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**The Use of Balance of Payments Statistics in the Determination of  
Monetary and Fiscal Policy**

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## **THE USE OF BALANCE OF PAYMENTS STATISTICS IN THE DETERMINATION OF MONETARY AND FISCAL POLICY**

### **1. INTRODUCTION**

The need for some form of balance of payments statistics can be traced back to the Fourteenth Century. According to Wasserman and Ware (1965) this need arose from the development of the Bullionist doctrine in England in 1303 which prohibited the export of bullion. In this early form of Mercantilism, the objective was to achieve equilibrium between the value of exports and imports. To determine the trade balance, an unknown person drew up a statement of England's exports and imports of goods in 1355, which formed part of the Record of Exchequer. At first most of these statistical statements concentrated on the collection of trade statistics because it was believed that only these transactions could have an impact on the export of bullion. Later in the Mercantilist period, analysts began to realise that there were also other transactions with non-residents that had to be taken into consideration. As more and more items were included in the statements of trade, they became closer to what is known today as the balance of payments.

The term "balance of payments" did not gain immediate acceptance because it was only Ricardo among the classical economists who made use of it. With the publication of Sir James Steuart's book "*An Inquiry into the Principles of Political Economy*" in 1767, greater recognition started being given to the term balance of payments. In addition, he pointed out that it was wrong that a deficit on the balance of payments had to be financed by means of specie, because it could also be achieved by incurring debt or by changes in foreign investment. With the realisation of these interrelationships, a new era dawned in international trade and financial statistics.

Francois Quesnay, with the "*Tableau Economique*" in his book "*Philosophie Rurale*" in 1764 also made a major contribution to the development of macroeconomic statistics with his description of the flow of goods in the economic system. The "*Tableau Economique*" can, in fact, be regarded as the first elementary model of the national accounts. In this work he attempted to describe the working of the economic system in detail and developed the need for statistics to do so.

It was, however, only after World War One that the development of macroeconomic statistics really took off. With the greater intervention of governments in economic processes it was realised that decisions could not be based only on qualitative theoretical analyses, but that careful and scientific quantitative analyses would also be required. Great emphasis therefore began to be placed on the identification, classification and calculation of economic transactions. It soon became apparent that these measurements ought to be standardised. To meet this need, the International Monetary Fund published the "*Balance of Payments Manual*" in 1948 and the United Nations followed with the

first edition of “*A System of National Accounts and Supporting Tables*” in 1953.

This standardisation of concepts and definitions and the purposeful promotion by the IMF among its members of the compilation of balance-of-payments data in this format, led to a better understanding of the information. As could be expected it also broadened the use made of the data. Today balance-of-payments statistics are not only used in the determination of economic policy but are widely employed by business enterprises and other institutions. For example, tourist statistics are widely used to analyse developments in this field by enterprises such as hotels and transport companies, and trade statistics are used by commercial enterprises to determine their size in the market for certain goods or to ascertain potential trade opportunities. This paper does not attempt to describe all these various uses of balance-of-payments statistics. It aims only at providing a description of how balance-of-payments statistics are applied in the determination of economic policy and more specifically monetary and fiscal policy.

## **2. THE OBJECTIVES OF ECONOMIC POLICY AND THE BALANCE OF PAYMENTS**

The main objectives of economic policy are to achieve sustainable high economic growth, full employment, price stability and balance-of-payments equilibrium. In developing economies as well as in most industrialised countries the primary objective of economic policy is usually to grow consistently at full production capacity (or full employment). An economy that operates below full capacity will generate a smaller aggregate supply than allowed by its resources and will not be able to retrieve this wealth creation in a later period. An economy that functions at more than full capacity will normally be characterised by rising inflation and deficits on the balance of payments.

Price stability and balance-of-payments equilibrium are in many cases regarded as less important and as secondary objectives to high economic growth and full employment. A country can live with a moderate rate of inflation and still achieve high growth and employment creation. Economists differ about the extent of inflation that will begin to interfere with the objective of high and sustainable economic growth. High price inflation is generally regarded as detrimental to high economic growth and the allocation of production resources. Similarly, deflation distorts the efficiency of productive processes. If inflation becomes very high or when deflation occurs, price stability becomes important and can usurp economic growth and unemployment as the main economic objective of a country.

