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scenario with concern. But there are also arguments that the development to date is not indicative of any genuine imbalances but is being driven by households and firms looking ahead and for the greater part making rational decisions in efficient and globalised markets.

Who is paying for the IMF?

Björn Segendorf and Eva Srejber

The International Monetary Fund (IMF) is expected to show a rapidly growing deficit for a number of years. At present, charges on outstanding credit are its major source of income. The stable global economic environment, low interest rates and increased access to the international financial markets have reduced IMF lending and caused a rapid drop in income. There is a need for a long-term solution that stabilises the Fund's income and makes it less dependent on lending. This raises many important questions regarding the level of costs and their distribution among the IMF membership. At present, the financing of the IMF's operational costs is concentrated to a limited number of industrialised countries and emerging market economies. Most members do not contribute or do so only marginally. Poor countries do not contribute. The purpose of this paper is to describe the Fund's often ill-understood financing and to explain the current problematic situation.[1]

The IMF (International Monetary Fund) is an international organisation with 184 members. It was founded in Bretton Woods in 1944 with the aim to promote the welfare of the member states through financial and monetary stability. Its main activities are economic surveillance, technical assistance and financial assistance. Like any other organisation, the Fund needs to cover its costs in the long run. The original idea was that members should pay in accordance with their economic size or strength. This was achieved through a system where each member is expected to hold a non-interest bearing deposit in the Fund. This set-up, which resembles that of a cooperative bank, gave the Fund a certain degree of independence but the world has changed significantly since then. Many members do not keep the stipulated deposits and the size of the non-interest deposits has not kept up with IMF's financial needs. Hence, the IMF has become increasingly dependent on charges on outstanding debt. The

[1] The authors are grateful for the valuable comments on earlier versions by Jacques Polak, David Williams, Göran Lind and Heikki Hatanpää. The views expressed in this article are our own and we are solely to blame for any errors in the text.

value of outstanding debt is cyclical but has decreased rapidly over the last two years and is now at its lowest for over 20 years. It is expected to continue to decrease over the next few years. Forecasts based on the present lending profile show that under these circumstances IMF will not be able to break even and needs to look over its revenues and costs. This is a complex problem with many potential trade-offs regarding distribution of costs etc. This so-called income problem and possible solutions cannot be isolated from the IMF's financial structure. Below we therefore describe the financial structure before going through the income problem.

The Fund's financial structure at a glance

The General Department of the IMF is by far the largest department and in order to simplify matters we focus on it. The other departments are relatively small, make very limited or no contributions to covering costs and are in practice much of adds-on to the General Department. Throughout the paper we have translated all amounts usually expressed in Special Drawing Rights (SDR) into US dollars (USD), using the official exchange rate of August 30, 2006, i.e. one SDR is worth USD 1.486. First we describe the balance sheet of the General Department and then we link the balance sheet to the income statement. Thereafter we discuss the distribution of costs among Fund members, present the current financial situation and discuss possible ways to improve it.

Basic concepts

From an accounting perspective the Fund is made up of three separate accounts called departments. These departments should not be confused with the organisational departments. In this paper the term department will be used in its meaning of a set of accounts. The *General Department* is the account and subaccounts of the cooperative bank, i.e. the "original" Fund from 1945. The *SDR Department* manages the allocation, trade and use of something called Special Drawing Rights (SDR, see below). The *Administered Accounts Department* handles capital paid in for special purposes, mainly the loans to poor countries, which have a gift part of 60 percent. These accounts consist mainly of governmental budget money and are kept within the framework of two trusts: Poverty Reduction and Growth Facility and Exogenous Shocks Facility Trust (PRGF-EFS) and Poverty Reduction and Growth Facility – Heavily Indebted Poor Countries Trust (PRGF-HIPC). To obtain a consolidated view of IMF's balance sheet one would have to merge the balance sheets of the three departments but typically they are treated separately. IMF's financial year (FY) comprises the period May 1–April 30, i.e. FY 2007 is the period May 1, 2006–April 30, 2007.

Two basic concepts in Fund financing are quota and SDR. Each member is assigned a quota, which is an amount expressed in SDRs that determines the member's maximum financial obligation vis-à-vis the Fund and its access to Fund credit. The quota broadly reflects the economic size of the country, taking similar countries into consideration, and is determined partly by a quota formula, and partly through a selective assessment. The total of all quotas forms the financial base of the Fund. Just like an owner's share, the quota determines the member's influence in the organisation in terms of voting power. For more information on quotas, see IMF (2001) and Nedersjö (2001).

The SDR is an asset representing a claim on a weighted basket of the US dollar (USD), Euro, Pound Sterling and Japanese Yen. The SDR serves as the unit of account of the IMF, its value is an important factor for determining financial obligations vis-à-vis the Fund and it serves as the basis for the calculation of interest rates. The composition of the SDR basket is reviewed every five years to ensure that it reflects the relative importance of currencies in the world's trading and financial systems. The latest review was conducted in November 2005 and in terms of value the basket consists approximately of 42.5 percent USD, 35.4 percent Euro, 11.5 percent Pound Sterling and 10.6 percent Japanese Yen.[2] On August 30, 2006, its value was USD 1.486. The SDR was introduced in 1969 by IMF to supplement gold and the USD as international reserve assets. At that time there was a fear that there would be a shortage of such assets. It was envisaged that the Fund would be a major supplier of liquidity. This scenario was never realised but the SDR has survived as a reserve asset that is used for certain purposes. For more on the SDR, see IMF (2001) or Nedersjö (2003).

The highest decision-making body is the Board of Governors, which consists of one governor and one vice-governor for each member country. They normally meet once a year. To its aid it has two advisory committees: the International Monetary and Financial Committee (IMFC) and the Joint IMF – World Bank Development Committee. Below the Board of Governors we find the Executive Board, which consists of 24 members, each representing a constituency of countries or a single large member country. They meet several times a week. Below the Executive Board there are the Managing Director and Deputy Managing Directors.

THE BALANCE SHEET

In the General Department of IMF, each member country is assigned an amount called *quota* (see box) which broadly reflects the economic size of the country. One fourth of this amount is paid to IMF in internationally acceptable currencies such as USD, Euro, etc. In the language of the Fund, this paid-in capital is called currencies from *quota subscriptions* and is usually paid by the central bank. From the perspective of the central bank the paid-in capital is a liquid claim on the Fund in reserve currencies. Therefore it is a part of the foreign reserve and you find it on the assets side of the balance sheet of the central bank. The remaining three-quarters of the quota is provided in the member's own currency. It is not paid into the Fund but held in a special account at the issuing central bank. In practice the Fund has a claim on the central bank. The paid-in capital is either used by the IMF for financial assistance or invested in low-risk, short term liquid positions. Hence the analogy with a credit cooperative. The stylised balance sheets of the General Department of IMF are displayed in Figure 1, where the numbers reflect actual values. Numbers in parentheses denote changes and are used to illustrate an example given below in the text. On the assets side we have IMF's claims on member central banks (usable currencies, other currencies and outstanding credit). The total of these claims is equal to total quota (USD 313 bn). Usable currencies are those currencies that can be used in the Fund's operations, i.e.

[2] These shares were computed using the exchange rates of August 30, 2006. To be more precise, the recipe of a SDR is expressed in the following number of units of each currency: Euro 0.41, Japanese Yen 18.4, Pound Sterling 0.0903, and USD 0.632.

whose issuing central banks have a sufficiently strong external position in the sense that use of their currencies does not risk creating a balance-of-payments problem for them. There are also gold and invested reserves. Liquid resources in terms of usable currencies, invested reserves and gold amounted to approximately USD 240 billion at the end of FY 2006. On the liabilities side we have the central banks' claims on IMF: paid-in capital, the non-paid in capital and various reserves. What is not directly seen in the balance sheet is that IMF has a hidden reserve in its gold holdings. Until April 1 1978, the paid-in quarter of a member's quota was normally paid in gold. The gold is valued at its historical value (USD 8.8 billion) which is far below its current market value of approximately USD 60 billion.[3] There is thus a large hidden reserve embedded in the gold holdings. These reserves can be viewed as the guarantee for members' paid-in capital in case of credit losses and, however unlikely, if the IMF were to be dissolved. The use of gold is strictly regulated in the Articles of Agreement of IMF.[4]

Figure 1. The balance sheets of the Riksbank and the General Department of the IMF USD billion.*

RIKSBANK

Assets			Liabilities		
Gold	3.0		Notes & Coin	15.4	
Claim on IMF	0.7	(+1)	Debts	5.1	
Currency	23.2	(-1)	Reserves	7.9	
Foreign reserves	23.9		Results	0.4	
Other assets	1.9				
Total assets	**28.8**		**Total liabilities**	**28.8**	

IMF

Assets			Liabilities		
Credit outstanding	29	(+1)	Paid-in capital	29	(+1)
Usable currencies	224	(-1)	Non-paid capital	284	(-1)
Other currencies	60			313	
Total currencies	313				
Gold	9		Other liabilities	16	
Other	7				
Total assets	**329**		**Total liabilities**	**329**	

* The Swedish Krona and SDR have been converted into USD using exchange rates of August 30, 2006. Numbers for the Riksbank and IMF are taken from their Annual Reports for 2005 and 2006, respectively.

[3] IMF holds 3,217 metric tons of gold. Its value as of March 31, 2006 was approximately USD 60 billion. Source: IMF website.

[4] Selling gold requires an 85% majority of the total voting power in the Board of Governors. If the gold is sold outright on the market the historical value should be transferred to the members' accounts in the General Department (General Resource Account) in order to restore the value of the paid-in capital. The rest should be added to the reserves of the General Department (Special Disbursement Account or the Investment Account). The Articles of Agreement also restrict the activities that can be financed through these accounts. An outright sale of gold will therefore not release capital that can be used freely by the fund. Under some circumstances gold can also be sold to members at its historical value.

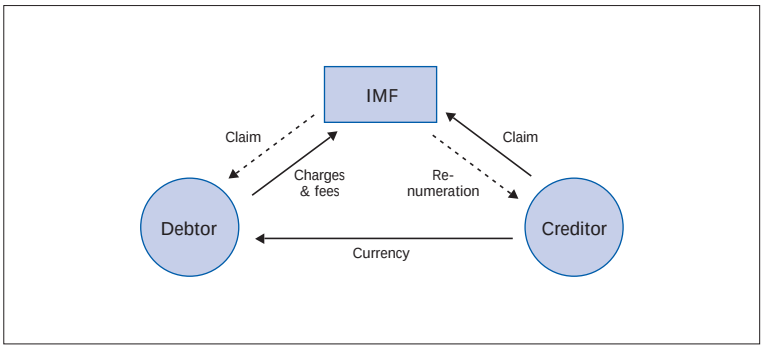
The main link between the balance sheet and the income statement is through IMF's role to provide loans to members with balance-of-payments problems.[5] This is, so to speak, the business idea of the cooperative bank: countries with strong balances of payments finance loans to members in need. This simple fact is hidden by a veil of so-called currency swaps between the IMF and the central banks of the debtor and the creditor countries (see Figure 2). Here, IMF and the debtor agree to swap some of the debtor's currency against some other currency, i.e. to let the debtor buy an internationally attractive currency, e.g. USD, which it pays for with its own currency, which is not attractive for international financial transactions and payments. IMF turns to one or several potential creditors. When Sweden acts as a creditor, the Fund withdraws Swedish currency from the account it holds with the Riksbank (usable but not paid-in currency). The Riksbank is then asked to exchange the withdrawn amount into the currency asked for by the debtor (USD in this example). This increases Sweden's paid-in capital and thus its claim on the IMF. The exchanged currency is then transferred to the debtor's central bank, which pays with its own currency to IMF's account in that central bank. The debtor's paid-in capital is reduced by the borrowed amount and if it becomes negative, IMF then has a net claim on the debtor's central bank. The loan is repaid when the currency swap is reversed, most often a few years later. In Figure 1 we show the impact of this financial assistance on the balance sheets of the Riksbank and the IMF. Notice that the value of the balance is unchanged for both the Riksbank and IMF but that the composition of the assets and liabilities has changed. The composition of the Riksbank's foreign exchange reserve has changed as it has traded currency against an increased claim on the IMF. On the assets side, the IMF has converted some of its claims on "usable currencies" into outstanding credit. On the liabilities side this is mirrored by an increased debt to central banks, i.e. paid-in capital has increased while reserves of non-paid in capital have decreased correspondingly. The balance-sheet changes at the debtor central bank mirror those in the books of the Riksbank. Bookkeeping practices may of course differ between central banks. Using the analogy of a cooperative bank, the Fund owns its own balance sheet and is exposed to the financial risks associated with lending. The collateral it demands to reduce the financial risk is a so-called *programme* that essentially is an agreement on policy changes the debtor has to undertake, e.g. measures to reduce the government's deficit, deregulation of certain markets etc., to enable the country to repay its debt. A creditor country can-

[5] The lending discussed below is the ordinary financial assistance to non-poor countries handled through the General Department. Poor countries may access specific subsidised lending through the PRGF-EFS and PRGF-HIPC trusts (see Box on basic concepts).

not be asked to provide more currency than its quota and the debtor's access to currency is proportional to its quota (see below). Total quota is thus of vital importance for the Fund's capacity to carry out its tasks.

In summary, most of IMF's resources consists of paid-in capital and claims on member central banks. These resources are used to provide credit to members through a system of currency swaps. IMF also has own resources through its reserves and there is a hidden reserve in the Fund's holding of gold.

Figure 2. Financial assistance and related cash flows.



THE INCOME STATEMENT

IMF's main source of income comes from the interest-rate spread between outstanding credit and paid-in capital. This income is used to finance the administration of the cooperative bank, the build-up of reserves and the "non-bank" core activities: surveillance and technical assistance.

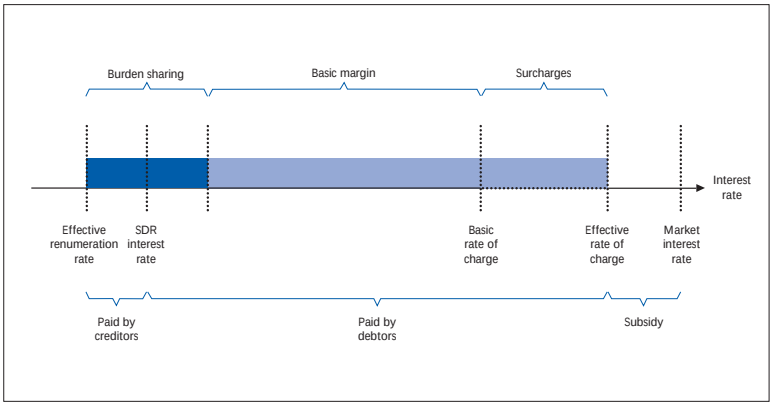
The interest paid by the debtor is called *charges* and the interest paid on paid-in capital is called *remuneration*.[6] Charges are determined by the type of financial assistance in question and the magnitude of the assistance. The latter is a relative measure where the size of the debt is related to the member's quota. All rich and middle-income debtors pay a *basic charge* and for debt levels above certain break points – often expressed as 200% or 300% of the country's quota – the debtor pays additional charges called surcharges (see Figure 3). Not all debtors pay surcharges and for them the effective rate of charge is the basic rate of charge.

To complicate matters further, this whole system is based on the *SDR interest rate*, which is the weighted average of the 3-month interest rates of the currencies in the SDR basket. The basic charge consists of the SDR rate plus a *basic margin* which currently is 108 points. Surcharges are pre-

[6] There are also fees which are the debtor's one-time cost of getting access to financial assistance.

determined numbers of interest-rate points and do not depend on the level of the SDR rate. The rate of remuneration is set to a certain per cent of the SDR rate (currently 100 per cent). There is also so-called *burden sharing*, which distributes the financial burden of late repayments and late charges over all members that pay charges or receive remuneration, i.e. it distributes the expected cost of liquidity risk over a subset of the members. From the viewpoint of the IMF there is almost no credit risk. A loan loss can occur only in the rare event of a debtor leaving the Fund. Unpaid charges and repayment are per definition late as long as the debtor is a member of the Fund.

Figure 3. The interest-rate margin.



The main source of income is charges. Additional income comes from returns from reserves and unremunerated assets (see below). On the cost side of the income statement the main items are remuneration and administrative expenses, where the latter are made up of costs for the three core activities: surveillance, financial assistance and technical assistance. In principle and given other sources of income, the basic margin is set to cover these costs and to generate a surplus. This surplus is used to build up reserves. Each financial year the Fund has a target for its surplus called the NIT (*Net Income Target*).[7] According to the rules of the IMF, surcharges can be used only to cover specific administrative costs and additional build-up of reserves, i.e. they cannot be used to cover ordinary administrative costs or to meet the NIT.[8] The purpose of these reserves is to protect the Fund against credit risk and income losses. Reserves also

7 The NIT is equal to 5 per cent of the reserves of the General Resource Account minus approximately USD 140 million. This means that the IMF expects a long-term return of 5 per cent on its reserves, corrected for the profit from a gold sale in 1999.

