hong Kong, India, Indonesia, South Korea, Malaysia, Mexico, Peru, the Philippines, Singapore, Thailand, Turkey, Uruguay and Venezuela);

• 14 Central and Eastern European emerging countries (Albania, Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Macedonia, Poland, Romania, Serbia, Slovakia, Slovenia).

The time period ranges from the 1st quarter 1980 to the 2nd quarter 2007 for developed countries, for most Asian emerging countries (India, Indonesia, South Korea, Malaysia, Singapore, Thailand) and Latin American countries (Chile, Mexico, Uruguay and Venezuela), and for Turkey. It starts in the 1st quarter 1990 for Argentina and Peru. Lastly, it goes from the 1st quarter 1993 to the 2nd quarter 2007 for the remaining emerging countries (China, Hong Kong, the Philippines, for Asia, Brazil for Latin America) and transition countries.

The stock of credit granted by domestic banks to the resident private sector is taken from the IMF *International Financial Statistics* (IFS, line 22d). In the case of a break in credit series (sharp changes due to a modification of the methodology for Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Portugal and Spain), we backcast the series, by applying the credit growth rate observed before the date of the break in the series and starting from the level observed just after the date of the break. For Poland, as the series taken from the IFS ends in the 4th quarter 2005, we have complemented it with data taken from the Narodowy Bank Polski after that date.

GDP is taken from the IMF's *World Economic Outlook*, as is the PPP-GDP per capita series. As the IMF's series are given in annual terms, we converted them into quarterly data.

The consumer price index is also taken from the IMF' IFS (line 64). Our real credit variable is obtained by calculating the ratio of the domestic credit stock to this index. In order to calculate its change, we express it in year-on-year terms, so as to eliminate seasonal variations.

The interest rate series is drawn from the IMF' IFS. We have used the lending rate, which is the bank rate that usually meets the short- and medium-term financing needs of the private sector. The series regarding Serbia is discontinuous before the 4th quarter 2001; therefore, its review period starts at this date.

The financial account balance series is given only in annual terms for China; therefore, we converted it into quarterly data by dividing figures by 4. As regards Slovakia, the series is drawn from the Statistical Office of the Slovak Republic.

Stock market capitalisation series are obtained from Datastream and complemented by data from national stock exchanges for Bulgaria, Croatia, Macedonia, Slovakia and Slovenia; and from OMX for the Baltic States. As regards Bulgaria and Slovakia, Stock market capitalisation data are annual; therefore we have converted them from annual to quarterly frequency, using a linear interpolation method and a moving average on the four preceding quarters.

The exchange rate regime dummy was constructed using the IMF classification, Levy-Yeyati and Sturzenegger (2002) and Egert and Morales-Zumaquero (2005) for the CEECs. The legal origin dummy is obtained from the database constructed by La Porta et al. (1998) and extended to transition countries by Djankov et al. (2005).

Appendix 3
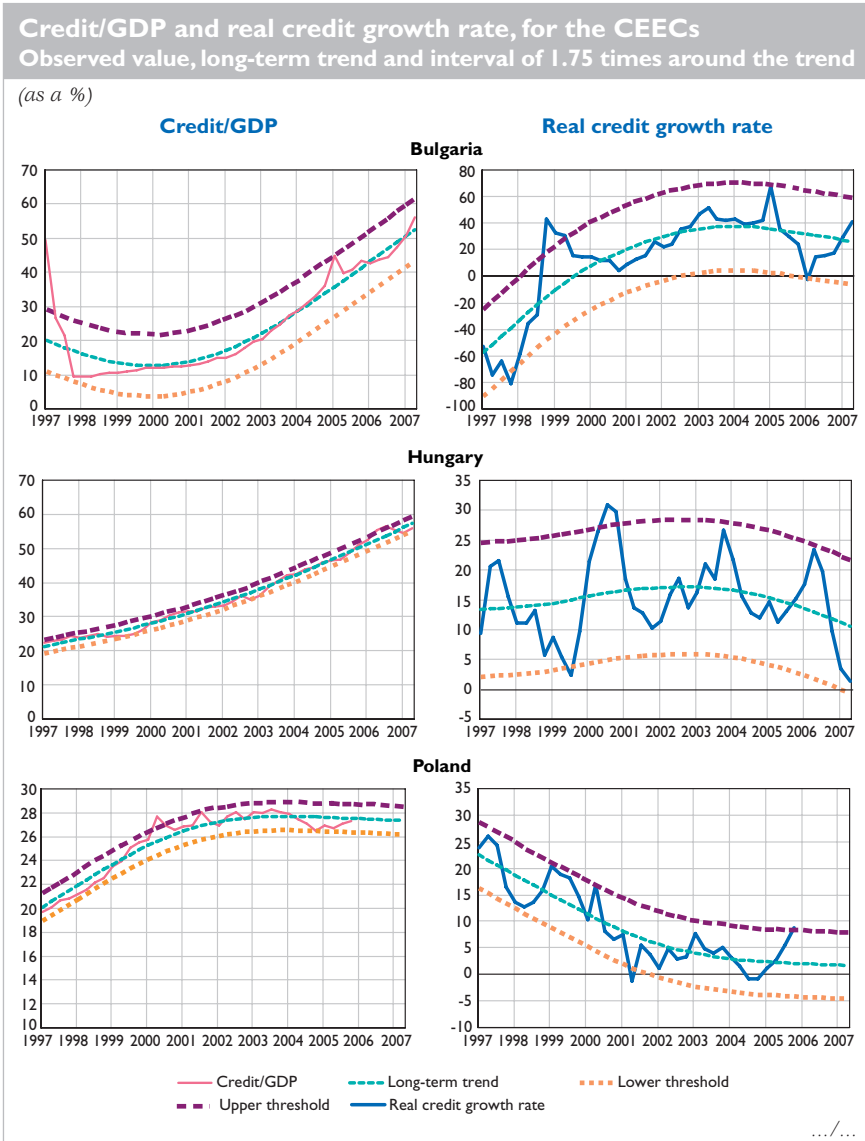
Credit/GDP and real credit growth rate, for the CEECs
Observed value, long-term trend and interval of 1.75 times around the trend

(as a %)

Credit/GDP and real credit growth rate, for the CEECs
Observed value, long-term trend and interval of 1.75 times around the trend (cont'd)

(as a %)

Credit/GDP　　　　　**Real credit growth rate**

Czech Republic

Romania

Slovakia

Slovenia

Credit/GDP ——　　Long-term trend ----　　Lower threshold ····
Upper threshold ----　　Real credit growth rate ——

.../...

Credit/GDP and real credit growth rate, for the CEECs
Observed value, long-term trend and interval of 1.75 times around the trend (cont'd)

(as a %)

Credit/GDP **Real credit growth rate**

Albania

Croatia

Macedonia

Serbia

Credit/GDP ―――― Long-term trend ‑‑‑‑ Lower threshold ······
Upper threshold ‑ ‑ ‑ Real credit growth rate ――――
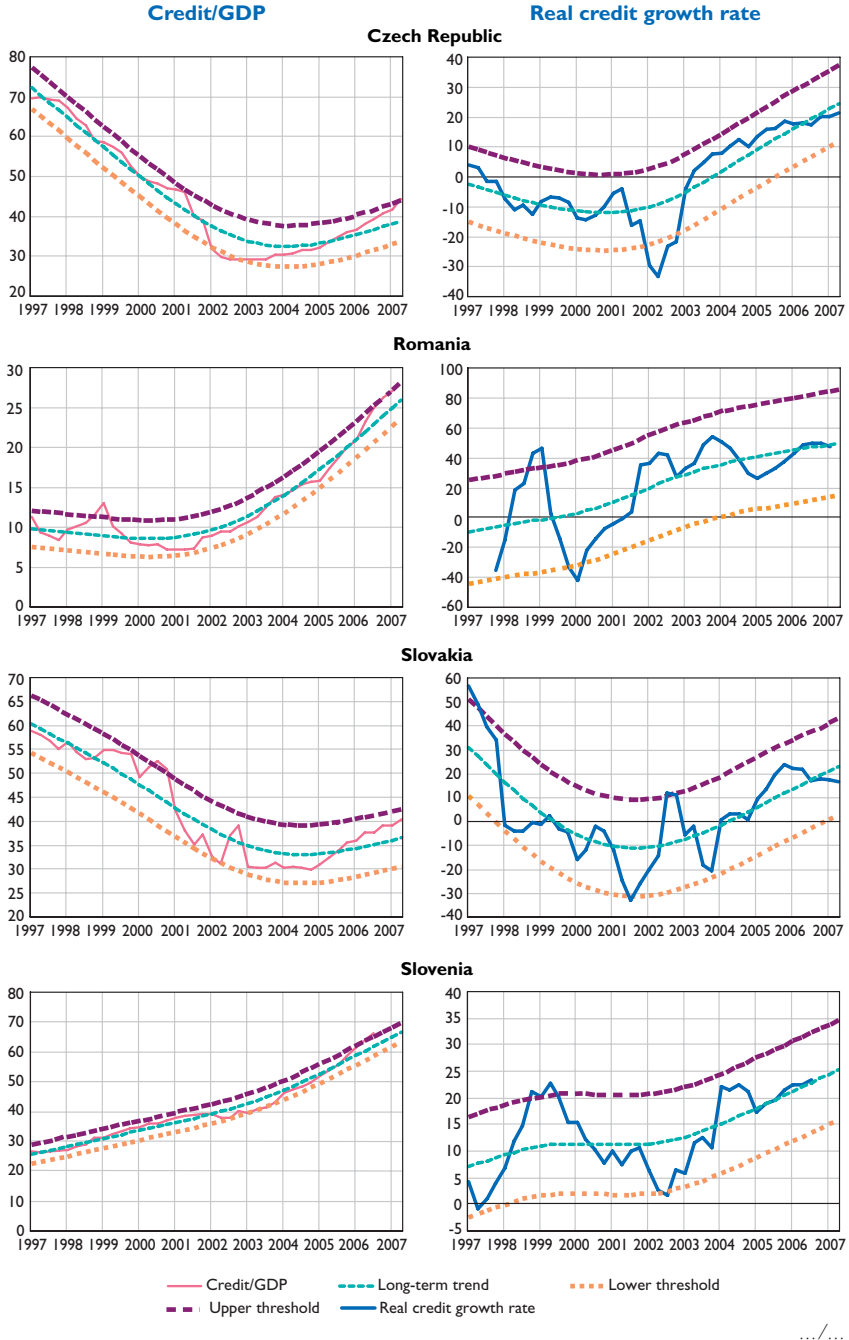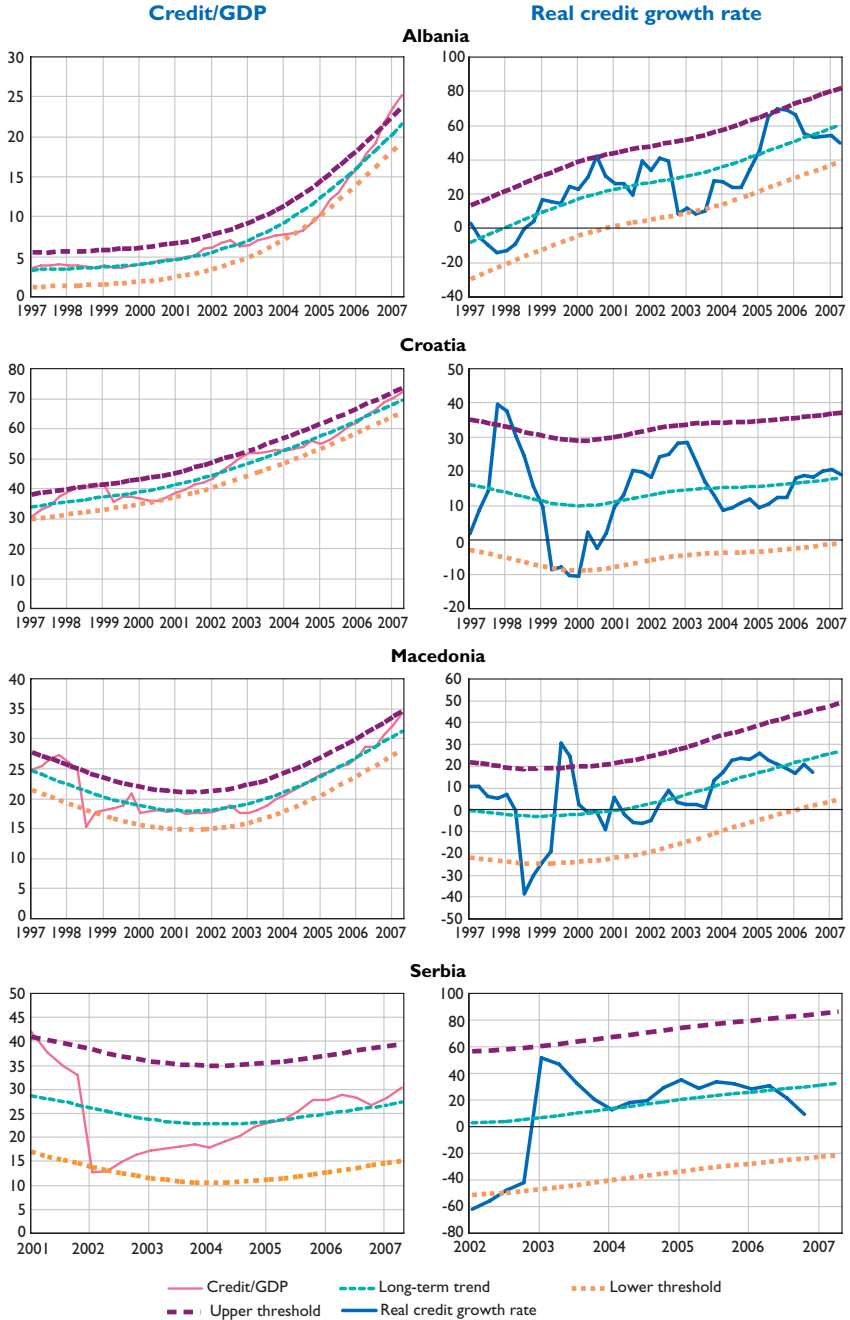
Sources: authors' calculations, IMF (ISF).

Appendix 4

Description of the econometric models

1| Estimate of the credit/GDP ratios

The variable to be explained is the credit/GDP ratio, C_{it}^{l}. The model is expressed as:

$$\log(c_{it}^{l}) = \alpha_{i}^{0} + \sum_{l=1}^{L} \alpha^{l} X_{it}^{l} + \varepsilon_{it} \qquad (8)$$

where α_{1}^{0} denotes a constant that possibly depends on the country i, the α^{l} $l=1,\dots L$, denote the L coefficients common to all countries, the X_{it}^{l}, the economic fundamental variables, and the e_{it}^{l}, the residuals of the equation.

The explanatory variables

The variable to be explained is the credit/GDP ratio. The model is derived from a credit supply and a credit demand equation. The explanatory variables are those that are the most frequently used in the economic literature on this subject. Our supply variables are as follows:

• net capital inflows, provided by the financial account of the balance of payments, relative to GDP, n_{it}, which should stimulate the supply of credit; a positive relation is therefore expected;

• a variable that indicates the origin of the legal system, DO_{i}, taken from La Porta et al. (1998), extended to transition countries by Djankov et al. (2005). La Porta et al. have empirically demonstrated that Anglo-Saxon legal systems, grounded in jurisprudence, promote financial development, followed by German and Scandinavian systems, since they better protect the creditors' rights. Conversely, those based on the French legal system result in weaker financial institutions. We set the value of this variable at 2 for countries with an Anglo-Saxon legal system, at 1 for those with a German or Scandinavian system and at 0 for the French legal system. Thus, we expect a positive sign for this variable.

The demand variables are as follows:

• GDP per capita in PPP, denoted $\tilde{y}_{it}$, which represents the level of development of the country, then in logs. A positive coefficient is expected for this variable, since the level of credit in an economy depends on the level of financial intermediation, which is in turn linked to the level of development;

• the real interest rate, r_{it}, for which a negative sign is expected if we assume that we are in a demand-driven environment;

• stock market capitalisation/GDP ratio, cap_{it}, which represents the financial development and the alternative sources of financing. The sign is theoretically ambiguous since bank lending and market financing may be substitutional or complementary;[1]

• an exchange rate regime variable, DR_{it}. Domestic bank loans to private sector residents including foreign currency-denominated loans, we expect a positive relationship between fixed exchange rates and credit growth. Indeed, in emerging countries, if agents expect the nominal exchange rate to remain stable, they may borrow in foreign currency to take advantage of foreign interest rates that are often lower. In this case, domestic and foreign loans cannot be substituted: the lower interest rates on the foreign currency-denominated loans result in an overall increase in lending. We use the de facto classification of Levy-Yeyati and Sturznegger (2005). The variable increases in line with the fixity of the exchange rate regime, i.e. 2 for countries with fixed exchange rate regimes, 1 for countries with intermediate exchange rate regimes and 0 for countries with floating exchange rate regimes. This variable should therefore have a positive coefficient.

We add a transition country dummy variable, $TRANSI_i$, in order to observe any specific features of these countries relative to the rest of the sample. The latter can reflect a specificity of these countries resulting from either demand conditions (boom in domestic demand), or supply conditions. In particular, in these countries, the strong presence of foreign banks, notably from the EU, marked by an asset share in total bank assets frequently exceeding 80%, may be a factor influencing rapid credit growth owing to these banks' strategy to gain market share. A positive sign is therefore expected.

The model to be estimated is expressed as follows:

$$\log(c^l_{it}) = \alpha^0_i + \alpha^1 \log(\tilde{y}_{it}) + \alpha^2 r_{it} + \alpha^3 n_{it} + \alpha^4 cap_{it}$$

$$+ \alpha^5 DR_{it} + \alpha^6 DO_i + \alpha^7 TRANSI_i \qquad (9)$$

---

1 *Depending on the estimation method used, the sign may be different: a more financially developed country will tend to record a larger credit stock and stock market capitalisation relative to GDP. However, if we control for the level of financial development, a country that chooses a market-based financing model should record a lower credit/GDP ratio than that of a country choosing a financial intermediation model.*

The sample

The sample is the same as that used in the previous section: 52 countries, over the 1980: Q1-2007: Q2 period for the developed countries, and the 1993: Q1-2007: Q2 period for the emerging and transition countries. The explanatory variables and their source are described in greater detail in Appendix 2.

An estimate based on a broad sample of countries enables us to resituate the transition countries vis-à-vis the rest of the world. A sample limited to the CEECs would only allow for a comparison within this area and would be less appropriate for detecting a possible credit bubble if it were common to the area as a whole. A broad sample of countries also compensates for the shortness of the time series of transition countries and provides a large number of observations. Lastly, the calculation of a worldwide standard is justifiable given that it can be considered that all countries share the same long-term equilibrium path.

Linear regressions on panel data

We estimate equation (9) on the whole sample by an OLS linear regression, with fixed and random effects. The results are presented in Table 1.

Table 1 Estimate of the credit/GDP ratio as a function of the fundamental variables

Explanatory variables Number of observations = 2,673	OLS	Final OLS	Fixed effects	Random effects
Constant	0.078 (0.6)	–	–	-1.280 *** (-6.8)
PPP-GDP per capita (log)	0.385 *** (25.8)	0.393 *** (166.4)	0.536 *** (36.8)	0.536 *** (37.0)
Real interest rate	-0.003 *** (-2.3)	-0.003 *** (-2.2)	0.004 *** (7.0)	0.004 *** (7.0)
Net capital inflows	0.003 * (2.4)	0.003 *** (2.5)	0.005 *** (7.2)	0.005 *** (7.1)
Market capitalisation/GDP	0.002 *** (9.6)	0.002 *** (9.9)	–	–
Exchange rate regime dummy	0.101 *** (10.0)	0.101 *** (10.0)	-0.021 *** (-2.4)	-0.020 *** (-2.3)
Legal origin dummy	0.256 *** (21.2)	0.256 *** (21.2)	–	0.354 *** (3.4)
Transition country dummy	-0.567 *** (-20.3)	-0.567 *** (-20.3)	–	-0.710 *** (-3.8)
Adjusted R²	0.50	0.50	0.90	0.89
Standard Error of Estimate	0.46	0.46	0.24	0.24

*** Significant at the threshold of 1%, ** 5%; * 10%, in brackets: t-statistics.*

Six variables have significant coefficients in the three estimates: GDP per capita in PPP, the real interest rate, capital inflows, the exchange rate regime, the origin of the legal system and the transition country dummy variable. Their coefficients all have the expected sign, except the real interest rate, which has a positive sign in the fixed and random effect models, and the exchange rate regime variable, which has a negative sign in the fixed and random effect models. The transition country dummy variable has a negative coefficient in both the models in which it is included. The CEECs would therefore have credit/GDP ratios that are systematically lower than other countries in view of their fundamentals.

If we test the long-term relationship between the variables (see Appendix 5), the cointegration clearly indicates a positive relationship between credit/GDP and PPP GDP per capita (first column of Table 2, denoted model M1). However, the cointegration relationship between the series of credit/GDP and stock market capitalisation/GDP appears very unstable across countries. We therefore prefer not to include it.

Chart 1 illustrates the positive relationship between credit/GDP and GDP per capita in PPP.[2]

Chart 1 PPP-GDP per capital and credit/GDP (in logarithm)

(y-axis: Log credit/relative GDP, USA = 1; x-axis: Log relative PPP-GDP per capita, USA = 1)

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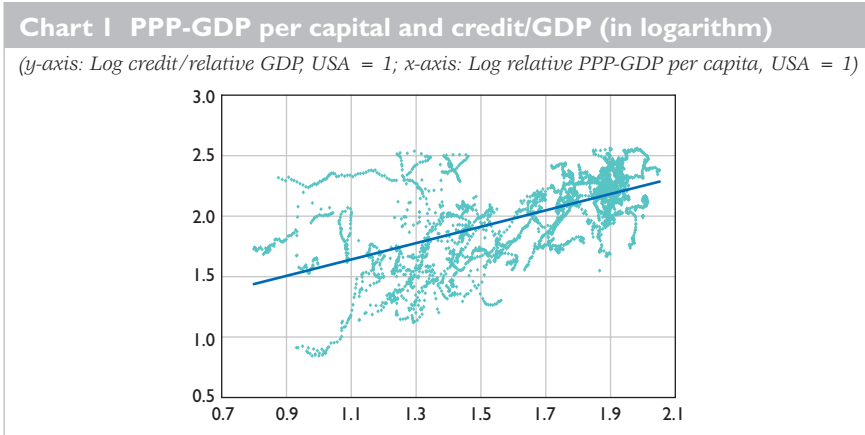
2 *Estimated without fixed effects. Here, both variables were normalised by their US value.*

The endogeneity problem

Another problem associated with the previous estimates is that of the possible endogeneity of the explanatory variables. We test the impact of economic fundamentals on the credit/GDP ratio, but the relationship found may suggest reverse causality. Indeed, economic fundamentals themselves, such as the country's standard of living, may be determined at least partially by the level of credit (see Levine (2005) for the relationship between financial development and growth).

Most empirical studies solve this problem by assuming that credit is determined by economic fundamentals and not the contrary. This assumption may skew the analysis. Here, we test the endogeneity hypothesis by re-estimating the previous relationship with instrumental variables. The tests show that the instrumental variable model, denoted M2, is preferable to the OLS models (column 2 of Table 2).[3] After removing the non-significant variables, we use the final M2 model (column 3 of Table 2).

Table 2 Estimate of the credit/GDP			
Explanatory variables	**Cointegration M1 Model**	**Instrumental variables**	**I.V. M2 Model**
Constant	-0.164 (a)	0.526 (1.4)	–
PPP-GDP per capita (log)	0.44 *** (48.9)	0.721 *** (6.5)	0.366 *** (73.3)
Real interest rate	–	0.003 (0.5)	
Net capital inflows	–	-0.013 (-0.5)	–
Market capitalisation/GDP	–	-0.001 (- 0.4)	–
Exchange rate regime dummy	–	-0.239 (-0.8)	–
Legal origin dummy	–	0.811 *** (2.1)	0.620 *** (12.9)
Transition country dummy	–	-0.264 (-0.3)	–
Adjusted R^2	–	-0.36	0.18
Standard Error of Estimate	–	0.75	0.58

*** *Significant at the threshold of 1%, in brackets: t-statistics.*
(a) The constant is estimated so as to fit the mean of the sample.

Two variables show a significant coefficient: GDP per capita in PPP and the origin of the legal system. The coefficient of the transition country dummy variable is not significant, contrary to the OLS model, which shows that the residuals of the regression are not systematically skewed in the same direction for these countries. These countries do not appear therefore to have a credit/GDP ratio that is systematically too high or too low over the whole period relative to their level of development. This corroborates our choice of a regression on a global sample.

2| Estimate of the credit growth rate as a function of fundamentals

Estimate using an error-correction model

In the error-correction model, the dependent variable is the (quarterly) growth rate of the credit/GDP ratio, denoted $\dot{C}_{it}^{1}$:

$$\dot{C}_{it}^{1} = \log(C_{it}^{l}) - \log(C_{it-1}^{l})$$

The explanatory variables are as follows:

• the gap between the credit/GDP ratio's observed level and the level estimated by the cointegrating vector for the preceding period. This variable, called the error-correction term and denoted ε_{it-1}^{1}, is equal to the lagged residual of the estimate in levels in model M1 considered in the previous section. The expected sign is negative. The lower the credit/GDP ratio in relation to the estimated level, $[\varepsilon_{it-1}^{1} < 0]$, the higher the growth rate must be during the following period for the catching-up process to continue;

• the dependent variable lagged by 1 to 4 quarters: $\dot{C}_{it-1}^{1},...,\dot{C}_{it-4}^{1}$;

• the quarter-on-quarter growth rate of GDP per capita in PPP,

$\dot{\tilde{y}}_{it} = log\,(\tilde{y}_{it}) - log(\tilde{y}_{it-1})$), lagged by 1 to 4 quarters: $\dot{\tilde{y}}_{it-1},...,\dot{\tilde{y}}_{it-4}$

• the transition country dummy variable, $TRANSI_{i}$.

The estimated equation is therefore expressed as:

$$\dot{C}_{it}^{1} = \beta^{0} - \lambda \varepsilon_{it-1}^{l} + \sum_{j=1}^{4} \beta_{j}^{l} \dot{C}_{it-j}^{1} + \sum_{j=1}^{4} \beta_{j}^{2} \dot{\tilde{y}}_{it-j} + \beta^{3} TRANSI_{i} + u_{it} \qquad (10)$$

The results are shown in Table 3. The deviation of the level from its estimated value is very significantly negative, which confirms that the series of credit/GDP and GDP per capita in PPP are cointegrated. The transition country dummy variable is not significant, which shows that these countries' credit growth is therefore not systematically faster or slower than the others over a period as a whole, given their economic fundamentals. Therefore, we remove this dummy variable.