Balance-of-payments equilibrium is also not usually regarded as the overriding objective of economic policy. There is no reason why a country should maintain balance-of-payments equilibrium at all times. Deficits on the balance of payments are not harmful to the other economic objectives, provided that they are followed by surpluses at a later stage. A continuous balance-of-payments disequilibrium will, however, eventually affect economic growth, employment and price stability. Just as in the case of high inflation or

deflation, balance-of-payments considerations or adjustment can at times become more important than the achievement of other economic objectives. For instance, during the mid-1980s when financial sanctions were imposed on South Africa, the prime economic objective in the country became the maintenance of surpluses on the current account of the balance of payments to meet the financial obligations that would be falling due. The authorities had to accomplish this objective at the cost of economic growth and employment creation.

Although balance-of-payments equilibrium is normally not the major objective of economic policy, balance-of-payments statistics are nevertheless very important in the determination of economic policy because they provide early signals of untenable developments. Of prime importance in this regard is the current account balance as an indicator of excess or under-spending. In the case of most developing countries, it is usually more important as an indicator of excess spending than as an indicator that saving is not being employed domestically to finance much-needed investment.

Developments in the current account of the balance of payments are consequently of great importance in the determination of both monetary and fiscal policy. In the next section, attention will first be given to the role of the current account in determining the monetary policy stance, and section 4 will concentrate on the current account and fiscal policy.

### **3. THE CURRENT ACCOUNT AND MONETARY POLICY**

In most countries price stability is regarded today as the prime objective of monetary policy. The extent to which a central bank can concentrate on this objective, depends largely on the degree of autonomy that it has been given by the authorities. Where a central bank is allowed to operate without any government interference and is accountable only to government regarding the achievement of a predetermined target, the attainment and maintenance of price stability become the focus of all its activities. In taking decisions on monetary instruments to accomplish this objective, other economic objectives of government are obviously also taken into consideration, but the central bank basically concentrates on the objective of price stability. By contrast, where a central bank does not operate independently, it can generally be expected that price stability considerations may at times become subordinated to the objectives of higher economic growth and employment creation. One of the advantages of an inflation-targeting monetary policy framework is that it commits government to the inflation target and spells out the autonomy and accountability of the central bank.

In the attainment of price stability, the balance on the current account of the balance of payments, and its counterpart the balance on the capital and financial accounts, are important indicators in determining the monetary policy stance. The usefulness of the current account balance as an indicator of the extent of expenditure and saving is clearly indicated by the well-known balance of payments identity specifying that:

$$\begin{aligned} \text{CAB} &= \text{GNDY} - (\text{C} + \text{I} + \text{G}) = \text{S} - \text{I} \quad \text{where} \\ \text{CAB} &= \text{Current account balance} \\ \text{GNDY} &= \text{Gross national disposable income} \\ \text{C} &= \text{Private consumption expenditure} \\ \text{I} &= \text{Gross domestic investment} \\ \text{G} &= \text{Government consumption expenditure} \\ \text{S} &= \text{Gross domestic saving} \end{aligned}$$

The current account balance therefore reflects whether the gross national disposable income of an economy is larger than domestic expenditure or absorption, or it shows whether the residents of a country are living within their means. If residents are spending more than they earn, a deficit will be recorded on the current account of the balance of payments. Conversely, when residents are spending less than they earn, the balance on the current account will be in surplus.

The current account balance also indicates whether an economy is generating enough savings to finance domestic investment. When the current account balance is equal to zero, domestic saving is equal to domestic investment. When the current account is in deficit, it means that the saving of residents is supplemented by the saving of non-residents to finance domestic investment. This is obviously not necessarily a bad thing, because it could create domestic production capacity that could increase the growth potential of a country. When a surplus is recorded on the balance of payments, it indicates that domestic saving is being channelled abroad to finance investment in other countries. This too is not necessarily bad, provided that a more efficient allocation of global resources is attained in this manner. For a developing economy it could, however, mean that domestic saving is not used for financing much-needed economic development.

Disequilibrium on the current account of the balance of payments may therefore be to the advantage of an individual country and to the world as a whole, provided that it leads to the most efficient allocation of productive resources and that it does not reflect inherent weaknesses in a country's productivity, consumption expenditure, investment and saving. It is therefore not surprising that some countries encounter balance-of-payments constraints when their current account deficits as a ratio of gross domestic product amount to say only 2 to 3 per cent, whereas this ratio in other countries could be as high as 6 per cent and they would still not experience any difficulties.

When the current account of the balance of payments moves into deficit it is first important to determine whether this is a short-run development or whether it may be long lasting and if there are dangers that it could increase over time. It is, of course, extremely difficult to determine if an emerging current account imbalance is merely a temporary or cyclical phenomenon. This can only be established by carefully analysing all the components of the current account as well as of developments in the domestic and international economy. However, even in the case of a temporary or cyclical deficit on the current account, the monetary authorities must always be aware of the fact that such a deficit could have a strong impact on inflation through its effects on the exchange rate of the domestic currency or on expectations.