8 These administrative costs are related to the administration of the PRGF-EFS and PRGF-HIPC trusts that provide subsidised assistance to a limited number of low-income countries.

improve the Fund's liquidity, which enables the Fund to act quickly if necessary and the return from reserves is an income to the Fund. The Fund's target for the reserves is approximately USD 15 billion. At the end of FY 2006 the reserves amounted to nearly USD 10 billion.[9]

A source of income that has been successively less and less important to the IMF is the unremunerated paid-in capital. This requires some explanation. Recall that each member is expected to pay in 25 per cent of its quota and that the payment was usually made in gold. Gold has no returns and this paid-in capital was consequently unremunerated, which was fine as long as everyone paid in gold. When gold was abandoned for currency, the Fund could earn interest on paid-in capital from new members and it was only natural that the Fund started to pay remuneration on this capital. New members that paid in currency would thus get remuneration, while old members who had paid in gold would not. This was perceived as unfair. The dilemma was solved by deciding that both gold and a corresponding part of the new members' paid-in capital should be unremunerated. Every deposited asset in excess of this threshold is remunerated. These thresholds are, by construction, based on 1978 quotas but quota has been adjusted upwards a number of times since then. The unremunerated part has consequently decreased from 25 per cent of quota to 3.8 per cent on average over the whole membership. The return from these unremunerated assets is an income to the Fund. If the Fund has excess liquidity, this is often deposited with central banks of issue in order to reduce its remunerated positions. This is equivalent to a decrease in the paid-in capital.[10]

In short, debtors pay charges and surcharges and creditors receive remuneration. The interest-rate margin is the difference between paid charges and the effective rate of remuneration. It consists of the burden sharing, basic margin and eventual surcharges. The interest-rate margin is the main source of income and it finances administration and build-up of reserves.

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[9] More specific, on April 30, 2006, the balance of the General Reserve was USD 5.3 billion, the balance of the Special Reserve was USD 3.6 billion and the balance of the SCA-1 was USD 1.3 billion. Source IMF Annual Report FY 2006.

[10] On the aggregate level the paid-in capital varies with the outstanding credit but the paid-in capital of an individual member also depends on other variables, i.e. whether the currency is considered usable or not (see section on the Fund's balance sheet above). The level of paid-in capital may therefore vary a lot over time for creditors and debtors. In the case of a creditor country such as Sweden the paid-in capital was 34.5 per cent of quota in March 2000. In September the same year it was 28.25 per cent. It then increased and in March 2003 it was 44.3 per cent of quota. It then decreased to 22.1 per cent in September 2005 and in August 2006 it was 12.4 per cent. Source: IMF website.

THE DISTRIBUTION OF THE FINANCIAL BURDEN AMONG MEMBERS

The complicated financial set-up briefly sketched above makes it difficult to see how the burden of financing the Fund's costs is distributed among the members. At the same time, this is one of the most important aspects in that it contributes to the imposition of political constraints. The complexity of the issue is partly due to there being two alternative views, referred to here as the accounting view and the alternative-cost view.

Recall that the main income sources of the Fund are charges, returns on unremunerated resources and return on reserves. Charges and fees are paid by debtors to the General Department and returns from unremunerated resources are income forsaken by members with unremunerated positions, i.e. typically creditors. The share of IMF's administrative costs and increases in reserves that is covered by income from debtors through charges has increased from 27 per cent in FY 1982 to approximately 80 per cent in FY 2005. Creditors' share has decreased correspondingly. One reason for this shift in distribution is that, as mentioned above, the unremunerated part has not increased in nominal value with quota. The rate of remuneration has also increased from 90 per cent of the SDR-interest rate in 1979 to 100 per cent (1987). Any increase in expenses or increases in reserves has thus to be financed through other sources than unremunerated positions, i.e. it has to be funded through the basic margin paid by debtors. During the same period, administrative expenses have increased successively and, together with the policy decision to increase reserves, this has led to a large increase in the debtors' share.

However, this strict accounting view is questionable. The difference between the rate of remuneration and the corresponding market interest rate is a so-called alternative cost that is borne by the creditors, since it is an income they relinquish. Creditors' abstained income is then utilised by the Fund and debtors in the following way. Access to cheap capital enables the Fund to generate income through the interest margin and debtors are subsidised since they normally pays less for Fund credit than for corresponding market-based financing. This is illustrated in Figure 3. The subsidy to debtors corresponds to the distance between charges and the corresponding market interest rate for a loan, while the alternative cost for creditors is the distance between the effective rate of remuneration and the rate of return for alternative investments.[11] The picture is

[11] The average return on the creditor's remaining foreign reserve is a lower bound of alternative rate of return. Then the Riksbank's alternative cost was at least USD 20 million in the calendar year 2004 and USD 7 million in 2005. This corresponds to a difference of 154 points in 2004 and 85 points in 2005 as the paid-in capital varies (see footnote 10). The calculation does not take exchange-rate variations into account, which affects the amount of paid-in capital measured in SEK. Calculations are based solely on open sources such as Sveriges riksbank (2005 and 2006) and SDR-interest rates on IMF's homepage.

somewhat complicated by the fact that IMF's charges are based on the three-month SDR-interest rate, while the maturity of the loans is normally a few years. As the size of the risk premium usually increases with the maturity, debtors get a larger subsidy as they pay a short interest rate for a more long-term loan (this is not captured in Figure 3).

In the two views briefly presented above we talk about creditors and debtors as if the members of IMF could be easily divided into two separate subsets. In reality there is also the large group of members with little or no paid-in capital who are neither debtors nor creditors. The Fund has 184 members and in November 2005 about one half of them belonged to this third group with little or no paid-in capital. Since they don't pay charges or hold unremunerated or remunerated positions, they did not contribute, or contributed only marginally, to the financing of the Fund.[12] Less than one third of the members held 20 per cent or more of their quota with the Fund. Of these, not all are suitable as creditors because their external positions are not strong enough. It turns out that the G10 has approximately half of the total quota but accounts for approximately two thirds of the paid-in capital.[13] There is also a bias in the unremunerated positions, where rich countries usually have a higher unremunerated part than emerging market economies and low-income countries.[14] Hence, the financial burden attributed to creditors is concentrated to a small number of large creditors. Less than one fourth of the members were debtors but not all of them pay regular charges. Poor countries access special highly subsidised loans through the so-called PRGF-EFS and PRGF-HIPC trusts within the Administered Accounts Department. Usually they have also withdrawn their paid-in capital and consequently do not contribute. The debtors that contribute are thus a limited number of emerging market economies that are large debtors, foremost Turkey. To sum up, the burden of financing the Fund is concentrated to a limited number of rich countries and a small number of emerging market economies. The majority of the members contribute only marginally or not at all.

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12 At the end of FY 2006 there were 33 non-debtor countries with no paid-in capital. Of these, the following 22 countries have had no debts or any paid in capital during the four most recent financial years. Afghanistan, Angola, Antigua and Barbuda, Croatia, Egypt, El Salvador, Eritrea, Estonia, Guatemala, Islamic republic of Iran, Kiribati, Marshall Islands, Micronesia, Myanmar, Namibia, Palau, St. Lucia, Seychelles, South Africa, Syrian Arab Republic, Timor-Leste, and Turkmenistan. Source: IMF Annual Reports FY 2003 – 2006.

13 More precisely, the G10 has 53.4 per cent of the total quota. In April 2003 the G10's share of paid-in capital was 71 per cent and in September 2005 it was 62 per cent. This share tends to be higher in times of high Fund lending than in times of low lending. In average the G10 share is approximately 2/3.

14 On the equalities of unremunerated positions, see Polak (1999), who exemplifies this by contrasting the United Kingdom's unremunerated share of 6 per cent of its quota with Saudi Arabia's 0.5 per cent. In practice this means that one fourth of the United Kingdom's expected paid-in capital is unremunerated while the corresponding figure for Saudi-Arabia is only 2 per cent.

The income problem

The General Department of the IMF resembles a cooperative bank that generates income from the interest rate spread between paid-in capital and outstanding credit. Over time the Fund has grown increasingly dependent on the part of this income that is generated from charges and thus also on the value of outstanding credit. During the last two years the Fund's outstanding credit has decreased from approximately USD 82 bn (December 2004) to USD 18.6 bn (October 5, 2006). This is more than the usual variation in lending and it has to do with various international and national factors such as economic growth, exchange rate volatility, debt levels, political stability etc. This suggests that the resulting deficit in IMF's finances is partly conjunctional, partly structural. The increased access for more countries to international financial markets, e.g. the eastern European countries, has increased their ability to handle variations in their balances of payments and thus decreased their need for financial assistance and so-called precautionary arrangements. Many countries have benefited from low international interest rates that have eased their burden of debt and helped to stabilise their balances of payments. Global economic and financial stability has so far eliminated the entry of new potential debtors and has allowed some of the old debtors to pay off their debts. The latter is exemplified by the early repayments by Brazil and Argentine totalling to USD 26 bn in December 2005 and January 2006. Indonesia also repaid their remaining debt of USD 3.2 bn early in October 2006.[15] After these repayments, 66 per cent of the remaining outstanding credit is owed by one debtor, Turkey. Through the strong link between income and lending, the current trend of economic stability and increased access for many countries to international capital markets has undermined the Fund's income position. In the medium-long run we expect IMF's income to fall from USD 1200 million in FY 2006 to USD 670 million in FY 2009. However, low interest rates and economic and financial stability may be temporary states of the world and it is too early to draw more long-run conclusions.

On the cost side, administrative expenses have increased in nominal terms from USD 600 million in the financial year (FY) 1998 to approximately USD 1020 million in FY 2006. Earlier forecasts for administrative expenses for the next few years indicate a slow growth in nominal terms. For the sake of simplicity, our simulations assume that administrative costs are frozen on the FY 2006 nominal level. The combination of decreasing

[15] On March 31, 2006 Uruguay announced its intention to make an early repayment of its 2006 obligations of USD 646 million (approx. SDR 435 million). Uruguay still owes USD 1.6 bn (SDR 1.1 bn) to be paid after 2006.

outstanding credit and non-decreasing administrative expenses will create a large and growing income gap over the next few years. IMF has taken two decisions to mitigate the impact of the expected fall in income. First, it has decided to temporarily abandon its policy target on accumulation of reserves (NIT) during FY 2007. This reduces the income gap by approximately USD 280 million. Secondly, it has created an investment account to increase returns from its reserves. The reserves amount to approximately USD 8.9 billion and the return has approximately been equal to the 3-month SDR-interest rate since much of the reserves has been held in central bank accounts in order to reduce remuneration. We estimate that a more active, but still cautious, investment policy in line with the one used by the Administered Accounts Department would increase the expected return by 40–60 points over time, i.e. an increase of approximately USD 50 million per year.[16] Table 1 illustrates the income gap under different policies (see below) under the assumptions of frozen administrative expenses and that NIT is set equal to zero for the whole period FY 2006–FY 2009.[17] The extended period during which the NIT is lifted reduces the income gap by approximately USD 310–330 million in FY2008 and FY 2009. The annual NIT is shown within brackets in Table 1 just to give an idea of its size. It is thus not included in the calculations. IMF has a net income of USD 180 million in FY 2006. This is USD 100 million less than the target but is not a deficit. Our calculations show that IMF will run a deficit already in the current financial year, i.e. FY 2007. This deficit may amount to USD 300 million in FY 2009. The growth of the deficit is due to decreasing income.

Below we briefly discuss a number of possible changes to the current policy for FY 2007–2009. Common for these policy changes is that they are easy to implement, i.e. there is no requirement for voting procedures with qualified majorities. We show that these easily implemented changes will not prevent the IMF from running a substantial deficit if the current development of lending prevails. Hence, there is a need for a more fundamental change that makes the Fund less dependent on lending. Such a change could take the Fund back to the original intention where all members contribute to the financing of the Fund in accordance with their eco-

[16] The investment policy for the PRGF-EFS and the PRGF-HIPC trusts stipulates that investments are made in fixed-term deposits, domestic government bonds of the United States, United Kingdom, Japan and the Euro zone. Bonds of some multilateral organisations are also invested in. Source: IMF Annual Report FY2005.

[17] The other underlying assumptions are (i) all debtors' repayments are made on time, (ii) no today unforeseen credit will be granted, (iii) the basic rate of charge remains unchanged at 108 points, (iv) the SDR-interest rate will be 4.0 per cent, and (v) the Fund stops waiving the reimbursement for the administrations of the PRGF-EFS and PRGF-HIPC trusts which is assumed to be approximately USD 90 million per year. The latter is financed through surcharges and a decision to stop waiving will decrease the build up of reserves from surcharges and increase "ordinary" income. This is merely a change in accounting that does not increase the revenues of the Fund or add any new resources.

TABLE 1. The expected income gap under different policies

	FY 2006	FY 2007	FY 2008	FY 2009
Expenses and income under current policies				
Income under current policies	1 200	780	690	670
Administrative expenses	1 020	1 020	1 020	1 020
Investment account	0	50	50	50
Net income under current policies	180	–190	–280	–300
Net income target (built up of reserves)	(280)	(300)	(310)	(330)
Expenses and income under alternative policies				
Use surcharges for administrative expenses	160	120	30	0
Stopped SCA-1 accumulation	0	90	60	40
Remaining income gap	**340**	**20**	**–190**	**–260**

Source: Own calculations based on data from open sources such as IMF Annual Report FY 2005 and FY 2006, and IMF's quarterly Financial Statements.

nomic size or strength. It would also mitigate the built-in contradiction in the finances of the Fund, i.e. that an organisation with the objective to prevent the need for financial assistance should be so financially dependent on lending. Finally, we discuss possible solutions to the income problem.

THE INCOME GAP UNDER ALTERNATIVE POLICIES

IMF has temporarily lifted the NIT but surcharges are still used to build-up reserves. A possible next step would be a total halt in the accumulation of reserves, i.e. to use surcharges to cover administrative costs. Under the assumption that repayments are made on schedule and that no new large debtor emerges, the contribution from surcharges would decrease over time, from USD 120 million in 2007 to zero in 2009. This would reduce, but not prevent, the expected deficit in each of the financial years 2007–2009.

It is also possible to increase the interest-rate margin. However, that might be counterproductive since higher charges may trigger more early repayments and lower remuneration may make members reluctant to pay in capital. Even if the interest-rate margin is held constant, the part of the burden-sharing that is not used to cover deferred charges (approx. USD 15 million per year) could still be used to cover administrative expenses. This part is basically an accumulation of reserves.[18] We assume that the level of burden-sharing and deferred charges will be constant over the coming period and that outstanding credit is paid on schedule. Then this

[18] Burden sharing comprises an adjustment for deferred charges and accumulation in the SCA-1 account. On August 30, 2006 this adjustment was 28 pts for creditors and 26 pts for debtors. That is, remunerated paid-in capital gave the SDR-rate minus 28 pts. Debtors paid the SDR-interest rate plus the basic charge plus 26 pts plus eventual surcharges.

will add some USD 90 million in 2007 and USD 40 million in 2009. The usage of both surcharges and the burden-sharing revenue would probably be sufficient to prevent a deficit in FY 2007 but not in FY 2008–2009.

We have deliberately chosen not to consider the introduction of charges for other services provided by the Fund, e.g. technical assistance and surveillance. The reason is that we believe such charges to be counterproductive in achieving the Fund's main objective. Surveillance and technical assistance have the character of a public good for all members. Therefore the burden of financing the production of the public good should also be distributed among the members. The introduction of charges could negatively impact the quality of the public good as it could risk individual members opting for less frequent surveillance. This public good argument is supported by the fact that there are strong synergies between the different core activities of the Fund. For this reason we also rule out large cuts in costs; a significant cut in cost and personnel is likely to have a large adverse effect on all three core activities.

The discussion above shows that there is a growing income gap under the current policies. The studied policy changes mainly halt the accumulation of reserves. Our calculations have shown that this will not be sufficient. If the level of outstanding credit keeps on declining, there is a need for more fundamental policy changes.

POSSIBLE SOLUTIONS

What should the frame of thought be for a fundamental change in the financing of the IMF? The output of the Fund has the character of public good and being a member of the Fund may also be perceived as some kind of insurance of financial assistance under certain circumstances. It is therefore reasonable that most countries contribute to the financing of the Fund. How much should they contribute? This question is related to two separate issues. The first is the degree of financial independence the members want the Fund to have, i.e. should the Fund be largely dependent on income from members or should it have a large income from own resources? The second issue relates to the perceived fairness of the distribution of the financial burden, e.g. should large and rich members pay relatively more than small and poor members? Below we discuss the alternatives of a member-based financing and an independent financing based on the Fund's own resources. The financing of the Fund, among other things, is regulated in the Articles of Agreement that stipulate what can be done and under what circumstances, e.g. that a gold sale requires the approval of at least 85 per cent of the total voting power of the Board of Governors. This is also the voting power that is required to change the

Articles of Agreement. To gather such a majority tends to be difficult and time consuming.