Table 3 Estimates of the credit/GDP ratio growth rate by an error-correction model

	Initial Model	Final Model
c	-0.847 *** (-5.7)	-0.875 *** (-6.0)
ε^1_{it-1}	-0.008 *** (-5.4)	-0.007 *** (-5.4)
$\dot{C}^1_{it-1}$	0.081 *** (5.3)	0.081 *** (5.3)
$\dot{C}^1_{it-2}$	0.202 *** (13.8)	0.201 *** (13.7)
$\dot{C}^1_{it-3}$	0.058 *** (4.0)	0.057 *** (4.0)
$\dot{C}^1_{it-4}$	0.037 *** (2.7)	0.036 *** (2.6)
$\dot{\tilde{y}}_{it-1}$	0.497 *** (2.4)	0.474 *** (2.3)
$\dot{\tilde{y}}_{it-2}$	-0.611 * (-1.7)	-0.602 * (-1.7)
$\dot{\tilde{y}}_{it-3}$	0.527 (1.5)	0.527 (1.5)
$\dot{\tilde{y}}_{it-4}$	0.642 *** (3.2)	0.631 *** (3.1)
$TRANSI_i$	-0.346 (-1.5)	–
Adjusted R^2	0.14	0.14
Standard Error of Estimate	4.69	4.69

*** Significant at the threshold of 1%, * 10%, in brackets: t-statistics.

c: constant, ε^1_{it-1}, error correction term, $\dot{C}^1_{it-k}$ quarter-on-quarter credit/GDP growth, lagged by k quarters, $\dot{\tilde{y}}_{it-k}$ PPP-GDP per capita quarter-on-quarter growth, lagged by k quarters.

Estimate using an instrumental variables model

The instrumental variables model successively explains two variables: the growth rate of the credit/GDP ratio, and the real credit growth rate, year-on-year.

The explanatory variables are as follows:

• the gap between the observed level of the credit/GDP ratio and the level previously estimated by the instrumental variables model in the previous period. This variable, denoted ε^2_{it-1}, is close to an error-correction term, but is calculated here via the residuals of the M2 model with instrumental variables. As for the error-correction model, the sign expected for the coefficient is negative;

• year-on-year real GDP growth, $\dot{y}_{it}$, representative of economic cycle, for which a positive sign is expected;

• the real interest rate, r_{it}, which should be negatively correlated to credit demand, for which a negative sign is expected;

• net capital inflows, provided by the financial account of the balance of payments, relative to GDP, n_{it}, which should stimulate the supply of credit; a positive relationship is therefore expected;

• the transition country dummy variable, $TRANSI_i$.

The two models to estimate are expressed as:

$$\dot{C}^k_{it} = \beta^k_0 - \lambda^k \varepsilon^2_{it-1} + \beta^k_1 \dot{y}_{it} + \beta^k_2 r_{it} + \beta^k_3 n_{it} + \beta^k_4 TRANSI_i + u'_{it} \qquad (11)$$

where $k = 1$ or 2 depending on whether the dependent variable is the growth rate of the credit/GDP ratio or the real credit growth rate.

The observation period is the same as above. However, the sample is smaller, comprising only 50 countries. Turkey and Romania had to be withdrawn due to the lack of interest rate series for short- and medium-term bank loans. In order to take into account the risks of endogeneity, we estimate the equation using instrumental variables (see Table 4).[4]

For the two dependent variables, only three explanatory variables are significant: the error-correction term, GDP growth and the real interest rate. The coefficients of these variables have the expected signs; in particular the error-correction term is significantly negative. The transition countries' dummy variable has a positive but not significant coefficient.

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4 We conducted a Hausman test, choosing explanatory variables lagged by 5 and 6 years (20th and 24th lags) as instrumental variables, with no constant. The results indicate that we can reject the null hypothesis of exogeneity of explanatory variables (see Table 2 in the Appendix 3). It is therefore necessary to use a method of estimation by instrumental variables. In order to take into account the probable presence of heteroscedasticity, we compare our estimates with the results of a model using the generalised method of moments (GMM) with a White covariance matrix. Since the results of the GMM model are not very satisfactory, we use the results of the double least squares model.

Table 4 Estimate of the credit/GDP ratio growth rate and of the real credit growth rate using instrumental variables

Explanatory variables	Credit/GDP growth rate		Real credit growth rate	
c	0.756 (0.2)	–	1.239 (0.2)	–
ε^2_{it-1}	-0.053 *** (-2.6)	-0.057 *** (-10.2)	-0.059 *** (-2.8)	-0.061 *** (-10.4)
$\dot{y}_{it}$	1.545 *** (2.0)	1.764 *** (7.5)	2.634 *** (3.3)	2.890 *** (11.6)
r_{it}	-0.401 * (-1.4)	-0.340 *** (-3.6)	-0.454 * (-1.5)	-0.367 *** (-3.6)
n_{it}	-0.351 (-0.9)	–	-0.313 (-0.8)	–
$TRANSI_i$	4.622 (0.4)	–	3.463 (0.3)	–
Adjusted R^2	-0.26	-0.34	0.06	-0.03
Standard Error of Estimate	11.38	12.26	12.34	12.97

*** Significant at the threshold of 1%, * 10%, in brackets: t-statistics.

c: constant ; y: GDP growth ; r: real interest rate ; n: net capital inflows as a percent of GDP ; ε^2_{it-1}: gap between the observed credit/GDP and its value estimated by the M2 Model at the preceding period.

Appendix 5

Unit root and cointegration tests

Our estimates with an ordinary least squares model are likely to be spurious if the series are neither stationary nor cointegrated.

We used unit root tests on panel data developed by Levin, Lin and Chu, Breitung, Im, Pesaran and Shin, as well as augmented Dickey-Fuller and Phillips-Perron tests carried out on country series and aggregated using Fisher's method (Maddala and Wu). The null hypothesis in all these tests is the presence of a unit root, with a common unit root in the first two tests and an individual one per country in the other tests.

Beforehand, we test the presence of a deterministic trend in the series. For almost all countries, there is a significant trend for the credit/GDP, the PPP-GDP per capita and the stock market capitalisation/GDP series.

Unit root tests show that the series of GDP per capita in PPP, credit/GDP and stock market capitalisation/GDP are first-order integrated (Table 1). All of them do not reject the null hypothesis of unit root (except that of Levin, Lin and Chu for the PPP-GDP per capita). The other variables, net capital inflows, real credit growth rate, GDP growth rate and real interest rates, are stationary (and so is naturally the variable indicating the origin of the legal system, which is a constant per country). Only the variables of GDP per capita in PPP and stock market capitalisation/GDP may be included in a long-term relationship with the credit/GDP ratio.

Table 1 Unit root tests

Series	Levin, Lin and Chu (t-stat)		Breitung (t-stat)		Im, Pesaran and Shin (W-stat)		Augmented Dickey-Fuller (Fischer Chi2)		Phillips-Perron (Fischer Chi2)	
	H0= common unit root				H0= individual unit root					
	stat.	p-value	stat.	p-value	stat.	p-value	stat.	p-value	stat.	p-value
Log (PPP-GDP)	-0.70	0.24	-1.38	0.08	-0.21	0.41	105.5	0.44	110.93	0.30
Log (Credit/GDP)	-2.19	0.01	0.39	0.65	-0.57	0.29	112.66	0.26	115.04	0.22
Stock market capitalisation/GDP	3.51	1.00	4.57	1.00	0.42	0.66	121.70	0.05	88.90	0.73
Net capital inflows/GDP	-5.88	0.00	-2.78	0.00	-16.63	0.00	565.74	0.00	1 522.99	0.00
Real credit growth	8.58	1.00	-5.69	0.00	-7.13	0.00	257.15	0.00	383.43	0.00
GDP growth	7.62	1.00	-5.89	0.00	-11.40	0.00	349.04	0.00	493.31	0.00
Real interest rate	71.82	1.00	-1.94	0.03	-4.70	0.00	217.54	0.00	547.42	0.00

Use of the Akaike criterion for the selection of lags. The tests regarding the first 4 variables include a constant and a trend.

The tests show that the series of credit/GDP, GDP per capita in PPP and stock market capitalisation/GDP (the first two are expressed in log) are cointegrated between themselves (Table 2). As regards the results of the Pedroni tests, 9 out of 11 tests reject the null hypothesis of no cointegration at the threshold of 5% (8 at the threshold of 10% and 9 at the threshold of 10,5%). Johansen tests on country data, aggregated using Fisher's method, give the same results. They reject the null hypothesis of no cointegration and accept the hypothesis of the existence of a cointegration relationship between the two variables.

Table 2 Cointegration tests for the credit/GDP, PPP-GDP per capita and stock market capitalisation/GDP series

	Test	P. value	Weighted Test	P. value
Pedroni tests - null H0 = no cointegration				
H1 = rho(i) = 1				
Panel-v-stat	-0.877	0.272	-0.518	0.349
Panel-rho-stat	7.671	0.000	7.493	0.000
Panel-pp-stat	3.751	0.000	3.208	0.002
Panel-adf-stat	8.017	0.000	7.347	0.000
H1 = rho(i) = 1				
Group rho	10.158	0.000		
Group pp	3.792	0.000		
Group adf	9.470	0.000		

Null	Test	P. value
Individual Johansen tests aggregated by using Fisher's method (Maddala and Wu, 1999)		
r = 0	219.0	0.000
r≤1	101.2	0.556

Note: r is the number of cointegration relationships.

Appendix 6

Overidentification and explanatory variable exogeneity tests

As regards the estimate of the credit/GDP ratios, we first carry out a Sargan overidentification test, which confirms the validity of our instruments,[1] then a Hausman test,[2] which leads us to reject the null hypothesis of exogeneity of the explanatory variables (Tables 1 and 2).

Table 1 Results of the Sargan overidentification tests Null hypothesis: exogenous instruments								
Estimate of credit/GDP ratio			Estimate of the credit/GDP ratio growth rate			Estimate of the real credit growth rate		
Nber of degrees of freedom	t-statistics	P-value	Nber of degrees of freedom	t-statistics	P-value	Nber of degrees of freedom	t-statistics	P-value
1	0.31	0.58	3	2.98	0.39	3	3.18	0.37

Table 2 Results of the Hausman test Null hypothesis: exogenous explanatory variables								
Estimate of credit/GDP ratio			Estimate of the credit/GDP ratio growth rate			Estimate of the real credit growth rate		
Nber of degrees of freedom	t-statistics	P-value	Nber of degrees of freedom	t-statistics	P-value	Nber of degrees of freedom	t-statistics	P-value
5	922.7	0.00	3	327.27	0.00	3	377.82	0.00

1 The instrumental variables used, which must be correlated with the endogenous explanatory variables but not with the residuals of the equation, are the constant, GDP per capita in PPP (in logs), net capital inflows, stock market capitalisation and the real interest rate, lagged by 6 months and 1 year (2nd and 4th lags), which we can consider exogenous. The residuals, $\hat{u}_{it}^{IV}$, of the regression of the dependent variable on the instruments, are regressed on the instrumental variables. The Sargan test is used to test the overall nullity of the coefficients of this regression.
2 This is used to find the best specification between the ordinary least squares and the double least squares.

Migrant workers' remittances:
what is the impact on the economic and financial development of Sub-Saharan African countries?

Emmanuel Rocher
Economics and International and European Relations Directorate
Franc Zone and Development Financing Division

Adeline Pelletier
University of Paris IX Dauphine – EURIsCO

Remittances from migrant workers have become a major source of financing for developing countries. Latin America and Asia have benefited since the mid-1990s from a particularly sustained rise in income transferred by their emigrant workers.

Migrant workers' remittances have also increased in Sub-Saharan Africa (SSA), where they play an essential role in poverty alleviation. Moreover, they have the advantage of building a more stable source of external financing than official development assistance (ODA) flows and foreign direct investment (FDI) and, by sustaining private consumption they have a stabilising effect on these countries' economies, acting as a buffer.

In contrast, their direct impact on long-term growth in SSA has not been established. Recent empirical studies carried out on this subject have not enabled a consensus to be formed, and the relationship between remittances and business investment is not clear-cut.

Nevertheless, workers' remittances can have an indirect impact on growth by favouring financial development in the recipient countries. Increased formalisation of remittances from African migrant workers would contribute to this objective, by enabling the local financial systems to fully play their role in the allocation of resources.

While the increased formalisation of workers' remittances is hindered by obstacles of a structural nature, notably the low financial depth in African economies, several avenues may nonetheless be explored. In sender countries, strengthened transparency and competition in the money transfer market could lead to a reduction in transfer costs. In recipient countries, improved access to financial services (notably via the growing role of microfinance and new payment technologies) and the continuation of structural reforms already underway are all important preconditions for increasing the efficiency of remittance transfers.

In recent years, the role of workers' remittances in economic development has constituted a recurrent topic of research and political debate.

This paper emphasises the significance of workers' remittances in the financing of developing countries, notably in SSA, and their essential contribution to poverty alleviation. It describes the main results of recent studies that have examined the impact of workers' remittances on long-term growth in SSA. These studies have produced mixed results, particularly on productive investment (see Section 1). This paper also encourages increased formalisation of remittances from migrant workers to this region in order to contribute to the strengthening of local financial systems and to the improvement in the recipient countries' growth potential (see Section 2).

Lastly, this paper explores a number of avenues that could remove the obstacles to the formalisation of workers' remittances and improve their impact on growth (see Section 3).

1| The significance of remittances from migrant workers in Sub-Saharan Africa

1|1 An essential source of development financing

Since the mid-1970s, the amount of workers' remittances has increased fairly constantly, with a particularly sharp rise in Latin America and Asia as of the mid-1990s (Chart 1). Between 2000 and 2006, workers' remittances to developing countries more than doubled, overall, reaching around USD 180 billion, i.e. almost twice the amount of official development assistance (ODA) flows to these countries.

These overall developments are partly due to the increase in the number of migrant workers: between 1995 and 2004, the increase in the share of the foreign-born population in the total population in OECD countries ranged from between 0.6 point in Australia (23.6% of the total population in 2004) and 4.1 points in Ireland (11% of the population in 2004).[1] The growing integration of migrants in the economies of host countries has been accompanied by an improvement in migrant workers' incomes and, as a result, in their remittance capacity. The increase in total flows is also due to an improvement in the statistical recording of remittance flows in the balance of payments, together with the increased use of formal financial services by migrants from Latin America and North Africa.

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1   Lemaitre, Thoreau, 2006.

Chart 1 Developments in remittances from migrant workers since 1980

(billions of current dollars, 1980-2006)

Sub-Saharan Africa
Latin America and Caribbean
Asia and Pacific
Middle East and North Africa

Source: World Bank, Global Development Finance Indicators, 2007.

At the same time, ODA flows stagnated somewhat during the 1984-2005 period, with the notable exception of aid to SSA since 2000 (Chart 2).

By comparing the amounts of remittance flows and official assistance with FDI flows, attention may be drawn to the differences in external financing patterns of the four major emerging regions (Chart 3).

Latin America receives almost 30% of worldwide remittance flows to developing countries. The significance of North American investment in the zone accounts for the fact that it is also the region, along with SSA, that receives the most FDI as a percentage of GDP.

Chart 2 Official development assistance flows

(billions of curent dollars)

Sub-Saharan Africa
Latin America and Caribbean
Asia and Pacific
Middle East and North Africa

Source: World Bank, Global Development Finance Indicators, 2007.

Chart 3 Developing regions' main methods of external financing 2001-2006

(as a % of GDP)

Remittances
Foreign direct investment
Official development assistance
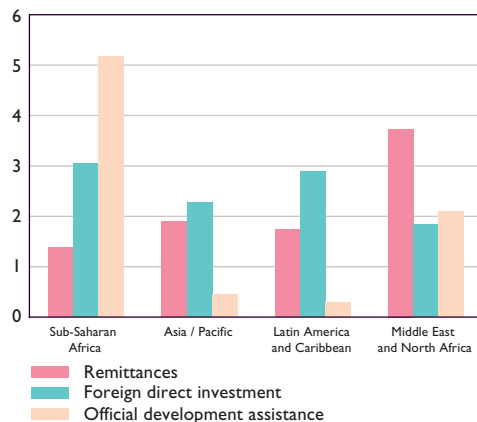
Source: World Bank, Global Development Finance Indicators 2007.

Although Asian countries receive almost half of worldwide remittance flows to developing countries, this income represented less than 2% of their GDP on average during the 2001-2006 period.

In contrast, for North Africa and the Middle East, which receive around 15% of total remittance flows, this source of income is the largest in terms of its ratio to GDP of all developing regions (around 3.7% of the region's GDP). This is mainly due to the long history of North African migration to Europe and the development of bank networks accompanying the movements of migrants in Europe, which has favoured formal transfers.

Sub-Saharan Africa remains the region most highly dependent on ODA, which represented an average of 5% of its GDP during the 2001-2006 period. While remittance flows towards SSA followed the overall upward trend and almost doubled between 2000 and 2006, reaching over USD 9 billion, they only account for 1.3% of the region's GDP and 5% of total funds sent to developing countries. This source of external financing in SSA has nonetheless enjoyed an unbroken increase since the beginning of the 1990s, while ODA and FDI flows have undergone strong fluctuations during the period.

For a number of small African countries (Lesotho, The Gambia, Cape Verde Islands, the Comoros), with rather undiversified productive structures, workers' remittances represent an even larger source of external financing, sometimes accounting for 10 to 20% of their GDP (Chart 4). In this regard, the example of the Comoros is very representative of these economies that are highly dependent on remittances. With remittances accounting for 14% of their GDP in 2005,[2] the Comoros apparently ranks 12th worldwide

2 *Source: Central Bank of the Comoros (BCC). The data includes, in private current transfers, estimated informal fund transfers.*

Chart 4 Main recipient countries of remittances from migrant workers 2001-2005

(as a % of GDP)

Country	Value
Guatemala	~7
Nicaragua	~10
The Comoros	~11
Dom. Republic	~11
Yemen	~11
Nepal	~11
Tadjikistan	~12
Cape Verde Is.	~13
Honduras	~14
El Salvador	~15
Serbia-Montenegro	~15
The Gambia	~16
Jamaica	~16
Jordan	~21
Bosnia and Herzegovina	~23
Lesotho	~26
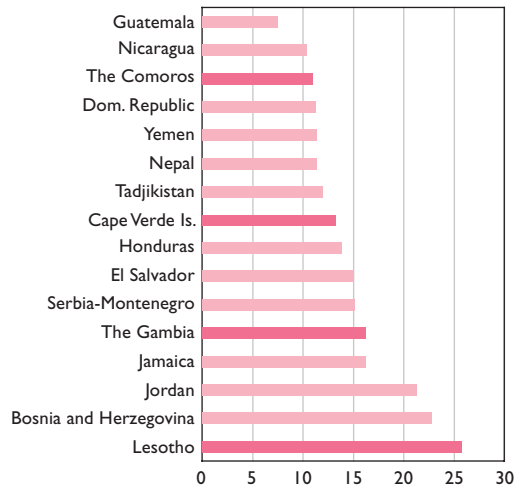
Source: World Bank, Live Data Base, 2005.

in terms of the ratio of remittances to GDP, according to the World Bank. The size of remittances also increased sharply between 1995 and 2005, representing an average of 160% of exports of goods and services and 72% of ODA, and even exceeding the volume of ODA flows as of 2003. Compared to the ratio of workers' private remittances to GDP of just 4% in 1995, this is an increase of 10 points in 10 years.

1|2 A varying impact on growth determinants

1|2|1 An active role in sustaining consumption and reducing poverty

In Sub-Saharan Africa, workers' remittances, by increasing the available income of recipient households, have a direct impact on the reduction of poverty and inequalities, as revealed in research by Gupta, Patillo and Wagh (2007). This research shows in particular that a 10% increase in remittance flows is associated to a 1% reduction in the level of poverty per capita and the dispersion of income per capita. Remittances help to smooth consumption (Kannan and Hari, 2002) by acting as an insurance mechanism in the event of adverse shocks (Lucas and Stark, 1985; Yang and Choi, 2007). A significant share of remittances is generally spent on non-durable consumer goods while a smaller share is saved or invested. In certain regions of SSA, the share of remittances spent on consumption can reach up to 80% (Maimbo and Ratha, 2005). A targeted study on the economy of the Comoros confirms the strong correlation between remittances and household consumption (see Box 1).

Box 1

The impact of remittances on macroeconomic variables: a case study of the Comoros

This box aims to study the relationship between the main macroeconomic variables of the Comoros' national accounts and workers' remittance flows.

Since 1985, gross fixed capital formation as a percentage of GDP has fallen markedly, dropping from 35% of GDP to 10% in 2005. Conversely, the share of household final consumption has remained stable, at around 80 to 90% of GDP, in a context of weak economic growth. It would therefore seem (see Chart below) that remittances have helped to sustain household consumption but not to counter the decline in domestic savings and investment, which began in the 1980s.

A study of the correlation between workers' remittances and the main macroeconomic variables highlights the strong positive correlation between household final consumption and remittances (the correlation coefficient is 0.94).

The negative correlation between the trade balance and remittances (- 0.80) could be explained by the fact that in the Comoros' case, an increase in funds sent reduces the trade surplus or increases the trade deficit via a rise in consumer goods imports.

In contrast, the relationship between remittances and gross fixed capital formation is affected by a weak correlation coefficient (0.25).

Developments in private fund transfers and in the national accounts
1985-2005

(as a % of GDP)

- Net private fund transfers
- Gross domestic savings
- Gross fixed capital formation (right-hand scale)
- Household final monetary consumption expenditure
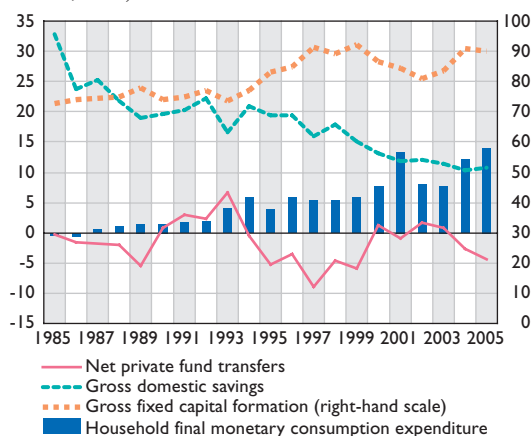
Sources: Central Bank of the Comoros; Franc Zone Annual Reports; African Development Bank. Banque de France calculations.

1|2|2   A less obvious impact on private investment and growth

A share of remittances is also allocated to the financing of investment in human capital (education, health) or infrastructure (housing), which influences long-term development and the reduction of inequalities (World Bank, 2006). Thus, remittances sent by Comorian community associations in France, which collect funds from migrants, finance investments in community amenities and infrastructure in the Comoros (schools, hospitals, etc.). However, a very small share is destined for productive investment.

This finding is supported by several empirical studies. Thus, in Mali and the Comoros, less than 10% of remittances are allocated to local investment (Martin et al., 2002). In Ghana, around 30% is invested in assets (land, buildings, etc.) (Schoorl, et al., 2000).

Furthermore, it is worth noting that the results of the main empirical studies available (Chami et al., 2008; Chami, Fullenkamp, Jahjah, 2005; Giuliano and Ruiz Arranz, 2003) have not enabled a stable and well-established relationship to be drawn between workers' remittances and long-term growth in recipient countries. In particular, positive and significant coefficients are only identified when the variables relative to investment are excluded from estimations.

However, a consensus exists as regards the stabilising effect of remittances on the growth of developing economies and their role as buffers. Thus, Chami, Fullenkamp and Jahjah (2005) find a negative and significant relationship (the estimated coefficient is equal to -16.98) between workers' remittances and the per capita income gap between these countries and the United States. Remittances are correlated to the weak economic performance of the recipient country.[3] This would suggest that the motive behind most remittances is to compensate income loss following deterioration in the economic environment. These results are supported by subsequent research carried out by Chami et al. (2008), showing that remittances have the property of reducing the volatility of the recipient countries' GDP growth. A one-point increase in the ratio of remittances to GDP would thus reduce the standard deviation of the recipient country's GDP growth by 0.16 point.

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3 This result is confirmed, for example, for the Comoros (the estimated coefficient is equal to -4.54) where remittances have increased rapidly over recent years (see Box 1). During the 1985-2006 period, the estimated relationship is as follows:

$$d(logtf)= -4.54d(yC-yUS)+0.006(rC-rUS) \qquad R^2=0.14$$
$$(-4.57) \qquad (0.19)$$

2| Financial development and formalisation of workers' remittances

The significance of remittances sent informally, rather than through financial bodies (banks, money transfer companies etc.), constitutes a specificity of funds sent to SSA, likely to affect the relationship between these flows, productive investment and growth in the recipient economies. The assumption used in this section is based on the idea that by enabling the local financial systems to play their role in the allocation of resources and by favouring financial development, increased formalisation of transfers is likely to contribute to long-term growth in developing economies.

2|1 From the formalisation of remittances to economic development

The lion's share of remittances from migrant workers is informal. Informal remittances account for 5 to 250% of officially recorded flows (Freund and Spatafora, 2005) (see Box 2). Nonetheless, there is considerable heterogeneity between the developing regions, as remittances to SSA are mainly sent via informal channels, whilst flows to Latin America are essentially conveyed through formal channels. Informal transfers only account for 15 to 20% of total remittances in El Salvador, while over 70% of remittances to the Comoros, Mali and Senegal from France are sent via informal channels (Freund and Spatafora, 2005).

Box 2

Measurement of remittance flows

Official data on cross-border payments sent by individuals to their home country are in principle collected and recorded in the balance of payments, in accordance with the standardised methodology defined by the IMF (fifth edition of the Balance of Payments Manual, 1993).

Remittance flows are normally listed according to three categories:

• workers' remittances (WRs), recorded in the current account under current transfers, cover current transfers by migrants employed in other countries than that of their citizenship for more than a year. WRs are generally preferred for the analysis of the macroeconomic impact of remittances. This approach is also used in the present paper;

.../...

.../...

• compensation of employees (CoE), recorded in the current account under income, comprises wages, salaries and other benefits (in cash or in kind) earned by individuals for work performed for and paid by residents of those host countries, including seasonal or other short-term work (during a period of less than one year) carried out abroad;

• migrant transfers (MTs), recorded in the capital account under capital transfers, are contra-entries to flows of goods and changes in financial items that arise from the migration (change of residence for at least a year) of individuals from one country to another. The transfers recorded are thus equal to the net worth of the migrants at the time of migration (cash and goods transferred).

In spite of these efforts to standardise methodology, the collection and recording of reliable data in terms of money transfers remain particularly sensitive. One of the main sources of difficulties is the myriad of financial and non-financial institutions likely to capture all or some of the remittance flows, which involves, for central banks establishing balance of payments, the preparation of specific reports. A recent study (De Luna Martinez, 2005) has revealed that, out of a sample of 40 central banks in developing countries, only 65% of them collected data on the activities of bureaux de change, and just 35% and 38% on the activities of money transfer companies and post offices. However, the activity of commercial banks was better documented, with 90% coverage.