Under a system of floating exchange rates, such a temporary or cyclical deficit could lead to a decline in the exchange rate of the currency if it is not financed by means of a capital inflow. Market participants may interpret such a decline as a movement to a new level in the country's real exchange rate. There is consequently the danger that an exchange rate depreciation could lead to expectations of a further depreciation in the currency. This could discourage capital inflows and encourage capital outflows and may lead to a speculative bandwagon effect. The deterioration in a country's current account balance due to temporary or cyclical factors could be the starting point for an excessive depreciation with serious inflationary consequences.

A persistent or unsustainable current account deficit or surplus is even more serious as it creates misplaced productive resources, lower economic growth and/or price instability. It may, however, be quite natural for a country to experience continuous deficits on its current account. For a country with too low a level of domestic savings, too few favourable domestic investment opportunities and a strongly growing labour force, it may be advantageous to be a net importer of capital. It could lead to increased economic growth that would not have been possible if the country had to rely only on its own savings to finance investment.

If a country is to reap the benefits of a persistent deficit on the current account, such net imports of capital has to be sustainable. Sustainability is difficult to define, but there is a general understanding of what this term means. It is something like an elephant, difficult to describe, but when you see it you recognise it.

Three basic conditions for sustainability can be distinguished (Lamfalussy, 1982). The first condition flows from another balance-of-payments identity, namely

$$\begin{aligned} \text{CAB} &= \text{NKA} + \text{FRT} && \text{where} \\ \text{NKA} &= && \text{net flows on the capital and financial accounts excluding reserve assets} \\ \text{FRT} &= && \text{transactions in foreign reserve assets} \end{aligned}$$

From this identity it can be ascertained that the sustainability of persistent deficits on the current account of the balance of payments depends to a large extent on the size and form of the capital and financial flows that a country receives. If the deficit has to be financed from the gold and other foreign reserves of a country or by means of reserve-related borrowing, the deficit would obviously be unsustainable. If it is financed with direct investment in share capital, it would pose less of a threat to solvency because the dividends paid on such investments would depend on the success and profitability of the investments. Moreover, direct investments have certain other advantages for the recipient country, for example the transfer of technology and managerial skills.

The deficits on the current account can also be sustainable if they are financed by an increase in the external debt of a country, particularly if longer-term loans are incurred. The sustainability of the deficits would in this case depend on the international investment position of the country. A large number of indicators are usually monitored by international investors to determine if the country's international investment position is healthy, including the ratio of foreign debt to gross domestic product and to exports of goods and services, the maturity structure of the debt, the level of the gold and other foreign reserves, short-term debt as a ratio of foreign reserves and the debt-servicing capacity. General economic developments are also closely monitored as well as non-economic factors such as political and social stability, developments in neighbouring countries and in other emerging-market economies if the country falls in that group. If a number of these factors become negative, confidence would come into play which may impose limits on future financing and which could make a deficit on the current account unsustainable.

The second condition of sustainability is that the country is receiving funds from the rest of the world to invest and, in so doing, enhancing its future earning power. The deficits would be unsustainable if the country was borrowing abroad to finance current consumption. Moreover, the form of investments financed by foreign funds is also important. If these funds are mainly used to fund fixed property development, the deficits on the current account would be unsustainable. A large proportion of the domestic investment would have to be channelled into the development of export industries and/or import substitution. If this did not take place there would be the danger that the country's terms of trade could deteriorate because of an increase in debt servicing. This could absorb such a large part of the increased domestic income arising from the higher investment that it would make the deficits on the current account unsustainable.

The third condition of sustainability is that the real interest cost of the capital inflow should be equivalent to the return on the additional investment that resulted from the inflow. The real interest cost refers to the nominal rate of interest adjusted for exchange rates and inflation, and it is normally calculated after taking the effect of taxation into consideration. Ideally this condition must be based on expected rates of return, but in practice it is generally only possible to measure real rates of return *ex post facto*.

Where the deficits on the current account are unsustainable the monetary policy stance has to be adjusted to avoid price instability. Monetary policy should ensure that the level of domestic expenditure comes into line with the productive capacity of the economy. This would necessarily involve an increase in interest rates to reduce expenditure levels and increase saving.

Monetary policy could encounter problems equally as serious if the current account of the balance of payments moves into a persistent surplus. Such a situation generally arises where the terms of trade of a country increases dramatically, such as with a substantial rise in oil prices or where large mining and mineral deposits are discovered. It could, however, also occur in a case where residents have a strong propensity to save because, say, of the ageing of the population.