The first alternative, a financing that is based on income from members and is not dependent on lending, implies in practice either a lower rate of remuneration or some kind of annual fee. One difficulty with reduced remuneration is that, for the reduction to be sufficiently large, the Articles of Agreement have to be changed. At present the Articles do not allow a rate of remuneration below 80 per cent of the SDR rate and gathering the necessary qualified majority behind such a proposal is likely to be difficult. However, as other changes in the Fund are being discussed – for instance an increase in basic votes – that require amendments to the Articles of Agreement, a change in financing could be part of the package and be done at the same time. Given a change in the Articles of Agreement, we believe that lowered remuneration as well as a broader number of contributor countries would be a good long-run solution that would also have the benefit of opening up for a more transparent financing. In this context it is interesting to recall that a proposal called the uniform variable norm was discussed in the early 1990s. The basic idea was to require all members to hold unremunerated paid-in capital corresponding to a uniform share of their quota. This share could vary over time and would be set to cover the Fund's costs other than remuneration costs. This simple approach would then allow the Fund to set the remuneration rate and the basic charge equal to the SDR-interest rate, i.e. to skip the complicated basic margin (see figure 3). Despite intense discussions in 1994 and 1995, the proposal never received the requisite Board support. The main reasons for this were the issues of burden sharing and that countries that withdraw their paid-in capital would have to pay charges on the unremunerated part, i.e. in practice they would be required to hold the stipulated paid-in capital.[19] In theory it is also possible to implement some kind of annual fee but this solution also poses serious problems. First, the Articles of Agreement do not allow for such a fee and many central banks cannot, for legal reasons, pay such a fee. The Riksbank, for instance, would have to obtain parliamentary approval every year. With such a fee, the IMF would be more vulnerable to political pressure.[20]

Another way forward is to utilise IMF's hidden reserve in gold. The basic idea would be to sell gold and put the part of the profit that does not go back to the members' accounts in the investment account (see footnote 4). The returns from the investment account would then be used

[19] An annual contribution of USD 300 million would require an increase in the unremunerated positions of approximately USD 8-9 billion, i.e. 2.7 per cent of total quota or 11 per cent of required paid-in capital.

[20] An annual contribution of USD 300 million corresponds to an annual fee of 0.1 per cent of a member's quota or, alternatively, USD 1.6 millions per member.

to finance the Fund's core activities. This solution is consistent with the Articles of Agreement, which forbid the direct use of gold to finance IMF's operations (see footnote 4). Under the assumption that the investment account yields 40–60 points above the SDR-interest rate, IMF would have to sell approximately 15 per cent of its gold in order to generate the return of USD 300 million per year that is needed to eliminate the expected deficit. The difficulty of a gold sale lies in the fact that gold is one of the world's major reserve assets and is traditionally a part of every country's foreign reserve. For this reason, IMF and its members have in the past been reluctant to sell gold.[21] IMF's gold makes up a significant part of the world's total gold reserves. A large-scale sale by the Fund would have to be carefully designed to limit the market impact. Thus, an eventual sale of gold is no quick fix. It must be planned well in advance, is likely to be preceded by difficult and lengthy negotiations and the sale itself must be made over a long period of time. One short cut, albeit unlikely, would be for some central banks to agree to buy gold directly from IMF at market price.

Finally we want to mention an interesting suggestion by Polak (1999) that would both increase income and improve transparency.[22] He suggests a merger between the SDR Department and the General Department. The SDR Department administers a managed market for SDRs in which there is no interest-rate margin. In short, this means that unconditional lending through the SDR Department is cheaper than conditional lending from the General Department. A merger of the two departments would allow the Fund to introduce an interest-rate margin that would eliminate this anomaly and increase income. Under the assumption that this lending continues on the same level as in FY 2004–2006 (USD 10 billion) and that the interest-rate margin is equal to the basic margin plus burden sharing, the expected revenue is USD 160 million per year.

Above we have pointed to a gold sale as one solution to IMF's income problem. This solution would give the Fund greater financial independence. Another solution is a substantially decreased remuneration and a broadening of the number of contributors. This solution has the advan-

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21 In 1999, 15 European central banks entered an agreement that regulated their sales of gold. In short, they agreed to not sell more than approximately 400 tonnes per year for the next five years, i.e. 2000 tonnes over five years. In 2004 they renewed the agreement but changed the limit to 2500 tonnes over five years. The central banks that are parties to the second agreement are the European Central Bank and the central banks of Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden and Switzerland.

22 The interested reader is recommended to read Polak (1999) for a more detailed description of the consequences of a merger. The figures above are based on our own calculations and we are solely to blame for any errors.

tage of being in line with the original view of the Fund's financing – to let all members contribute to the Fund's production of public good.

Summary and discussion

The aim with this paper has been to explain and discuss IMF's financial set-up. The Fund is set up like a cooperative bank and finances its core activities mainly through the interest-rate margin that exists between paid-in capital and lending. The current dependence on outstanding credit has successively been built up over time. This has created a structural weakness in the Fund's financing mechanism. The Fund's objective is to promote financial and monetary stability. If it is successful, there will be little demand for financial assistance. At the same time the Fund has become heavily dependent on lending. As a result, in times of low demand for financial assistance the Fund faces difficulties to finance the administration needed for its core activities: surveillance, financial assistance and technical assistance.

The present level of outstanding credit is at the lowest since the early 1980s and is expected to continue to decrease for at least the next few years. This absence of crises has created a growing income gap in IMF's finances. One long-run solution that we point to here is to utilise IMF's hidden reserves in gold by investing the profit from a gold sale. The returns from these investments could then be used to finance IMF's core activities. This would give the Fund a more self-sustained financial basis and thus a degree of financial independence. Another solution would be to lower the rate of remuneration, or to increase the unremunerated part of the paid-in capital, in combination with a broadening of the number of countries that contribute. This solution would be in keeping with the original line of thinking when the Fund was created. Our discussion has focused on increasing income rather than lowering administrative costs. The main reason is the public good nature of the core activities of the Fund and the presence of large synergies between them. This does not rule out that costs have to be kept on tight reins. This requires discipline from members, not only in adding new tasks but also in winding up old ones.

The current financing mechanism is non-transparent and the distribution of the financial burden is very different from the layman's belief. This non-transparency is bad as it also blurs the discussion on suggested changes in IMF. An eventual sale of gold would not in itself solve the problem with the non-transparent system of financing. Additional changes would be needed to make the distribution of the part of the income that comes from members more transparent. The uniform variable

norm has the advantage of making the system more transparent at the same time as most countries would contribute to the financing of the Fund in accordance with their economic strength.

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Swedish households' indebtedness and ability to pay – a household level study*

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Household borrowing has increased considerably in a number of developed countries in the past two decades, both in absolute terms and relative to household income. This has raised concerns about the sustainability of household debt, the household sector's vulnerability and possible implications for the stability of the financial system and banks' loan losses. Given the inherent limitations of analysing aggregate data, such as the mixing of debt holding and non-debt holding households, in its ana-lysis of the household sector's balance sheet the Riksbank has increasingly turned to micro data. Furthermore, this approach allows stress testing of the ability to pay in the household sector. The purpose of this paper is to give a detailed exposé of how the Riksbank uses micro data for analysing the debt-carrying ability of the household sector. What the data tell us, in brief, is that the distribution of household debt in Sweden is highly skewed towards high income earners who also hold a large portion of the household sector's assets. The results also indicate that, despite the considerable increase in household indebtedness in the past decade, Swedish households do not seem particularly vulnerable to rising interest rates or rising unemployment.

Keywords: household indebtedness, income distribution, micro data, stress testing

Introduction

Household borrowing has increased considerably in a number of developed countries over the past two decades, both in absolute terms and

* The views in this paper are solely the responsibility of the authors, and do not necessarily reflect the views of the Executive Board of Sveriges Riksbank.

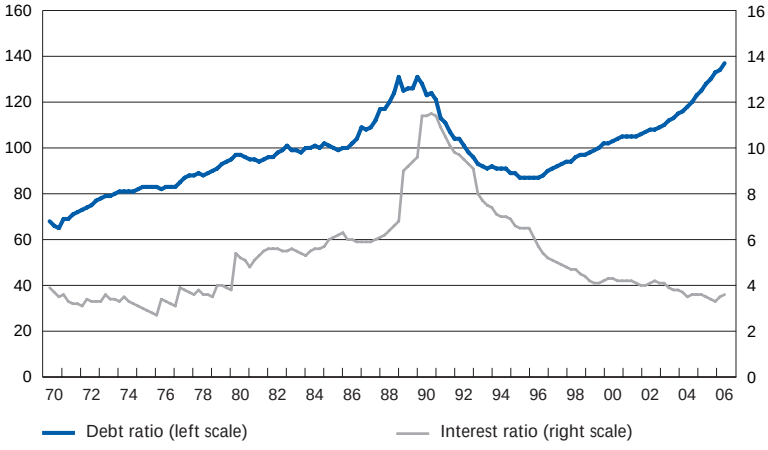
relative to household income (see Debelle (2004) and CGFS (2006)). The increase can be attributed to a number of factors, and structural differences between countries might help to explain why households in some countries have increased their indebtedness more than those in other countries. Two important factors behind the increased indebtedness in developed countries are probably: financial deregulation in the early 1980s, which reduced the level of credit rationing, and the lower levels of interest rates, in both nominal and real terms. At present, the aggregate household debt ratio (household debt as a share of disposable income) in Sweden stands close to 140 per cent, which is roughly twice the figure for 1970. The Swedish credit markets were deregulated in the mid 1980s and this was followed by a rapid increase in household debt (see Figure 1). Sweden's dismal macroeconomic history in the early 1990s is well known and came about when the onset of a global economic slowdown coincided with both an ultimately untenable defence of the Swedish krona and a major overhaul of the tax code.[1] The ensuing sharp rise in interest expenditures placed an excessive burden on households, who responded by sharply cutting borrowing. In the following years, the debt-to-income ratio fell to levels well below those in the period of credit de-regulation (see Figure 1). The mid 1990s saw a renewed increase in the debt burden of Swedish households and this increase has continued up to the present, with debt ratios returning to the levels from just before the banking crisis in the early 1990s (see Figure 1). However, although the debt ratios are almost the same now as then, the current situation differs in a number of important respects. This is evident in the evolution of the interest ratio (interest expenditures as a share of disposable income). Whereas this share rose during the build-up of household debt in the 1980s, in the past decade it has fallen continuously and is now almost at an historic low (see Figure 1). Nonetheless, the increase in indebtedness has raised concerns about the sustainability of household debt, the vulnerability of the household sector and possible implications for the stability of the financial system and banks' loan losses. The purpose of this article is to study the indebtedness and ability to pay of individual indebted households, in order to see if there is a risk of "over-borrowing" and potential significant loan losses in the banking sector. Furthermore, we study what effect macroeconomic shocks, i.e. higher interest rates and increased levels of unemployment, would have on the indebted households' ability to pay.

The situation in recent years has raised questions not only about what the sharp expansion in credit could entail for the vulnerability of the household and banking sectors, but also how the domestic macroeco-

[1] For an excellent account of the Swedish banking crisis in the early 1990s, see Englund (1999).

nomic environment could be affected if this development were to cease. However, this article focuses on the direct stability aspects of the debt situation and leaves any effects on the general macro economy open. The analysis has been performed on wealth and income data from Statistics Sweden for Swedish households in 2004, the most recent data available.

Figure 1. Household debt and (post-tax) interest rate expenditures as share of disposable income
Per cent



Sources: Statistics Sweden and the Riksbank.

In Section 2, we present the data used in the analysis. This is followed in Section 3 by a bird's-eye view of the distribution of income, assets, liabilities and ability to pay within the Swedish household sector. In Section 4, we stress the household sector's balance sheet, with regard to changes in rates of interest and unemployment. We also estimate households' present vulnerability, their indebtedness and ability to pay, given the recent changes in interest rates, disposable income and indebtedness at the aggregate level. In Section 5, we summarise and conclude.

The data set

As mentioned in the introduction, the increase in indebtedness has raised concerns about potential effects on the stability of the financial system, if interest rates or unemployment were to rise. These are vital questions, but trying to answer them using aggregate data from the financial and national accounts will prove difficult, if not impossible. Aggregate data on income do not distinguish between indebted and non-indebted households, where the latter are irrelevant for analysing potential loan losses. Moreover, aggregate data tell us nothing about the distribution of debt, interest expenditures and income. Hence it is possible that pockets of vul-

nerability are masked by financially sound segments of the household sector. Given these limitations, the Riksbank has increasingly turned to micro data, more specifically to the HEK survey, for analysing the household sector's balance sheet. The HEK survey, which is compiled by Statistics Sweden (SCB), is a detailed annual survey of the household sector with data on income, debt and wealth. The survey is based on administrative register information collected from government bodies responsible for income transfers and taxation. Furthermore, approximately half of the participating households are selected for interviews. Each household in the survey is assigned a population weight that corresponds to the number of households in the population which that household represents. This makes it possible to aggregate the micro data for comparisons with data from either the national or the financial accounts. The survey has also been used for more academic purposes; see for example Andersson (2001), Bergmark and Palme (2003), Klevmarken (2003) and Flood et al. (2004).

The number of households in the survey varies, depending on how a household is defined. A household can be defined either as two adults living together (or one adult living alone), with children below the age of 18, or, basically, as all the individuals living under one roof. Using the first definition of a household, the number of participating households is about 20,000. With the second definition, the number is about 17,000. Hence, obviously, the latter definition is more inclusive in its definition of a household. For example, a grown-up child living with his, or her, parents, would count as a separate household using the first definition, but would be included in the parents' household using the second definition.

It is not immediately clear which definition should be used. An example will hopefully clarify the choice at hand. In general, there is a return-to-scale effect of individuals living together with regard to living costs. Thus, for example, a 20-year-old male living with his parents may look financially constrained until one takes into account that his parents are paying for at least some of his running costs. This would suggest that the more inclusive household definition should be used, as it more accurately depicts the conditions "on the ground". However, while his parents may help out with his daily running costs, it does not follow that they would bail him out if he took on debt and were unable to fulfil his debt obligations. Hence, since the focal point of the exercise is loan losses, the Riksbank works with the first, less inclusive definition. In our example, this would mean that our 20-year-old male is counted as a separate household even though he is living with his parents. However, one should not overstate the consequence of which household definition is used. Most of the households look the same, regardless of which definition is used. This

is particularly true of households in the higher income echelons, where, as we shall see, most of the debt in the household sector is concentrated.

While the survey gives a detailed insight into the economy of the household sector, it suffers from publication lags. Statistics Sweden calculates a preliminary version of the survey, which does not include any data on household wealth, about 15 months after the end of a year. The final version of the survey is released a few months later and contains data on households' wealth, besides an adjustment of the sample from the preliminary survey to better match the population. The final version of the survey is released quite soon after the preliminary version, so the preliminary one is used only when the Riksbank's Financial Stability Report is published in the window between their publication.

Another obvious limitation is that the survey only covers assets, liabilities and income that are reported to the authorities. In practice, this means that the survey underestimates households' disposable income, due to wages from the informal sector. It is also likely that the size of assets is underestimated, due to offshore investments that are not properly reported to the tax authorities. On the other hand, there is no incentive to underreport debts, partly because the interest expenditures are tax-deductible, but also because a reported lower net wealth means a lower (or zero) wealth tax. Moreover, real assets are basically defined as real estate, ignoring assets such as jewellery, mink furs, and cars.

Debt, income, wealth and the ability to pay in the Swedish household sector

To analyse the distribution of debt, income, wealth and ability to pay, the household sector is divided into five equally large categories, according to their level of disposable income. The ultimate purpose of the analysis is to find pockets of vulnerability, which, under stress, may translate into loan losses in the banking sector. Households that do not hold any debt, and hence are unable to cause any loan losses, are excluded from the analysis, unless otherwise stated. Thus we study only the indebted households within each income category.[2] Descriptive statistics for the five income categories can be found in Table 1. There it will be seen that high disposable income, high indebtedness and large assets tend to go hand in hand. Note that since we only study indebted households, the number of included households varies between the income categories. In the lowest category, only 18 per cent of the households hold debt and have positive

[2] Besides excluding non-debt holding households, we exclude households with a negative disposable income. A household can, for example, have a negative disposable income if it earns zero (or close to zero) income on labour and/or capital while at the same time paying property or wealth tax.

disposable income. This share rises across the income categories; in the highest, 93 per cent of the households hold debt. It is also instructive to compare the debt and interest ratios in Table 1 with those calculated from aggregate data (see Figure 1). While the aggregate debt ratio in 2004 hovers just above 120 per cent, the highest income category has a debt ratio above 190 per cent. The household sector also seems to have sufficient collateral to back the liabilities, as can be seen from the "assets-to-liabilities" row in Table 1. All income categories have, on average, assets worth more than twice the value of their liabilities.[3]

A more through investigation of the data set shows that the differences can also be quite large within the individual income categories. The most heterogeneous group is category 1. Characterising this group is difficult because it consists of individuals with very different life situations. The statistics show that a major part of these households do not have employment, income, assets or liabilities. Moreover, as can be seen from Table 1, the mean disposable income in this category is quite low and many households would find it hard to make ends meet on such incomes. Hence, there is reason to be sceptical about the quality of the data in the lowest income category.