Another major constraint is in the estimation of the share of payment flows sent via informal channels. These flows comprise all money transfers that do not involve formal contracts, such as money transferred in cash or via another means (e.g. fax) between friends, family members or community members. The aforementioned World Bank study (De Luna Martinez, op. cit.) indicated that in this domain, only a quarter of central banks in the sample collected data on informal transfers, via the use of special inquiries, either by questioning migrants, upon return to their country, or recipient households.

In view of the risk of errors and approximations inherent in these methods of evaluation and the absence of monitoring of these flows by a large number of central banks, the balance of payments data therefore does not reflect the exact amount of the money transfers. Informal transfers to Latin America thus represent 5 to 20% of official payments. The proportion is higher for flows to SSA, where informal transfers represent 45 to 65% of formal flows (Freund and Spatafora, 2005).

Transactions via formal channels nonetheless provide the best guarantees in terms of security, not just for the sender and the recipient but also for the economic system as a whole, as formal transactions are subject to anti-money laundering legislation. There are also other positive externalities associated to the use of financial services for fund transfers. Indeed, by facilitating migrant families' access to financial institutions, the formalisation of transfers is likely to influence the financial practices

of recipient populations, by inciting them to hold a current account or savings account, or providing them with access to financing, linked to remittance flows, for the creation of micro-enterprises. The formalisation of transfers can also contribute towards the financial development of the recipient country.

As is the case for growth, the causal links between the formalisation of migrant workers' transfers and the economic development of the host country remain uncertain. However, it seems that by working on the development of the financial sector, transfers can have an indirect impact on long-term growth. For example, the banking sector, by reducing the transaction costs, is in a better position to direct fund transfers to the most profitable projects, which could strengthen the developing countries' growth potential. Moreover, fund transfers may also offset the imperfections of the recipient countries' financial system by easing credit constraints for potential entrepreneurs who do not have access to loans from the banking sector. Workers' remittances can therefore impact productive investment by offering an alternative financing source to economic players excluded from conventional financing channels. These advantages are confirmed by Giuliano and Ruiz-Arranz (2005) and Levine (2004), who highlight the impact of money transfers and the level of financial development on the economic growth of recipient countries. For SSA, the significant impact of transfers on financial development has been more particularly underscored by the works of Gupta, Patillo and Wagh (2007).

2|2 Factors determining the degree of formalisation

African migrants' preference for informal transfers is due to a number of factors, based mainly on the relative cost of transfers via formal channels, but also on other non price barriers to bank access and use of banking services, such as physical access to bank branches and the geographic coverage of bank networks.

2|2|1 Transaction costs via formal channels

Often quicker than formal transfers, informal transfers present certain practical advantages: there is no need, for example, to hold a bank account. The costs involved are also markedly lower than those of formal transfers: the cost of informal transfers is generally estimated at 3 to 5% of the amount sent, whilst the cost of money transfer services offered by financial intermediaries are considerably higher, reaching up to 17% of the amount sent (see Table 1). On average, transaction costs of transfers via formal channels are estimated at 12% of the amount sent.

Table 1 Comparison of money transfer costs via formal channels	
(as a %, for an amount of USD 200)	
To Latin American countries	
From the United States:	
Ecuador	4.9
El Salvador	6.2
Mexico	6.9
Dominican Republic	10.4
Jamaica	8.1
Barbados	11.7
Venezuela	17.1
To African countries	
From the United States:	
Cape Verde	5.2
Ghana	7.5
Zimbabwe	11.9
From France:	
Morocco	4.5
Senegal, Mali	8.0 – 9.5
The Comoros	12.0 – 19.0

Sources: Latin American Council (2004 data for Latin American countries); Banque de France (2007 data for African countries with the exception of Ghana and Zimbabwe); Sander C. (2003 data for Ghana and Zimbabwe).
Note: With the exception of transfers from France to Morocco (via banks), all transfers are sent via money transfer companies.

The cost differential between formal and informal services is particularly due to differences in exchange rates, since those applied in the context of informal exchanges are considerably lower than those practiced by financial intermediaries. Moreover, formal services can also entail expenses in the recipient country, as well as various non-negligible fees.

However, the use of informal transfers assumes the acceptance of a high level of risk. Transfers via informal channels are particularly exposed to risks of loss, theft, misappropriation and/or fraud of various kinds.

Moreover, charges related to formal money transfer services diminish gradually in line with total volumes sent to home countries and the length of time the migrants have lived in the host country. The difference of costs observed between Morocco and the Comoros for transfers sent from France may therefore be partly due to the existence in France of a developed bank network specialised in transfers to Morocco.

2|2|2 Access to financial services in the recipient countries

Financial depth in recipient countries and the general conditions of access to financial services are also key factors in facilitating the use of formal transfers.

Table 2 Financial depth indicators (at end-December 2004)

	M2/GDP (%)	Credit to private sector/ GDP (%)	Bank deposits/ GDP (%)	Number of bank branches per 100,000 inhabitants	Population holding a bank account (%)
SSA (a)	26.3	16.7	19.0	2.6	12.6
WAEMU	26.5	17.2	21.5	0.9	3.8
CEMAC	15.1	7.8	12.2	0.6	4.6
Comoros	23.3	6.6	13.6	0.9	5.0
North Africa and the Middle East	62.1	39.8	28.3	na	na
South Asia	57.6	35.7	26.4	na	na
Latin America and the Caribbean	58.0	25.7	28.1	9.9	50.0

Sources: IMF, World Economic and Financial Surveys; Regional Economic Outlook Sub-Saharan Africa, May 2006; World Bank, Global Development Finance Indicators; Central Bank of the Comoros.
(a) SSA excl. South Africa and Nigeria.
na : non available.

In this regard, the various indicators used to measure financial depth in certain economies appear much weaker in SSA than in the other developing regions (see Table 2). The conditions of physical access to banking services are also more restricted.

All of these factors account for migrants' preference for informal transfers, in contrast with Latin American and North African migrants whose use of formal transfers via banks and money transfer companies has increased.

2|2|3 Ways of improving the impact of transfers on financial development

In sender countries: increased transparency and competition in the money transfer market

The authorities of immigration countries are likely to contribute to the reduction in transfer costs by favouring increased transparency in the international money transfer market. These countries in particular have an important role to play in the dissemination of detailed information on the various money transfer methods and their respective costs. The UK's Department for International Development (DFID) has introduced a transfer service and price comparison tool, blazing a trail in this domain, since this experiment has efficiently contributed to lowering costs in certain "corridors". In particular, increased transparency and competition for transfers to India have helped to considerably reduce costs, by 20% since 2005 (see Chart 5).

Chart 5 Comparison of money transfer costs from the UK

(GBP, as a % of the amount transferred)
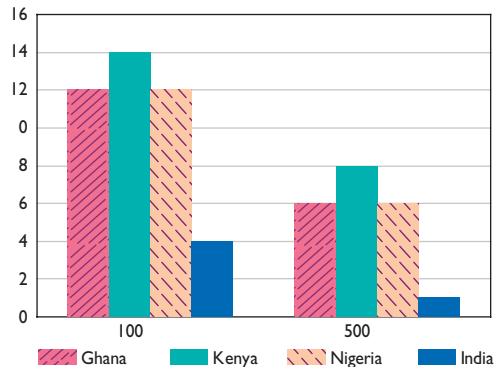
Source: Department for International Development, 2006.

At the franc zone Member States meeting on 7 April 2005 in Cotonou, France committed to encouraging competition by developing public information concerning the conditions applied to money transfers. A transfer price comparison tool, available on the Internet,[4] was thus officially launched on 19 November 2007.

Strengthening supply and competition in the money transfer market may also be sought by developing balanced regulatory frameworks, favouring the entry of new players while upholding certain rules, notably those relating to anti-money laundering. In France, the current regulatory framework, which requires the status of financial company in order to carry out fund transfers, is both demanding, as it aims to ensure the safety of transactions and prevent these flows from being used for money laundering and terrorism financing, but is also open to development and competition. The Credit Institutions and Investment Firms Committee (*Comité des établissements de crédit et des entreprises d'investissement* – CECEI) has, over recent years, adapted its requirements to take into account the market's needs. Thus, after authorising the first financial company in 2003, the CECEI authorised two other French subsidiaries of major international money transfer companies in 2006, which should contribute to the notable strengthening of supply and competition.

The creation of a harmonised framework at the European level could also create opportunities to further facilitate migrant workers' remittance transfers while respecting anti-money laundering requirements. The Payment Services Directive, adopted on 13 November 2007 by the European Parliament and Council, defined, alongside the status

4 *http://www.envoidargent.fr/*

of credit institution, a new status of payment institutions, for which requirements, notably in terms of minimum capital (EUR 20,000 compared to EUR 2.2 million for the status of financial company), are substantially lower. By reducing the administrative burdens while maintaining strict requirements in matters of money laundering and terrorism financing, this text, which should be transposed into French law during 2009, is likely to contribute to stepping up competition in this market and thus reducing the informal sector's market share.

In recipient countries:

• Improving conditions of access to financial services

The pursuit of increased formalisation of remittance transfers and improved economic impact requires reflection on how to improve the conditions of access to financial services. In this respect, the stronger involvement of microfinance institutions in the money transfer services market could be sought. Indeed, the scope of micro-finance networks' geographic coverage and their proximity to rural populations where the banking sector is underdeveloped constitutes a comparative advantage compared with other operators. The mobilisation of microfinance in the setting up of new money transfer channels could thus facilitate the transfer of workers' remittances to their families. It could also encourage the development of a supply of financial products adapted to these populations (housing loans, equipment, etc.) and guaranteed by remittance flows.

Nonetheless, several obstacles are still hindering the expansion of the microfinance sector's role in the implementation of international money transfer services. Microfinance institutions do not have all of the management capacities necessary to supply such products (particularly liquidity management). Specifically, in order to be able to offer an efficient service presenting all relevant guarantees, microfinance institutions must have a healthy financial situation and be subject to rigorous supervision (Sander, 2004), which is not yet the case for the majority of microfinance institutions in SSA. Partnerships between microfinance institutions and banks are nonetheless starting to develop in the area of international money transfers (notably in Mali).

• Facilitating the use of new payment technologies associated to mobile telephones

The development of mobile phone use (m-banking) for deposits, withdrawals and transfers is also a solution with strong potential for SSA populations, which are considerably constrained in their access to conventional financial services. Although the mobile phone penetration rate in African countries only reached 25% in 2007, compared to almost

50% on a worldwide scale, the number of users in the region has practically tripled since 2002 (while in other developing regions they have doubled over the same period).

Pilot projects are now being carried out in South Africa, Kenya and Zambia, using various technical solutions. These can be based on a simple exchange of text messages or involve the use of more complex technologies using encryption to offer a higher level of security for transactions. Generally speaking, in countries where they have been introduced to provide greater access to financial services, new payment technologies associated to mobile phones have helped to facilitate transfers and reduce their costs. International money transfers by mobile phone generate an estimated cost of around 4% of the transaction price, on average.

One of the main challenges posed by facilitating the expansion of these technologies for money transfers is the capacity of financial regulatory authorities to set up a sufficiently flexible and innovative regulatory framework. This should both allow new players into the market, particularly from the telecom sector, and guarantee an adequate level of security, taking into account the services offered and the corresponding level of risk. The requirements in terms of money transfer security could notably be adapted according to the types of transactions carried out and the volumes transferred, like the measures taken in this area by the European Payment Services Directive (under certain conditions, dispensations to the ring-fencing of funds are planned, in relation to the volumes transferred).

• Continuing with reforms to modernise the financial sector

While the impact of workers' remittances on the financial development of recipient countries could be improved via the increased formalisation of transfers, structural reforms of the financial sector are also needed. Indeed, in the absence of reforms to improve the functioning of banking markets and to stimulate credit supply in developing countries, increased formalisation of remittances is likely to flood with deposits banking systems that already have excess liquidity, without contributing to financing development.

In particular, the channelling of workers' remittances into productive employment in recipient countries would be facilitated by the existence of a favourable business environment (efficient legal system, transparent and straightforward regulatory and tax systems, overall economic governance, etc.), tax incentives for the creation of companies and an efficient banking system, notably providing access to long-term financing. The search for a more effective use of transfers thus ties up with the broader objectives of the modernisation of financial systems in developing countries.

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Contents

Economic developments

Money, investment and financing

Financial markets and interest rates

Other statistics

NB: Since 1 January 2008, the euro area has grown following the accession of Cyprus and Malta. The statistical data takes this enlargement into account as from that date.

In Tables 39 and 40, the wording in certain lines and the text in the notes have been modified.

The data in this section are those available in the Banque de France BSME database at the given dates.

Table 1
Industrial activity indicators – Monthly Business Survey – France

(seasonally-adjusted data)

	2008						
	Feb.	**March**	**April**	**May**	**June**	**July**	**Aug.**
Changes in production from the previous month (a)							
Total	**3**	**0**	**3**	**-12**	**0**	**2**	**5**
Intermediate goods	2	-4	7	-16	-1	-4	5
Capital goods	15	2	12	-9	10	6	1
Automotive industry	-11	-1	-11	-29	-22	6	8
Consumer goods	6	4	3	-9	11	4	8
Agri-food industry	4	2	-7	0	-1	1	5
Production forecasts (a)							
Total	**5**	**6**	**-1**	**6**	**2**	**-6**	**3**
Intermediate goods	3	3	-3	6	-3	-5	0
Capital goods	8	9	6	8	8	1	15
Automotive industry	8	13	11	10	11	-13	4
Consumer goods	8	17	-7	22	9	-4	10
Agri-food industry	16	10	8	3	8	7	9
Changes in orders from the previous month (a)							
Total	**7**	**1**	**9**	**-4**	**-3**	**0**	**-3**
Foreign	9	1	10	-8	-6	-4	-7
Order books (a)							
Total	**21**	**17**	**15**	**11**	**5**	**3**	**-2**
Intermediate goods	13	7	6	0	-6	-9	-14
Capital goods	63	56	60	61	52	51	50
Consumer goods	15	21	8	7	5	3	1
Agri-food industry	5	-2	-3	-5	-10	-11	-15
Inventories of finished goods (a)							
Total	**5**	**6**	**7**	**7**	**7**	**8**	**9**
Intermediate goods	3	5	5	5	6	6	9
Capital goods	5	5	5	4	10	5	8
Automotive industry	2	11	9	11	1	17	10
Consumer goods	4	9	8	9	7	8	8
Agri-food industry	9	8	10	12	13	13	14
Capacity utilisation rate (b)							
Total	**83.2**	**82.9**	**82.9**	**81.8**	**81.5**	**81.2**	**80.7**
Staff levels (a)							
Changes from the previous month	0	-2	-1	-5	-2	-3	-3
Forecast for the coming month	-1	-4	-3	-4	-4	-5	-5
Business sentiment indicator (c)							
	105	104	100	96	95	92	94

(a) Data given as a balance of opinions. Forecast series are adjusted for the bias when it is statistically significant.
(b) Data given as a percentage.
(c) The indicator summarises industrial managers' sentiment regarding business conditions. The higher the indicator is, the more positive the assessment. The indicator is calculated using a principal component analysis of survey data smoothed over three months. By construction, the average is 100.

Source: Banque de France.   *Produced 19 September 2008*

Table 2
Industrial activity indicators – Monthly Business Survey – France (seasonally-adjusted data)

Business sentiment indicator

(100 = 1981-2006)

Orders (balance of opinions)

(monthly change)
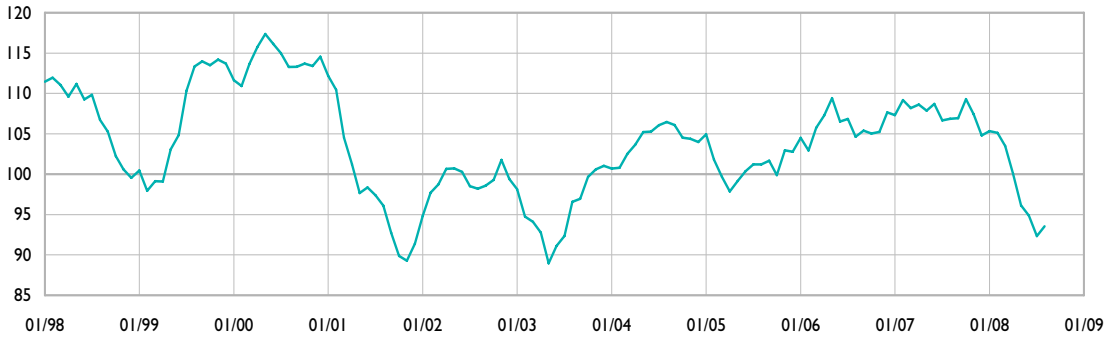
- Total orders
- Total orders (three-month moving average)
- Foreign orders (three-month moving average)
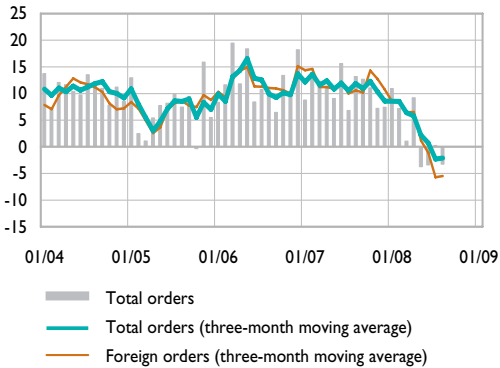
Output (balance of opinions)

(monthly change)

- Past output
- Forecast output
- Past output (three-month moving average)
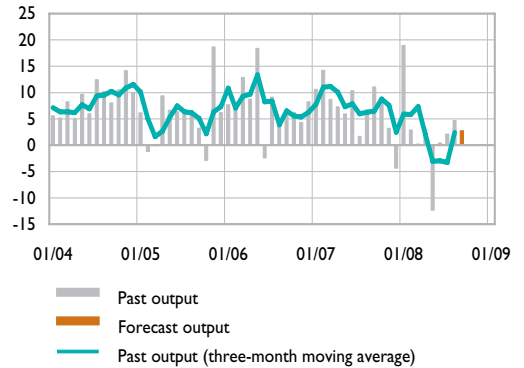
Inventories and order books (balance of opinions)

(compared to levels deemed normal)

- Inventories
- Order books

Capacity utilisation rate

(%)

- Capacity utilisation rate
- 1981-2007 average

Source: Banque de France.   *Produced 19 September 2008*
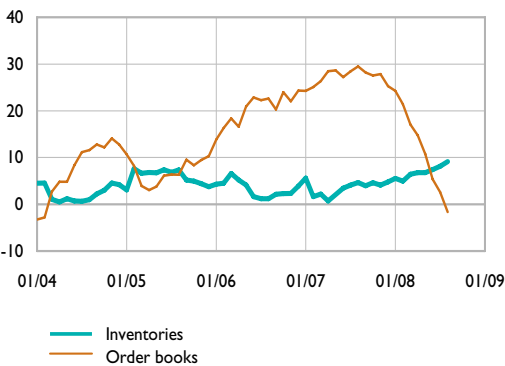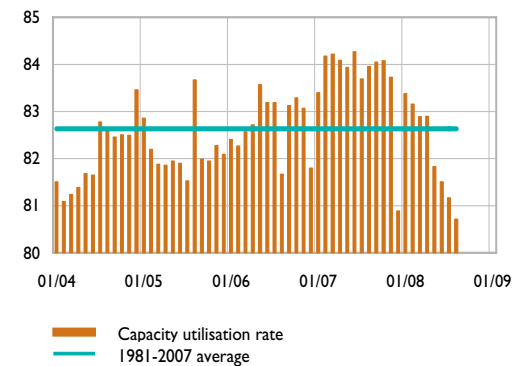
Table 3
Consumer price index

(annual % change)

	2007	2008							
	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.
France	2.8	3.2	3.2	3.5	3.4	3.7	4.0	4.0	3.5
Germany	3.1	2.9	3.0	3.3	2.6	3.1	3.4	3.5	3.3
Italy	2.8	3.1	3.1	3.6	3.6	3.7	4.0	4.0	4.2
Euro area	3.1	3.2	3.3	3.6	3.3	3.7	4.0	4.1	3.8
United Kingdom	2.1	2.2	2.5	2.5	3.0	3.3	3.8	4.4	4.7
European Union	3.2	3.4	3.5	3.7	3.6	4.0	4.2	4.4	4.2
United States	4.1	4.3	4.0	4.0	3.9	4.2	5.0	5.6	5.4
Japan	0.7	0.7	1.0	1.2	0.8	1.3	2.0	2.3	na

(annual average)   *(seasonally-adjusted monthly % change)*

	2005	2006	2007	2008					
				March	April	May	June	July	Aug.
France	1.9	1.9	1.6	0.4	0.2	0.4	0.5	0.1	-0.1
Germany	1.9	1.8	2.3	0.4	-0.3	0.6	0.3	0.3	0.0
Italy	2.2	2.2	2.0	0.5	0.2	0.4	0.3	0.3	0.4
Euro area	2.2	2.2	2.1	0.5	0.1	0.6	0.5	0.3	-0.1
United Kingdom	2.0	2.3	2.3	0.2	0.6	0.5	0.5	0.5	0.6
European Union	2.3	2.3	2.4	na	na	na	na	na	na
United States	3.4	3.2	2.9	0.3	0.2	0.6	1.1	0.8	-0.1
Japan	-0.3	0.2	0.1	0.2	-0.3	0.6	0.7	0.4	na

France and the euro area

(annual % change)

- Euro area
- France
- Amplitude
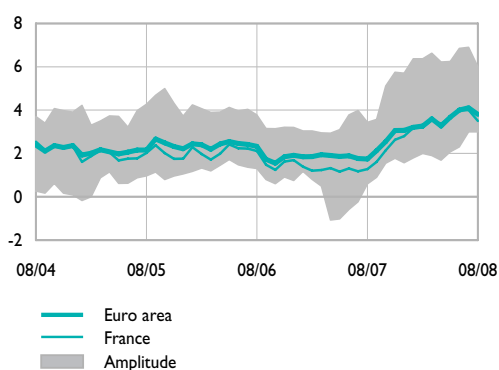
International comparisons

(annual % change)

- Euro area
- United States
- Japan
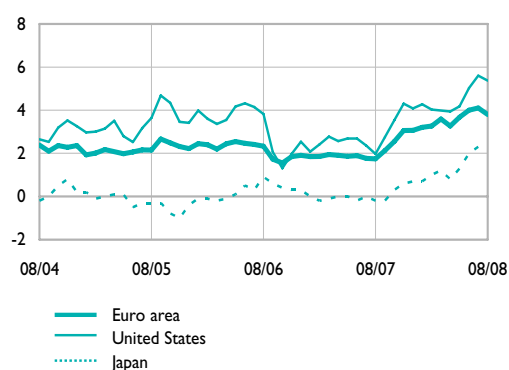
Harmonised indices except for the United States and Japan.
Amplitude = extreme values of the indices of harmonised prices observed in the euro area.

Sources: National data, Eurostat.   *Produced 19 September 2008*

Table 4
The competitiveness of France's economy

Indicators deflated by consumer prices

100 = 1986 - 2004 average

Competitiveness improvement

- Compared to the euro area
- Compared to the EU-15
- Compared to industrial countries
- Compared to the 46 major trading partners

Indicators deflated by consumer prices

100 = 1986 - 2004 average

Competitiveness improvement

- Compared to the United States
- Compared to Japan
- Compared to the United Kingdom
- Compared to emerging Asian countries
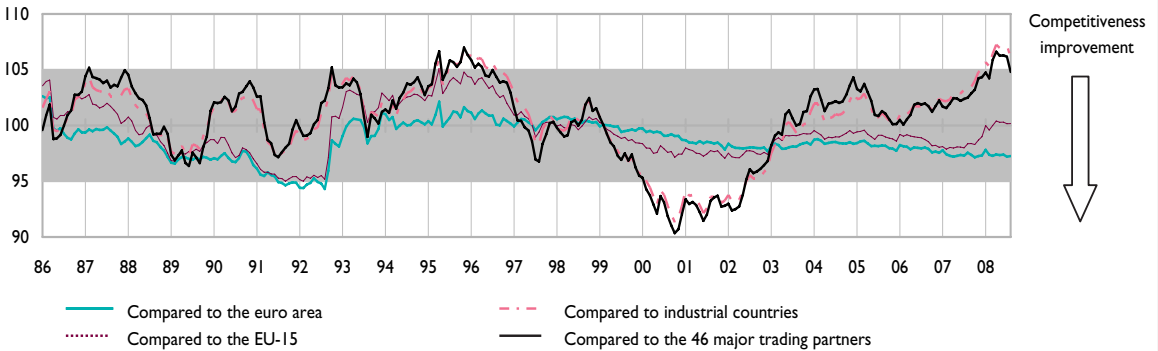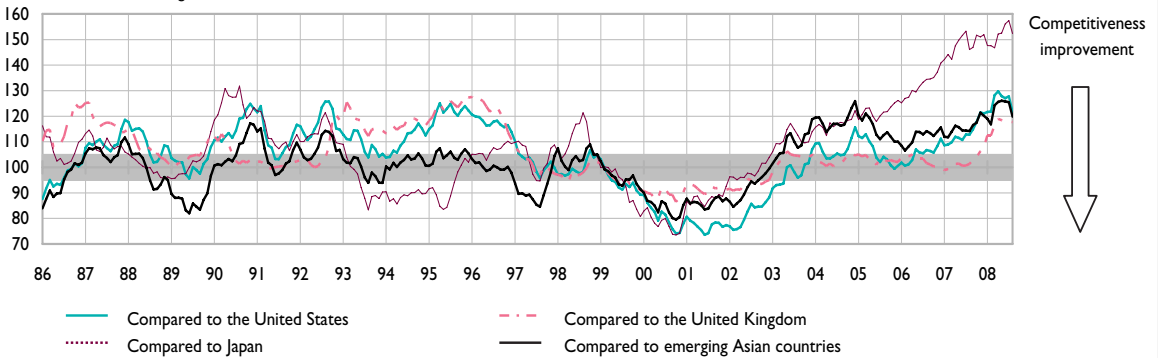
Indicators of competitiveness compared to 22 OECD countries

100 = 1987

Competitiveness improvement

- Nominal exchange rate
- Deflated by consumer prices
- Deflated by unit labour costs in the manufacturing industry
- Deflated by unit labour costs for the economy as a whole
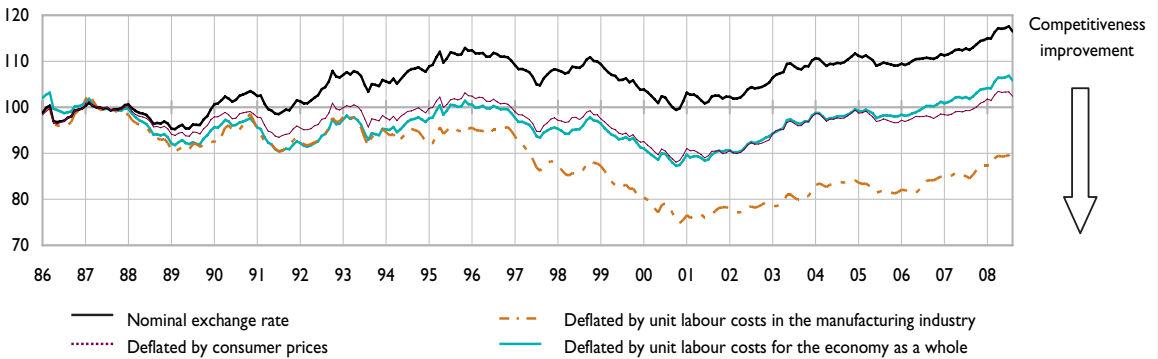
Grey area: change in competitiveness compared to long-term average less than 5%.