Persistent surpluses on the current account are less likely to occur in developing countries than in more advanced economies because economic subjects with low income levels have a low propensity to save. Any increases in domestic disposable income in emerging-market economies are likely to lead quickly to corresponding large increases in domestic expenditure. The danger for developing economies is probably rather that a temporary surge in the surplus on the current account could cause over-spending which would have to be corrected at a later stage. Where a surplus on the current account is recorded in these countries owing to a sudden sharp improvement in the terms of trade, it may be wise to neutralise such increases in domestic income by encouraging an outflow of capital.

Where persistent surpluses are recorded on the current account of the balance of payments it may also be wise to encourage capital outflows by means of exchange control arrangements. In such a situation, an accommodative monetary policy stance would also be appropriate. If the surpluses on the current account cannot be neutralised by outflows on the capital and financial accounts, the management of domestic liquidity could become a problem. The likely increase in the real effective exchange rate of the currency in such an event, could seriously hamper the price competitiveness of traded goods that do not benefit from the improvement in the country's terms of trade. The domestic production of non-traded goods could be further distorted by imports. Just as in the case of unsustainable deficits on the current account, monetary policy would need the support of fiscal and other macroeconomic as well as microeconomic policy measures to solve the problem of persistent surpluses.

#### **4. THE CURRENT ACCOUNT AND FISCAL POLICY**

An unsustainable surplus or deficit on the current account also has important implications for fiscal policy. The interrelationship between the external sector and government finance is clearly illustrated by dividing the accounting identity between the private and government sector, i.e.



$$\begin{aligned} \text{CAB} &= (\text{Sp} - \text{Ip}) + (\text{Sg} - \text{Ig}) = \text{NKA} + \text{FRT} \quad \text{where} \\ \text{Sp} &= \text{Gross domestic saving of the private sector} \\ \text{Ip} &= \text{Gross domestic investment of the private sector} \\ \text{Sg} &= \text{Gross domestic saving of government sector} \\ \text{Ig} &= \text{Gross domestic investment of government sector} \end{aligned}$$

Per definition  $\text{Sg} = \text{CRg} - \text{CEg}$  where

$$\begin{aligned} \text{CRg} &= \text{Current revenue of government sector} \\ \text{CEg} &= \text{Current expenditure of government sector.} \\ \text{and } \text{CRg} + \text{KRg} &= \text{TRg} \\ \text{and } \text{CEg} + \text{KEg} + \text{NL} &= \text{TEg} \quad \text{where} \\ \text{KRg} &= \text{Capital revenue and grants} \\ \text{KEg} &= \text{Capital expenditure and grants} \\ \text{NLg} &= \text{Net lending of government sector} \\ \text{TRg} &= \text{Total government revenue} \\ \text{TEg} &= \text{Total government expenditure} \end{aligned}$$

Finally  $\text{TRg} - \text{TEg} = \text{Deficit or surplus of government}$

From these identities a clear *ex post* relationship is established between the public-sector borrowing requirement and the current account of the balance of payments. A large public-sector borrowing requirement that is not the result of transactions on the capital account of government or neutralised by lower government investment or offsetting net saving by the private sector, should result in a large deficit on the current account of the balance of payments. Conversely, a surplus on the accounts of the public sector that is not brought about by transactions on the capital account of the government or neutralised by higher government investment and lower net saving by the private sector, should result in a surplus on the current account of the balance of payments. The public finances of a country are therefore an important factor influencing the current account balance.

These identities, however, shed no light on the underlying economic behaviour linking a budget deficit with a current account deficit. They do not take into consideration that the balance between the saving and investment of the private sector could be influenced by the balance between the saving and investment of government. Only in a case where the private sector's excess of saving over investment is not influenced materially by changes in fiscal policy, would such changes have a large direct effect on the current account balance. Such an assumption would probably not be valid in most countries. The extent of government expenditure, the type of expenditure and tax policy would under most circumstances have an influence on the saving and investment behaviour of private entities.