Table 1. Income, assets and liabilities of indebted households in 2004

Mean values in thousands of SEK unless otherwise specified

Income category	1	2	3	4	5
Disposable income	78	133	192	288	467
Financial wealth	53	68	105	240	516
Real wealth	317	324	491	911	1843
Debt	177	155	255	450	901
Debt ratio (per cent)	185	117	133	156	193
Interest ratio (per cent)	3.9	3.4	4.2	4.9	5.7
Assets-to-liabilities (per cent)	283	290	265	273	278
Included households (per cent)	18	44	61	82	93

Note 1: 1 SEK corresponds to 0.11 euro, or USD 0.13.

Note 2: The definition of household debts excludes study loans.

Note 3: The debt (interest) ratio is defined as household debt (interest expenditures) divided by household disposable income.

Note 4: The last row in Table 1 shows the share of households for each income category that are included in the analysis (i.e. are indebted and have a disposable income larger than zero).

Sources: Statistics Sweden and the Riksbank.

[3] Total assets include households' financial assets including insurance saving, and the market value of owner-occupied and tenant-owned dwellings and secondary dwellings. Other items are rental property, agricultural property and other property, including building sites. Assets also include a small miscellaneous item, "other assets".

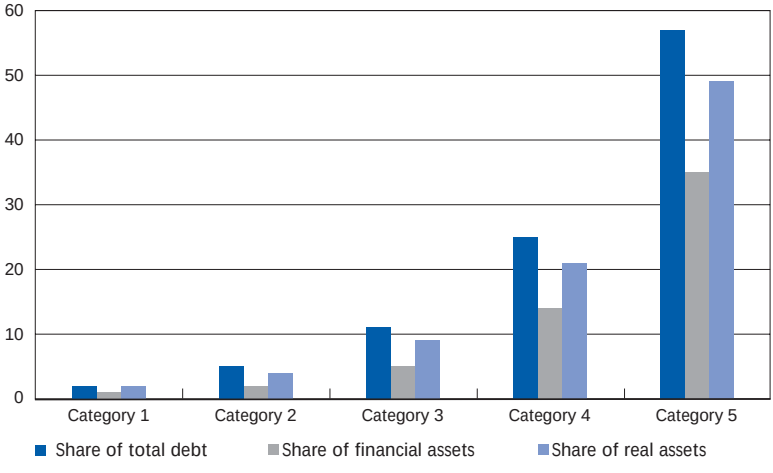
DISTRIBUTION OF ASSETS AND LIABILITIES

In total, assets constitute about 276 per cent of the value of total liabilities, but the distribution is highly skewed towards the top income earners (see Figure 2). The bars in Figure 2 should be interpreted as follows: Indebted households in the highest income category (i.e. the indebted households among the 20 percent households with the highest disposable income) hold 57 per cent of the household sector's total debt (dark blue bar). However, the same households also hold 35 per cent and 49 per cent of the financial and real assets, respectively (grey and pale blue bars). The reader should be aware, that while the debt shares for all income categories sum to 100 per cent, the shares of financial and real assets in Figure 2 do not, because some of the assets are held by households that are not indebted. In total, the indebted households hold 86 percent of the real assets, compared to only 57 per cent of the financial assets. The fact that indebted households hold a larger portion of the real compared to the financial wealth is hardly surprising in that the major share of the household debt has been used to accumulate real assets (i.e. houses and owner-occupied flats). Furthermore, comparisons with earlier years show that the distribution of assets and liabilities across the income categories is stable over time.

HOUSEHOLDS' ABILITY TO PAY

An indebted household can service its debts in two ways, from either disposable income or capital gains from selling off assets. In the longer run,

Figure 2. Indebted households' share of assets and liabilities held in 2004 by income category
Per cent



Sources: Statistics Sweden and the Riksbank.

most households would find it hard to service their debts from capital gains, so this way is presumably used as a last resort to avoid default. Unlike real assets, financial assets are relatively easy to realise, and can therefore serve as a short-term buffer against unexpected, temporary, drops in disposable income. Nonetheless, under normal circumstances, households service debts from disposable income, so a study of households' ability to pay also requires some idea of how large a proportion of the income is dedicated to interest expenditures and how much income is left when debts have been serviced. As was shown in Table 1, households with high income, in general, have both a higher interest ratio and a higher debt ratio.

In order to get an idea of households' vulnerability to changes in income or expenditure, the economic margin of household j, M_j, is calculated:

$$M_j = Y_j - iD_j - RC_j$$

where Y_j is the household's disposable income, iD_j is the interest expenditure and RC_j are other running costs. The margins thus measure how much income each household has left after it has serviced its debts and paid the necessary living costs. A margin of less than zero means that the household would find it hard to make ends meet and might therefore default on its debts. In our analysis, we assume that the probability of a household j defaulting on its debts (p_j^D), is one if the margin is less than zero and that if the margin is larger than (or equal to) zero the household will not default.

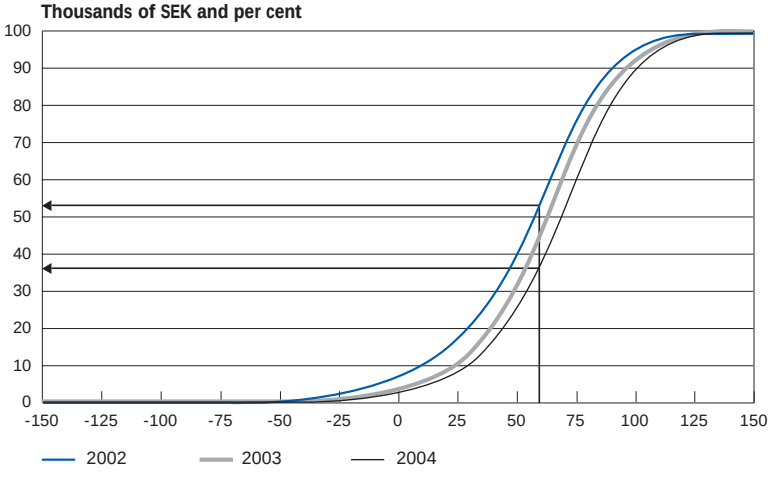
Living costs, RC_j, consist of two components. One is what roughly can be described as day-to-day expenses, such as clothes and food. Statistics Sweden calculates the minimum each household needs to cover such costs, taking into account the household's size and composition. The other component is non-interest housing costs, such as electricity and rent. Unfortunately, the HEK survey provides no information on these costs. However, Statistics Sweden publishes another (much smaller) expenditure survey (the HUT survey), which does contain information on such costs for each income decile. To estimate these non-interest housing costs for each household in the HEK survey, we map these expenditures from the HUT survey to the HEK survey, i.e. the top ten percent earners in HEK all get the same costs as the mean of the top ten percent earners in the expenditure survey. Nonetheless, the running costs are probably somewhat underestimated, with regard to both their mean and variance. For example, we have no information on the cost of child care. Moreover, individuals who work need to transport themselves to and from work

twice a day. This can either be very cheap (walking) or expensive (car). The analysis of the ability to pay is also somewhat simplified because, in reality, a household can find it harder to realise its assets (especially real assets) or adapt to lower running costs.

A convenient way to illustrate the distribution of the households' ability to pay is to calculate the cumulative distribution of the margins for each income category, which looks like an S-shaped curve (see Figure 3). This gives an indication of how many households in each income category are below margin and how close the other households are to the margin. In Figure 3 we plot the cumulative distribution of the households' margins for income category 3 for the years 2002, 2003 and 2004.[4] Figure 3 should be interpreted as follows: in 2002, about 53 per cent of the households in income category 3 had an annual margin of not more than 60 000 SEK. In 2004, this share had decreased to 37 per cent. Thus, the households in income category 3 have significantly strengthened their financial position between 2002 and 2004. By moving the vertical line (the one at 60 000 SEK in Figure 3) to the left and right, one quickly gets an idea of how sensitive the households in each income category are to changing income or increasing costs.

However, as the ultimate purpose of the study is to monitor potential loan losses in the banking sector, it does not suffice just to calculate the proportion of households below the margin, without taking into account their share of the household sector's total debt and the value of the assets that can be used to cover losses incurred by default. Hence, we calculate

Figure 3. Cumulative distribution of household margins for income category 3
Thousands of SEK and per cent



Sources: Statistics Sweden and the Riksbank.

[4] The households' margins for 2002 and 2003 are calculated from earlier versions of the HEK survey.

two measures: "Exposure at Default" (EAD), which measures the share of total household debt held by households with a margin less than zero, and "Loss Given Default" (LGD), which measures the share of debt held by households with a margin less than zero that is not covered by the households' financial or real assets. More specifically, LGD is calculated as follows: if a household defaults on its debts (i.e. the household's margin is less than zero), the creditors stand to lose a negative value of the household's net wealth, NW_j. For example, if a household defaults on its debts and has assets and liabilities worth 8 000 SEK and 10 000 SEK, respectively, the creditor will suffer a credit loss equal to –(8 000 –10 000) SEK = 2 000 SEK. If net wealth is greater than (or equal to zero) the default will not incur any loan loss to the creditors because the debts are fully covered by the assets. In the example above, if the defaulting household had assets worth 12 000 SEK, the creditor would not suffer any loan losses, as the value of the assets covers the liabilities by a margin of 2 000 SEK. To calculate the projected loan loss generated by each household, we multiply p_j^D (which is either 1 or 0) by L_j (which is the negative value of net wealth, assuming that this is negative). The loan losses can then be summed, either within income categories or across the entire population. The LGDs are then defined as aggregate projected loan losses divided by the outstanding stock of household debt.

Formally:

$$p_j^D = \begin{cases} 1 \text{ if } M_j < 0 \\ 0 \text{ otherwise} \end{cases}$$

$$L_j = \begin{cases} -NW_j \text{ if } NW_j < 0 \\ 0 \text{ otherwise} \end{cases}$$

$$LGD = \frac{\sum_j (p_j^D \times L_j)}{\text{total household debt}}$$

TABLE 2. VULNERABLE HOUSEHOLDS, EAD AND LGD

Per cent

Income category	Share of households below margin in each income category	EAD (as share of total debts)	LGD (as share of total debts)
Income category 1	64.2	1.8	0.49
Income category 2	6.4	1.2	0.14
Income category 3	2.8	1.4	0.09
Income category 4	0.5	0.6	0.04
Income category 5	0.1	0.7	0.11
All income categories	6.3	5.6	0.9

Sources: Statistics Sweden and the Riksbank.

It is worthwhile stressing that our LGDs are not necessarily identical to those calculated by the banks. Our measure should be viewed as a risk metric that we are able to construct, given the data available to us, not as an attempt replicate the LGDs in the banks' loan books.

In Table 2 we calculate some statistics on the proportion of households with negative margins, EADs, and LGDs within each income category. Table 2 should be interpreted as follows: the second column lists the proportion of indebted households that are below the margin per income category; these households are also called "vulnerable" households. The next column shows the vulnerable households' share of total household debt. The last column shows the debts, held by vulnerable households in each category, that are not covered by assets, as a share of total household debt. For example, in income category 2, 6.4 per cent of all indebted households have a margin of less than zero. These 6.4 per cent, in turn, hold 1.2 per cent of all household debt. If these households were to default on their debts, their assets would be claimed by the creditors. The debt held by the defaulting households that would not be covered by the assets amounts to 0.14 per cent of the total debts held by the household sector. Repeating the exercise for all the indebted households leads to the conclusion that 6.3 percent of all the indebted households in the survey have negative margins and thus, at least technically, run a risk of cancelling their debt servicing. Together, these households hold 5.6 per cent of total household debt. If they were to default on their debts, the creditors would suffer losses corresponding to 0.9 per cent of total household debts. This figure is substantially higher than actual loan losses as reported by the banks. Although some of the lending to households is channelled through other creditors, whose loan losses are presumably higher than those of banks and mortgage institutions, one cannot disregard the fact that projected loan losses of 0.9 per cent seem to be on the high side. In practice, it means that, according to the survey, households would default more frequently on their debts than they actually do.[5] Another point to note is that more than half of the loan losses stem from the lowest income category, even though this category holds only 2 per cent of total household debt (see Figure 2). This supports the suspicion aired earlier, that households, especially in the first income category, have incomes and assets that are not recorded in the survey.

[5] At the height of the banking crisis in Sweden, the banks suffered losses on their loans to households that were equivalent to 0.7 per cent of outstanding household debt.

Stress testing the household sector

In the event of a marked deterioration in the ability to pay, due for example to higher interest rates or increased unemployment, some households could encounter difficulties in servicing their debt, and banks' credit risks would mount. While the cumulative distribution of the margins, presented in the previous section, is useful for visualising the margins, it is not really useful for stress testing, unless we translate hypothetical macroeconomic outcomes into shifts in the share of vulnerable households, EAD and LGD. This section presents partial arithmetic examples that show how the ability to pay and the risk of loan losses are affected by a rise in the interest rate and unemployment. The ability to pay is tested with the assumption that the interest rate is raised by 1–3 percentage points and that unemployment likewise increases by 1–3 percentage points. The effects that are studied are the change in the proportion of vulnerable households, the impact on banks' exposure to this group (i.e. the EAD) and the projected LGDs. How the proportion of vulnerable households changes, after the deterioration in their finances, indicates their sensitivity. The fraction of the households' total loans that can be attributed to these vulnerable households can be seen as a measure of the increased credit risk in lending, and the LGD as a measure of how severe the loan losses would be if the vulnerable households indeed defaulted. It should be pointed out that these partial calculations do not take account of stylized business cycle effects. Normally, interest rates rise in conjunction with more robust economic activity. Such conditions are also accompanied by stronger household income, but this has not been included in these calculations, in which income is held constant.

EFFECTS OF RISING INTEREST RATES

The sensitivity of households to changes in the interest rate depends on the fixed-rate terms of their loans. A change in rates affects households with variable-rate loans immediately, while for fixed-rate loans the effect is not felt until the loans are renegotiated. In the following calculations, the short-term effects are studied first, given the fixed-rate terms that Swedish households have on their loans.[6] This is followed by an analysis of the long-term effects that arise when the change in the interest rate affects the entire debt stock. All the loans are assumed at that stage to have been renegotiated at the new, higher rate.

The second column in Table 3 shows the effect of a zero rise in the

[6] About 60 per cent of the loans in the stock of household debt are at fixed rates.

interest rate, which of course simply reproduces the results from Table 2. A rise of 1 percentage point in the general level of interest rates would result in an increase in households' average interest ratio from 5.1 to 5.4 per cent in the short term. In the long run, when all loans have been renegotiated at the new, higher, level of interest, the interest ratio rises to 5.9 per cent. The proportion of households below the margin is largely unchanged (from 6.3 per cent to 6.4 per cent in the short run and 6.6 per cent in the long run). The LGDs (i.e the debts of the vulnerable households that are not covered by assets) are also essentially unaffected. Thus, the credit risk in household lending is almost insensitive to a 1 percentage point increase in the interest rate. At the other extreme, if the interest rate rises instead by 3 percentage points, the average interest ratio would increase to 6.1 per cent in the short run, and 7.6 per cent in the long run. But the sharper rise in interest rates does not greatly affect the proportion of households below the margin (6.7 per cent and 7.3 per cent, in the short and long run, respectively). The EAD increases somewhat more (to 7.2 per cent and 9.2 per cent, in the short and long run, respectively) and the LGD increases to 1.1 per cent in the short run and 1.4 per cent in the long run.

Table 3. Effects of rising interest rates

Per cent

Rate increase (percentage points)	0	1	2	3
Households below margin in each income category	6.3	6.4 (6.6)	6.6 (7.1)	6.7 (7.3)
EAD	5.6	5.8 (6.8)	6.5 (8.2)	7.2 (9.2)
LGD	0.9	0.9 (1.1)	1.0 (1.3)	1.1 (1.4)
Interest ratio	5.1	5.4 (5.9)	5.7 (6.7)	6.1 (7.6)

Note: The estimates outside the parentheses denote the immediate effect of an interest rate hike, where the effect is confined to loans with adjustable interest rates. The estimates inside the parentheses denote the long-term effect when the entire debt stock has been renegotiated at the higher interest rate.

Sources: Statistics Sweden and the Riksbank.

The important question is, of course, whether the projected LGD following an interest rate hike of 3 percentage points is a cause for concern. The answer is probably no. First of all, during the banking crisis in the early 1990s, the losses on loans to households amounted to 0.7 per cent of total household borrowing and, unlike losses on commercial property, never posed any serious problems for the banking sector. Secondly, while our projected LGD amounts to 1.1 and 1.4 per cent (in the short and long run), it grossly overstates actual LGD (see the previous section). Hence, if the interest rate were to rise by 3 percentage points, the actual LGD would be far lower than our projected LGD. Hence, it is not likely that a three percentage point increase in the interest rate would entail any significant problems for the banks in the form of loan losses.