Sources: National data, Banque de France, ECB, IMF, INSEE, OECD, Thomson Financial Datatstream.
Calculations: Banque de France.

Produced 19 September 2008

Table 5
Balance of payments – Main components (quarterly data) – France

(unadjusted data, EUR millions)

	2006	2007	2007			2008	
			Q2	Q3	Q4	Q1	Q2
	(a)	(a)	(a)	(a)	(a)	(a)	(b)
Current account	**-12,296**	**-22,317**	**-10,556**	**-1,413**	**-10,777**	**-6,864**	**-12,743**
Goods	-29,437	-39,731	-9,150	-10,367	-12,862	-12,674	-15,257
Services	9,908	10,975	3,551	6,193	505	2,106	4,477
Income	28,803	28,521	1,593	10,011	8,770	6,647	3,917
Current transfers	-21,570	-22,082	-6,550	-7,250	-7,190	-2,943	-5,880
Capital account	**-197**	**1,854**	**1,138**	**126**	**260**	**368**	**210**
Financial account	**70,486**	**22,163**	**3,864**	**44,134**	**-36,627**	**6,674**	**8,487**
Direct investment	-34,449	-48,719	-9,648	-11,274	-19,839	-23,923	-24,267
French direct investment abroad	*-96,749*	*-164,138*	*-40,003*	*-36,252*	*-58,968*	*-43,175*	*-50,785*
Foreign direct investment in France	*62,300*	*115,419*	*30,355*	*24,978*	*39,129*	*19,252*	*26,518*
Portfolio investment	-59,422	-131,928	-27,158	-45,060	-42,293	-5,128	1,246
Assets	*-270,459*	*-161,132*	*-53,234*	*-18,874*	*-37,799*	*-37,884*	*-40,074*
Liabilities	*211,037*	*29,204*	*26,076*	*-26,186*	*-4,494*	*32,756*	*41,320*
Financial derivatives	3,367	42,026	3,023	17,403	20,348	6,702	12,812
Other investment	169,767	161,261	37,047	86,900	1,998	30,688	15,858
Reserve assets	-8,775	-478	600	-3,835	3,159	-1,663	2,838
Net errors and omissions	**-57,993**	**-1,701**	**5,552**	**-42,847**	**47,144**	**-180**	**4,046**

Current account balance

(unadjusted data, EUR billions)
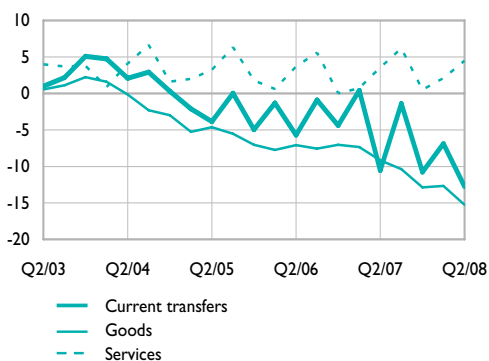
- Current transfers
- Goods
- Services

Financial account balance

(unadjusted data, EUR billions)

- Direct investment
- Portfolio investment – equities
- Portfolio investment – debt securities

(a) Semi-final figures.
(b) Provisional figures.

Source: Banque de France.

Produced 19 September 2008
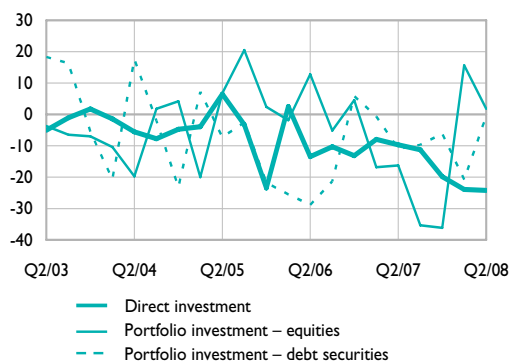
Table 6
Balance of payments – Current and capital accounts (quarterly data) – France

(unadjusted data, EUR millions)

	2006	2007	2007			2008	
			Q2	Q3	Q4	Q1	Q2
	(a)	(a)	(a)	(a)	(a)	(a)	(b)
Current account	**-12,296**	**-22,317**	**-10,556**	**-1,413**	**-10,777**	**-6,864**	**-12,743**
Goods	**-29,437**	**-39,731**	**-9,150**	**-10,367**	**-12,862**	**-12,674**	**-15,257**
Exports	*386,187*	*398,265*	*100,590*	*95,072*	*102,908*	*105,874*	*106,139*
Imports	*415,624*	*437,996*	*109,740*	*105,439*	*115,770*	*118,548*	*121,396*
General merchandise	-27,229	-37,504	-8,567	-9,875	-12,283	-11,952	-14,257
Goods procured in ports by carriers	-1,524	-1,305	-254	-375	-398	-654	-834
Goods for processing and repairs on goods	-684	-922	-329	-117	-181	-68	-166
Services	**9,908**	**10,975**	**3,551**	**6,193**	**505**	**2,106**	**4,477**
Exports	*100,438*	*106,273*	*27,393*	*31,923*	*24,039*	*23,361*	*28,234*
Imports	*90,530*	*95,298*	*23,842*	*25,730*	*23,534*	*21,255*	*23,757*
Transportation	-3,981	-3,096	-779	-610	-999	-264	-41
Travel	12,069	12,788	3,614	6,913	601	1,723	3,516
Communications services	1,302	1,102	221	310	295	205	90
Construction services	1,878	2,324	559	517	682	459	518
Insurance services	-1,216	-769	-131	-119	-181	-265	-289
Financial services	-1,889	-1,350	-594	-354	-162	-138	-325
Computer and information services	-20	-282	7	-157	-175	-18	-46
Royalties and license fees	2,329	3,088	1,095	580	695	1,083	781
Other business services	318	-1,785	-267	-588	116	-573	454
Personal, cultural and recreational services	-752	-879	-152	-246	-256	-200	-208
Government services	-130	-166	-22	-53	-111	94	27
Income	**28,803**	**28,521**	**1,593**	**10,011**	**8,770**	**6,647**	**3,917**
Compensation of employees	8,576	8,796	2,222	2,177	2,216	2,282	2,109
Investment income	20,227	19,725	-629	7,834	6,554	4,365	1,808
Direct investment	*26,177*	*23,974*	*5,118*	*6,705*	*6,497*	*4,086*	*8,318*
Portfolio investment	*-921*	*3,170*	*-3,094*	*2,610*	*1,491*	*2,747*	*-3,568*
Other investment	*-5,029*	*-7,419*	*-2,653*	*-1,481*	*-1,434*	*-2,468*	*-2,942*
Current transfers	**-21,570**	**-22,082**	**-6,550**	**-7,250**	**-7,190**	**-2,943**	**-5,880**
General government	-13,663	-13,805	-4,639	-5,025	-4,962	-825	-3,844
Other sectors	-7,907	-8,277	-1,911	-2,225	-2,228	-2,118	-2,036
of which workers' remittances	*-2,130*	*-1,970*	*-486*	*-555*	*-445*	*-460*	*-516*
Capital account	**-197**	**1,854**	**1,138**	**126**	**260**	**368**	**210**

(a) Semi-final figures.
(b) Provisional figures.

Source: Banque de France.   *Produced 19 September 2008*

Table 7
Balance of payments – Financial flows (quarterly data) – France

(unadjusted data, EUR millions)

	2006	2007	2007			2008	
			Q2	**Q3**	**Q4**	**Q1**	**Q2**
	(a)	**(a)**	**(a)**	**(a)**	**(a)**	**(a)**	**(b)**
Financial account	**70,486**	**22,163**	**3,864**	**44,134**	**-36,627**	**6,674**	**8,487**
Direct investment	-34,449	-48,719	-9,648	-11,274	-19,839	-23,923	-24,267
French direct investment abroad	-96,749	-164,138	-40,003	-36,252	-58,968	-43,175	-50,785
of which equity capital and reinvested earnings	*-82,870*	*-83,718*	*-21,334*	*-14,742*	*-28,762*	*-31,696*	*-12,852*
Foreign direct investment in France	62,300	115,419	30,355	24,978	39,129	19,252	26,518
of which equity capital and reinvested earnings	*31,410*	*39,254*	*12,692*	*8,263*	*11,949*	*12,251*	*-1,373*
Portfolio investment	-59,422	-131,928	-27,158	-45,060	-42,293	-5,128	1,246
Assets	-270,459	-161,132	-53,234	-18,874	-37,799	-37,884	-40,074
Equity securities	*-48,277*	*-54,418*	*627*	*-21,739*	*-25,988*	*12,857*	*-1,811*
Bonds and notes	*-225,740*	*-102,009*	*-64,670*	*693*	*-11,661*	*-16,650*	*-48,462*
Money market instruments	*3,558*	*-4,705*	*10,809*	*2,172*	*-150*	*-34,091*	*10,199*
Liabilities	211,037	29,204	26,076	-26,186	-4,494	32,756	41,320
Equity securities	*58,757*	*-50,119*	*-16,863*	*-13,620*	*-10,171*	*2,794*	*3,584*
Bonds and notes	*165,500*	*79,902*	*31,379*	*2,146*	*7,212*	*19,042*	*32,159*
Money market instruments	*-13,220*	*-579*	*11,560*	*-14,712*	*-1,535*	*10,920*	*5,577*
Financial derivatives	3,367	42,026	3,023	17,403	20,348	6,702	12,812
Other investment	169,767	161,261	37,047	86,900	1,998	30,688	15,858
of which MFIs excl. Banque de France (net flows)	*135,629*	*96,358*	*25,856*	*52,756*	*-15,879*	*-6,107*	*-8,090*
Reserve assets	-8,775	-478	600	-3,835	3,159	-1,663	2,838
Net errors and omissions	**-57,993**	**-1,701**	**5,552**	**-42,847**	**47,144**	**-180**	**4,046**

Direct investment account
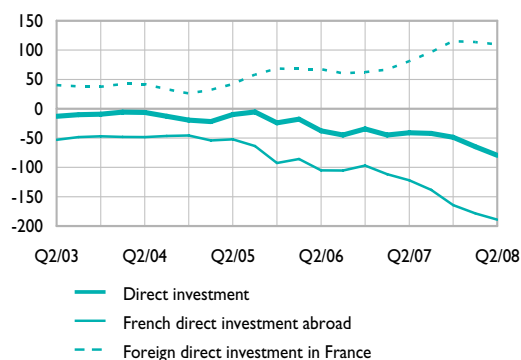
(cumulated flows over 4 quarters)

- Direct investment
- French direct investment abroad
- Foreign direct investment in France

Portfolio investment account

(cumulated flows over 4 quarters)

- Portfolio investment
- Equity securities
- Debt securities

(a) Semi-final figures.
(b) Provisional figures.

Source: Banque de France.

Produced 19 September 2008
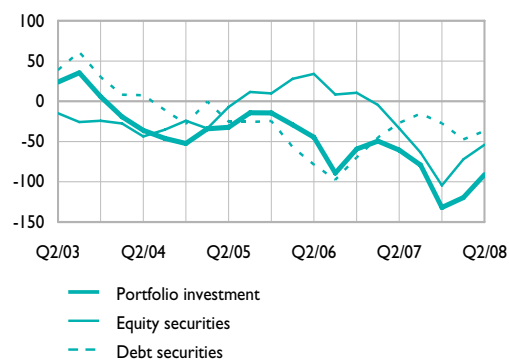
Table 8
Balance of payments – Geographical breakdown (quarterly data) – France

(unadjusted data, EUR millions)

	1st quarter 2008					
	EMU **(a)**	**EU-27 excl. EMU** **(b)**	**USA**	**Japan**	**Switzerland**	**China**
Current account	na	na	na	na	na	na
Receipts	83,026	35,881	14,878	2,690	6,478	3,216
Expenditure	na	na	na	na	na	na
Goods	-15,031	2,601	1,189	29	480	-2,075
Receipts	53,732	15,817	6,379	1,543	2,942	2,364
Expenditure	68,764	13,219	5,190	1,512	2,462	4,439
Services	116	842	1,763	-9	196	262
Receipts	7,325	3,994	3,662	324	1,246	744
Expenditure	7,209	3,154	1,900	333	1,049	482
Income	na	na	na	na	na	na
Receipts	21,288	7,444	4,673	816	2,012	102
Expenditure	na	na	na	na	na	na
Current Transfers	-1,332	1,167	-107	-19	-349	-27
Financial account	na	na	na	na	na	na
Direct investment	-4,565	-6,969	1,015	-553	-506	-431
French direct investment abroad	-13,920	-7,964	-2,309	-764	-1,948	-425
Foreign direct investment in France	9,355	994	3,324	211	1,442	-6
Portfolio investment (c)	na	na	na	na	na	na
Assets	-28,652	-5,575	-7,859	2,250	2,863	-294
Equity securities	7,576	-3,683	-1,918	6,445	4,845	-292
Bonds and notes	-14,108	5,641	-3,839	-3,677	69	-5
Money market instruments	-22,120	-7,533	-2,103	-518	-2,051	3
Other investment	76,335	-1,669	-1,038	-17,212	-10,782	-3,140
of which MFIs excluding Banque de France (net flows)	33,401	4,173	1,362	-16,462	-7,870	-3,139

(a) 15 Member States (including Slovenia as of 1 January 2007).
(b) Denmark, United Kingdom, Sweden, European Institutions and New Member States (Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Bulgaria, Romania).
(c) The geographical breakdown is not available for liabilities.

Table 9
Balance of payments (monthly data) – France

(unadjusted data, EUR millions)

	2007	2008			12-month total 2007	12-month total 2008
	July	May	June	July	July	July
	(a)	(b)	(b)	(b)	(a)	(b)
Current account	**744**	**-4,719**	**-4,453**	**-2,700**	**-13,979**	**-35,241**
Goods	-3,081	-5,379	-5,664	-4,667	-31,888	-52,746
Services	2,376	1,882	2,123	3,164	10,389	14,069
Income	3,881	797	988	1,232	28,707	26,696
Current transfers	-2,432	-2,019	-1,900	-2,429	-21,187	-23,260
Capital account	**130**	**83**	**90**	**178**	**1,828**	**1,012**
Financial account	**11,671**	**15,157**	**6,830**	**-10,934**	**36,310**	**63**
Direct investment	-4,978	-10,756	-7,499	-4,936	-42,946	-79,261
French direct investment abroad	*-14,730*	*-8,126*	*-30,793*	*-15,764*	*-131,696*	*-190,214*
Equity capital	*3,554*	*-1,567*	*-2,990*	*-2,253*	*-44,876*	*-65,188*
Reinvested earnings	*-2,263*	*-2,516*	*-2,516*	*-2,515*	*-26,071*	*-28,923*
Other capital	*-16,021*	*-4,043*	*-25,287*	*-10,996*	*-60,749*	*-96,103*
Foreign direct investment in France	*9,752*	*-2,630*	*23,294*	*10,828*	*88,750*	*110,953*
Equity capital	*1,466*	*-5,298*	*303*	*1,355*	*21,462*	*12,061*
Reinvested earnings	*1,465*	*1,688*	*1,688*	*1,688*	*14,255*	*19,141*
Other capital	*6,821*	*980*	*21,303*	*7,785*	*53,033*	*79,751*
Portfolio investment	-5,349	6,648	4,259	-23,378	-37,954	-109,264
Assets	*-5,292*	*-12,023*	*-13,548*	*-35,828*	*-206,019*	*-165,167*
Equity securities	*5,917*	*-4,082*	*-8,987*	*-11,524*	*-29,999*	*-54,122*
Bonds and notes	*-6,285*	*-9,624*	*-11,030*	*-4,868*	*-169,454*	*-74,663*
Money market instruments	*-4,924*	*1,683*	*6,469*	*-19,436*	*-6,566*	*-36,382*
Liabilities	*-57*	*18,671*	*17,807*	*12,450*	*168,065*	*55,903*
Equity securities	*3,532*	*-667*	*8,193*	*3,026*	*7,755*	*-17,919*
Bonds and notes	*-233*	*22,780*	*12,189*	*-2,238*	*159,101*	*58,554*
Money market instruments	*-3,356*	*-3,442*	*-2,575*	*11,662*	*1,209*	*15,268*
Financial derivatives	3,176	6,044	820	6,233	7,220	60,322
Other investment	20,821	11,492	8,606	13,553	118,007	128,176
of which MFIs excl. Banque de France (net flows)	*22,628*	*27,216*	*-19,105*	*12,814*	*83,945*	*12,866*
Reserve assets	-1,999	1,729	644	-2,406	-8,017	92
Net errors and omissions	**-12,545**	**-10,521**	**-2,467**	**13,456**	**-24,159**	**34,164**

(a) Semi-final figures.
(b) Provisional figures.

Table 10

France's international investment position (direct investment measured at book value)

(EUR billions)

	2002	2003	2004	2005	2006	2007
	Dec.	**Dec.**	**Dec.**	**Dec.**	**Dec.**	**Q4**
Assets	**2,361.4**	**2,528.5**	**2,883.5**	**3,573.5**	**4,061.9**	**4,556.5**
French direct investment abroad	559.1	573.6	620.7	736.2	800.9	950.4
Equity capital and reinvested earnings	*390.2*	*380.1*	*418.1*	*491.4*	*547.4*	*622.6*
Other capital	*168.9*	*193.5*	*202.6*	*244.8*	*253.5*	*327.7*
Portfolio investment	888.6	1,084.4	1,285.3	1,587.9	1,863.2	2,046.9
(foreign securities held by residents)						
MFIs (resident security-holding sector)	*390.5*	*480.3*	*562.3*	*665.9*	*754.6*	*769.2*
Non-MFIs (resident security-holding sector)	*498.1*	*604.1*	*722.8*	*922.0*	*1,108.8*	*1,277.8*
Financial derivatives	103.1	93.1	116.9	124.5	159.2	158.5
Other investment	751.8	721.5	803.9	1,061.8	1,163.9	1,322.2
MFIs	*516.4*	*492.0*	*578.9*	*840.7*	*945.6*	*1,094.7*
Non-MFIs	*235.4*	*229.4*	*225.0*	*221.1*	*218.3*	*227.5*
Reserve assets	58.8	56.0	56.8	63.0	74.6	78.6
Liabilities	**-2,315.0**	**-2,594.8**	**-2,961.3**	**-3,641.4**	**-4,252.2**	**-4,614.4**
Foreign direct investment in France	-367.3	-417.8	-471.2	-532.4	-585.8	-697.0
Equity capital and reinvested earnings	*-232.3*	*-267.4*	*-295.2*	*-325.1*	*-349.3*	*-388.9*
Other capital	*-135.1*	*-150.4*	*-176.0*	*-207.3*	*-236.5*	*-308.1*
Portfolio investment	-1,054.5	-1,287.8	-1,459.8	-1,764.8	-2,017.7	-1,934.3
(French securities held by non-residents)						
MFIs (resident security-issuing sector)	*-242.9*	*-287.6*	*-325.5*	*-414.5*	*-512.4*	*-520.1*
Non-MFIs (resident security-issuing sector)	*-811.5*	*-1,000.2*	*-1,134.3*	*-1,350.3*	*-1,505.2*	*-1,414.2*
Financial derivatives	-107.1	-117.0	-136.6	-147.4	-188.9	-230.2
Other investment	-786.1	-772.2	-893.7	-1,196.8	-1,459.8	-1,752.9
MFIs	*-632.1*	*-624.2*	*-740.4*	*-1,016.1*	*-1,245.0*	*-1,465.6*
Non-MFIs	*-154.0*	*-148.1*	*-153.3*	*-180.6*	*-214.8*	*-287.3*
Net position	**46.5**	**-66.3**	**-77.7**	**-67.9**	**-190.4**	**-57.9**

Non-resident holdings of CAC 40 equities and government negotiable debt securities

(%)

△ CAC 40 equities
■ Government negotiable debt securities

France's international investment position

(EUR billions)

◇ With direct investment measured at book value
■ With direct investment measured at market value

Source: Banque de France.

Produced 19 September 2008

Table 11
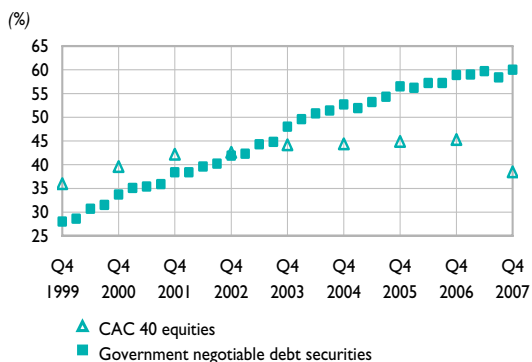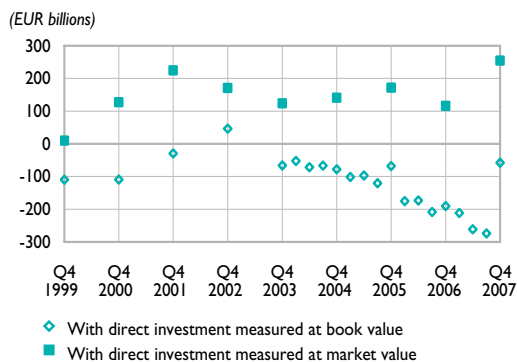
Main monetary and financial aggregates – France and the euro area

(annual percentage growth rate)

	2005	2006	2007	2007	2008						
	Dec.	Dec.	Dec.	July	Jan.	Feb.	March	April	May	June	July
M1											
Euro area (a)	11.4	7.6	4.0	6.9	4.4	3.7	2.8	2.4	2.3	1.4	0.5
France (contribution)	11.6	7.4	6.0	7.5	6.5	4.2	3.0	1.4	2.1	-0.7	0.1
M2											
Euro area (a)	8.5	9.4	10.1	10.5	10.4	10.6	9.7	10.3	10.1	9.4	9.3
France (contribution)	8.1	8.4	13.9	12.1	14.4	14.7	12.5	11.9	12.2	10.1	10.6
M3											
Euro area (a)	7.4	9.9	11.5	11.7	11.5	11.3	9.9	10.3	10.0	9.5	9.3
France (contribution)	8.5	10.7	15.7	13.2	15.1	15.0	11.8	11.3	11.1	9.4	10.1
Loans to the private sector											
Euro area (a)	9.3	10.8	11.2	10.9	11.1	11.0	10.9	10.7	10.5	9.9	9.4
France (b)	9.3	12.7	14.9	14.8	14.5	14.0	15.1	13.3	12.3	12.1	10.8

M1

(annual percentage growth rate)

— Euro area
— France (contribution)

M2

(annual percentage growth rate)

— Euro area
— France (contribution)

M3

(annual percentage growth rate)

— Euro area
— France (contribution)

Loans to the private sector

(annual percentage growth rate)
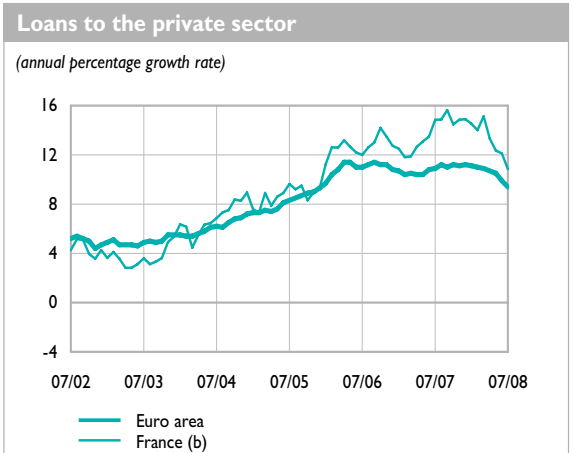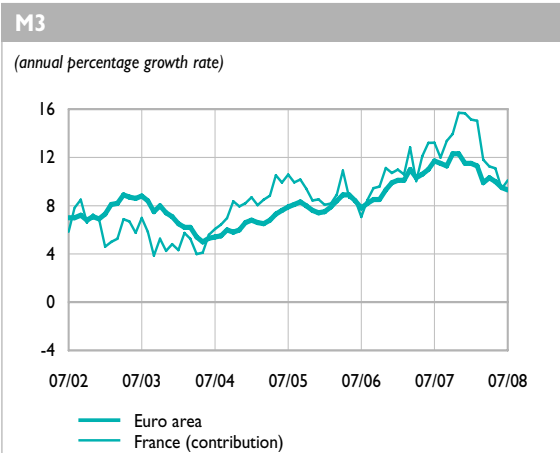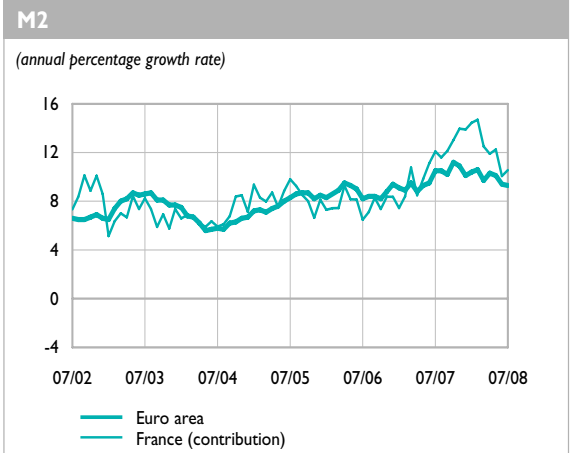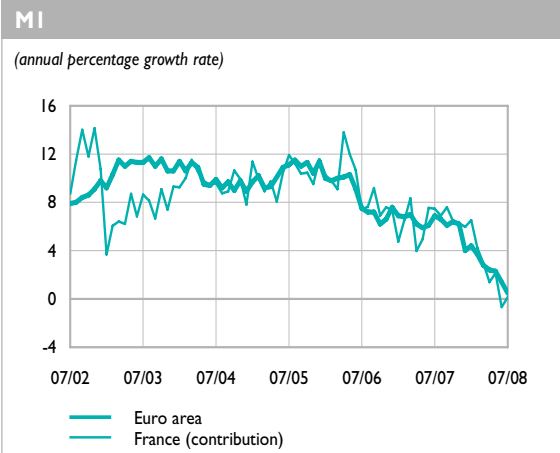
— Euro area
— France (b)

(a) Seasonal and calendar effect adjusted data.
(b) Loans extended by MFIs resident in France to euro area residents excluding MFIs and central government.
Sources: Banque de France, European Central Bank.