Taking into account the disadvantages of these relationships, it can nevertheless be concluded that fiscal policy has an important bearing on the current account balance. If there is an unsustainable current account deficit in a country, a number of options are available to the government to re-establish equilibrium in its external accounts, such as measures to

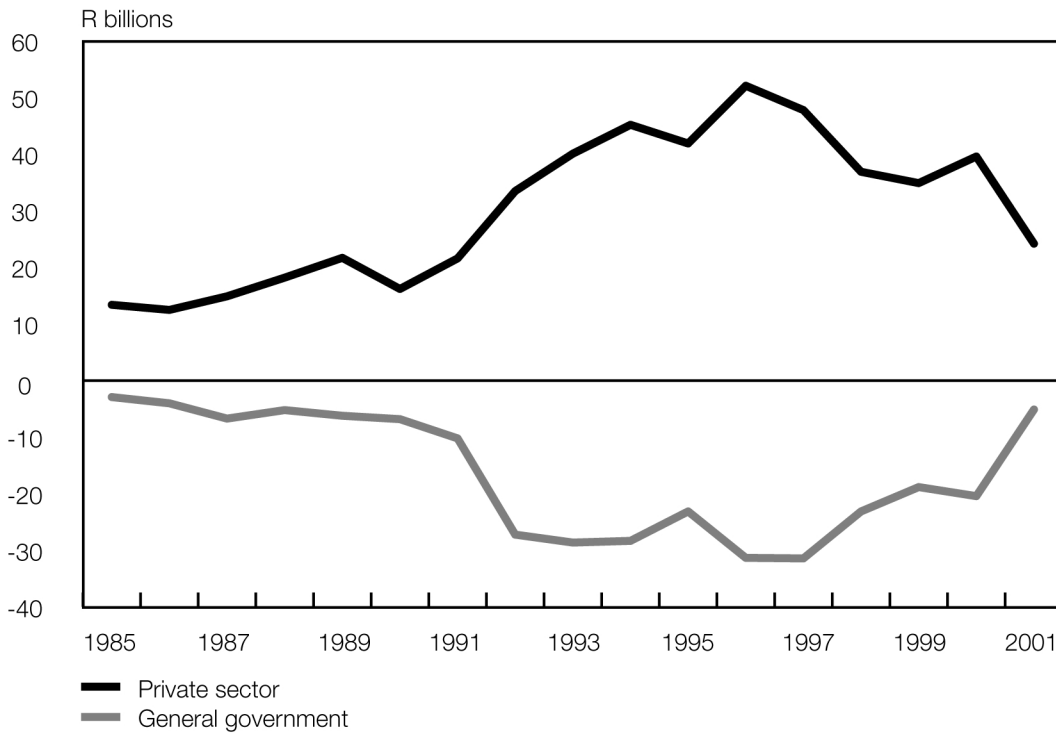
- reduce private-sector demand for consumer goods and services;
- increase government current revenue;
- reduce government current expenditure;
- reduce government capital expenditure;
- increase the external debt of the country; and
- deplete the gold and other foreign reserves of the country.

The first decision that government has to make is whether to apply these fiscal measures or rather to rely on exchange rate adjustments, monetary policy or other measures to re-establish a sustainable situation. Such a decision would depend on the underlying circumstances and established relationships in the economy. A detailed analysis of all the balance of payments aggregates would have to be made to establish how the deficits arose.

If a decision is taken to apply fiscal measures to restore the balance-of-payments equilibrium, an increase in government debt or a depletion of the gold and other foreign reserves could obviously only be used as temporary measures until the other more viable solutions begin to affect the balance of payments. Similarly, a reduction in government's expenditure on capital programmes could only be used over the medium term, because it is important to maintain and expand the infrastructure of an economy. If this is neglected for too long a time, it could have serious consequences for economic growth and employment creation.

Deciding between revenue or expenditure measures is usually far more difficult. In a study undertaken by Susan Schadler it was found that: "Unless private savings behaviour fully offsets shifts in government saving, containing expenditure should have a stronger effect on domestic demand than revenue increases: expenditure cuts affect demand directly, but revenue increases absorb resources that might have been saved." This hypothesis seems to be substantiated by recent developments in the fiscal finances of South Africa. Although the recent measures undertaken in South Africa to improve the collection of taxes bore no relation to balance-of-payments considerations, the resultant increase in government saving was accompanied by a distinct decline in corporate saving (see Graph 1).

Graph 1: Net saving of the private sector and general government



Fiscal policy can deal far more easily with persistent surpluses than with deficits on the current account of the balance of payments. The obvious answer in this instance would be to increase public fixed investment and thus reduce the balance between government saving and investment. Such measures could, however, also affect private saving and could easily lead to the appearance of unsustainable deficits on the current account of the balance of payments and stop-go policies by government.