EFFECTS OF RISING UNEMPLOYMENT

In the event of unemployment, an individual suffers a loss of income equivalent to the difference between the earlier wage and the unemployment benefit. Could an increase in unemployment affect the banks' loan losses in a way that would give cause for concern? We employ a Monte Carlo approach and simulate the effects of unemployment among the employed individuals, where all a household's individuals with employment run the risk of becoming unemployed. Given a simulated increase in the level of unemployment and using the current rules for unemployment benefits, disposable income and all other statistics are recalculated. The simulations are repeated 1 000 times for each level of aggregate unemployment. In these calculations, all gainfully employed persons have been assigned an equally large probability of becoming unemployed. In reality, those running the highest risk of becoming unemployed in an economic downturn are those who recently joined the labour market (i.e. youths, immigrants and previously unemployed). As these individuals in general have not accumulated any substantial amounts of debt, the implied effect on the banks' loan losses from an increase in unemployment is likely to be overestimated.

TABLE 4. EFFECTS OF RISING UNEMPLOYMENT

Per cent

Increase in unemployment (p.p.)	0	1	2	3
Households below margin in each income category	6.3	6.5	6.6	6.7
EAD	5.6	5.8	6.1	6.3
LGD	0.9	0.9	0.9	0.9
Interest ratio	5.1	5.1	5.1	5.2

Note: The estimates are the medians of the Monte Carlo replicates.

Sources: Statistics Sweden and the Riksbank.

The results from the simulation can be seen from Table 4, which is constructed in an identical manner to Table 3. Following an increase in the unemployment rate by three percentage points, the proportion of vulnerable households rises from 6.3 to 6.7 per cent, while the EAD at the same time increases from 5.6 to 6.3 per cent. More importantly, however, is that the LGD is essentially unchanged, even in the face of a 3 percentage point rise in unemployment. That the interest ratio is not affected is partly because the interest rate is held constant in the calculations and partly because the decline in disposable income caused by the rise in unemployment is too small to have an impact on the ratio. The important lesson from comparing Tables 3 and 4 is that the effects on the households' ability to pay are far less in the event of an increase in unemployment than in

the case of a rise in the interest rate. One explanation for this is the composition of the households' debt and income. Household debt is by and large concentrated to the highest income category. These households often consist of two employed adults, and hence the household has dual incomes. Thus, even if one individual in the household becomes unemployed, the other's income, together with the unemployment benefit, is usually enough to cover living costs and interest expenditures.

FALLING ASSET PRICES AND LGDS

Even if a household defaults on its loans, the creditors will still be able to recover a clear majority of debts from the household's assets, as indicated in Tables 3 and 4. However, the estimates in those tables are based on the prevailing value of the real and financial assets (which conceptually translates into the existing residential property prices and share prices). In a situation of macroeconomic stress, the value of both real and financial assets is likely to fall, so that an asset-to-liability ratio which may have seemed prudent in good times might no longer be adequate. It is clearly possible to calculate a very large number of combinations of a fall in wealth, rising unemployment and interest rate hikes, but presenting the results without resorting to burdensome tables would be very hard. From previous sections it was clear that, for loan losses, a rise in the interest rate poses a greater threat to banks than a rise in unemployment. Thus, it seems reasonable to investigate how the LGD is affected by the combination of a sharp rise in the interest rate and a fall in the level of wealth.

TABLE 5. LGD AND FALLING ASSET PRICES COMBINED WITH A 3 PER CENT INCREASE IN THE INTEREST RATE

Per cent

Remaining financial wealth →	100 %	90 %	80 %	70 %
Remaining real wealth ↓				
100 %	1.1 (1.4)	1.1 (1.5)	1.1 (1.5)	1.1 (1.5)
90 %	1.2 (1.6)	1.2 (1.6)	1.2 (1.6)	1.2 (1.6)
80 %	1.3 (1.7)	1.3 (1.7)	1.3 (1.8)	1.3 (1.8)
70 %	1.4 (1.9)	1.5 (2.0)	1.5 (2.0)	1.5 (2.0)

Note: The estimates outside the parentheses denote an interest rate hike's immediate effect, which is confined to loans with an adjustable interest rate. The estimates inside the parentheses denote the long-term effect when the entire debt stock has been renegotiated at the higher interest rate.

Sources: Statistics Sweden and the Riksbank.

Table 5 shows the combined effect of a 3 percentage point rise in the level of interest and an erosion of real and financial wealth. Judging from Table 5, the LGDs are much more sensitive to changes in real wealth than to changes in financial wealth. This is hardly surprising, given that real

wealth corresponds to nearly 80 percent of total household wealth. It has been asked whether the combination of a sharp interest rate increase and a fall in residential property prices could put the banking sector under strain. The answer to this question, according to Table 5, is no. Suppose that the interest rates were to rise by 3 percentage points. All else equal, that would lead at most to a fall in house prices of 20 per cent, according to econometric estimates by the Riksbank, see Financial Stability Report 2005:2. A 20 per cent fall in house prices (which roughly would translate into a 20 per cent drop in real wealth) combined with a 3 per cent interest rate hike would, according to Table 5, shift the LGDs from their present ratio of 0.9 per cent to 1.3 per cent in the short run and 1.7 per cent in the long run. Hence, in the long run, loan losses from household borrowing would barely double. Given that present actual loan losses (as reported by banks) are close to zero, it would be hard to argue that such a shift would put the banking sector under severe strain.

HOUSEHOLDS' ABILITY TO PAY IN 2005

So what is the current situation for individual households' ability to pay? Since 2004, households have continued to borrow at a high rate, and the value of real and financial assets has risen. To what extent has this influenced the proportion of vulnerable households, the EADs and the LGDs of the population? To estimate this, we use aggregate data from the national and financial accounts to, in effect, try to forecast what the HEK survey will look like in 2005. This, of course, ignores the "micro aspects" of the data set, but abstracting from those and focusing on aggregate credit losses, the forecasts can still be of interest. In this case, we use aggregate data on interest payments, debt, disposable income, residential property prices, stock indices and inflation and map the evolution of these variables between 2004 and 2005 for each household in the survey, i.e. each and every household gets an equal increase (in percentage terms) in disposable income, debt, wealth, cost-of-living etc.

These calculations are shown in Table 6. As expected, the household sector as a whole has continued to strengthen its financial position during 2005. The proportion of vulnerable households has dropped to 5.7 per cent, the EAD has dropped to 5.2 per cent and the LGD has edged down 0.1 percentage point. Thus, if anything, the credit risk in lending to households has continued to fall since the end of 2004.

TABLE 6. VULNERABLE HOUSEHOLDS, EAD AND LGD, ALL INCOME CATEGORIES

Per cent

	Share of households below margin	EAD (as share of total debts)	LGD (as share of total debts)
2004	6.3	5.6	0.9
2005 (forecast)	5.7	5.2	0.8

Sources: Statistics Sweden and the Riksbank.

Summary and concluding remarks

Household borrowing has increased considerably in recent years in Sweden and this has raised questions about what it entails for the vulnerability of households and the banking sector. In this paper we have studied households' assets, liabilities and ability to pay, using Swedish micro data from 2004. One important conclusion is that a majority of the loans are held by households with high incomes as well as a major share of real and financial assets. In fact, the 20 per cent top earners account for 57 per cent of the debts and 44 per cent of the household sector's total assets. Only 0.1 per cent of these households were deemed to be vulnerable in the sense that they would not have margins to cope with adverse changes to their balance sheets. The most vulnerable households, those that have no margins for unexpected expenses, are largely debt-free. We also stress tested households' balance sheets, subjecting them to both mild and sharp increases in the interest rate and the level of unemployment. The lesson from these stress tests is that the household sector is much more sensitive to increases in the interest rate compared to changes in the level of unemployment. However, not even a sharp increase in the interest rate (such as an instant increase of 3 percentage points), combined with large falls in the value of the household sector's real assets, was deemed to be sufficient to generate loan losses in the banking sector that are large enough to pose a threat to the stability of the financial system. The high indebtedness could, however, give rise to problems for individual households. Although household indebtedness at present is unlikely to inflict significant loan losses on the banking industry, it is clear that the situation that has prevailed in recent last years, with debt growing at twice the rate of nominal income, is unsustainable in the longer run. This point has also been made in the Riksbank's Financial Stability Report (2006:1).

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Global imbalances and the US current account deficit

BENGT PETTERSSON

The driving forces behind the large and persistent saving imbalances around the world are numerous and complex. They stem from the strong development of emerging-market economies as well as from the United States. The risk of abrupt adjustments that have very negative effects for the world economy has been discussed for a long time. An abrupt adjustment cannot be ruled out and many economists therefore view such a scenario with concern. But there are also arguments that the development to date is not indicative of any genuine imbalances but is being driven by households and firms looking ahead and for the greater part making rational decisions in efficient and globalised markets.

Summary

The growing regional current account surpluses and deficits are often referred to as "global imbalances". The US current account deficit has increased rapidly in recent years and the 2005 figure was over 6 per cent of GDP. Rising wealth in the United States has contributed to a fall in household saving, while the increase in corporate liabilities in the early 2000s was connected with high investment. Other factors have been decreased public sector saving in the early 2000s, high potential growth and a greater dependence on oil compared with other countries. The US current account deficit has much of its counterpart in surpluses in a number of Asian and oil-producing countries, characterised by restrained investment and high saving. A part of these surpluses has been invested in the US bond market and the capital inflow has contributed to low US long-term interest rates, thereby stimulating consumption. The inflow can be said to have financed the US current account deficit.

The epithet "global imbalances" implies that the situation is not ultimately sustainable. It can indicate that households and firms have based consumption and investment decisions on irrational grounds. Some economists therefore consider that the adjustment which many see as inevitable will be abrupt and entail major negative effects for the global

economy. But there are many arguments in favour of the situation being less vulnerable and that corrections will not be a problem. When the US current account deficit underwent an adjustment in the latter half of the 1980s, this did not have any clearly negative effects on the global economy. Since then, moreover, global free trade has expanded, international financial markets have been deregulated and globalisation has continued to accelerate. This means that, compared with twenty years ago, financing investment and consumption with foreign loans is much more feasible. The free movement of capital and greatly increased access to information reduce the risk of the type of abrupt financial market corrections, triggered by untenable capital controls, that occurred earlier. There are grounds for arguing that the players in the world economy for the greater part have acted rationally. Stabilisation policy has been improved throughout the world, not least in the United States, and inflation is historically low. Developments in recent years have also increased the probability that an adjustment of the global imbalances will be gradual. Public saving has risen rapidly in the United States, growth has picked up in Japan and the euro area, and China's exchange rate policy shows signs of greater flexibility.

Global imbalances

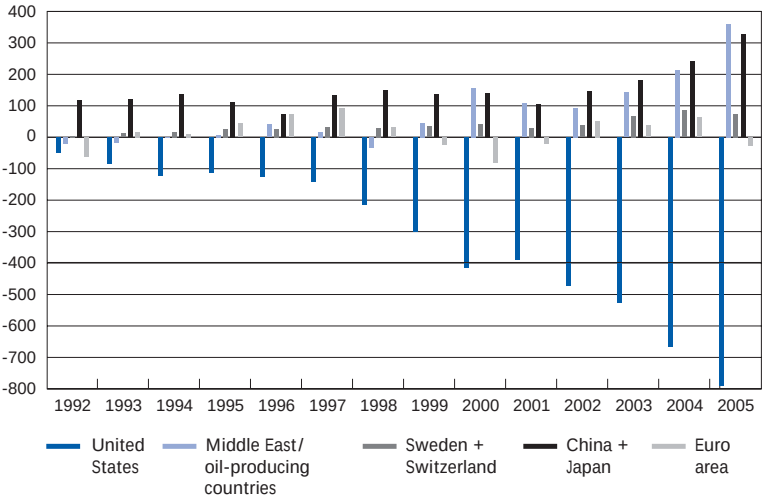
The US current account deficit is matched to over 95 per cent by the surpluses in China, Japan, a number of oil-producing countries and some small open economies such as Sweden and Switzerland (see Figure 1).[1] In the euro area the balance of trade fluctuates around zero.[2]

The expression "global imbalances", which is used in this article as a generally accepted description, implies that sooner or later there will have to be an adjustment to levels of assets and liabilities in the global economy that are sustainable in the longer run. However, there are instances of countries running a current account deficit for considerably longer than

[1] For countries that produce and export oil, a rising oil price has tended to strengthen the current account. In these countries, public saving has increased markedly because governments have been cautious about using the oil revenue for domestic investment and consumption; in most cases a large part of the surplus from oil has been invested instead in state-owned oil funds and the US bond market. Switzerland's current account surplus comes in part from the financial sector, not least the export of banking services. The largest of the other positive contributions to the global current account come from a number of emerging market economies in Asia. Due to measurement problems, however, a compilation of the national current accounts does not sum to zero. Starting from the balances for developed economies and emerging market economies as reported in IMF World Economic Outlook, September 2006, Tables 27 and 28, the global balance for 2005 was –61 billion US dollars, which is equivalent to not quite 8 per cent of the US current account deficit.

[2] Inside the euro area, however, the picture is not uniform, with large surpluses for Germany and the Netherlands and deficits for France, Italy, Portugal and Spain.

Figure 1. Current account balances for some countries and regions 1992–2005
USD billion



Note: Middle East/oil-producing countries refers here to the Middle East, North Africa, Norway, Russi and Venezuela.

Sources: IMF International Financial Statistics, IMF World Economic Outlook September 2006, May 1998 och Russia's Central Bank.

has been the case in the United States.[3] Deregulated international capital movements and increased free trade suggest that such an adjustment will not be abrupt.[4] So one cannot rule out the possibility that the imbalances will continue for a long time to come.

CAUSES OF THE IMBALANCES

The following identity can serve as a starting point for analysing what lies behind the growing US current account deficit:

$$CA = HS + BS - (G\text{-}T), \qquad (1)$$

where CA = current account balance, HS = household sector net saving, i.e. saving less investment, BS = business sector net saving, and (G–T) = government sector net saving.[5]

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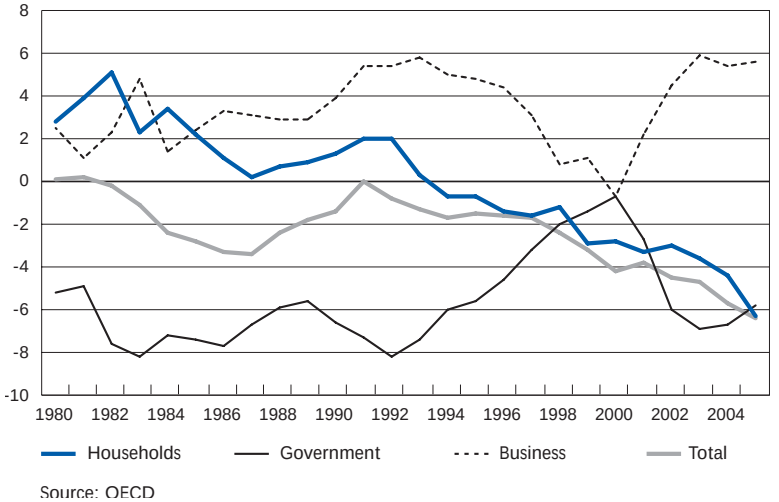
3 According to the statistics in OECD Economic Outlook 79, June 2006, there have been deficits in Australia since 1973 (average 4.1 per cent of GDP), in New Zealand since 1973 (5.4 per cent), in Greece since 1975, which for Greece is as far back as these figures go (5.1 per cent), in Mexico since 1988 (2.7 per cent) and in the United Kingdom since 1984 (2.0 per cent). Besides these instances, a number of new EU member states have had sizeable deficits for the past ten years or more.

4 Arguments for this are presented further on in this article.

5 Note that government net saving as considered here is not commensurate with what is normally meant by the public finances and budget balances. Net saving refers here to net government saving vis-à-vis the rest of the world. The difference is partly due to how development assistance, remission of developing countries' debt and defence expenditures abroad are booked. For 2005, government net saving in terms of the contribution to the current account amounted to –5.8 per cent of GDP, while the government sector's consolidated budget balance stopped at –3.7 per cent of GDP.

Figure 2. Household, business and goverment net saving as countributions to the US current account balances 1980–2005
Per cent of GDP



Source: OECD

Figure 2 shows how components of the US current account balance have developed in terms of this identity in the past quarter century.

The current account deficit's rising trend since the beginning of the 1990s comes in part from a fall in household saving. Moreover, business net saving decreased in the 1990s in connection with rapidly rising investment. The developments in the private sector were partly offset by increased government saving. Business net saving then rose dramatically during the economic slowdown in the early 2000s; firms curbed expenditure on investment and labour, accompanied by rising business income as government tax cuts stimulated household consumption. Meanwhile, the government finances deteriorated. In recent years, however, the government finances have improved considerably in connection with strong economic growth, while business net saving has stabilised at a high level. Household net saving has, however, continued to decrease, probably as a consequence of rapidly growing wealth.