Produced 19 September 2008

Table 12
Balance sheet of the Banque de France

(outstanding amounts at the end of the period, EUR billions)

	2005	2006	2007	2007	2008			
	Dec.	Dec.	Dec.	July	April	May	June	July
Assets								
National territory	34.2	31.7	101.6	63.7	98.5	85.8	95.8	97.9
Loans	27.4	23.6	87.3	49.1	83.6	71.2	82.2	83.1
MFIs	*27.1*	*23.3*	*87.1*	*48.9*	*83.4*	*71.0*	*82.0*	*82.9*
Central government	*0.1*	*0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Private sector	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*
Securities other than shares	6.8	8.1	14.3	14.6	14.9	14.7	13.7	14.8
MFIs	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Central government	*6.8*	*8.1*	*14.3*	*14.6*	*14.9*	*14.7*	*13.7*	*14.8*
Private sector	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Money market instruments	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Shares and other equity	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other euro area countries	20.4	9.1	9.1	9.1	9.1	9.1	9.1	9.1
Rest of the world	22.8	37.7	35.5	38.7	34.1	33.7	33.5	37.9
Gold	39.5	42.2	47.6	41.4	46.0	47.1	48.5	47.9
Not broken down by geographical area (a)	93.1	114.2	170.1	103.1	207.5	218.2	226.4	227.5
Total	**210.0**	**234.9**	**363.8**	**256.0**	**395.2**	**393.9**	**413.3**	**420.2**
Liabilities								
National territory – Deposits	29.6	30.5	53.4	38.5	33.5	46.9	44.3	50.7
MFIs	28.6	29.8	52.4	37.6	32.8	46.2	43.8	50.0
Central government	0.3	0.0	0.3	0.1	0.3	0.3	0.1	0.3
Other sectors (overnight deposits)	0.8	0.8	0.7	0.7	0.4	0.4	0.4	0.5
Other euro area countries – Deposits	0.0	0.0	11.9	4.8	70.3	49.7	67.6	66.1
MFIs	0.0	0.0	11.9	4.8	70.3	49.7	67.6	66.1
Other sectors	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest of the world – Deposits	8.2	16.1	20.3	20.7	19.6	22.3	27.2	28.9
Not broken down by geographical area	172.2	188.2	278.2	192.0	271.8	275.0	274.3	274.5
Currency in circulation (b)	110.2	122.3	131.1	124.1	129.4	129.8	131.1	132.7
Debt securities issued	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Money market instruments	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital and reserves	45.7	48.0	55.2	48.6	55.9	55.9	55.5	55.5
Other	16.3	17.9	91.9	19.2	86.5	89.3	87.6	86.3
Total	**210.0**	**234.9**	**363.8**	**256.0**	**395.2**	**393.9**	**413.3**	**420.2**

(a) Including adjustments for the new accounting method for banknotes on the liability side of the Banque de France balance sheet since January 2002.
(b) Since January 2002, banknotes in circulation have been treated according to specific euro area accounting conventions. 8% of the total value of euro banknotes in circulation is allocated to the European Central Bank. The remaining 92% is broken down between the NCBs in proportion to their share in the paid-up capital of the ECB.

Source: Banque de France.

Produced 19 September 2008

Table 13
Balance sheet of monetary financial institutions (MFIs) excluding the Banque de France

(outstanding amounts at the end of the period in EUR billions)

	2005	2006	2007	2007	2008			
	Dec.	Dec.	Dec.	July	April	May	June	July
Assets								
National territory	3,291.8	3,593.1	4,128.8	3,926.4	4,251.6	4,314.7	4,258.6	4,323.0
Loans	2,523.4	2,745.1	3,211.3	3,011.4	3,276.0	3,311.8	3,299.3	3,348.4
MFIs	996.3	1,062.0	1,310.6	1,187.3	1,295.2	1,326.3	1,297.3	1,332.4
General government	150.8	155.7	168.5	161.7	177.1	178.8	182.7	181.8
Private sector	1,376.4	1,527.4	1,732.2	1,662.3	1,803.6	1,806.7	1,819.3	1,834.2
Securities other than shares	455.6	481.2	535.2	518.6	574.8	594.7	566.1	579.5
MFIs ≤ 2 years	140.0	172.4	207.3	184.3	232.7	240.9	227.0	231.1
MFIs > 2 years	57.4	65.7	75.8	72.8	75.8	76.8	75.3	76.6
General government	168.6	152.7	150.0	162.2	148.1	150.7	149.0	149.7
Private sector	89.6	90.3	102.2	99.3	118.2	126.3	114.8	122.1
Money market fund shares/units	78.1	77.3	81.4	87.8	88.3	87.5	87.7	87.8
Shares and other equity	234.6	289.5	300.8	308.7	312.6	320.7	305.5	307.4
Other euro area countries	727.0	848.9	1,011.5	983.3	1,063.7	1,065.3	1,030.5	1,065.5
Rest of the world	850.2	963.4	1,004.3	1,114.0	1,024.1	1,029.2	965.0	974.6
Not broken down by geographical area	602.9	766.8	975.8	906.2	991.8	1,027.6	1,040.9	978.6
Total	**5,471.9**	**6,172.3**	**7,120.4**	**6,929.9**	**7,331.2**	**7,436.7**	**7,295.0**	**7,341.8**
Liabilities								
National territory – Deposits	2,242.3	2,302.6	2,649.7	2,502.8	2,720.0	2,728.3	2,736.8	2,747.9
MFIs	1,011.3	1,055.4	1,303.2	1,204.7	1,350.7	1,361.6	1,343.3	1,366.2
Central government	45.2	16.0	16.3	19.1	14.2	13.2	33.9	19.8
Other sectors	1,185.8	1,231.2	1,330.2	1,279.0	1,355.1	1,353.5	1,359.7	1,361.9
Overnight deposits	395.3	419.1	445.8	426.1	423.7	419.0	429.6	426.3
Deposits with agreed maturity ≤ 2 years	53.4	64.2	127.8	96.5	153.3	156.3	157.0	167.6
Deposits with agreed maturity > 2 years	307.1	297.3	277.2	282.1	269.7	268.5	265.8	263.6
Deposits redeemable at notice ≤ 3 months	392.6	416.7	437.6	426.2	454.7	455.1	454.8	457.6
Repos	37.4	33.9	41.7	48.1	53.8	54.6	52.5	46.7
Other euro area countries – Deposits	271.1	327.5	396.1	360.4	419.0	426.2	410.3	414.7
MFIs	226.4	265.8	296.9	276.1	308.3	316.1	301.8	298.0
Other sectors	44.7	61.7	99.2	84.3	110.7	110.1	108.5	116.7
Rest of the world – Deposits	757.2	933.3	1,088.4	1,163.5	1,102.7	1,128.9	1,048.0	1,068.2
Not broken down by geographical area	2,201.3	2,608.9	2,986.2	2,903.2	3,089.5	3,153.4	3,099.9	3,111.0
Debt securities issued ≤ 2 years	271.3	335.6	447.5	351.9	461.9	486.0	468.5	493.8
Debt securities issued > 2 years	458.6	531.2	604.1	588.0	624.9	629.2	634.4	635.7
Money market fund shares/units	387.8	429.6	428.5	484.7	477.3	486.0	465.3	472.6
Capital and reserves	318.7	367.9	392.5	384.8	404.5	402.2	413.7	418.4
Other	765.0	944.6	1,113.5	1,093.9	1,120.9	1,149.9	1,118.0	1,090.4
Total	**5,471.9**	**6,172.3**	**7,120.4**	**6,929.9**	**7,331.2**	**7,436.7**	**7,295.0**	**7,341.8**

NB: Since July 2003, financial transactions carried out by La Poste have been accounted for in the balance sheet of monetary financial institutions. This has resulted in an increase in the item "Shares and other equity" in Assets, and in "Overnight deposits" and "Capital and reserves" in Liabilities.

Source: Banque de France.   *Produced 19 September 2008*

Table 14
Deposits – France

(outstanding amounts at the end of the period in EUR billions – % growth)

	2005	2006	2007	2007	2008			
	Dec.	Dec.	Dec.	July	April	May	June	July
Overnight deposits								
Total non-financial sectors (excluding central government)	425.6	448.0	463.3	448.3	429.6	426.6	435.7	437.9
Households and similar	*230.1*	*240.0*	*246.8*	*247.5*	*246.7*	*240.8*	*243.2*	*247.0*
Non-financial corporations	*139.9*	*151.9*	*159.7*	*143.9*	*140.0*	*143.7*	*150.1*	*146.0*
General government (excl. central government)	*55.6*	*56.1*	*56.8*	*57.0*	*42.8*	*42.1*	*42.3*	*44.8*
Other sectors	22.6	25.4	37.2	31.8	33.5	32.1	33.0	30.1
Total – Outstanding amounts	**448.1**	**473.4**	**500.4**	**480.1**	**463.1**	**458.7**	**468.7**	**468.0**
Total – Growth rate	**10.9**	**5.7**	**6.0**	**6.8**	**0.2**	**0.7**	**-2.6**	**-2.2**
Passbook savings accounts								
"A" passbooks	112.1	115.4	120.4	115.5	126.0	126.4	127.5	128.1
"Blue" passbooks	16.9	18.3	20.3	19.1	22.1	22.3	22.5	22.9
Housing savings accounts	39.1	38.4	38.1	37.8	38.3	38.2	38.0	38.0
Sustainable development passbook accounts	47.0	51.1	63.1	59.9	67.2	67.3	67.6	68.3
People's savings passbooks	56.8	58.2	60.6	58.4	61.6	61.7	61.7	61.8
Youth passbooks	6.4	6.7	7.1	6.8	7.1	7.1	7.1	7.2
Taxable passbooks	114.2	128.6	128.0	128.7	132.4	132.1	130.4	131.5
Total – Outstanding amounts	**392.6**	**416.7**	**437.6**	**426.2**	**454.7**	**455.1**	**454.8**	**457.6**
Total – Growth rate	**4.0**	**6.2**	**5.0**	**5.6**	**6.6**	**6.9**	**7.2**	**7.4**

Overnight deposits

(annual growth rate)

- Total
- Non-financial corporations
- Households
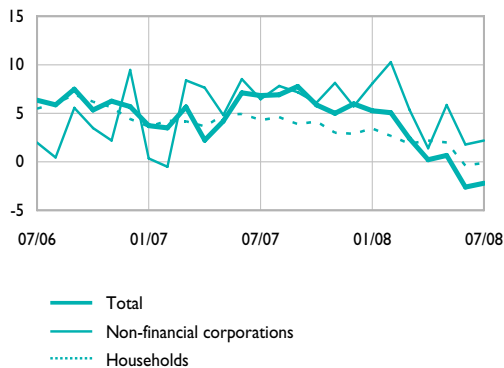
Passbook savings accounts

(annual growth rate)

- "A" passbooks
- Youth passbooks
- Housing savings accounts
- Taxable passbooks

Source: Banque de France.   *Produced 19 September 2008*
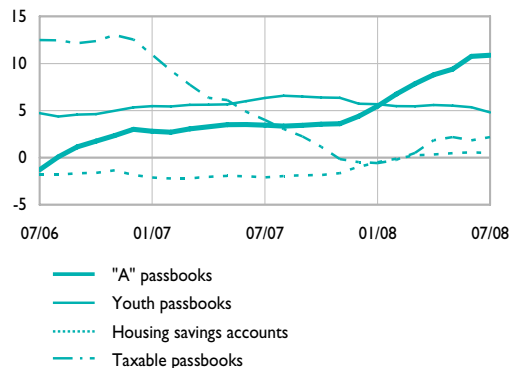
Table 15
Time deposits – France

(outstanding amounts at the end of the period in EUR billions – % growth)

	2005	2006	2007	2007	2008			
	Dec.	Dec.	Dec.	July	April	May	June	July
Deposits with agreed maturity up to two years								
Total non-financial sectors (excl. central government)	47.6	58.0	94.0	78.6	106.3	108.8	109.0	118.3
Households and similar	*20.8*	*27.2*	*48.2*	*38.9*	*56.5*	*57.9*	*59.0*	*64.8*
Non-financial corporations	*26.5*	*30.4*	*45.1*	*39.0*	*48.9*	*49.9*	*48.9*	*52.5*
General government (excl. central government)	*0.3*	*0.5*	*0.6*	*0.7*	*1.0*	*1.0*	*1.0*	*1.0*
Other sectors	5.8	6.3	33.8	17.9	46.9	47.5	48.0	49.3
Total – Outstanding amounts	**53.4**	**64.2**	**127.8**	**96.5**	**153.3**	**156.3**	**157.0**	**167.6**
Total – Growth rate	**16.1**	**21.3**	**100.4**	**59.3**	**88.1**	**81.0**	**81.7**	**74.9**
Deposits with agreed maturity of over two years								
Total non-financial sectors (excl. central government)	294.9	273.6	255.0	260.9	247.2	245.9	243.0	241.7
Households and similar	*281.4*	*260.1*	*245.2*	*247.2*	*236.6*	*235.2*	*232.2*	*229.9*
PEL	*225.6*	*206.1*	*190.4*	*192.3*	*181.6*	*179.9*	*177.5*	*175.8*
PEP	*39.0*	*35.0*	*32.4*	*32.8*	*31.2*	*31.0*	*30.7*	*30.4*
Other	*16.8*	*19.1*	*22.4*	*22.0*	*23.8*	*24.3*	*24.1*	*23.7*
Non-financial corporations	*13.5*	*13.4*	*9.8*	*13.7*	*10.5*	*10.7*	*10.7*	*11.8*
General government (excl. central government)	*0.0*	*0.0*	*0.0*	*0.1*	*0.1*	*0.0*	*0.1*	*0.1*
Other sectors	12.1	23.7	22.2	21.2	22.5	22.6	22.8	21.9
Total – Outstanding amounts	**307.1**	**297.3**	**277.2**	**282.1**	**269.7**	**268.5**	**265.8**	**263.6**
Total – Growth rate	**0.2**	**-4.7**	**-6.7**	**-4.9**	**-5.8**	**-6.0**	**-6.3**	**-6.5**

Deposits up to 2 years

(annual percentage growth rate)
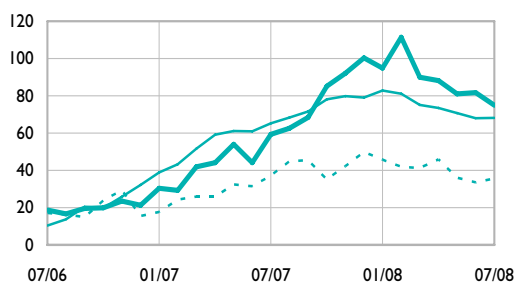
Deposits over 2 years

(annual percentage growth rate)
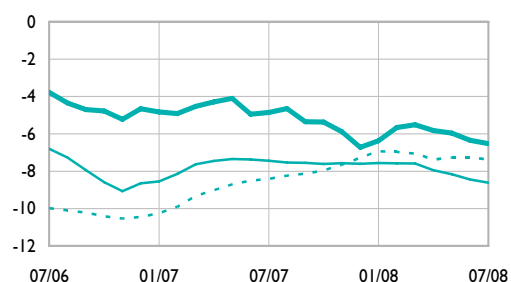
Table 16

Loans extended by credit institutions established in France to French residents – France

(outstanding amounts at the end of the period in EUR billions – % growth)

	2005	2006	2007	2007	2008				
	Dec.	Dec.	Dec.	July	March	April	May	June	July
Loans from monetary financial institutions									
Private sector	1,376.6	1,527.6	1,732.4	1,662.5	1,796.6	1,803.8	1,806.9	1,819.5	1,834.4
General government	150.9	155.8	168.5	161.8	175.7	177.1	178.8	182.7	181.8
Total – Outstanding amounts	**1,527.5**	**1,683.4**	**1,900.9**	**1,824.3**	**1,972.3**	**1,980.9**	**1,985.7**	**2,002.2**	**2,016.2**
Private sector	8.9	11.7	14.0	13.0	14.4	12.7	11.8	11.7	10.8
General government	7.8	3.3	8.2	9.7	11.3	14.7	15.9	11.4	12.4
Total – Growth rate	**8.8**	**10.9**	**13.5**	**12.7**	**14.1**	**12.9**	**12.2**	**11.7**	**11.0**
Loans from credit institutions to non-financial corporations									
Fixed investment	229.9	250.7	279.5	265.7	287.3	291.5	294.4	296.7	303.7
Inventories and working capital	156.7	171.4	199.1	191.0	210.6	215.5	212.5	214.9	219.4
Other lending	193.0	208.4	234.7	219.0	238.0	240.2	240.7	241.8	241.7
Total – Outstanding amounts	**579.6**	**630.5**	**713.3**	**675.7**	**736.0**	**747.2**	**747.6**	**753.4**	**764.8**
Total – Growth rate	**7.2**	**10.0**	**13.7**	**11.2**	**15.1**	**15.4**	**14.7**	**13.7**	**13.7**
Loans from credit institutions to households									
Loans for house purchase	503.6	578.6	652.9	622.5	667.4	669.3	672.3	679.6	689.2
Consumer loans	128.0	134.7	141.2	137.3	140.7	140.9	139.2	140.9	141.3
Other lending	81.4	79.4	83.0	84.0	84.2	84.6	85.3	85.3	85.2
Total – Outstanding amounts	**712.9**	**792.7**	**877.1**	**843.8**	**892.2**	**894.8**	**896.7**	**905.9**	**915.7**
Total – Growth rate	**11.9**	**11.6**	**11.0**	**11.0**	**10.5**	**10.0**	**9.2**	**8.9**	**8.9**

Source: Banque de France.

Produced 19 September 2008

Table 17
Loans from credit institutions broken down by counterpart and by financing purpose – France (a) and euro area

Loans to the private sector

(annual percentage growth rate)

Loans to the public sector

(annual percentage growth rate)

Loans to non-financial corporations – France

(annual percentage growth rate)

Loans to households – France

(annual percentage growth rate)

(a) Loans extended by credit institutions established in France to French residents.

Table 18
New loans to residents – France

(excl. overdrafts, cumulative amounts over 12 months in EUR billions)

	2007			2008		
	May	**June**	**July**	**May**	**June**	**July**
Total – new loans	**498.3**	**495.9**	**505.9**	**508.6**	**501.2**	**495.6**
Loans to households	**205.9**	**204.3**	**204.7**	**192.6**	**188.1**	**185.7**
Consumer loans (excl. overdrafts)	54.5	54.9	55.5	56.1	55.5	55.4
Loans for house purchase with an IRFP ≤ 1 year (a)	30.7	29.1	28.2	20.0	18.8	17.9
Loans for house purchase with an IRFP > 1 year (a)	120.7	120.3	121.0	116.5	113.8	112.4
Loans to non-financial corporations	**292.4**	**291.6**	**301.3**	**316.1**	**313.1**	**310.0**
Loans with an IRFP ≤ 1 year (excl. overdrafts) (a)	192.2	189.8	196.8	204.4	202.7	198.8
Loans with an IRFP > 1 year (a)	100.2	101.8	104.5	111.6	110.4	111.2

Loans to households

(EUR billions)
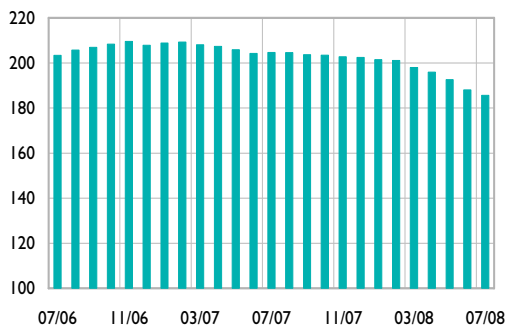
Loans to non-financial corporations

(EUR billions)
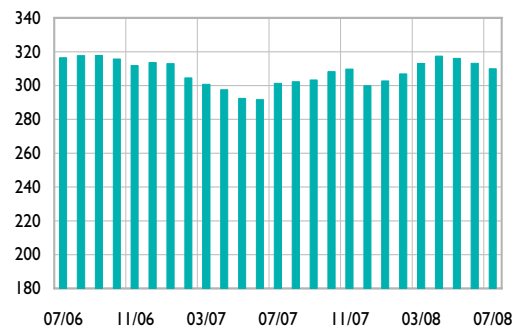
Consumer loans to households (excl. overdrafts)

(EUR billions)
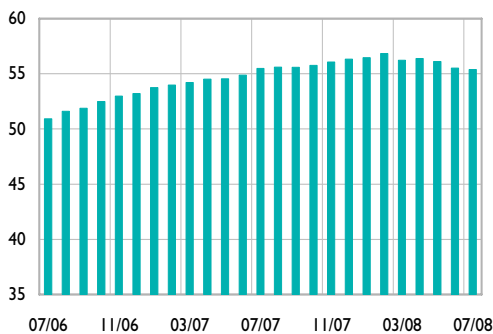
Loans for house purchase

(EUR billions)
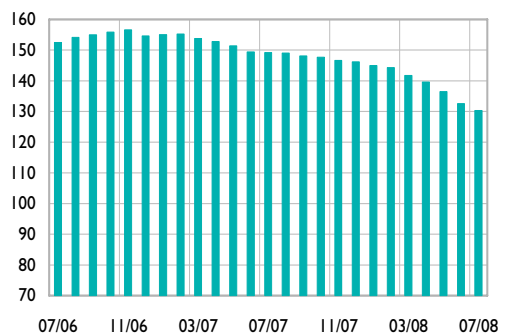
Data revised over the entire period.
(a) IRFP: initial rate fixation period i.e. the period for which the rate of a loan is fixed.
   IRFP ≤ 1 year: loans for which the rate is adjusted at least once a year + fixed-rate loans with an initial maturity of up to 1 year.
   IRFP > 1 year: loans for which the rate is adjusted less than once a year + fixed-rate loans with an initial maturity of over 1 year.

Sources: Banque de France, European Central Bank.   *Produced 19 September 2008*

Table 19

Investment and financing – Insurance corporations and pension funds – Euro area and France

(EUR billions)

Euro area

	Cumulated transaction flows over 4 quarters					Outstanding amounts
	2007				**2008**	**2008**
	Q1	**Q2**	**Q3**	**Q4**	**Q1**	**March**
Financial assets						
Currency and deposits	89.8	70.9	76.0	61.3	63.4	829.8
of which deposits included in M3 (a)	*18.0*	*2.3*	*8.8*	*7.7*	*32.4*	*189.6*
Short-term debt securities	38.0	41.0	28.6	20.0	8.6	268.1
Long-term debt securities	148.1	164.3	168.6	151.4	123.5	1,989.8
Loans	-18.1	-16.6	-22.5	-16.9	17.5	357.3
Shares and other equity	101.1	79.7	62.9	66.4	79.4	2,272.5
of which quoted shares	*15.7*	*7.0*	*5.8*	*6.7*	*16.8*	*779.0*
Remaining net assets	28.2	27.5	33.1	1.2	-29.1	192.8
Financing						
Debt securities	5.0	3.9	3.3	1.4	1.2	26.5
Loans	18.0	23.3	20.7	8.0	12.6	178.7
Shares and other equity	10.8	12.4	10.5	11.7	11.5	611.3
Insurance technical reserves	334.8	338.6	323.7	302.6	273.2	5,324.5
Life insurance	*279.8*	*282.9*	*277.6*	*266.1*	*243.7*	*4,548.9*
Non-life insurance	*55.0*	*55.7*	*46.1*	*36.5*	*29.4*	*775.6*
Net lending/net borrowing (B9B)	**18.3**	**-11.3**	**-11.4**	**-40.3**	**-35.3**	

(EUR billions)

France

	Cumulated transaction flows over 4 quarters					Outstanding amounts
	2007				**2008**	**2008**
	Q1	**Q2**	**Q3**	**Q4**	**Q1**	**March**
Financial assets						
Currency and deposits	-4.7	-9.0	-4.9	-3.5	0.1	16.8
of which deposits included in M3 (a)	*0.1*	*-5.1*	*-1.2*	*-3.0*	*1.1*	*12.4*
Short-term debt securities	34.4	38.2	25.9	19.2	8.0	226.4
Long-term debt securities	30.7	39.3	44.7	52.2	52.8	657.2
Loans	-0.2	-0.2	0.2	0.6	0.9	33.3
Shares and other equity	56.0	50.5	48.3	41.9	40.9	701.0
of which quoted shares	*3.9*	*4.8*	*5.3*	*5.8*	*8.1*	*117.0*
Remaining net assets	7.6	5.3	5.2	4.0	3.8	42.4
Financing						
Debt securities	4.0	3.4	2.8	1.0	0.9	15.7
Loans	2.6	7.7	7.3	7.5	10.2	67.0
Shares and other equity	8.3	9.0	6.0	4.7	3.0	168.4
Insurance technical reserves	101.5	100.1	99.1	96.5	90.3	1,372.6
Life insurance	*94.5*	*93.1*	*92.1*	*89.4*	*83.3*	*1,223.7*
Non-life insurance	*7.0*	*7.0*	*7.0*	*7.0*	*7.1*	*148.9*
Net lending/net borrowing (B9B)	**7.5**	**3.9**	**4.1**	**4.7**	**2.0**	

(a) Deposits with agreed maturity up to 2 years and redeemable at notice up to 3 months of insurance corporations held with MFIs and central government.

Sources: Banque de France, European Central Bank.