Persistent surpluses on the current account combined with large inflows of capital on the balance of payments are, however, much more difficult to contain. Susan Schadler came to the conclusion that in these circumstances fiscal policy would be the only means of containing inflation and avoiding an appreciation in the real exchange rate of a currency. “To the extent that the inflows stemmed from an unsustainable financial policy rise-relatively tight credit with an easier fiscal policy - reducing the fiscal deficit would eliminate the problem at its source. When other causes of inflows were at play, fiscal adjustment - additional to the adjustment that might already have occurred - would restrain domestic demand and inflation.”

She also found that the form of fiscal adjustment influenced its restraining effect. “An adjustment that moderates the demand for nontraded goods and services, whether directly by cutting government spending on them or indirectly by raising taxes, reduces domestic inflationary pressures; however, one that falls on traded goods tends to strengthen the external current account, which could even add to pressures for appreciation.

## 5. THE BALANCE OF PAYMENTS AND MONEY SUPPLY

Balance of payments statistics are also used in explaining changes in the money supply, an important indicator for the determination of monetary policy. Increases in the money supply are usually closely correlated with price increases over the long term.

Money supply can be defined in various ways. Normally it consists of coin and banknotes in circulation outside the banking sector plus the deposits of the non-bank private sector with banks or, in some countries, with closely related financial institutions. The more narrowly defined money supply is then defined to include only deposits with a short maturity, whereas the more broadly defined money supply could include all deposits of the non-bank private sector.

If for the sake of simplicity it is assumed that the definition of the money supply is restricted to deposits of banks, the money supply would form part of the consolidated liabilities of banks. An accounting identity could then be established in which the money supply would be equal to the sum of all the assets of banks less those liabilities of banks that have not been included in the money supply. Such an identity would allow changes in the money supply to be explained in terms of changes in the consolidated assets and liabilities of banks.

For analytical purposes, the banks’ assets may be classified into gold and foreign assets, claims on the government sector, claims on the non-bank private sector and a residual category, “other assets”. The liabilities not included in the money supply can also be classified in foreign liabilities, government deposits, deposits of the non bank private sector not included in the money supply and “other liabilities”. If these liabilities are offset against the corresponding category of assets, the identity would take the following form:

$M = NFAB + NCG + NCPS + NOA$  where  
M = the money supply  
NFAB = net foreign assets of the banks  
NCG = net claims on the government sector  
NCPS = net claims on the non-bank private sector and  
NOA = net “other assets”

Changes in the money supply between two dates are therefore equal to changes in the classified identities over the same dates. The main advantage of this identity is that it provides an analytical framework for identifying and quantifying the factors which had a direct influence on the money supply. It is useful starting point for an analysis of the underlying factors that affected the money supply. The quantification of the “accounting causes” of changes in the money supply has the further advantage that movements in these causes can be studied over time, For example, in South Africa it has been found that these causes maintain fairly consistent patterns of cyclical behaviour. This is useful for monetary policy purposes because the authorities know what patterns can be expected to occur in the different phases of the business cycle. Deviations from these patterns may be of even greater significance because they may require specific policy action.

This quantitative analysis of changes in the money supply also has certain disadvantages, such as:

- it does not provide any explanation of the reasons behind the changes in the quantified causes and the course of events in between the balance sheet dates;
- changes in the money supply cannot be fully explained from the supply side as they may also be due to changes in investors’ preferences arising from interest rate movements and expectations;
- balance sheet data on a specific date often reflect short-lived random influences which may lead to wrong conclusions about the current rate of monetary expansion; and
- disintermediation and re-intermediation of credit transactions not only influence the causes of changes in money supply, but also complicate the accurate measurement of the rate of growth in money supply.

From this brief explanation of a monetary analysis based on the consolidated balance sheet of banks, the usefulness of balance-of-payments data in explaining one of the accounting causes of changes in money supply can be indicated by the identity:

$FAB - FLB - VFALB = CAB - NKAEXB - FRTEXB$  where

FAB = change in foreign assets of banks

FLB = change in foreign liabilities of banks

VFALB = valuation adjustments in the foreign assets and liabilities of banks

NKAEXB = net flows on the capital and financial accounts excluding reserve assets and the net flows to banks

FRTEXB = transactions in foreign reserve assets excluding the foreign reserve assets of banks