It would be wrong, however, to explain the development of the US current account solely in terms of domestic factors. The deficits naturally have their counterparts in surpluses on average in the rest of the world. The US deficit can be said to be financed with other countries' saving surpluses that are invested in US bonds. Demand for bonds has pushed long-term interest rates down and that has helped to sustain the high demand in the US economy. Ongoing globalisation has made it increasingly possible to produce goods and services in low-cost countries for subsequent consumption in, for example, the United States. As long as these global market participants find the situation satisfactory, adjustments will not be abrupt.

An important aspect of the increased global imbalances in recent years is the sharply rising price of oil. This has affected foreign trade both directly, with a negative impact on net oil importers' current account, and indirectly depending on the extent to which a country has benefited from the oil producers' demand for imports. A broader picture of the factors behind the US deficit can be obtained by rewriting identity (1) as:

$$CA^{USA} = S^{USA} - I^{USA} = I^{RW} - S^{RW} \qquad (2)$$

where S and I are national saving (private + public) and national investment, respectively. This identity states that the US saving deficit must be matched by a saving surplus in the rest of the world (RW).

The large US current account deficit is evidently a consequence of a number of interrelated factors, external as well as domestic. The factors that are usually mentioned are considered in more detail below. As discussed there, these factors tend to involve both sides of a coin – a surplus in one country/region has its counterpart in deficits elsewhere. The account therefore largely amounts to a description of different aspects of a particular issue.

LOW US SAVING (S^{USA}) AND HIGH SAVING IN ASIAN AND OIL-PRODUCING COUNTRIES (S^{RW})

When the US current account deficit increased in the 1990s, the government budget was improving (see Figure 2). This is explained by stricter budget discipline and the introduction of an expenditure ceiling, combined with decreased household saving and rapidly rising private investment. Domestic demand was stimulated by interest rates that were low because the Federal Reserve was able to keep its policy rate down thanks to strong productivity growth and low inflation expectations.

In the early 2000s an expansionary fiscal policy contributed to the continued increase in the current account deficit. Tax cuts and rising government expenditure helped to boost consumption and generate rising imports. However, the relationship between the budget balance and the current account balance is relatively weak because decreased public saving often makes up for increased private saving and vice versa.

In recent years the budget balance has been substantially improved by rapidly rising tax revenue in connection with the strong economic growth. Even so, the current account has continued to weaken.

The low national saving reflects low household saving, which partly has to do with greatly increased financial and real wealth in the form of equity (see the next section) and residential property. Housing policy has

probably been a major factor behind the decline in household saving in recent decades. Particularly in the past two decades, this policy has favoured home ownership (the "home-owner society"). Home ownership has spread as a consequence of the financial sector's deregulation in the 1980s and the introduction of new forms of borrowing, giving more and more households access to credit. An increased demand for owner-occupied dwellings has probably contributed to the increase in house prices that, via additional mortgaging, has tended to stimulate consumption. It can be argued that many households perceive home ownership, not as consumption but as a form of saving. Maintenance, repairs and extensions increase the value of a component of wealth that has been growing rapidly for a long time. In the national accounts, however, this is largely treated as households' consumption of services.

Another factor behind the low saving, at least in the past ten years, has probably been households' confidence in the future. Expectations that economic growth will continue to be favourable have strengthened beliefs in a stable labour market and further increases in real disposable income. Households have therefore been willing to bring forward some of their consumption. Low long-term interest rates have also stimulated household consumption and another factor behind their optimism is probably that a very large proportion of house mortgage rates are fixed for thirty years.[6] An interest rate increase does, of course, hit new borrowing, while decreased demand for housing and more subdued house prices put an end to the expansionary effect on consumption. But it is perhaps more important that even if interest rates rise rapidly, a very large proportion of borrowers are protected from increased interest costs. It can therefore be argued that for households in general, the overall effect of an interest rate increase may be smaller than many believe. In recent years the high oil price has subdued households' optimism about the future but a falling oil price has broken this tendency.

The future path of household saving in the United States is difficult to predict. But one argument in favour of increased saving is the uncertainty about the long-term problems of financing the public pension system and the deficit on corporate pension commitments. Another argument is the negative wealth effect that would be the case if the significant downturn in the housing market, which has occurred during the last year, were followed by a weaker trend growth in house prices than before. Up to now the negative wealth effects due to the development in the housing sector have been compensated by a strong development of equity prices. But any changes in saving behaviour will probably not be rapid.

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[6] For 85–90 per cent of households, interest rates are fixed for thirty years, with a right to renegotiate loans at a cost that is low in this context.

Turning to the regions with a current account surplus, saving is generally high in Asia as well as in oil-producing countries. This applies mainly to private saving in the emerging-market economies in Asia and to Japan. A probable reason for the high saving is uncertainty about future public-financed pensions for an aging population. In China, saving has risen rapidly in the transition from a centrally-planned economy to more of a market economy. One explanation could lie in precautionary saving by households in order to be able to finance future costs for education, health care and pensions in a situation where, for various reasons, the social welfare system has more or less fallen apart. Looking ahead, however, there are arguments for a future decline in private saving in Asia as the emerging-market economies mature and populations age.[7]

A large proportion of the increased saving in Asia, as well as in other countries with a current account surplus, has been invested in US bonds. The return has been high in relation to the low risk.[8] Moreover, the American financial market is very liquid and diversified.[9] A wide range of instruments is available for investors who want to adjust their risks. This means that the US market is very likely to provide investors with what they are looking for. The strong demand for bonds is probably a major factor behind the low long-term interest rates in the United States.[10] Exchange-rate interventions by Asian central banks with a view to countering an appreciation of their currencies have led to dramatically increased foreign reserves in recent years. China aimed for exchange-rate stability in order to underpin its underdeveloped domestic financial sector. This has also probably been a component of the policy for economic growth geared to exports. In the past year or so, China's exchange-rate policy has been more flexible and some effective appreciation of the renmimbi has been tolerated. The increased foreign reserves, particularly in China, can also be seen as a way of building up a buffer against the possibility of future economic crises. The investments can be said to have helped to finance the US current account deficit. However, the share of global saving that is invested in the United States is still relatively small, which should mean that there continues to be room for increased external portfolio investment in the United States.[11]

The oil-producing countries' current account surplus has grown as a consequence of the rising price of oil. From the low of $9 a barrel for Brent Blend at the end of 1998, the oil price rose to almost $40 in 2004

7 See the analysis on p. 11 in Eichengreen (2005).
8 See e.g. Mann (2002) p. 131.
9 See Mann (2002) p. 141.
10 See Bernanke (March 2005).
11 See Mann (2002) p. 145.

and over $50 in 2005. A high of almost $80 a barrel was reached in August 2006, since when the price has fallen markedly. A part of the oil revenue in recent years has been reinvested in the production of oil but saving and the current account surplus have still increased rapidly. Today, the oil-producing countries around the Persian Gulf have current account surpluses that average around 30 per cent of GDP,[12] accompanied by budget surpluses that average over 20 per cent of GDP. There are indications that a large proportion of the oil sector profits in these countries has ultimately been invested, as in the case of Asia, in the US bond market. This, too, has probably exerted a downward effect on American long-term interest rates.

Large amounts of capital have accordingly flown from Asian and oil-producing countries to the United States. For a long time now the net capital flow to the United States has approximately matched the current account deficit. So to date the rest of the world seems to have had a strong propensity to invest in US assets. If saving in Asia were to decline, for instance because welfare systems are built up, there are arguments that point to a rising trend for long-term interest rates in the United States. However, such an effect can take a long time to materialise.

HIGH US INVESTMENT (I^{USA}), LOW INVESTMENT IN ASIAN AND OIL-PRODUCING COUNTRIES (I^{RW}) AND EXCHANGE-RATE POLICY IN ASIA

Investment in the United States in the 1980s and 1990s, particularly in the IT sector, led in time to major positive effects on productivity that were accentuated by business reorganisation and internal training.[13] Many firms were obliged to make these changes to cope with the strong competition in the United States. The flexible labour market there probably facilitated the process. In the period 1996–2005 annual productivity growth averaged 2.2 per cent[14] compared with the historical average of 1.4 per cent for the period 1961–95. It is noteworthy that during the economic slowdown at the beginning of the 2000s, this productivity growth slackened only marginally. The high productivity growth has been accompanied by a persistently rapid expansion of employment. Labour supply has increased, partly due to substantial labour immigration, much of it probably in the form of young entrepreneurs. The statistics on immigra-

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12 See "Summary Appraisal, Gulf Cooperation Council Countries", Institute of International Finance, August 15 2006.

13 See e.g. Brynjolfsson (2003) and Van Ark, McGuckin and Spiegelman (2005).

14 According to internationally commensurate OECD statistics in EO79, output in relation to the number in employment. According to US Bureau of Labor statistics, based on output in relation to the number of hours worked, annual productivity growth in the period 1996–2005 averaged 2.8 per cent.

tion show that in the aftermath of the terrorist attacks in September 2001, net immigration has not slackened. The OECD[15] estimates a potential growth rate of 3.2 per cent for the United States in 2007[16] compared with 1.9 per cent for the euro area and only 1.5 per cent for Japan.

If US economic growth exceeds the average rate for its main trading partners, it can be argued that it is natural for imports to rise faster than exports and for the current account deficit to grow.[17] A reasonable assumption is that these differences in potential growth will not change all that quickly. Even though some progress has been made, the process of reform to strengthen potential growth in Europe and Japan is on the whole proceeding slowly. Meanwhile, there continues to be confidence in the workings of the US economy and in a potential growth remaining high.[18]

Given that growth in the United States is likely to remain above the average for the main trading partners in the future, income in the United States will also presumably continue to rise faster than in major parts of the world. In that case, persistently strong growth and increased incomes could finance rising interest expenditure on foreign debt.[19] Even if debt grows because US investment is funded with external loans, the returns are sufficient to finance the interest expenditure. US net investment income will then remain positive and the net investment position stable.[20] Another aspect of importance for potential growth is that the improved productivity growth led to expectations of a high return on investment in American assets. That contributed to a capital inflow that strengthened the dollar and subdued net exports. It was also a factor behind the rising stock market, increased household wealth and long-term income expectations. Together with developments in the housing market, these factors have tended to weaken household saving. The Federal Reserve considers that the high trend for productivity growth is the single most important factor behind the current account deficit.[21] There has been a fall-off in

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15 See OECD EO79, June 2006, Table 21. A picture compiled with alternative methods might differ somewhat from the result with the OECD's methods, which are designed to permit comparisons between countries. However, the potential differences are most probably only marginal. It is evident that for a long time growth in the US economy has been higher than in the euro area and Japan without leading to higher inflation.

16 We have chosen 2007 to illustrate potentiai growth in the medium term with the economy close to equilibrium. According to OECD statistics, the output gap is only slightly positive (actual output is slightly above the potential level) in that year. See Table 10 in EO79.

17 This is not always entirely self-evident, however. As a proportion of imports consists of intermediate items for exports, imports follow exports relatively closely, at least in the short run.

18 There are indications that US potential growth is currently lower than a couple of years ago. Productivity growth has slowed. It can also be argued that the growth of labour supply will slacken in the years ahead as the baby-boom generation retires. Note, however, that even when allowance is made for these effects, US potential growth will probably be considerably higher than in, for example, the euro area and Japan.

19 See the analysis in Engel (2005).

20 See the reasoning in Engel (2005).

21 See the analysis in Ferguson (2005).

productivity growth in recent years but most observers assume that it will remain favourable in the future.[22]

In Asia, the investment ratio fell steeply in connection with the financial crisis there in 1997. Since then the ratio has recovered but is still historically low. China is an exception, with notably rapid investment growth. One explanation for the low investment ratio in Asian countries apart from China is that it reflects a natural correction of an earlier investment bubble. The Asian crisis was preceded by warnings from various quarters that a number of the large ongoing investment projects, above all in the public sector, would presumably generate a low return. At least a part of the correction is probably attributable to this. Another explanation for the low investment ratio in many Asian emerging-market economies is a major lack of developed markets for corporate bonds. As long as these circumstances continue, investment in Asia apart from China will probably remain subdued.

THE HIGH OIL PRICE

The high price of oil in recent years has also contributed to the global imbalances; it accounts for as much as one-third of the deterioration in the US current account balance in the past six years. In 2005, for example, the high oil price accounts for 2 percentage points of the US current account deficit of over 6 per cent of GDP. Besides its direct negative effect on foreign trade, the oil price has worked indirectly in that the United States has benefited from just a very limited part of the oil-producing countries' increased demand for imports.[23] The direct effect of the high oil price is a consequence of the United States being both a large net importer of oil and more dependent on oil than other countries.[24] The oil-producing countries have, of course, generated a lot of revenue from oil and invested some of it in their domestic economies, for example to build up production capacity.

Asia is the region where exports to oil-producing countries have expanded most. Europe has also been relatively successful. One explanation for the latter may lie in Europe's proximity to both the Russian and the Norwegian market, as well as to markets in the Middle East compared with the United States. Moreover, there are signs that Europe and Asia

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[22] OECD EO79, Table 12, for example, indicates that in the coming years annual productivity growth in the total economy is expected to average 2.1 per cent. That is clearly above the historical average but on a par with the rate in the past ten years.

[23] So-called petrodollar recycling.

[24] The very marked dependence on oil was underscored, for example, in President Bush's address to the nation in February 2006. In terms of consumption per capital, the United States is the world's most oil-dependent country.

produce products which match requirements in, for example, the Middle East. Looking ahead, there are clear indications that oil-producing countries are planning a massive growth of investment to expand production capacity and improve productivity. The investment projects, which are in various stages of implementation, total as much as USD 1000 billion.[25] If these investments are made, they could contribute, at least in time, to downward pressure on the oil price, while lower domestic saving in the oil-producing countries would reduce their current account surplus.[26] In addition, increased domestic investment in those countries would entail less demand for US bonds, leading to an upward effect on American long-term interest rates and a downward effect on growth. All else equal, lower growth in the United States can be said to imply more subdued import growth and higher net exports. In this way, increased domestic investment in oil-producing countries could lead to decreased global imbalances.

THE REAL EXCHANGE RATE AND COMPETITIVENESS IN THE UNITED STATES

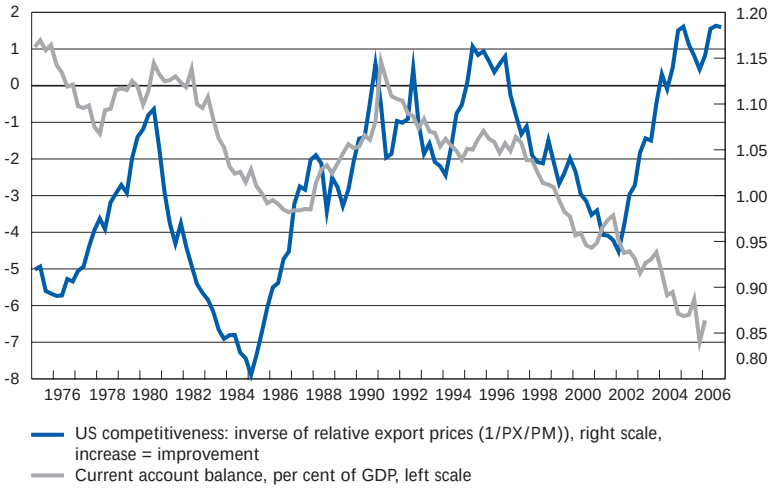
As the current account includes foreign trade in goods and services, its development might be expected to be closely bound up with competitiveness. A weakening of the dollar, for example, stimulates exports and subdues imports. Competitiveness can also be seen as an endogenous variable, so that decreased total saving in the economy leads to a deterioration of both the current account and competitiveness. Competitiveness can be impaired if a stronger increase in consumption leads, via higher inflation, to higher interest rates relative to the rest of the world and thereby to an appreciation of the dollar. There are situations, however, where the causal relationship between the exchange rate and the current account balance may be the reverse. A marked weakening of the current account can give rise to expectations of a need for an adjustment via the exchange rate. From time to time, this has been the case with the US current account deficit. The relationship between competitiveness and the current account has been relatively stable for the United States for a considerable time. An exception has occurred in the past three years, when an improvement in competitiveness, here in terms of relative export

[25] Note that this does not include some oil-producing countries, for instance Russia, where substantial oil investments are also planned, and Norway. See "Summary Appraisal, Gulf Cooperation Council Countries,", Institute of International Finance, August 15 2006.

[26] See the forecast for 2007 in "Summary Appraisal, Gulf Cooperation Council Countries,", Institute of International Finance, August 15 2006.

prices,[27] has not resulted in an improvement in the balance on current account (see Figure 3). There may be a number of explanations for this, for instance that competitiveness is now less important than it used to be for foreign trade. Another possibility is that it now takes longer for improved competitiveness to lead to a better development of exports. If so, one could expect a positive effect on the current account balance in the future.