Produced 19 September 2008

Table 20

Investment and financing – Households – Euro area

(EUR billions)

	Cumulated transaction flows over 4 quarters					Outstanding amounts
	2007				2008	2008
	Q1	Q2	Q3	Q4	Q1	March
Financial assets						
Currency and deposits	282.4	294.1	296.8	313.3	350.3	5,750.8
of which deposits included in M3 (a)	*251.5*	*279.1*	*293.9*	*314.1*	*352.2*	*4,480.3*
Short-term debt securities	24.7	14.3	15.3	21.4	18.0	57.8
Long-term debt securities	59.1	45.9	20.8	40.0	55.7	1,331.4
Shares and other equity	-18.7	-18.5	-14.7	-31.5	-102.3	4,496.0
Quoted shares	*9.9*	*5.0*	*-5.9*	*-9.2*	*-38.9*	*922.6*
Unquoted shares and other equity	*6.9*	*4.3*	*28.3*	*18.6*	*12.0*	*2,087.0*
Mutual fund shares	-35.5	-27.7	-37.0	-40.9	-75.4	1,486.5
of which money market fund shares	*25.7*	*44.7*	*44.4*	*43.6*	*41.3*	*359.3*
Insurance technical reserves	298.8	298.5	287.4	270.9	247.7	5,224.8
Remaining net assets	-48.8	-46.6	-18.8	-36.2	-48.4	-248.1
Financing						
Loans	384.8	366.0	361.9	343.8	303.8	5,385.1
of which from euro area MFIs	*340.1*	*317.4*	*303.2*	*283.1*	*249.7*	*4,861.6*
Revaluation of financial assets						
Shares and other equity	383.2	599.7	232.9	-56.9	-723.9	
Insurance technical reserves	40.4	67.9	32.4	13.7	-35.4	
Other flows	-3.5	-23.9	-6.1	5.0	-17.4	
Change in net financial worth	**632.8**	**865.3**	**484.1**	**196.0**	**-559.4**	
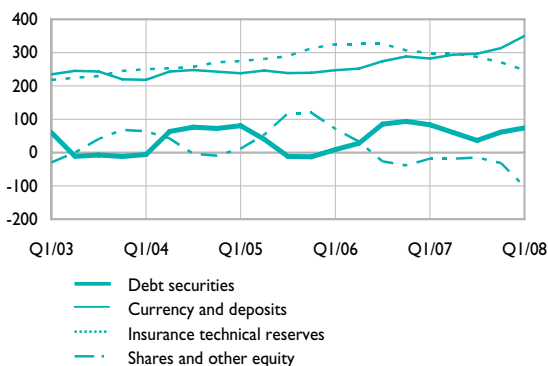
Investment flows	Investment and financing flows
(EUR billions, cumulated flows over 4 quarters)	*(EUR billions, cumulated flows over 4 quarters)*
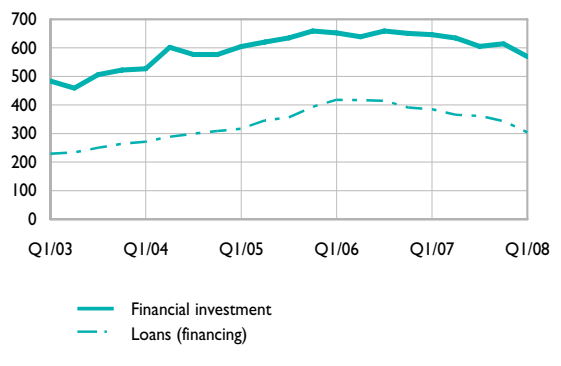
(a) Deposits with agreed maturity up to 2 years and redeemable at notice up to 3 months of households held with MFIs and central government.

Table 21
Investment and financing – Households – France

(EUR billions)

	Cumulated transaction flows over 4 quarters					Outstanding amounts
	2007				2008	2008
	Q1	**Q2**	**Q3**	**Q4**	**Q1**	**March**
Financial assets						
Currency and deposits	35.7	41.6	40.3	40.8	47.0	1,052.8
of which deposits included in M3 (a)	*48.8*	*52.3*	*52.9*	*53.6*	*56.5*	*779.2*
Short-term debt securities	2.1	2.0	2.0	2.6	2.6	12.5
Long-term debt securities	4.7	4.5	3.1	2.5	2.6	46.2
Shares and other equity	21.2	16.6	11.4	15.5	3.4	874.7
Quoted shares	*-2.0*	*-4.8*	*-5.2*	*-4.7*	*-1.5*	*110.7*
Unquoted shares and other equity	*16.0*	*15.2*	*16.2*	*18.0*	*11.9*	*455.8*
Mutual fund shares	*7.1*	*6.3*	*0.4*	*2.1*	*-7.1*	*308.2*
of which money market fund shares	*3.5*	*7.0*	*9.2*	*14.0*	*18.8*	*68.1*
Insurance technical reserves	101.0	99.6	98.5	95.8	89.6	1,349.0
Remaining net assets	-18.8	-12.5	-3.5	-1.7	7.4	-90.5
Financing						
Loans	85.1	84.9	84.0	89.2	84.0	943.8
of which from euro area MFIs	*84.1*	*84.0*	*83.1*	*87.7*	*84.1*	*904.2*
Revaluation of financial assets						
Shares and other equity	66.7	126.0	45.9	-11.2	-108.6	
Insurance technical reserves	10.5	25.3	11.2	2.0	-25.0	
Other flows	-1.0	-1.4	-1.4	-14.2	-16.8	
Change in net financial worth	**137.0**	**216.8**	**123.5**	**43.0**	**-81.8**	

Investment flows

(EUR billions, cumulated flows over 4 quarters)

- Debt securities
- Currency and deposits
- Insurance technical reserves
- Shares and other equity

Investment and financing flows

(EUR billions, cumulated flows over 4 quarters)

- Financial investment
- Loans (financing)

(a) Deposits with agreed maturity up to 2 years and redeemable at notice up to 3 months of households held with MFIs and central government.

Source: Banque de France.   *Produced 19 September 2008*

Table 22

Investment and financing – Non-financial corporations – Euro area

(EUR billions)

	Cumulated transaction flows over 4 quarters					Outstanding amounts
	2007				2008	2008
	Q1	Q2	Q3	Q4	Q1	March
Financial assets						
Currency and deposits	191.0	202.2	181.7	169.5	110.5	1,735.9
of which deposits included in M3 (a)	*157.6*	*158.2*	*152.1*	*142.9*	*109.7*	*1,391.9*
Debt securities	-25.8	-28.0	-18.1	-25.9	-29.5	345.0
Loans	194.8	212.5	229.4	202.2	168.0	2,127.3
Shares and other equity	214.8	233.9	233.5	271.1	336.6	7,164.8
Insurance technical reserves	6.5	6.2	5.8	5.5	4.8	137.2
Remaining net assets	137.7	114.2	152.3	142.8	136.2	285.5
Financing						
Debt	677.0	709.9	764.1	792.0	787.6	8,403.7
Loans	624.1	643.9	716.4	735.7	729.2	7,326.7
of which from euro area MFIs	*441.8*	*481.3*	*519.9*	*556.3*	*588.9*	*4,545.8*
Debt securities	38.7	54.1	37.9	48.4	51.6	739.5
Pension fund reserves	14.2	11.9	9.8	7.9	6.8	337.4
Shares and other equity	248.1	257.3	258.3	235.3	197.4	11,939.9
Quoted shares	*58.9*	*77.0*	*82.7*	*45.0*	*23.7*	*4,198.3*
Unquoted shares and other equity	*189.2*	*180.3*	*175.6*	*190.3*	*173.7*	*7,741.5*
Net lending/net borrowing (B9B)	**-206.1**	**-226.2**	**-237.8**	**-262.3**	**-258.4**	

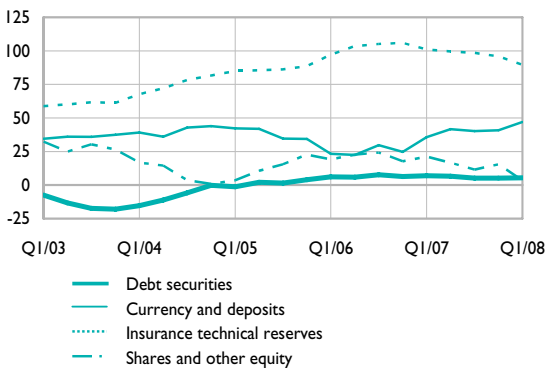| Investment flows	Financing flows
(EUR billions, cumulated flows over 4 quarters)	*(EUR billions, cumulated flows over 4 quarters)*

Investment flows legend:
— Deposits and debt securities
······· Loans
–·– Shares and other equity

Financing flows legend:
······· Loans
— Debt securities
–·– Shares and other equity

(a) Deposits with agreed maturity up to 2 years and redeemable at notice up to 3 months of non-financial corporations held with MFIs and central government.

Table 23
Investment and financing – Non-financial corporations – France

(EUR billions)

	Cumulated transaction flows over 4 quarters					Outstanding amounts
	2007				**2008**	**2008**
	Q1	**Q2**	**Q3**	**Q4**	**Q1**	**March**
Financial assets						
Currency and deposits	19.1	25.3	33.3	31.4	30.9	251.2
of which deposits included in M3 (a)	*16.8*	*20.3*	*21.8*	*22.7*	*21.5*	*202.8*
Debt securities	-11.3	2.5	19.8	27.6	32.7	96.6
Loans	61.8	67.5	77.8	93.6	99.1	773.0
Shares and other equity	83.2	96.9	75.7	50.3	60.4	2,560.8
Insurance technical reserves	0.4	0.5	0.6	0.7	0.7	19.2
Remaining net assets	37.3	25.1	32.5	29.3	6.5	116.8
Financing						
Debt	132.4	148.2	178.1	190.4	186.6	1,882.7
Loans	119.3	128.8	165.8	190.2	194.7	1,562.2
of which from euro area MFIs	*51.7*	*60.6*	*75.4*	*86.6*	*98.3*	*741.4*
Debt securities	13.1	19.4	12.3	0.2	-8.1	320.5
Shares and other equity	109.1	116.8	134.4	117.3	98.6	3,879.0
Quoted shares	*18.4*	*24.7*	*35.5*	*29.5*	*28.0*	*1,238.5*
Unquoted shares and other equity	*90.8*	*92.1*	*98.9*	*87.8*	*70.6*	*2,640.5*
Net lending/net borrowing (B9B)	**-51.1**	**-47.4**	**-72.9**	**-74.9**	**-55.0**	

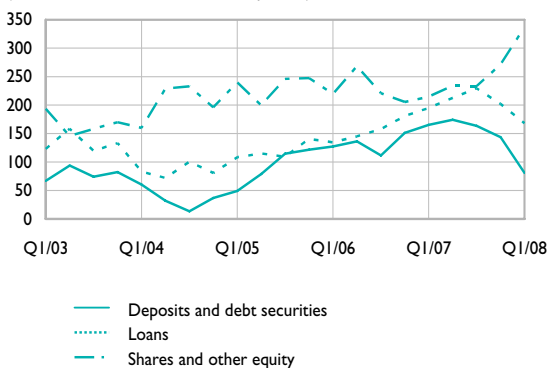**Investment flows**

(EUR billions, cumulated flows over 4 quarters)

- Deposits and debt securities
- Loans
- Shares and other equity

Financing flows

(EUR billions, cumulated flows over 4 quarters)

- Loans
- Debt securities
- Shares and other equity

(a) Deposits with agreed maturity up to 2 years and redeemable at notice up to 3 months of non-financial corporations held with MFIs and central government.
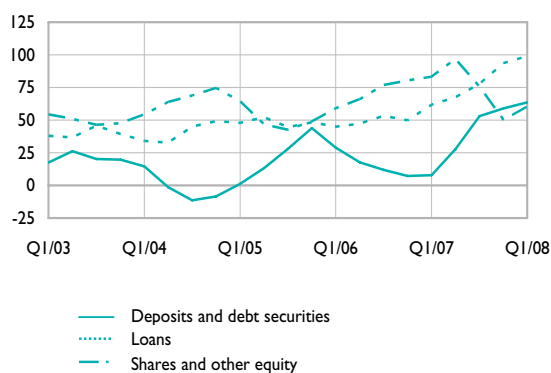
Source: Banque de France.

Produced 19 September 2008
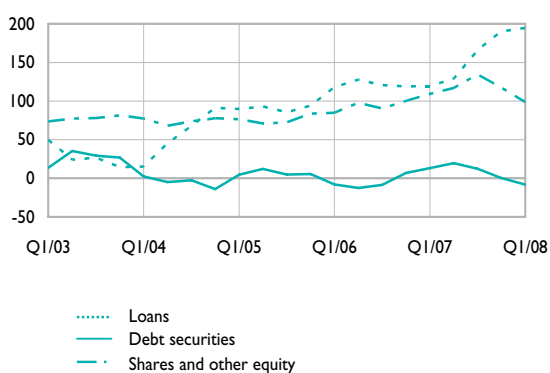
Table 24

Total domestic debt (TDD), breakdown by instrument – France

(percentage growth rate and outstanding amounts at the end of the period in EUR billions)

	Annual growth rate						Outstanding amounts
	2005	2006	2007	2008			2008
	Dec.	Dec.	Dec.	Feb.	March	April	April
Total domestic debt	**8.3**	**6.8**	**9.5**	**9.9**	**9.3**	**9.0**	**3,656.1**
Households and similar (a)	11.4	11.5	10.8	10.8	10.3	9.9	918.0
≤ 1 year	5.3	5.2	2.3	1.0	4.9	4.0	41.8
> 1 year	11.8	11.9	11.2	11.3	10.5	10.2	876.2
Non-financial corporations	8.1	9.3	12.8	13.2	12.1	11.4	1,518.2
≤ 1 year	11.9	11.8	16.8	17.2	14.6	13.2	614.7
> 1 year	5.8	7.8	10.2	10.7	10.5	10.2	903.5
General government	6.5	1.0	4.9	5.4	5.3	5.5	1,219.9
≤ 1 year	-3.4	-21.5	21.0	21.8	16.4	17.8	153.7
> 1 year	8.1	4.2	3.1	3.6	3.9	3.9	1,066.2
Loans from resident financial institutions (b)	**9.1**	**9.7**	**11.4**	**12.2**	**12.1**	**12.3**	**1,872.9**
Households and similar (a)	11.4	11.5	10.8	10.8	10.3	9.9	918.0
≤ 1 year	5.3	5.2	2.3	1.0	4.9	4.0	41.8
> 1 year	11.8	11.9	11.2	11.3	10.5	10.2	876.2
Non-financial corporations	6.9	9.2	13.1	14.0	14.7	14.8	777.4
≤ 1 year	5.0	8.2	10.3	13.0	12.9	11.9	188.0
> 1 year	7.5	9.5	14.0	14.4	15.3	15.8	589.4
General government	7.4	3.3	7.8	11.7	11.0	14.4	177.5
≤ 1 year	10.0	-11.4	31.4	7.7	-4.1	-9.3	29.3
> 1 year	6.9	6.1	3.9	12.5	14.5	20.6	148.3
Loans from non-residents (c)	**17.0**	**16.3**	**21.5**	**19.8**	**18.0**	**17.6**	**471.4**
Market financing	**5.1**	**0.7**	**3.4**	**3.9**	**2.8**	**2.0**	**1,311.8**
Non-financial corporations	0.8	2.0	-0.2	1.6	-3.0	-4.8	279.2
≤ 1 year	14.3	7.7	-12.5	0.9	-19.7	-23.1	30.8
> 1 year	-0.4	1.3	1.3	1.7	-0.8	-2.0	248.4
General government	6.4	0.3	4.5	4.6	4.5	4.0	1,032.6
≤ 1 year	-6.7	-28.3	21.0	30.5	26.4	27.8	114.7
> 1 year	8.3	4.0	3.0	2.4	2.4	1.6	917.9

TDD – Sectoral breakdown

(annual percentage growth rate)

- Total domestic debt
- Households and similar
- Non–financial corporations
- General government
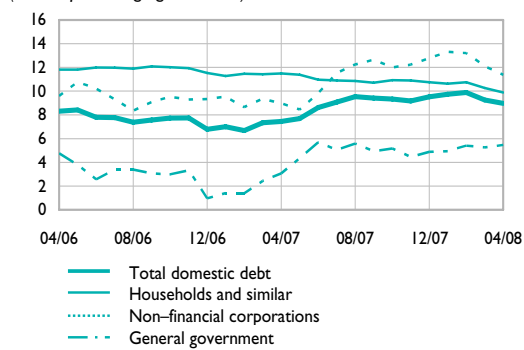
TDD – Breakdown by type of financing

(annual percentage growth rate)

- Total domestic debt
- Loans (residents + non-residents)
- Markets (residents + non-residents)
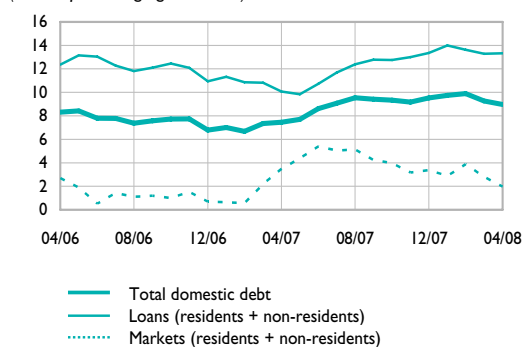
(a) Households + Non-profit institutions serving households.
(b) Financial Institutions: monetary financial institutions + other financial intermediaries.
(c) Loans between units of different companies + loans obtained through direct investments + commercial loans + deposits of non-residents held with the French Treasury.

Source: Banque de France.

Produced 19 September 2008

Table 25
Total domestic debt (TDD) – France

Debt – non-financial corporations

(annual percentage growth rate)

Total
Loans
Securities
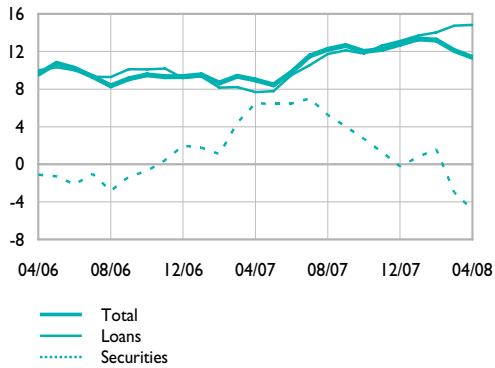
Debt – general government

(annual percentage growth rate)

Total
Loans
Securities
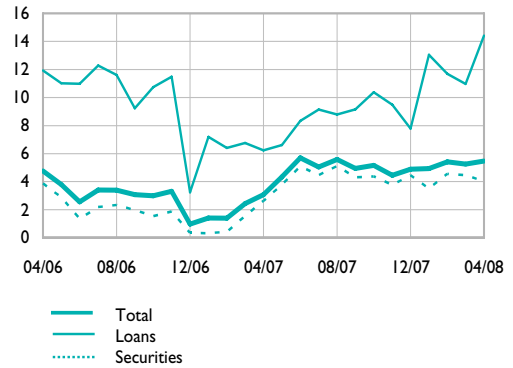
Contributions to the annual growth
of total domestic debt – Loans and securities (a)

(unadjusted data, as a %, April 2008)

Loans households | Loans non-fin corps | Loans gen. gov't | Securities non-fin corps | Securities gen. gov't

☐ Share of outstandings in m-12 (left-hand scale)
▣ Contribution to annual growth (right-hand scale)
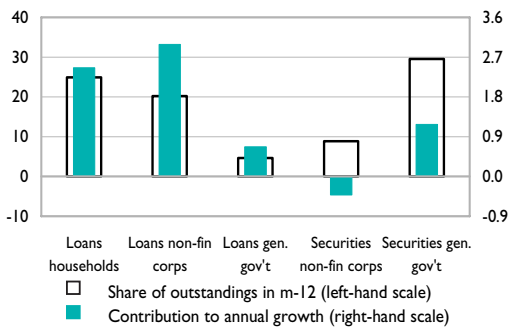
General government market debt

(annual percentage growth rate)

Total
Up to 1 year
Over 1 year
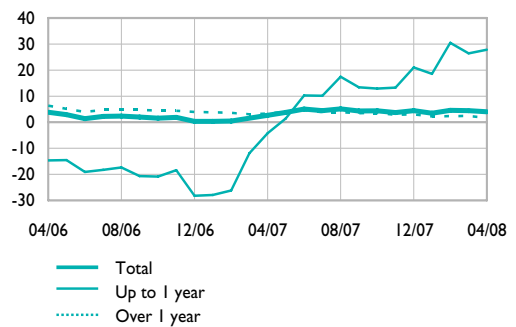
Contributions to the annual growth rates
of outstanding amounts – Sectoral breakdown

(%)

— Total
▣ Households and similar
▒ Non-financial corporations
▬ General government
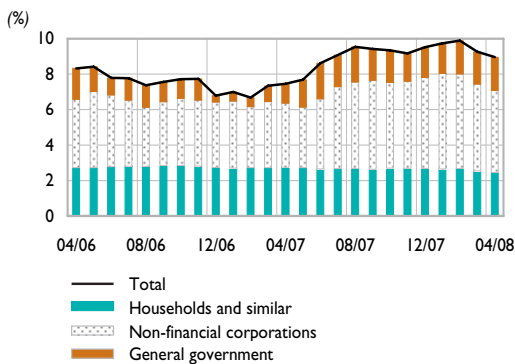
Contributions to the annual growth rates of
outstanding amounts – Breakdown by type of financing

(%)

— Total
▣ Loans
▒ Securities
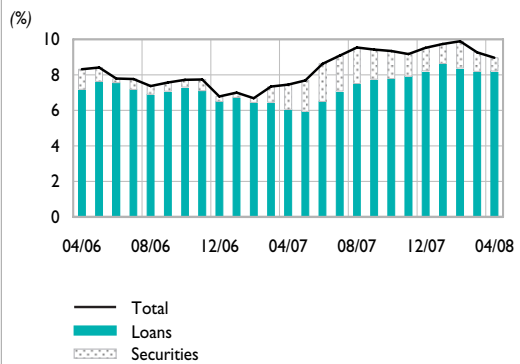
(a) Excluding loans granted by non-residents.

Source: Banque de France.

Produced 19 September 2008

Table 26

Interest rates on deposits – France and the euro area

(average monthly rates – %)

	2006	2007	2007	2008				
	Dec.	Dec.	July	March	April	May	June	July
Euro area								
Overnight deposits – households	0.92	1.18	1.10	1.22	1.22	1.23	1.24	1.26
Deposits redeemable at notice up to 3 months – households	2.38	2.57	2.45	2.69	2.72	2.73	2.74	2.80
Time deposits with agreed maturity over 2 years – non-financial corporations	3.87	4.03	4.51	4.07	4.62	4.48	4.01	4.57
France								
"A" passbooks (end of period)	2.75	3.00	2.75	3.50	3.50	3.50	3.50	3.50
Regulated savings deposits	2.82	3.07	2.82	3.49	3.49	3.50	3.50	3.50
Market rate savings deposits	2.70	2.94	2.79	3.12	3.25	3.23	3.25	3.18
Deposits with agreed maturity up to 2 years	3.38	4.11	3.74	4.18	4.20	4.33	4.29	4.45
Deposits with agreed maturity over 2 years	3.52	3.54	3.51	3.52	3.53	3.49	3.55	3.49

Euro area

(monthly average rates – %)

— Overnight deposits – households
— Deposits redeemable at notice up to 3 months – households
······ Time deposits with agreed maturity over 2 years – non-financial corporations
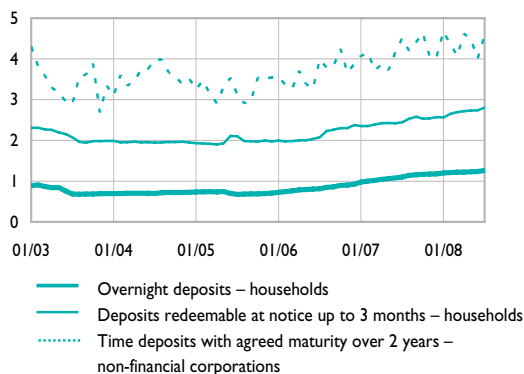
France

(monthly average rates – %)

— "A" passbooks
— Market rate savings deposits
······ Deposits with agreed maturity up to 2 years
–·– Deposits with agreed maturity over 2 years

Sources: Banque de France, European Central Bank.

Produced 19 September 2008
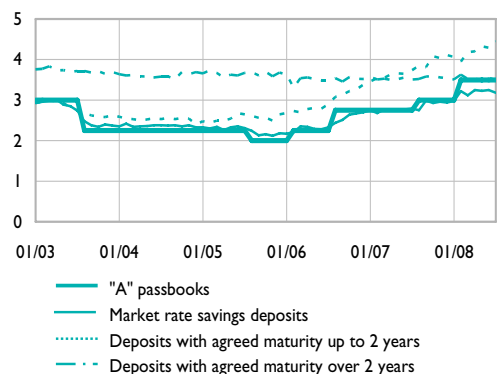
Table 27
Cost of credit – France and the euro area

(average monthly rate – %)

	2007					2008						
	Aug.	**Sept.**	**Oct.**	**Nov.**	**Dec.**	**Jan.**	**Feb.**	**March**	**April**	**May**	**June**	**July**
Euro area												
Consumer loans												
Floating rate and IRFP of up to 1 year (a)	8.44	8.49	8.10	8.39	8.05	8.12	8.55	8.43	8.33	8.70	8.61	8.77
Loans for house purchase												
Floating rate and IRFP of between 1 and 5 years	4.98	5.04	5.07	5.03	5.03	5.02	4.97	4.89	4.91	4.96	5.11	5.25
Non financial corporations of over EUR 1 million												
IRFP of up to 1 year (a)	5.01	5.20	5.11	5.08	5.35	5.12	5.04	5.19	5.30	5.27	5.35	5.44
France												
Consumer loans	**6.90**	**6.93**	**6.95**	**7.03**	**6.98**	**7.15**	**7.17**	**7.08**	**7.14**	**7.08**	**7.11**	**7.20**
Loans for house purchase												
IRFP of up to 1 year (a)	4.53	4.64	4.78	4.82	4.87	4.89	4.93	4.88	4.86	4.90	4.94	5.03
IRFP of over 1 year (a)	4.33	4.43	4.55	4.63	4.67	4.70	4.73	4.73	4.74	4.72	4.74	4.80
Non-financial corporations												
IRFP of up to 1 year (a)	4.95	5.10	5.12	5.13	5.25	5.10	4.77	4.94	5.10	5.22	5.41	5.47
IRFP of over 1 year (a)	4.78	4.88	4.93	4.95	5.08	5.04	5.02	4.93	4.93	5.04	5.18	5.26
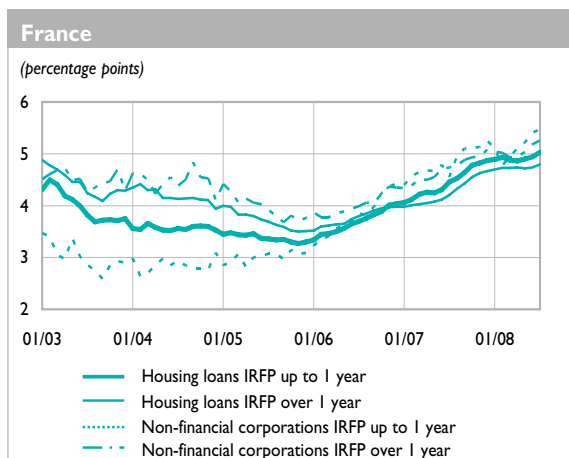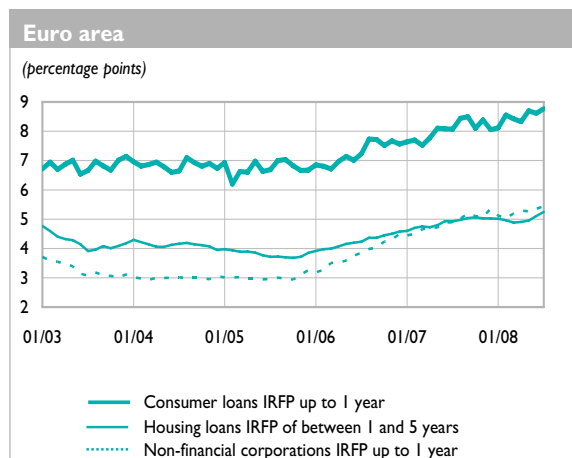
Euro area

(percentage points)

- Consumer loans IRFP up to 1 year
- Housing loans IRFP of between 1 and 5 years
- Non-financial corporations IRFP up to 1 year

France

(percentage points)

- Housing loans IRFP up to 1 year
- Housing loans IRFP over 1 year
- Non-financial corporations IRFP up to 1 year
- Non-financial corporations IRFP over 1 year

(a) IRFP: initial rate fixation period i.e. the period for which the rate of a loan is fixed.
IRFP ≤1 year: loans for which the rate is adjusted at least once a year + fixed-rate loans with an initial maturity of up to 1 year.
IRFP > 1 year: loans for which the rate is adjusted less than once a year + fixed-rate loans with an initial maturity of over 1 year.