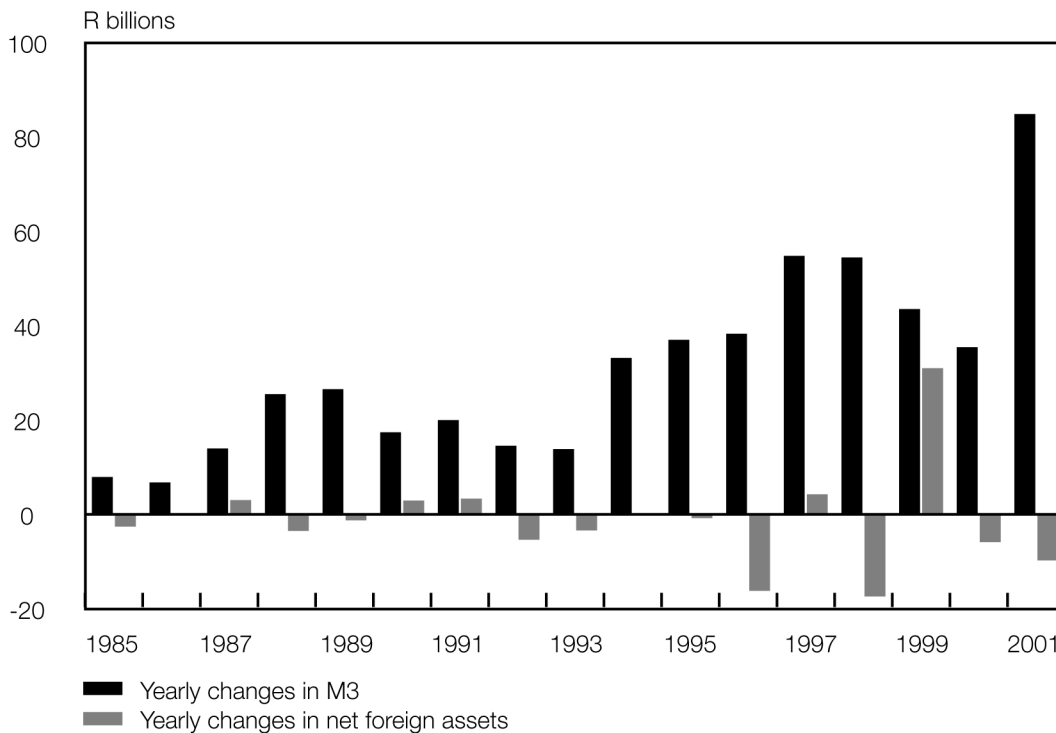
In most cases  $FRTEXB = 0$ , except if the government holds reserve assets. Based on the assumption that the government does not hold foreign exchange for its own account, the identity can be rewritten as:

$$NFAB - VFALB = CAB - NKAEXB$$

In balance-of-payments terminology this identity means that all the transactions in the assets and liabilities of banks have been moved below the line, while the other transactions indicate what brought about the changes in the net foreign assets of banks. In this way the effect of balance of payments transactions on money supply can be quantified.

In Graph 2 the annual changes in the net foreign assets of South African banks are compared with the annual changes in the broadly defined money supply (M3) from 1985 to 2001. This graph shows that the changes in the net foreign assets of banks were an important cause of changes in money supply in South Africa during certain years. Particularly in the period from 1996 to 2001, i.e. a period of considerable volatility in the exchange rate of the rand, the net foreign assets of the banks made a significant contribution to changes in the money supply.

Graph 2: Changes in the money supply and in the net foreign asset of the banking sector



It should, however, be realised that the monetary analysis merely reflects *ex post* changes in the money supply and in its counterparts within an accounting identity. It does not describe the exact sequence of events leading to the observed *ex post* changes in the accounting causes. Even within a fairly short observation period a change in one of the causes may reverse itself and may not show up in the *ex post* measurement of changes. But such a change may have induced changes in the other causes which do show up in the *ex post* measurement. As a result, an incorrect conclusion may be drawn about the actual reason for the change in the money supply. For example, an increase in net foreign reserves may increase the liquidity base of the banking system, which, in turn, may enable the banks to expand domestic credit. This additional credit may be used to finance an outflow of capital and thus result in a decline in the net foreign assets of the banks. If this sequence of events occurs in a period during which the change in the money supply is measured, the *ex post* change in the money supply may be explained in terms of an increase in bank credit, without recognising the original influence of the increase in net foreign reserves.

Despite these and other shortcomings of such a monetary analysis, it does provide a useful tool for assessing changes in monetary conditions, The identity also illustrates the interrelationship between balance-of-payments transactions and changes in the money supply.

## **6. THE BALANCE OF PAYMENTS AND MONEY MARKET OPERATIONS**

Balance-of-payments data also play an important role in the money market operations of central banks. As in the case of the money supply, the link between the balance of payments and the money market can perhaps best be illustrated by an identity which, in this case, can be derived from the balance sheet of the central bank. There are various ways of analysing the liabilities and assets of the central bank in this manner, depending on the type of system that the central bank chooses to follow. If the purpose is to determine the liquidity requirement or the accommodation that a central bank has to provide to banks, such a liquidity requirement could be defined and the other assets and liabilities would then form the accounting causes of changes in the liquidity requirement.