Figure 3. US competitiveness and current account balance
Per cent



Sources: OECD EO79 and US Department of Commerce.

SENSITIVITY BETWEEN US GROWTH AND IMPORTS IS GREATER THAN IN THE REST OF THE WORLD

A number of studies[28] have shown that a given change in income affects imports to the United States more than to most other countries. This means that even if economic growth were the same in every country, the US current account balance would still weaken. It indicates that the US current account deficit has a structural component. With a few occasional exceptions, imports have exceeded exports for the past sixty years. Some possible explanations could have to do with the average age of the population being lower in the United States than elsewhere (imported goods tend to be more in demand among young people) and with the high labour immigration to the United States (many immigrants maintain their preferences for goods from their former home country).[29]

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27 Competitiveness can also be measured in terms of the real effective exchange rate; in principle this is the same as relative export prices.

28 E.g. Hooper, Johnson and Marquez (1998) and Mann (2002) p. 138.

29 See Mann (2002) p. 139.

As we have seen, there are many probable explanations for the large US current account deficit. It must then be asked whether the situation is sustainable in the longer run or whether an abrupt adjustment is to be expected.

Is the US current account deficit an "imbalance" and is US debt too large?

In the past, a favourable development of exports and avoiding a current account deficit have been among economic policy's primary objectives in Sweden and some other countries. In Sweden, attempts have been made to improve the competitiveness of export producers by writing down the currency. Government budget statements have frequently mentioned "balance in foreign payments" as a central policy goal.[30] A current account surplus has been considered desirable and a deficit ominous on account of the attendant foreign debt.

Today, however, there are a number of arguments against referring to increased current account deficits and surpluses in the world economy as global imbalances. With well-developed financial markets, decisions by households and firms are based on expectations of the future. Financial markets have become more efficient and widened the possibility of financing consumption and investment with loans. It may be asked why a current account surplus should be preferable to a deficit. If a country borrows to finance real investment in, for instance, advanced technology and thereby paves the way to higher growth and welfare, a current account deficit is clearly not a problem. Households that aim to smooth consumption over time and count on markedly increased income in the future can then also, in the light of growing wealth, for instance, finance consumption with loans without this constituting an imbalance in saving.

There are arguments in favour of the US current account deficit being more sustainable than many previously believed. With deregulated international financial markets and increased free trade, today it may be possible to run large saving deficits for longer than before capital markets were deregulated in the 1980s.[31] Twenty-five years ago, considerably less flexible financial markets would have ruled out the financing of invest-

[30] Swedish government budget statements in the 1970s and 1980s frequently mentioned "balance in foreign payments" or "eliminating the current account deficit" as a goal in itself. On the other hand, a target for the government finances was seldom considered. This is particularly clear in Finance Minister Gunnar Sträng's draft budget for fiscal 1976/77 (see page 8 of the summary). The message was much the same in the 1980s, although in the light of a budget deficit at 5 per cent of GDP in the draft budget for 1984/85, Finance Minister Kjell-Olof Feldt did refer to the need for budget consolidation. The Swedish krona was devalued a number of times. The goal for stabilisation policy can be summed up as "reasonable price stability". The policy entailed galloping inflation, weak government finances during long periods and a standstill in growth and welfare.

[31] See e.g. IMF, WEO, April 2005 and Cooper (2005).

ment and consumption to the extent that can now be arranged by borrowing abroad.[32] For a long time, US households have therefore been in a position to save less when the expansionary development in the housing market contributed to increased consumption. Another aspect is the wider range of financial instruments today. Previously, countries were more obliged to resort to increased saving in order to finance an expansion of production capacity. The coin's other face is that increased facilities for investing abroad have made it easier for countries where saving is high to place it in assets in other countries. Home bias (the tendency to invest in the domestic market rather than abroad) has decreased markedly. It can be mentioned, for example, that aggregate global portfolio holdings of foreign equity rose just from 1997 to 2001 from a little more than 20 per cent to over 35 per cent.[33] Investment in bonds and other instruments likewise shows clear signs of decreased home bias. If countries in Asia are interested in investing their saving surpluses in US assets, there is nothing to prevent them doing so. Free capital movements and considerably greater access to information reduce the risk of the earlier type of abrupt financial market corrections that stemmed from unsustainable capital controls.

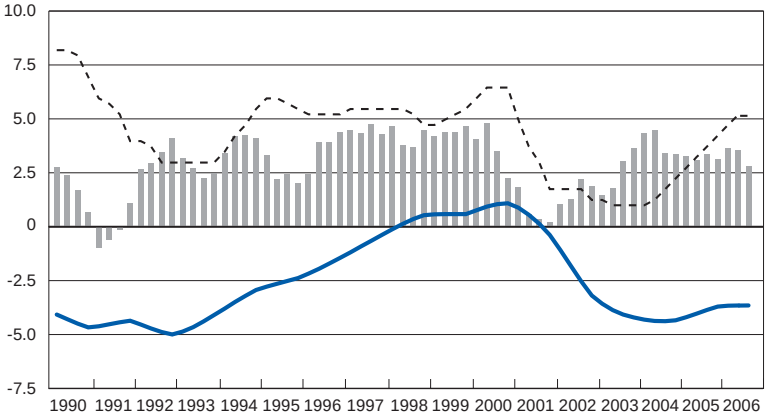
The term imbalance suggests that markets are imperfect and/or that behaviour is not rational. The grounds for this are to a major extent weak. US households are admittedly characterised by low saving and increased debt but the value of their assets has increased even more and thereby their welfare. Saving among Chinese households is high because, when the social safety-net has disintegrated in practice, they are concerned about financing future costs for education, health care and pensions. Under the circumstances, that can also be seen as rational behaviour. If private behaviour is rational, what about those who decide economic policy? Have there been failings in economic policy that have contributed to the current account deficit? In the early 2000s US economic policy was highly expansionary (see Figure 4) and it might be argued that it did play a part in the current account deficit. In terms of the change in the structural budget deficit and in the Federal funds rate, the stimulus was the strongest since the 1960s.[34] Still, it is hard to conclude that stabilisation policy was unduly expansionary. Notwithstanding the strong stimulus from economic policy (plus the very high oil price in recent years), long-term inflation expectations have remained at a low level, long-term inter-

[32] See Greenspan (2005), p. 3.

[33] See "Home Bias and International Risk Sharing: Twin Puzzles Separated At Birth", Sorensen, Wu, Yosha, Zhu, CEPR Discussion Papers No. 5113, Table 3.

[34] This is as far back as the OECD calculations go for the structural budget balance, making it hazardous to extend the comparison further into the past.

Figure 4. US federal budget balance (cyclically adjusted), Federal funds rate and GDP growth
Per cent



Note: The figures based on quarterly statistics. The structural budget balance is an interpolation of annual statistics in OECD EO79. FED Funds are averaged quarterly.

est rates have continued to be low in a historic perspective and underlying inflation is still subdued.[35] In 2002 and 2003, the very low rate of inflation even started a discussion about the risks of a deflationary situation like the one in Japan. The recovery of domestic demand has stimulated exports from other countries. The United States has continued to function as the locomotive in the global economy.[36]

Many emerging-market countries admittedly have financial markets that are still regulated and underdeveloped, which clearly affects decisions about saving and investment there. An adjustment to less controlled markets in China, for example, could result in tensions that entail problems for the world economy. But how great is the risk of this? It can even be argued that the effects for the world economy are more likely to be positive. Moreover, economic policy adjustments do not occur rapidly in China. It may therefore be asked how abrupt an adjustment would be.

[35] The increase in core inflation during 2006 is probably explained to a large extent by increased household expenditure on rent when the high house prices strengthened demand for rented dwellings. House price inflation has slacked substantially and it can be argued that households do not expect the same financial yield from home ownership as before. The official measurements of inflation do not include house prices.

[36] If allowance is made, in keeping with the IMF (which focuses on analysing global growth in a welfare as opposed to a market perspective), for differences in purchasing power and price levels, and GDP weights are accordingly applied to countries in PPP terms, in the past ten years the United States has contributed not quite 20 per and China not quite 30 per cent of global GDP growth. It can be argued, however, that in practice the United States' contribution is much larger because, in the light of increased global free trade, the high growth of US demand stimulates exports, investment and GDP growth in other countries. Moreover, if country differences in purchasing power and price levels are disregarded (that is, if GDP statistics are not PPP adjusted), the contribution from the United States to global growth in the past ten years is just over 20 per cent and clearly the largest from any one country; while the figure for China is less than 8 per cent. Whichever way one calculates, in other words, the United States has been very much of a driving force for global GDP growth in the past ten years. That has also been the message in forecasts in this period from the OECD, the IMF and private institutions.

Freer trade alters conditions for the relationship between production and consumption. If the production of goods and services is located where costs are lowest and consumption occurs somewhere else, this has positive welfare effects for all concerned. Trade imbalances may therefore be something that one has to get used to in a world with deregulated capital markets and a larger element of free trade than before. From the viewpoint of free trade the imbalances may even be desirable, even though there are limits to the loans an individual or firm can carry.

Some observers argue, moreover, that the system of national accounts – formulated as it was in the United States and the United Kingdom in the 1930s, when their economies were dominated by manufacturing – is not appropriate for measuring current account balances in a relevant way today.[37] One argument is that it would be more relevant to pay more consideration to the location of ownership. An example is an American automobile manufacturer that chooses to use comparative advantages in the form of low labour costs in Mexico instead of producing at home. When the automobiles are taken home for sale in the US market, this is registered as an import and contributes to the current account deficit. The phenomenon appears to be more common in the United States than in other countries and contributes to US corporate profits. If, instead of the national accounts' flow statistics, more consideration is paid to ownership of production resources and the receipt of profits that contribute to employment and welfare in the home country, the situation looks different.[38] Employment in the United States in the past ten years combined has been stronger than in, for example, the euro area, Japan and the United Kingdom and the development of household wealth has been notably favourable.

Another sign that the available statistics are not entirely relevant for an analysis of imbalances is the way of measuring household saving, which in recent times results in negative saving in the United States. While this issue is not directly connected with the size of the current account deficit, it does impinge on the distinction between saving and investment and the view that over-consumption today will probably lead to an abrupt upward adjustment of saving. One of the arguments that saving among American households is considerably higher than the official figures indicate is that the picture of disposable income does not make sufficient allowance for new types of income that are becoming increasingly common, for example options, profit sharing, bonus payments and capital gains. Including these items in the statistics would

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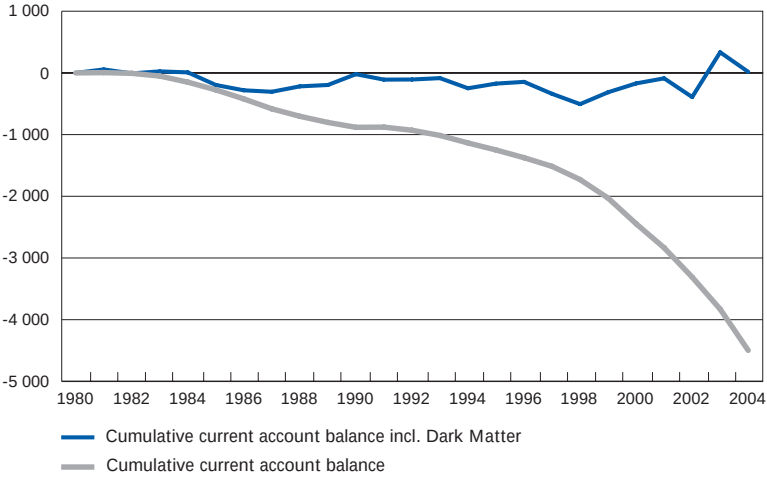
37 See Cooper (2005) p. 2.

38 See McKinsey Quarterly (March 2005).

probably give a different picture of over-consumption in the United States. Another argument is that consumption of durables (e.g. refrigerators) and expenditure on research and development should be treated, not as consumption but as saving in real assets.[39] Immaterial investments, such as training and organisational adjustments, which are treated as current expenditures in the national accounts, are highly important for getting the best out of investment in new technology.[40] Against this background it can be argued that in practice the saving deficit is smaller than the official statistics suggest and the investment ratio is higher. A further reason for believing that household behaviour has been rational is the strong development of wealth. Rapidly rising net wealth means that households' margins are larger than the saving ratio suggests. When these arguments are taken into consideration, it seems less probable that households have behaved irrationally.

It is even argued by Hausmann and Sturzenegger (2005) that, measured with other methods than those used for the official statistics, there is no US current account deficit. Their paper is controversial but interesting. They claim that if, instead of using the normal book values, US companies active abroad are valued to a greater extent in terms of the return on their

Figure 5. United States: net external position in terms of the cumulative current account balance, using official statistics alone or including "Dark Matter"
USD billion



Source: Hausmann & Sturzenegger, (2005), Harvard University.

[39] According to Cooper (2005), private saving is equivalent to around 1/3 of GDP, not to less than 14 per cent with the definition above.
[40] See Bernanke (2005).

investments, a completely different picture emerges (see Figure 5). The concept of returns these authors use is wider than in the traditional balance-of-payments statistics.

The difference is called "Dark Matter".[41] American companies' earnings from assets abroad exceed their borrowing costs even though the liabilities are considerably larger than the assets. These companies have, for a considerable time, had a higher return on investment abroad compared with foreign companies that invest in the United States. A possible explanation for this is that American investors are less averse to risk than foreign investors. Foreign investment in the United States is dominated by bonds, while American companies are more active in direct investment and equity with a higher average return.[42] So the United States' net external investment position looks considerably more satisfactory if allowance is made for changes in the value of the investments.[43]

Conclusions

Although there are many grounds for supposing that the global imbalances are more sustainable in the long run than many believe, an abrupt adjustment that gives rise to negative effects on global growth cannot, of course, be ruled out. The negative effects would, in various scenarios, be felt to some degree in the Swedish economy, with its dependence on foreign trade, and have consequences for Swedish monetary policy.

Forecasts of the global economy by market observers, central banks (including the Riksbank) and international organisations seldom if ever envisage a rapid and uncoordinated correction of the global imbalances. Such a development is included instead, to a greater or lesser extent, in the analysis of risks. One reason for this may be that it is very difficult to foresee just when such an event is likely to occur. It is also hard to assess how probable that course is. Then there is the question of quantifying the effects on particular regions or countries. The impact depends on what it is that initiates the process, the extent to which different factors are involved in the correction and the pace at which it proceeds. In the medium-term perspective it can therefore be natural to simply point to the risk of a sudden correction.

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41 "Dark Matter" denotes assets that are known to exist even though the income they generate is not visible (or cannot be measured in a relevant way). The expression comes from physics, where it refers to the fact that even though it cannot be seen, certain matter is known to exist because its gravitational effect is observable. According to Haussmann and Sturzenegger (2005), the net external assets of the United States total USD 3.1 trillion; this and more besides is missing in the official statistics.

42 See e.g. Engel (2005), p. 5.

43 If this difference in returns in favour of the United States compared with the rest of the world does not continue, it would probably have to be replaced by some other positive valuation effect in the form of a persistent weakening of the dollar. See Lane and Milesi-Feretti (2005).

The main argument for an abrupt adjustment of the global imbalances is often connected to the risks of increased protectionism in the world economy and a clear fall in US potential growth. There are, indeed, certain signs of a break in the downward trend for trade tariffs. One example is the suspension of negotiations in the WTO's Doha Round. Another is connected with the continued increase in the US current account deficit with China. Some American politicians are highly critical of China's exchange-rate policy, which they consider gives Chinese exports an unfair advantage. There are similar tendencies among some European politicians who argue that China distorts competition by subsidising production and exports. This has, for example, resulted in the EU introducing markedly higher import tariffs on footwear from China and Vietnam. If investors were to alter their perceptions of US potential growth and the advantage in terms of growth and income which they believed would last, the level of indebtedness in the US economy could then be seen as a problem. This might lead to a marked weakening of the dollar[44] and increased uncertainty in global financial markets. Together with increased protectionism, that could lead to negative effects on investment and economic growth. If the euro became rapidly stronger, the Swedish economy could be hit in particular by an economic slowdown in Europe.

There are, however, many arguments against an abrupt adjustment. One is that US growth and incomes are continuing to rise more rapidly than among the main trading partners and that a change in this respect would take time. Moreover, the effects of discontinuing the Doha Round may be mitigated if the number of bilateral free-trade agreements continues to grow. Neither do the US saving imbalances seem to be particularly troublesome when one considers the high return American companies obtain on borrowing and investment at home or abroad and the low return the rest of the world obtains from investment in the liquid US bond market.[45] Another argument against the probability of an abrupt adjustment is that 95 per cent of US external debt is denominated in dollars. So a marked weakening of the dollar would not enlarge external debt.[46] Many observers also consider it fairly unlikely that China would suddenly adopt an entirely different exchange-rate policy and no longer demand dollars, leading to a rapid upward effect on long-term interest rates. A common opinion is that the changes are more likely to occur gradually as China's financial sector develops. Stability seems to be an apt word for

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[44] According to Obstfeld & Rogoff (2005), a correction of the US current account deficit entails a 30 per cent probability of the dollar declining; the study indicates that the possibility of the dollar weakening rapidly by 40–50 percent in trade-weighted terms cannot be ruled out.