Sources: Banque de France, European Central Bank.   *Produced 19 September 2008*

Table 28
Cost of credit – France

(%)

	2007			2008	
	Q2	**Q3**	**Q4**	**Q1**	**Q2**
Households – Average overall effective interest rate					
Consumer loans					
Overdrafts, revolving loans and instalment plans of over EUR 1,524	14.89	14.85	15.12	15.36	15.38
Personal loans over EUR 1,524	6.70	6.78	7.04	7.20	7.26
Loans for house purchase					
Fixed-rate loans	4.81	4.97	5.34	5.44	5.48
Floating-rate loans	4.90	5.04	5.29	5.37	5.39

	2007			2008	
Usury ceilings in effect from the 1st day of the mentioned period	**July**	**Oct.**	**Jan.**	**April**	**July**
Households – Usury rate					
Consumer loans					
Overdrafts, revolving loans and instalment plans of over EUR 1,524	19.85	19.80	20.16	20.48	20.51
Personal loans over EUR 1,524	8.93	9.04	9.39	9.60	9.68
Loans for house purchase					
Fixed-rate loans	6.41	6.63	7.12	7.25	7.31
Floating-rate loans	6.53	6.72	7.05	7.16	7.19

	2007			2008	
	Q2	**Q3**	**Q4**	**Q1**	**Q2**
Business credit, loans to enterprises					
Discount					
up to 15,245 EUR	5.85	6.03	5.88	6.23	6.48
EUR 15,245 to EUR 45,735	6.20	6.57	6.54	6.22	6.47
EUR 45,735 to EUR 76,225	5.88	6.31	6.40	5.99	6.30
EUR 76,225 to EUR 304,898	5.43	5.71	5.85	5.63	5.98
EUR 304,898 to EUR 1,524,490	4.97	5.14	5.42	5.13	5.36
over EUR 1,524,490	4.63	4.85	4.79	4.65	4.72
Overdrafts					
up to 15,245 EUR	9.29	9.53	9.90	9.67	9.69
EUR 15,245 to EUR 45,735	7.63	7.85	8.24	8.04	7.79
EUR 45,735 to EUR 76,225	6.52	7.04	7.19	7.12	6.44
EUR 76,225 to EUR 304,898	5.73	5.93	6.23	6.15	6.14
EUR 304,898 to EUR 1,524,490	5.09	5.31	5.56	5.14	5.09
over EUR 1,524,490	4.96	5.10	5.03	4.79	4.66
Other short-term loans					
up to 15,245 EUR	5.11	5.38	5.70	5.57	5.34
EUR 15,245 to EUR 45,735	5.20	5.53	5.92	5.61	5.44
EUR 45,735 to EUR 76,225	5.38	5.96	6.11	5.73	5.43
EUR 76,225 to EUR 304,898	5.30	5.58	5.81	5.53	5.42
EUR 304,898 to EUR 1,524,490	4.95	5.29	5.52	5.18	5.36
over EUR 1,524,490	4.60	4.84	5.07	4.74	4.95
Medium and long-term loans					
up to 15,245 EUR	4.65	4.89	5.03	5.10	5.09
EUR 15,245 to EUR 45,735	4.56	4.77	5.00	5.00	4.97
EUR 45,735 to EUR 76,225	4.43	4.64	4.90	4.91	4.88
EUR 76,225 to EUR 304,898	4.35	4.55	4.78	4.91	4.86
EUR 304,898 to EUR 1,524,490	4.37	4.61	4.80	4.89	4.84
over EUR 1,524,490	4.73	5.00	5.13	4.90	5.06

Source: Banque de France.   *Produced 19 September 2008*

Table 29
Interest rates

(%)

	Monthly average (a)										Key interest rates at 17/09/08
	2007		2008								
	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.	
Short-term interbank interest rates											
Euro											**4.25**
Overnight	4.01	3.84	3.98	4.01	4.08	3.98	3.98	3.98	4.16	4.27	
3-month	4.61	4.81	4.42	4.31	4.56	4.74	4.80	4.90	4.92	4.92	
1-year	4.55	4.74	4.43	4.29	4.55	4.78	4.97	5.31	5.35	5.27	
Pound sterling											**5.00**
Overnight	5.81	5.62	5.53	5.36	5.34	5.10	5.02	5.03	5.06	5.03	
3-month	6.35	6.36	5.63	5.66	5.83	5.86	5.82	5.90	5.77	5.75	
1-year	5.97	5.91	5.41	5.43	5.66	5.79	5.97	6.40	6.23	6.02	
Dollar											**2.00**
Overnight	4.64	4.45	4.01	3.10	2.97	2.57	2.22	2.21	2.24	2.16	
3-month	4.99	5.07	3.89	3.09	2.81	2.97	2.86	2.93	2.99	2.97	
1-year	4.54	4.47	3.50	3.00	2.75	3.08	3.22	3.56	3.52	3.54	
Yen											**0.75**
Overnight	0.62	0.58	0.56	0.51	0.53	0.49	0.38	0.40	0.44	0.43	
3-month	0.89	1.03	0.88	0.86	0.93	0.98	1.01	1.02	0.96	0.89	
1-year	1.04	1.08	0.98	1.08	1.15	1.18	1.26	1.25	1.23	1.18	
10-year benchmark government bond yields											
France	4.23	4.35	4.15	4.08	4.02	4.27	4.41	4.73	4.69	4.40	
Germany	4.11	4.26	4.04	3.96	3.81	4.05	4.21	4.55	4.50	4.22	
Euro area	4.25	4.38	4.23	4.14	4.07	4.28	4.42	4.81	4.81	4.50	
United Kingdom	4.74	4.71	4.50	4.62	4.38	4.57	4.80	5.11	4.94	4.63	
United States	4.21	4.13	3.76	3.76	3.52	3.68	3.91	4.13	4.02	3.93	
Japan	1.51	1.53	1.43	1.45	1.30	1.42	1.67	1.75	1.61	1.46	

3-month interbank market rates

(monthly average, %)

Euro — Dollar — Pound sterling — Yen
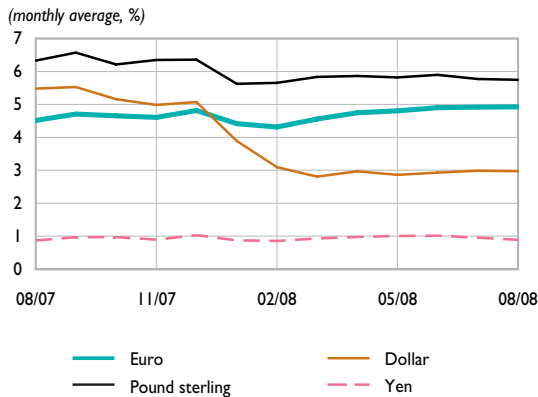
Yield curve for French government bonds

(%)

31 December 2007 — 31 August 2008 — 17 September 2008
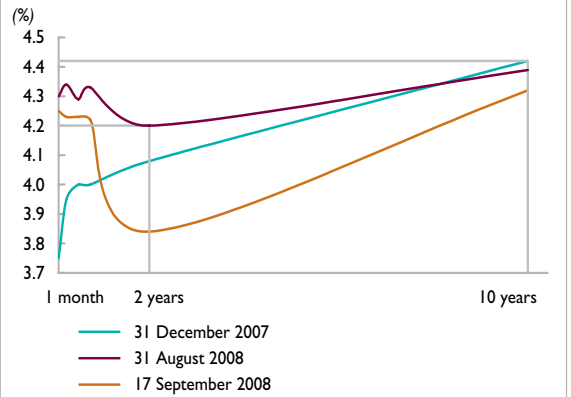
(a) Short-term: the interbank average of rates situated in the middle of the range between bid and ask rates. Quotes taken from Reuters, posted at 4.30pm for the euro and 11.30am for other currencies.
Benchmark bonds: rates posted by Reuters at 4.30pm.

Sources: Banque de France, European Central Bank.   *Produced 19 September 2008*

Table 30

Banking system liquidity and refinancing operations – Euro area

(EUR billions, daily average for the reserve maintenance period from 09/07 to 12/08/2008)

	Liquidity providing	Liquidity absorbing	Net contribution
Contribution to banking system liquidity			
(a) Eurosystem monetary policy operations	**465.7**	**0.9**	**464.7**
Main refinancing operations	166.3		166.3
Longer-term refinancing operations	299.3		299.3
Standing facilities	0.1	0.3	-0.3
Other	0.0	0.6	-0.6
(b) Other factors affecting banking system liquidity	**497.5**	**747.4**	**-250.0**
Banknotes in circulation		686.1	-686.1
Government deposits with the Eurosystem		61.3	-61.3
Net foreign assets (including gold)	374.5		374.5
Other factors (net)	123.0		123.0
(c) Reserves maintained by credit institutions (a) + (b)			**214.8**
including reserve requirements			*214.1*

Net contribution to banking system liquidity

(EUR billions, daily average for the reserve maintenance period from 09/07 to 12/08/2008)
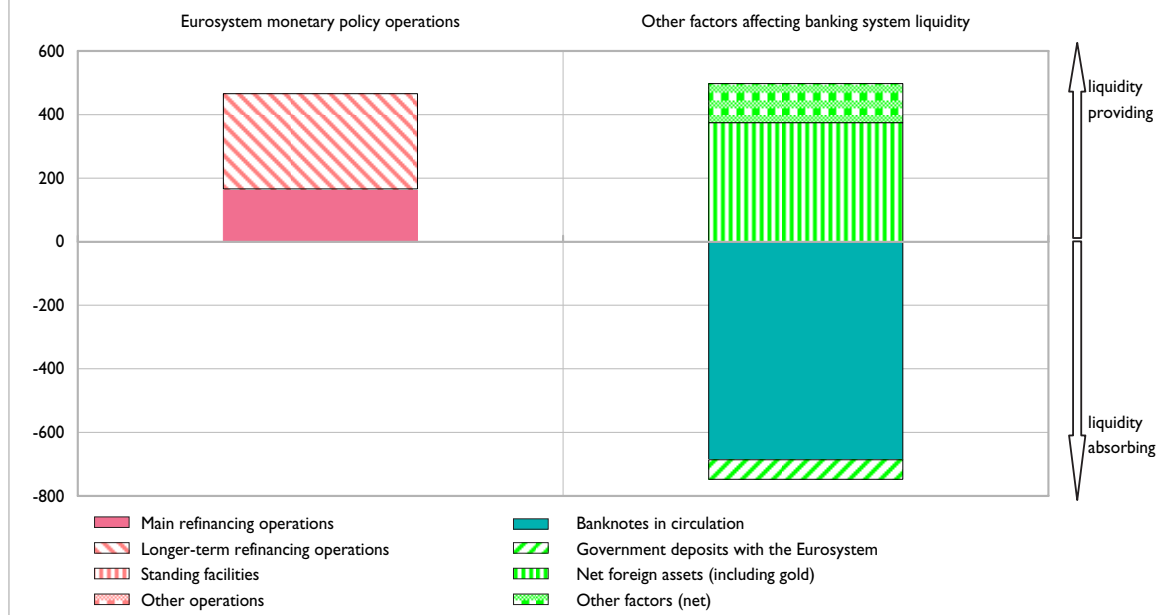

Main refinancing operations	Banknotes in circulation
Longer-term refinancing operations	Government deposits with the Eurosystem
Standing facilities	Net foreign assets (including gold)
Other operations	Other factors (net)

Table 31
Eurosystem key rates; minimum reserves

(%)

Key rates for the Eurosystem (latest changes)						
Main refinancing operations			Standing facilities			
Date of		Minimum bid rate	Date of		Deposit	Marginal lending
decision	settlement		decision	settlement		
08/03/07	14/03/07	3.75	08/03/07	14/03/07	2.75	4.75
06/06/07	13/06/07	4.00	06/06/07	13/06/07	3.00	5.00
03/07/08	09/07/08	4.25	03/07/08	09/07/08	3.25	5.25

(%)

Main refinancing operations				Longer-term refinancing operations		
		Marginal rate	Weighted average rate			Marginal rate
2008	13 August	4.37	4.40	2008	29 May	4.51
	20 August	4.38	4.40		12 June	4.60
	27 August	4.39	4.42		26 June	4.50
	3 September	4.39	4.41		10 July	4.93
	10 September	4.39	4.41		14 August	4.61
	17 September	4.53	4.58		11 September	4.45

(EUR billions – rates as a %)

Minimum reserves (daily averages)								
Reserve maintenance period ending on		Required reserves		Current accounts		Excess reserves		Interest rate on minimum reserves
		Euro area	France	Euro area	France	Euro area	France	
2008	11 March	204.57	38.81	205.25	38.92	0.68	0.11	4.10
	15 April	206.90	39.40	207.53	39.49	0.63	0.09	4.19
	13 May	207.83	39.30	208.64	39.40	0.81	0.10	4.24
	10 June	207.33	38.65	208.08	38.77	0.75	0.12	4.17
	8 July	211.86	39.15	212.67	39.33	0.81	0.18	4.06
	12 August	214.06	39.95	214.77	40.01	0.71	0.06	4.35

Eurosystem key rates and EONIA

Key interest rates
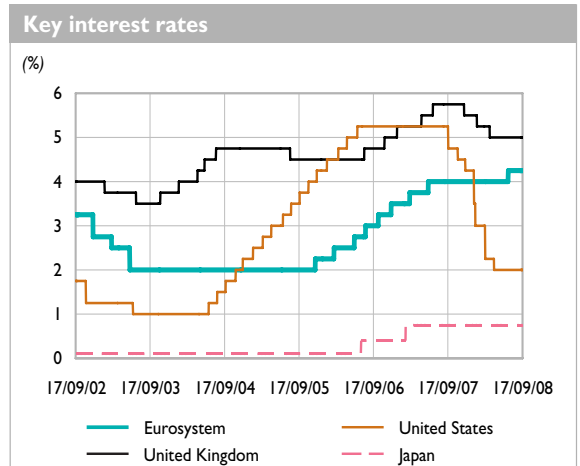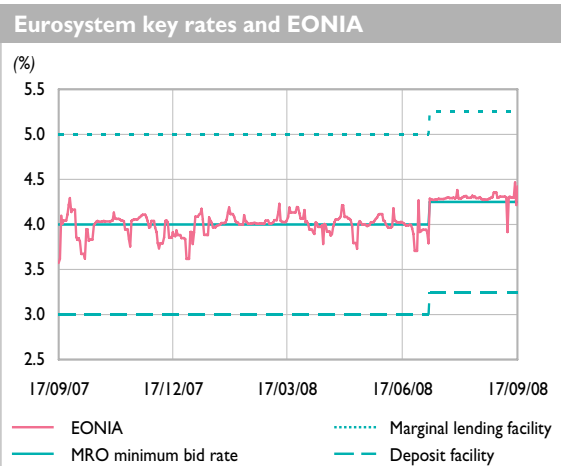
Sources: European Central Bank, ESCB.

Produced 19 September 2008

Table 32
Negotiable debt securities – France

Certificates of deposit			
	EUR billions (a)		Number of issuers
	Issues	Stocks	
14/06/08 to 20/06/08	137.97	397.27	206
21/06/08 to 27/06/08	127.61	396.85	204
28/06/08 to 04/07/08	141.54	385.59	205
05/07/08 to 11/07/08	143.95	389.65	205
12/07/08 to 18/07/08	126.56	401.06	205
19/07/08 to 25/07/08	123.27	402.39	207
26/07/08 to 01/08/08	116.63	402.54	207
02/08/08 to 08/08/08	112.63	407.46	208
09/08/08 to 15/08/08	85.70	412.83	207
16/08/08 to 22/08/08	108.72	414.42	206
23/08/08 to 29/08/08	105.61	416.57	205
30/08/08 to 05/09/08	108.21	407.02	205
06/09/08 to 12/09/08	107.52	409.18	205

Certificates of deposit

(unadjusted data, EUR billions)

- issues (left-hand scale)
- outstanding amounts (right-hand scale)

Commercial paper			
	EUR billions (a)		Number of issuers
	Issues	Stocks	
14/06/08 to 20/06/08	19.85	90.03	81
21/06/08 to 27/06/08	22.18	90.46	81
28/06/08 to 04/07/08	21.56	91.32	81
05/07/08 to 11/07/08	22.11	91.40	80
12/07/08 to 18/07/08	18.72	91.45	81
19/07/08 to 25/07/08	22.04	89.97	80
26/07/08 to 01/08/08	32.59	90.12	79
02/08/08 to 08/08/08	19.07	89.23	79
09/08/08 to 15/08/08	13.45	88.85	81
16/08/08 to 22/08/08	18.09	87.10	80
23/08/08 to 29/08/08	16.55	87.12	80
30/08/08 to 05/09/08	16.30	89.00	80
06/09/08 to 12/09/08	14.12	88.33	80

Commercial paper

(unadjusted data, EUR billions)

- issues (left-hand scale)
- outstanding amounts (right-hand scale)

Negotiable medium-term notes			
	EUR billions (a)		Number of issuers
	Issues	Stocks	
14/06/08 to 20/06/08	0.40	71.75	132
21/06/08 to 27/06/08	0.33	71.88	132
28/06/08 to 04/07/08	0.31	71.86	132
05/07/08 to 11/07/08	0.10	71.74	132
12/07/08 to 18/07/08	0.13	71.71	132
19/07/08 to 25/07/08	0.21	71.78	132
26/07/08 to 01/08/08	0.31	71.79	131
02/08/08 to 08/08/08	0.02	71.50	131
09/08/08 to 15/08/08	0.11	71.53	131
16/08/08 to 22/08/08	0.16	71.52	131
23/08/08 to 29/08/08	0.13	71.46	131
30/08/08 to 05/09/08	0.27	71.60	131
06/09/08 to 12/09/08	0.12	71.59	132

Negotiable medium-term notes

(unadjusted data, EUR billions)

- issues (left-hand scale)
- outstanding amounts (right-hand scale)
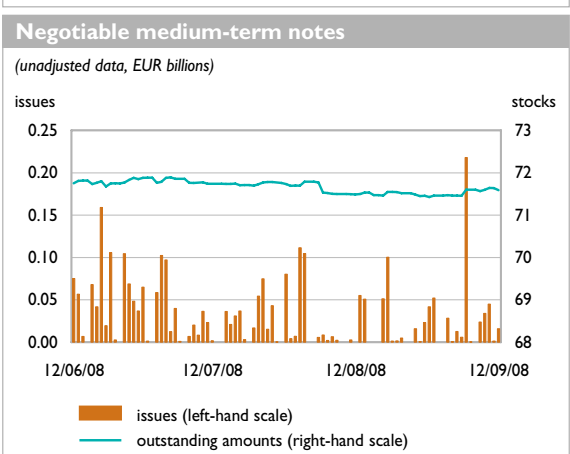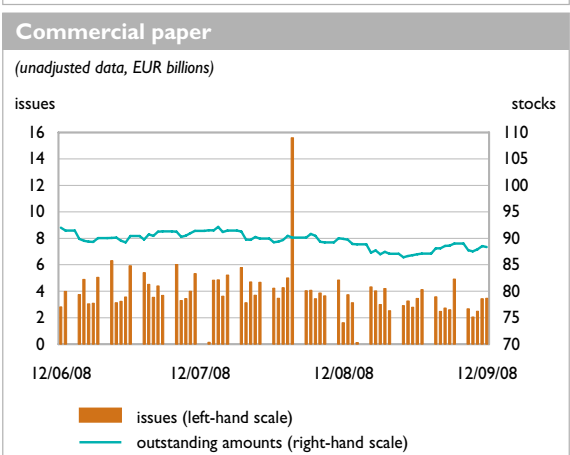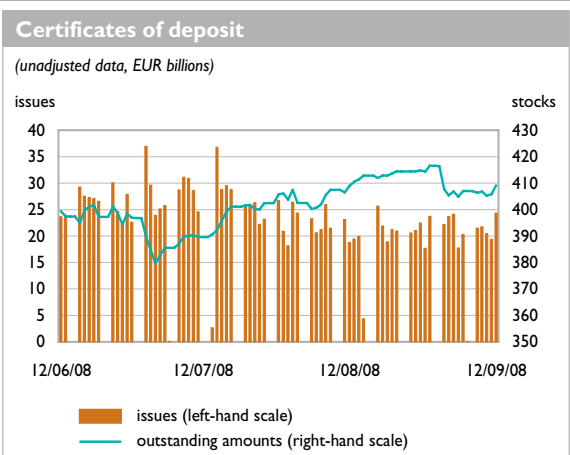
(a) Issues in euro are cumulative over the reference period. Outstanding amounts are calculated from the cut-off date (the last day of the period under review).
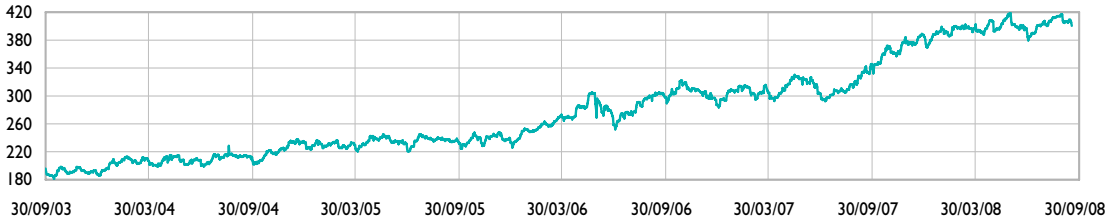*Source: Banque de France.*   *Produced 19 September 2008*

Table 33
Negotiable debt securities – France
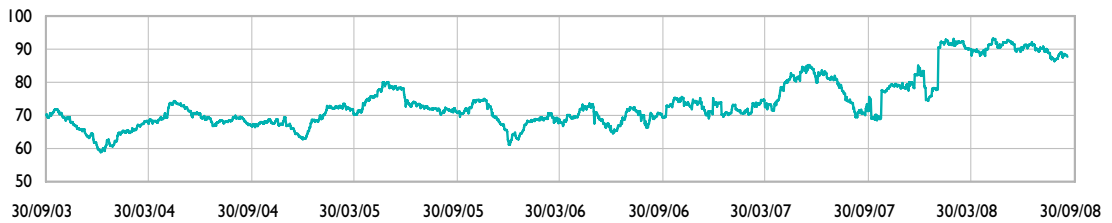
Certificates of deposit

(daily outstanding amounts in EUR billions)
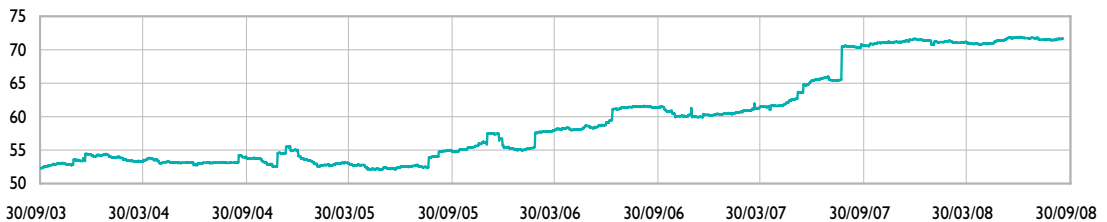

Commercial paper

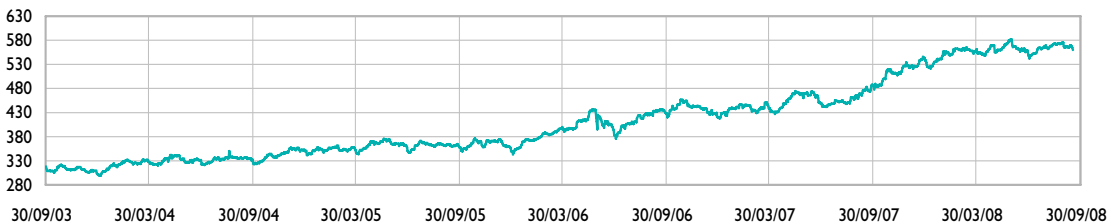*(daily outstanding amounts in EUR billions)*

Negotiable medium-term notes

(daily outstanding amounts in EUR billions)

Negotiable debt securities, cumulated outstandings

(daily outstanding amounts in EUR billions)

Source: Banque de France.

Produced 19 September 2008

Table 34
Mutual fund shares/units – France

(EUR billions)

	2007		2008	2008
	Sept.	Dec.	March	July
Net assets of mutual fund shares/units by category				
Money-market funds	450.43	425.64	468.42	469.97
Bond mutual funds	185.93	175.69	168.52	
Equity mutual funds	349.88	334.26	275.06	
Mixed funds	307.51	299.65	270.85	
Funds of alternative funds	38.15	38.30	35.96	
Guaranteed-performance mutual funds	0.04	0.01	0.01	
Structured funds ("fonds à formule")	75.22	74.90	70.93	

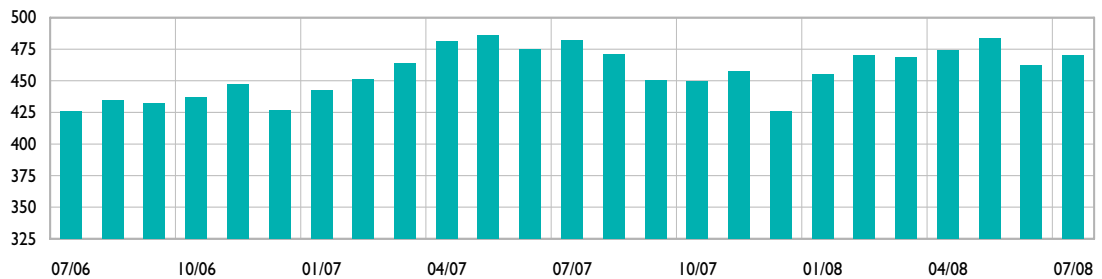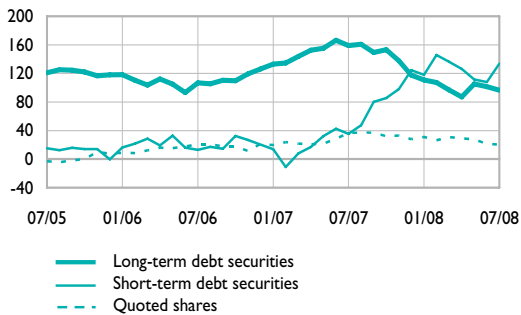**Net assets of money-market funds**

(EUR billions)

Table 35

Debt securities and equity financing of French residents (domestic and international markets)

(EUR billions)

	Outstanding amounts (a)			Net issues		12-month percentage changes (b)	
	2006	2007	2008	12-month	2008	2007	2008
	Dec.	Dec.	July	total	July	Dec.	July
Debt securities issued by French residents							
Total	**2,142.5**	**2,368.3**	**2,488.9**	**230.2**	**21.3**	**11.3**	**10.2**
Long-term debt securities	1,755.7	1,856.8	1,927.0	96.5	-5.8	6.7	5.3
General government	*891.4*	*916.8*	*936.5*	*20.1*	*-7.5*	*3.0*	*2.2*
Monetary financial institutions (MFIs)	*559.7*	*630.3*	*676.6*	*71.6*	*2.2*	*14.7*	*11.8*
Non-MFI corporations	*304.6*	*309.7*	*313.8*	*4.8*	*-0.5*	*3.0*	*1.5*
Short-term debt securities	386.9	511.5	561.9	133.7	27.1	32.2	31.2
General government	*77.5*	*93.6*	*113.4*	*18.4*	*7.8*	*20.9*	*19.3*
Monetary financial institutions (MFIs)	*268.0*	*366.7*	*381.3*	*102.0*	*18.6*	*36.7*	*36.5*
Non-MFI corporations	*41.3*	*51.2*	*67.2*	*13.3*	*0.7*	*24.0*	*24.7*
French quoted shares							
All sectors	**1,702.9**	**1,745.8**	**1,347.2**	**20.2**	**9.5**	**1.5**	**1.4**

Net issues of securities by French residents	Net issues of long-term debt securities by French residents
(by type of security, 12-month total, EUR billions)	*(by type of market, 12-month total, EUR billions)*

Long-term debt securities
Short-term debt securities
Quoted shares

Domestic market
International market
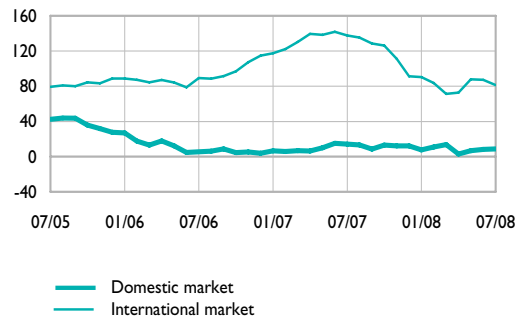
(a) Nominal value for debt securities, market value for quoted securities.
(b) Excluding the impact of exchange rate variations and any other changes which do not arise from issues or redemptions.

Source: Banque de France.   *Produced 19 September 2008*

Table 36

Quoted shares and bonds issued by French residents

(EUR billions)

	Outstanding amounts (a)			Net issues		Gross issues	
	2006	2007	2008	12-month	2008	12-month	2008
	Dec.	Dec.	July	total	July	total	July
Bonds issued by residents at the Paris financial centre							
Total	**843.4**	**857.2**	**876.1**	**10.0**	**6.0**	**81.5**	**8.1**
General government	639.4	662.8	692.6	24.6	7.0	65.5	7.0
Monetary financial institutions (MFIs)	118.4	117.2	113.4	-3.7	0.4	14.4	0.9
Non-MFI corporations	85.6	77.2	70.1	-10.9	-1.4	1.6	0.2
French quoted shares							
Total	**1,702.9**	**1,745.8**	**1,347.2**	**20.2**	**9.5**	**35.0**	**10.3**
Monetary financial institutions (MFIs)	227.3	183.0	139.7	10.5	6.3	13.1	6.3
Non-MFI corporations	1,475.7	1,562.8	1,207.5	9.7	3.2	21.8	3.9

Net issues of bonds

Domestic market

(12-month total, EUR billions)

- Total
- General government
- MFIs
- Non-MFI corporations
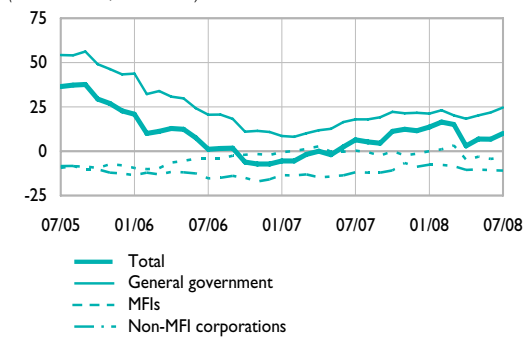
Net issues of bonds

International market

(12-month total, EUR billions)

- Total
- General government
- MFIs
- Non-MFI corporations
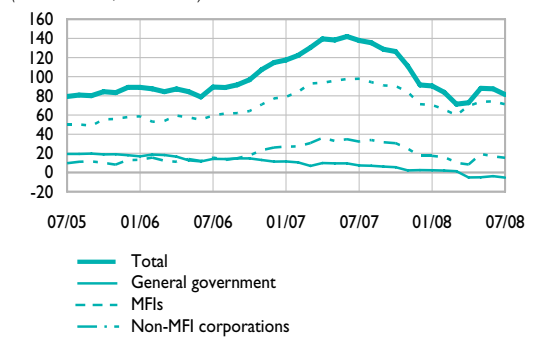
(a) Nominal value for bonds, market value for quoted shares.

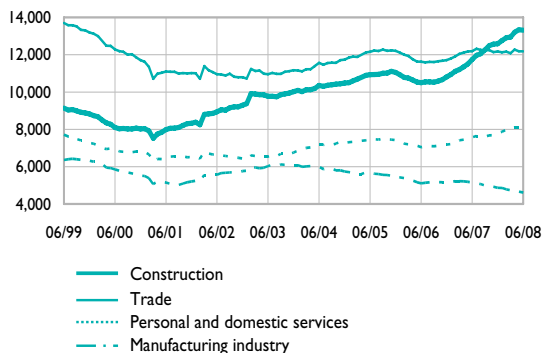*Source: Banque de France.*

Produced 19 September 2008

Table 37
Company failures by economic sector – France

*(NES 16 Classification, number of companies, non-seasonally adjusted data, 12-month total)*

	2007						2008					
	July	**Aug.**	**Sept.**	**Oct.**	**Nov.**	**Dec.**	**Jan.**	**Feb.**	**March**	**April**	**May**	**June**
Agriculture, forestry, fishing	1,666	1,666	1,687	1,721	1,714	1,682	1,671	1,635	1,613	1,652	1,667	1,665
Manufacturing industry	5,121	5,070	4,988	4,973	4,929	4,869	4,864	4,786	4,740	4,730	4,661	4,620
Food products, bev. and tob.	*1,311*	*1,312*	*1,320*	*1,335*	*1,338*	*1,339*	*1,354*	*1,364*	*1,350*	*1,345*	*1,327*	*1,322*
Consumer goods	*1,548*	*1,525*	*1,476*	*1,496*	*1,467*	*1,447*	*1,415*	*1,371*	*1,369*	*1,357*	*1,352*	*1,350*
Motor vehicles	*55*	*56*	*51*	*48*	*37*	*38*	*36*	*36*	*38*	*38*	*38*	*36*
Capital goods	*900*	*891*	*868*	*853*	*840*	*820*	*834*	*827*	*805*	*818*	*803*	*790*
Intermediate goods	*1,307*	*1,286*	*1,273*	*1,241*	*1,247*	*1,225*	*1,225*	*1,188*	*1,178*	*1,172*	*1,141*	*1,122*
Construction	11,978	12,049	12,265	12,485	12,570	12,595	12,753	12,911	12,951	13,208	13,342	13,310
Trade	12,320	12,262	12,239	12,251	12,143	12,177	12,129	12,162	12,078	12,274	12,183	12,179
Transports	1,567	1,556	1,489	1,492	1,483	1,490	1,464	1,491	1,490	1,513	1,514	1,535
Real estate activities	1,465	1,466	1,501	1,538	1,563	1,578	1,597	1,644	1,668	1,736	1,753	1,784
Services to businesses	6,827	6,827	6,813	6,854	6,809	6,825	6,803	6,855	6,806	6,822	6,756	6,791
Personal and domestic services	7,645	7,653	7,594	7,682	7,696	7,796	7,870	7,974	7,993	8,114	8,114	8,139
Other sectors (a)	1,943	1,943	1,960	1,964	1,956	1,894	1,844	1,829	1,807	1,845	1,815	1,766
Total	**50,532**	**50,492**	**50,536**	**50,960**	**50,863**	**50,906**	**50,995**	**51,287**	**51,146**	**51,894**	**51,805**	**51,789**

Company failures – 12-month total

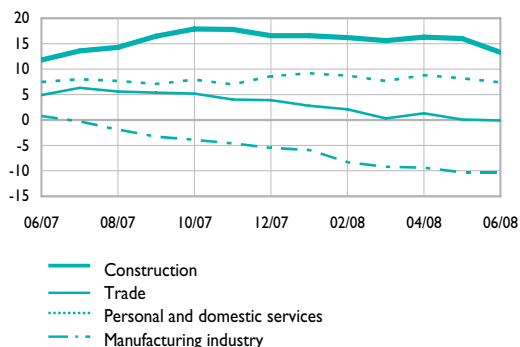*(NES 16 Classification, number of companies, non-seasonally adjusted)*

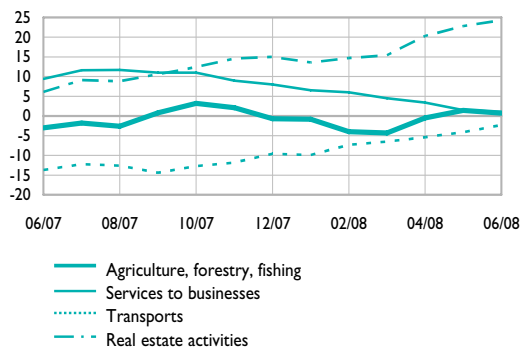*(NES 16 Classification, number of companies, non-seasonally adjusted)*
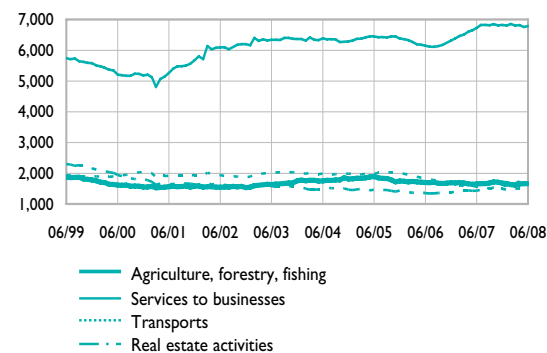
Company failures – year-on-year change

(NES 16 Classification, % change, non-seasonally adjusted)

(NES 16 Classification, % change, non-seasonally adjusted)

(a) Other sectors include energy, financial activities, education and general government.
Source: Banque de France.

Produced 19 September 2008

Table 38
Retail payment systems – France

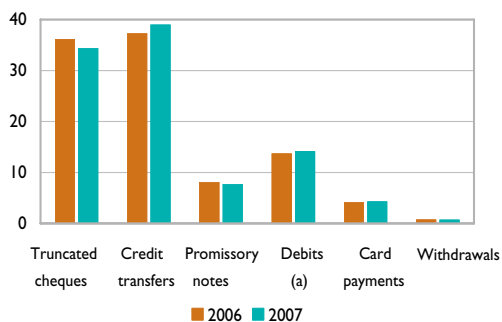*(daily average in EUR millions, % share for the last month)*

	2004	2005	2006	2007	2008			2008
					March	April	May	Share
Truncated cheques	6,836	6,974	7,132	6,974	6,866	6,982	6,162	31.8
Credit transfers	6,124	6,648	7,342	7,904	9,085	8,613	7,752	40.1
Promissory notes	1,652	1,595	1,593	1,555	1,410	1,696	1,397	7.2
Direct debits	1,495	1,574	1,705	1,739	1,955	1,901	1,719	8.9
Interbank payment orders	164	157	155	150	89	104	137	0.7
Electronic payment orders	527	660	842	975	1,153	1,030	1,100	5.7
Card payments	705	760	819	864	967	861	938	4.8
ATM withdrawals	133	134	139	140	150	136	146	0.8
Total	**17,634**	**18,501**	**19,727**	**20,300**	**21,674**	**21,324**	**19,350**	**100.0**

(daily average in thousands of transactions, % share for the last month)

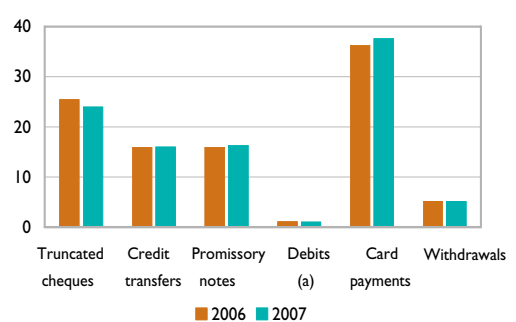|	2004	2005	2006	2007	2008			2008
					March	April	May	Share
Truncated cheques	13,013	12,585	12,159	11,561	11,539	11,097	10,796	22.4
Credit transfers	6,695	6,929	7,239	7,344	8,171	7,629	6,992	14.5
Promissory notes	408	394	390	370	348	385	340	0.7
Direct debits	6,560	7,067	7,628	7,863	8,368	8,448	7,480	15.5
Interbank payment orders	554	503	491	458	389	372	374	0.8
Electronic payment orders	10	17	27	38	31	43	56	0.1
Card payments	15,159	16,247	17,339	18,146	20,253	17,939	19,601	40.7
ATM withdrawals	2,446	2,437	2,497	2,467	2,648	2,392	2,569	5.3
Total	**44,845**	**46,180**	**47,771**	**48,248**	**51,747**	**48,304**	**48,209**	**100.0**

Market share developments
for main non-cash means of payment

(% of amounts exchanged)

Market share developments
for main non-cash means of payment

(% of volumes exchanged)

*(a) Debits: direct debits, interbank payment orders and electronic payment orders.*

Source: GSIT (French Interbank Teleclearing Consortium).   *Produced 19 September 2008*

Table 39
Large-value payment systems – EU

(daily average in EUR billions, % share for the last month)

	2004	2005	2006	2007	2008 April	2008 May	2008 June	2008 Share
France	486	535	588	633	340	352	393	13.7
Cross border TARGET	*81*	*94*	*107*	*122*	*120*	*137*	*154*	*5.4*
Domestic TARGET	*338*	*380*	*423*	*448*	*220*	*215*	*239*	*8.3*
Net system (PNS) (a)	*67*	*61*	*58*	*64*	*-*	*-*	*-*	*-*
Germany	488	539	591	711	967	931	941	32.8
Cross border TARGET	*143*	*161*	*183*	*215*	*266*	*255*	*255*	*8.9*
Domestic TARGET	*345*	*378*	*408*	*496*	*701*	*677*	*686*	*23.9*
Spain	288	291	296	344	332	340	319	11.1
Cross border TARGET	*23*	*23*	*27*	*36*	*36*	*28*	*33*	*1.2*
Domestic TARGET	*265*	*269*	*269*	*308*	*296*	*312*	*285*	*9.9*
Net system (SEPI) (b)	*1*	*-*	*-*	*-*	*-*	*-*	*-*	*-*
Italy	108	128	148	165	180	203	211	7.4
Cross border TARGET	*32*	*40*	*47*	*57*	*58*	*55*	*47*	*1.6*
Domestic TARGET	*76*	*87*	*101*	*108*	*122*	*148*	*164*	*5.7*
United Kingdom (c)	127	147	169	187	42	19	-	-
Cross border TARGET	*101*	*112*	*126*	*148*	*37*	*17*	*-*	*-*
Domestic TARGET	*26*	*35*	*42*	*39*	*4*	*2*	*-*	*-*
Other systems	525	553	607	727	1,010	996	1,008	35.1
Total EU	**1,955**	**2,132**	**2,342**	**2,703**	**2,870**	**2,841**	**2,872**	**100.0**
of which TARGET	1,714	1,902	2,092	2,409	2,591	2,562	2,584	90.0
Cross border TARGET	*564*	*641*	*725*	*868*	*884*	*832*	*841*	*29.3*
Domestic TARGET	*1,150*	*1,261*	*1,368*	*1,541*	*1,707*	*1,730*	*1,743*	*60.7*
of which Euro1 (EBA)(d)	170	167	189	228	277	277	287	10.0
of which other net systems (PNS(FR), POPS(FI))	70	63	60	66	2	2	1	0.0

Market share developments for each financial centre

(% of turnover)
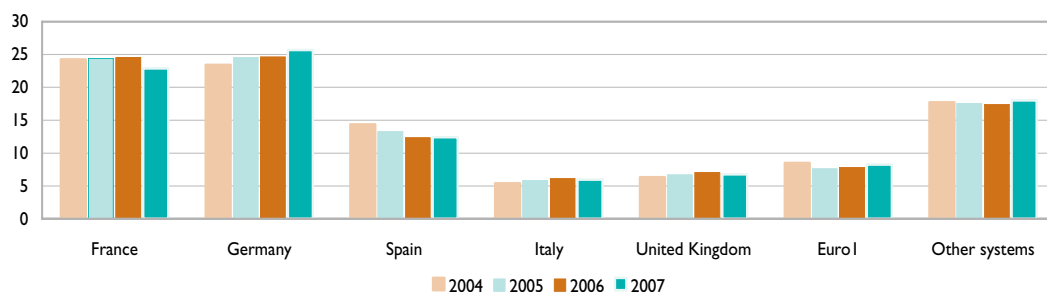
(a) Closed on 15 February 2008.
(b) SEPI: Servicio español de pagos interbancarios (closed on 15 December 2004).
(c) Since 18 May 2008, the UK has stopped participating in TARGET.
(d) Euro1 (EBA): clearing system of the Euro Banking Association. Euro1 data include retail payments recorded in STEP1.
NB: The data concern euro transactions only. They are derived from the various payment systems, whose specific modes of operation they reflect.
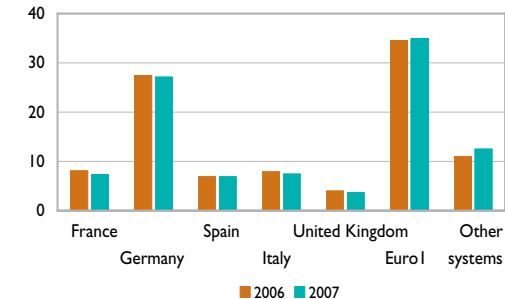
Sources: Banque de France, European Central Bank.   *Produced 19 September 2008*

Table 40
Large-value payment systems – EU

(daily average in number of transactions, % share for the last month)

|	2004	2005	2006	2007	2008			2008
					April	May	June	Share
France	42,509	43,421	43,890	44,405	26,226	25,003	30,178	4.7
Cross border TARGET	7,384	8,368	9,631	10,794	11,662	12,105	14,388	2.2
Domestic TARGET	8,071	8,455	8,321	8,398	14,564	12,898	15,790	2.4
Net system (PNS) (a)	27,054	26,598	25,937	25,213	-	-	-	-
Germany	131,503	139,195	148,613	164,187	185,969	178,438	188,046	29.0
Cross border TARGET	19,231	19,538	20,186	22,232	41,410	39,692	43,292	6.7
Domestic TARGET	112,272	119,657	128,427	141,955	144,559	138,746	144,754	22.3
Spain	18,464	26,307	37,439	41,792	42,157	37,765	33,967	5.2
Cross border TARGET	2,760	3,355	4,046	4,819	6,026	6,069	6,172	1.0
Domestic TARGET	11,618	22,952	33,393	36,973	36,131	31,696	27,795	4.3
Net system (SEPI) (b)	4,086	-	-	-	-	-	-	-
Italy	35,060	40,406	42,934	45,111	39,182	39,722	38,583	6.0
Cross border TARGET	7,269	7,677	8,151	8,452	7,131	7,763	9,171	1.4
Domestic TARGET	27,791	32,729	34,782	36,659	32,051	31,959	29,412	4.5
United Kingdom (c)	18,119	19,777	21,871	22,397	2,980	1,358	-	-
Cross border TARGET	12,799	14,002	16,144	16,690	1,347	571	-	-
Domestic TARGET	5,320	5,775	5,728	5,708	1,633	787	-	-
Other systems	247,131	263,308	246,850	286,920	350,145	343,787	357,124	55.1
Total EU	**461,647**	**505,815**	**541,597**	**604,812**	**646,659**	**626,073**	**647,898**	**100.0**
of which TARGET	267,234	296,306	326,196	366,025	385,234	368,580	379,830	58.6
Cross border TARGET	65,040	68,806	74,580	81,556	99,163	97,217	109,190	16.9
Domestic TARGET	202,193	227,500	251,617	284,470	286,071	271,363	270,640	41.8
of which Euro1 (EBA) (d)	161,097	180,595	187,163	211,217	258,883	254,806	264,199	40.8
of which other net systems (PNS(FR), POPS(FI))	33,316	28,914	28,237	27,570	2,542	2,687	3,869	0.6

Market share developments for each financial centre

(% of volumes traded)

Average transaction amount in the EUR systems of the European Union in June 2008

(EUR millions)
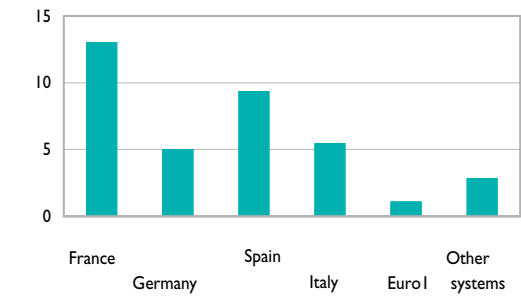
(a) Closed on 15 February 2008.
(b) SEPI: Servicio español de pagos interbancarios (closed on 15 December 2004).
(c) Since 18 May 2008, the UK has stopped participating in TARGET.
(d) Euro1 (EBA): clearing system of the Euro Banking Association. Euro1 data include retail payments recorded in STEP1.
NB: The data concern euro transactions only. They are derived from the various payment systems, whose specific modes of operation they reflect.
Sources: Banque de France, European Central Bank.   *Produced 19 September 2008*
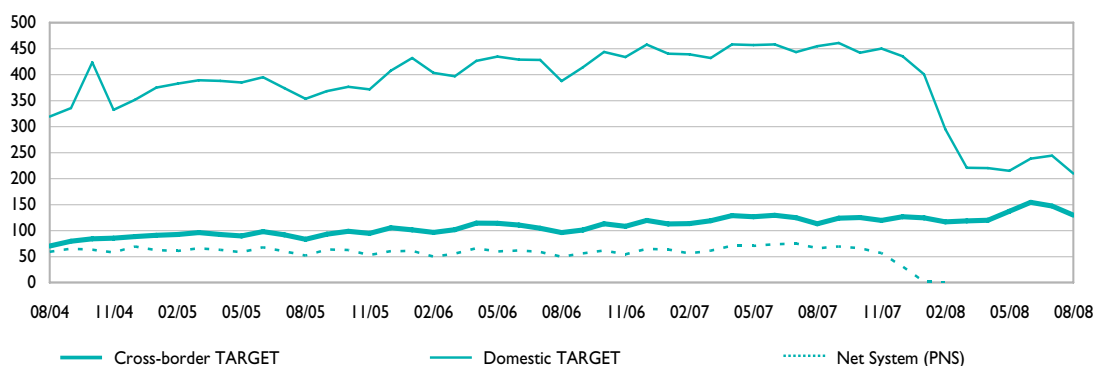
Table 41

Large-value payment systems – France

(daily average in EUR billions, % share for the last month)

	2004	2005	2006	2007	2008			2008
					June	July	Aug.	Share
Collateral used in domestic TARGET (b)								
French negotiable securities	12.3	14.6	14.2	11.5	44.9	42.5	44.6	22.2
French private claims	6.4	6.3	7.4	18.6	73.6	73.7	75.8	37.7
Foreign securities collateralised through CCBM	7.4	7.4	7.2	7.2	58.3	67.1	72.0	35.8
Other foreign securities (c)	4.6	5.6	8.4	8.8	9.1	10.1	8.9	4.4
Total	**30.7**	**33.9**	**37.2**	**46.1**	**185.9**	**193.4**	**201.3**	**100.0**

Monthly change in amounts exchanged in French payment systems (a)

(EUR billions, daily average)

Cross-border TARGET   Domestic TARGET   Net System (PNS)

Monthly change in collateral (b)

(EUR billions, daily average)

French negotiable securities
French private claims
Foreign securities collateralised through CCBM
Other foreign securities (c)
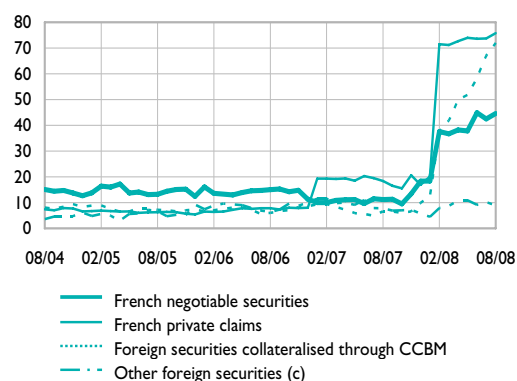
Collateral used in August 2008 (b)

Other foreign securities (c) 4%
French negotiable securities 22%
Foreign securities collateralised through CCBM 36%
French private claims 38%
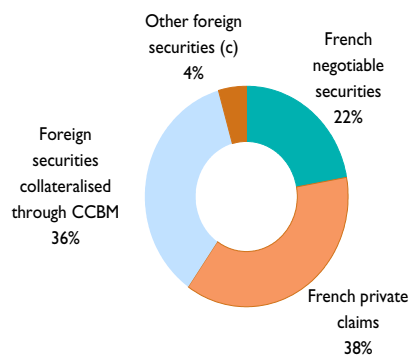
a) Since 18 February 2008, TBF (the French component of TARGET) and PNS systems have been replaced by TARGET2-Banque de France, the single French large-value payment system.
b) Until 15 February 2008, the indicated amounts corresponded to collateral used for intraday credit in TBF. Since the go-live of the "3G" system (Global management of collateral) and TARGET2-Banque de France on 18 February 2008, the amounts represent the collateral posted in a single pool of assets and that can be used for monetary policy and/or intraday credit operations.
c) Other foreign securities submitted via links between securities settlement systems.

Source: Banque de France.   *Produced 19 September 2008*

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