[45] See the reasoning in Hausmann & Sturzenegger (2005).

[46] Besides reducing the valute of external liabilitites, a weaker dollar increases the value of assets, which are mainly denominated in other currencies.

Chinese policy. Moreover, globalisation and less "home bias" favour the United States, which has the most liquid and diversified financial markets. Those wishing to invest abroad can very probably find what they are looking for in the United States. Considering that the share of global saving that is invested in the United States is still relatively small, it can be argued that there continues to be room for additional external portfolio investment there without the share becoming unduly high.

The US current account deficits over the past fifteen years are not without precedent. A substantial deficit also occurred in the 1980s when government net saving was markedly negative and household net saving fell. The deficits subsequently became markedly smaller in the late 1980s when household and business saving rose. Early in 1991 there was even a marginal surplus. One factor behind the diminishing current account deficit was that in the period 1985–88 the dollar underwent an effective depreciation of almost 40 per cent.[47] At that time the OECD issued a warning, albeit cautiously worded, of the risks for the world economy as a result of the global imbalances.[48] It is noteworthy that the correction of the US current account deficit in the 1980s had no sizeable, if any, negative effects either for the United States or for the world economy.[49] Economic development remained favourable in both cases. In the United States the weaker dollar did contribute to sharply increased import prices, rising inflation and hence a substantial tightening of monetary policy but this was largely offset by positive effects on net exports. When global economic activity slackened markedly in 1990–91, the cause was rather the sharp increase in the price of oil at a time when dependence on oil was considerably greater than today. The geopolitical situation in the Persian Gulf generated a lot of uncertainty and US economic activity was also subdued by credit restrictions in the banking sector. Furthermore, a global stock-market fall dampened international economic activity.

A long-lasting current account deficit does not necessarily constitute a problem. A number of other OECD countries have had large current account deficits for considerably longer than the United States without this leading to dramatic corrections.

The imbalances can be seen as a natural consequence of deregulated international financial markets, increased free trade and globalisation, so that today they are more sustainable than they would have been prior to

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47 See e.g. the reasoning in OECD Economic Outlook 45, June 1989, p 43. The difference today, however, is that economic activity n the euro area is somewhat weaker. In the 1980s there was little stimulus from economic policy. Today the scope for any stimuli that might be called for is extremely limited, partly on account of the EU's fiscal policy rules (the Stability and Growth Pact).

48 See e.g. OECD Economic Outlook 41, June 1987, p. vii.

49 US GDP growth rose from 3.4 per cent in 1987 to 4.1 per cent in 1988; the rate in 1989 was 3.5 per cent. The pattern was similar in the OECD as a whole.

these changes.[50] There is therefore a good prospect that – together with a probable maturing of emerging-market economies, leading in time to decreased saving – policy measures will lead to an orderly correction that has just a marginal effect on the world economy and thereby on the Swedish economy. An orderly adjustment could be facilitated by the measures of economic policy the IMF recommends for individual countries.[51] In most cases these measures are also desirable for other reasons, for instance to raise potential growth and welfare in the country/region in question. There are some indications that this development can be achieved. Oil-producing countries are planning for greatly increased domestic investment, China's exchange-rate policy has been made more flexible in the past year, it seems that structural reforms are already helping to raise potential growth in Japan and US fiscal policy has been tightened.

[50] See e.g. Cooper (2005).
[51] These measures are presented in World Economic Outlook, e.g. April 2006.

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Merchanting – a growing item in services exports

KURT GUSTAVSSON AND LARS FORS

Cross-border trade in services has become increasingly important in recent years. The rapid increase in services exports in particular has made appreciable contributions to registered GDP growth and productivity, which are two of the variables that play a major part in the assessments on which economic policy is based. An item that has played a significant part in the overall growth of services exports is merchanting, which is a form of mediation of goods. To a large extent, however, it is how large corporations are organised and their choice of bookkeeping tactics that determine whether or not the result of a particular operation generates value added, that is, a contribution to GDP, in Sweden.

In the period 1980–95 annual exports and imports of services were each equivalent to around 6 per cent of GDP. Since then, foreign trade in services has expanded and in 2005 services exports and imports were equivalent to around 12 and 10 per cent, respectively, of GDP. Some factors behind the rapid growth of foreign trade in services are advances in technology, which have enlarged the range of services that can be traded across borders, the liberalisation of trade and Sweden's accession to the European Union.

In the past few years it is the volume of services exports that has risen particularly strongly. The annual level of services exports rose about 11 per cent from 2004 to 2005 after a higher rate the year before and Statistics Sweden's calculations show that the increase in volume between the first halves of 2005 and 2006 was almost 17 per cent. The growth of services imports has been more moderate but the first half of 2006 saw an increase of almost 13 per cent (see Table 1). The balance of trade in services has mostly been slightly negative since the mid 1980s but for 2005 it shows a surplus at about 2 per cent of GDP.

TABLE 1. SERVICES EXPORTS AND IMPORTS
ANNUAL CHANGE IN VOLUME, PER CENT

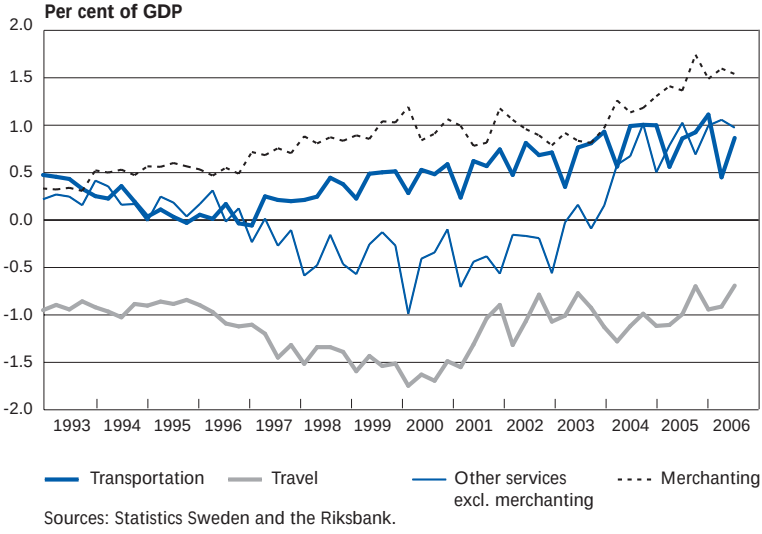
	2000	2001	2002	2003	2004	2005	2006
							First half
Exports of services	9.1	10.1	–1.5	3.6	14.1	11.1	16.5
Imports of services	10.5	4.6	–6.4	-0.4	2.9	5.2	12.5

Source: Statistics Sweden

In 2004 and 2005 the contributions to GDP growth from foreign trade in services were around 1.1 and 0.7 percentage points, respectively; for the first half of 2006 the contribution is calculated to be 0.8 percentage points.

Foreign trade in services comprises services of many very different types. A breakdown between these types is not provided in the presentation of the national accounts and has to be derived from the Riksbank's balance-of-payments statistics. One item in foreign trade in services that has played a major part and attracted attention is merchanting. However, this is not the only item that has contributed to the improvement in the balance of services (see Figure 1). Net travel, which stood at about –1.5 per cent of GDP in the late 1990s, has moved in recent years to about –1 per cent. The net of other services excluding merchanting has also improved, for example as regards computer and information services, licences and royalties, and unspecifiable business services.

Figure 1. Main net categories of foreign trade in services
Per cent of GDP



Sources: Statistics Sweden and the Riksbank.

Volume growth of merchanting in the region of 40 per cent in 2004 has been followed by somewhat more modest increases. Merchanting's share

of GDP is currently around 1.5 per cent and its contributions to GDP growth were approximately 0.5 percentage points in 2004 and about 0.2 and 0.3 percentage points, respectively, in 2005 and the first half of 2006. That is roughly one-third of trade in service's total contribution to GDP growth in the past $2^1/_2$ years.

Merchanting – a trading margin

Cross-border trade in goods is normally recorded in the national accounts as exports and imports of goods. In both the national accounts and the balance of payments, a transfer of ownership between a Swedish resident and a nonresident is to be registered as an exchange of goods.[1] An exception to this main rule has been made for the operations of mediators of goods (merchant houses, etc.), presumably to avoid statistical overestimation of the gross transactions. Mediation of goods from a nonresident supplier to a nonresident customer is treated as the export of a mediation service if the purchase and subsequent resale occur in the same calendar year. The mediation service is represented by the difference between the purchase price and the selling price, i.e. the trading margin. To qualify as merchanting, the good must be resold unchanged and not cross the mediator's border. As in the case of other trade in goods and services, the calculations are based on market value.

The way in which merchanting is recorded in the balance of payments of the countries involved gives rise to reconciliation problems in bilateral comparisons because it is only in the balance of payments of the mediator's country that merchanting is treated as a services transaction. The countries in which the good is purchased and subsequently resold report the transaction instead as an export and an import, respectively, of the good vis-à-vis the mediator's country.

Mediation linked to production abroad

Aside from traditional mediation of goods, the merchanting item is substantially affected by the fact that Swedish companies locate production abroad, to both affiliated and unaffiliated entities. The products are delivered directly to nonresident purchasers, either foreign subsidiaries or unaffiliated entities. For products with a high proportion of know-how and low production costs, the margin can be very large, in certain cases up to around 45 per cent. Companies state that the margins in this form

[1] In practice, however, imports and exports of goods are registered when the goods enter and leave the country, respectively.

of merchandising represent compensation for research, development and marketing, which seems entirely reasonable in the individual cases. As regards group-internal merchanting, however, large discrepancies occur in this respect between similar products from different companies.

Effects of altered accounting and cash-management routines

Group-internal merchanting generally involves a Swedish parent company purchasing goods from affiliated production companies abroad and reselling them to affiliated sales companies. In the statistics, even transactions between affiliated countries are treated like other mediation of goods between nonresident counterparties, i.e. as the export of merchanting services. But whereas transactions involving an unaffiliated counterparty are made at market values, group-internal transactions are arranged at what is often referred to as transfer values.

In that a good is produced by one subsidiary abroad and is resold to another, the internal transaction can be handled in other ways. The production company can, for example, sell the good directly to the sales company, in which case the transaction will not feature in Sweden's balance of payments because it is between two non-resident parties. Both subsidiaries use their incomes for their own operations. The operating profit that is generated in the subsidiaries abroad will be recorded in the current account as a return on direct investment abroad and accordingly affect gross national income (GNI), but not GDP.

If the Swedish parent company manages the subsidiaries' invoicing and cash management without purchasing the good, it will have performed a financial transaction and the production subsidiary abroad will have a claim on the parent company for the sales subsidiary's payment for the good. In the balance of payments this is all assigned to the financial account under the item direct investment abroad and does not affect Sweden's GDP. Any interest income is booked, together with the foreign subsidiaries' operating profit, in the current account under the item direct investment returns and is included in GNI.

Measurement of central economic variables will accordingly be affected, depending on how a group chooses to organise invoicing and cash management, even though underlying production etc. is the same.

Effects on value added and productivity

Merchanting's contribution to GDP and corporate sector output has a direct impact on the measured development of productivity because there is no direct link to hours worked in the same period.[2] Given that the resident company's income from merchanting is not solely allocated profit, there are, however, indirect connections with performance and hours worked. There may also be more direct links to labour input in the same period. If, for instance, a company purchases technically advanced products from abroad and resells them under forms that are consistent with the concept of merchanting, this operation may be associated with marketing inputs, the production of service manuals, etc.

Conclusions

There are many signs that foreign trade in services will continue to grow relative to GDP as new technologies open up further opportunities and internationalisation continues. It is difficult to tell to what extent merchanting will become still more important but this income item is already a significant component of GDP. It is also a component that could develop in a way that will surprise observers of the Swedish economy. A few large Swedish companies have a strong impact on the merchanting item and if just one or two of them were to alter their bookkeeping practice or if another company were to join their number, it would suffice to have a noticeable effect on the level and growth of GDP. It would then also affect the calculated development of productivity, which is an important variable for the assessment of inflation.

[2] Merchanting and the effects on GDP and productivity are also considered in Sveriges Ekonomi Statistiskt perspektiv, fjärde kvartalet 2004, SCB, mars 2005 (see Reference).

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Statistiska Centralbyrån, Sveriges Ekonomi Statistiskt perspektiv, fjärde kvartalet 2004, mars 2005 (Statistics Sweden, Sweden's Economy Statistical Perspective, 2004:4, March 2005)

Monetary policy calendar

2003-01-01 The *reference rate* is confirmed by the Riksbank at 4.0 per cent for the period 1 January 2003 to 30 June 2003.

03-17 The Riksbank decides to lower the *repo rate* from 3.75 per cent to 3.50 per cent, to apply from 19 March 2003. Furthermore, the Riksbank decides that the *deposit* and *lending rates* shall be adjusted to 2.75 per cent and 4.25 per cent respectively.

06-05 The Riksbank decides to lower the *repo rate* from 3.50 per cent to 3.00 per cent, to apply from 11 June 2003. Furthermore, the Riksbank decides that the *deposit* and *lending rates* shall be adjusted to 2.25 per cent and 3.75 per cent respectively.

06-30 The *reference rate* is confirmed by the Riksbank at 3.0 per cent for the period 1 July 2003 to 31 December 2003.

07-04 The Riksbank decides to lower the *repo rate* from 3.0 per cent to 2.75 per cent, to apply from 9 July 2003. Furthermore, the Riksbank decides that the *deposit* and *lending rates* shall be adjusted to 2.00 per cent and 3.50 per cent respectively.

2004-01-01 The *reference rate* is confirmed by the Riksbank at 3.0 per cent for the period 1 January 2004 to 30 June 2004.

02-06 The Riksbank decides to lower the *repo rate* from 2.75 per cent to 2.50 per cent, to apply from 11 February 2004. Furthermore, the Riksbank decides that the *deposit* and *lending rates* shall be adjusted to 1.75 per cent and 3.25 per cent respectively.

03-31 The Riksbank decides to lower the *repo rate* from 2.50 per cent to 2.00 per cent, to apply from 7 April 2004. Furthermore, the Riksbank decides that the *deposit* and *lending rates* shall be adjusted to 1.25 per cent and 2.75 per cent respectively.

06-30 The *reference rate* is confirmed by the Riksbank at 2.0 per cent for the period 1 July 2004 to 31 December 2004.

2005-01-01 The *reference rate* is confirmed by the Riksbank at 2.00 per cent for the period 1 January 2005 to 30 June 2005.

06-20 The Riksbank decides to lower the *repo rate* from 2.00 per cent to 1.50 per cent, to apply from 22 June 2005.

Furthermore, the Riksbank decides that the *deposit* and *lending rates* shall be adjusted to 0.75 per cent and 2.25 per cent respectively.

06-30 The *reference rate* is confirmed by the Riksbank at 1.50 per cent for the period 1 July 2005 to 31 December 2005.

2006-01-01 The *reference rate* is confirmed by the Riksbank at 1.50 per cent for the period 1 January 2006 to 30 June 2006.

01-19 The Riksbank decides to increase the *repo rate* from 1.50 per cent to 1.75 per cent, to apply from 25 January 2006. Furthermore, the Riksbank decides that the *deposit* and *lending rates* shall be adjusted to 1.00 per cent and 2.50 per cent respectively.

02-22 The Riksbank decides to increase the *repo rate* from 1.75 per cent to 2.00 per cent, to apply from 1 March 2006. Furthermore, the Riksbank decides that the *deposit* and *lending rates* shall be adjusted to 1.25 per cent and 2.75 per cent respectively.

06-30 The *reference rate* is confirmed by the Riksbank at 2.50 per cent for the period 1 July 2006 to 31 December 2006.

06-19 The Riksbank decides to increase the *repo rate* from 2.00 per cent to 2.25 per cent, to apply from 21 June 2006. Furthermore, the Riksbank decides that the *deposit* and *lending rates* shall be adjusted to 1.50 per cent and 3.00 per cent respectively.

08-29 The Riksbank decides to increase the *repo rate* from 2.25 per cent to 2.50 per cent, to apply from 6 September 2006. Furthermore, the Riksbank decides that the *deposit* and *lending rates* shall be adjusted to 1.75 per cent and 3.25 per cent respectively.

10-25 The Riksbank decides to increase the *repo rate* from 2.50 per cent to 2.75 per cent, to apply from 1 November 2006. Furthermore, the Riksbank decides that the *deposit* and *lending rates* shall be adjusted to 2.00 per cent and 3.50 per cent respectively.

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