The size of the liquidity requirement will reflect the outcome of spontaneous market developments or may be the outcome of deliberate actions taken by the Bank. Factors influencing money-market liquidity over which the central bank has no direct control are

- changes in banknotes and coin in circulation outside the central bank;
- autonomous balance-of-payments transactions which affect the net foreign assets of the central bank;
- changes in government deposits held with the central bank; and
- surpluses or deficits arising from transactions in the forward market and changes in exchange rates.

Central banks can neutralise these developments or affect the liquidity requirement of banks by employing the instruments at their disposal. These instruments vary from country to country, but normally consist of cash reserve requirements, open-market operations, currency swaps and the administration of the tax and loan accounts of governments at banks.

The balance of payments, as reflected by changes in the foreign assets and foreign liabilities of the central bank, will in most countries be an important spontaneous explanatory factor of changes in the liquidity requirement in the money market. The foreign assets of a central bank usually consist mainly of gold and foreign exchange holdings, and the foreign liabilities to a large extent include only its reserve-related liabilities, i.e. together they would form the net gold and other foreign reserves of the central bank. The net gold and other foreign reserves of the central bank are in many countries regarded as the overall balance on the external accounts of a country.

An increase in the net gold and other foreign reserves of the central bank or a surplus on the overall balance of payments, will obviously lead to an easing of money market conditions and, if nothing else happens, will exert downward pressure on money-market interest rates. Similarly a deficit on the balance of payments, all other things remaining the same, will reduce liquidity and exert upward pressure on short-term interest rates. The reasons for the change in the net gold and other foreign reserves of the central bank can only be found in an analysis of the balance of payments. In this analysis it is, however, important to realise that such changes in the assets and liabilities will not fully explain interest rate movements. Changes in interest rates are also affected by non-quantifiable factors, such as political developments, market sentiment and expectations about changes in interest rates, exchange rates and other developments in financial markets.

As in the case of the monetary analysis, the causes of changes in the liquidity requirement of banks represent *ex post* statistical changes in balance sheet items between successive dates. This kind of analysis has the advantage that it provides a framework for bringing together the main factors affecting the cash position of the private banking sector. It provides a quantitative measurement of changes in the factors affecting money-market conditions. Certain behaviourable patterns and relationships can be established from historical figures, which could serve as a useful input into the central bank's day-to-day operations. Established seasonal patterns are of particular importance because they can allow a central bank to iron out some temporary fluctuations in money-market conditions and interest rates.

For the effective implementation of money-market operations, a central bank needs to know in advance how much liquidity it may be called upon to provide in order to balance the demand and supply in the market for bank reserves. Central bank liquidity forecasts form the basis for decisions on the volume, maturity and frequency of operations designed to balance the market. Forecasts of balance-of-payments statistics provide a useful input in determining the changes that can be expected in the net gold and other foreign reserves of a central bank.



## 7. THE BALANCE OF PAYMENTS AND THE EXCHANGE RATE

Balance of payments data are indispensable for an understanding of the movements in the exchange rate of a currency. The supply of foreign currencies depends on the export of goods and services, income earned on foreign investments, transfer receipts, the inflow of capital and the extent to which these transactions are denominated in foreign currencies. In turn, the demand for foreign currencies stems from the payments for imports, returns on foreign investment, transfer payments, capital outflows and whether these transactions are concluded in foreign currencies. The balance of payments provides a systematic record of these transactions with the rest of the world for a certain period of time. Such information is obviously essential for analysing the changes in the supply of and demand for foreign currencies and for gaining a better understanding of changes in the external value of the domestic currency.

At the same time it is true that certain transactions recorded in the balance of payments will not affect the exchange rate of the domestic currency immediately, while others will have no impact on the supply of and demand for foreign currencies in an economy. For instance, transactions with non-residents denominated in the domestic currency or imputed transactions with a corresponding contra entry will not affect the external value of a currency. Other transactions recorded in the balance of payments, such as unappropriated profits on direct investment or those that are not settled during the period for which the balance of payments is compiled, will not have an immediate impact on prices in the foreign-exchange market but may affect it at a later stage.

The inclusion of this kind of transaction in the balance of payments has led to arguments that this statement should be compiled on a cash basis rather than on an accrual basis to gain a better understanding of changes in the gold and other foreign reserves and the exchange rate of a country. Such reasoning does not take account of the many disadvantages of compiling a balance-of-payments statement on a cash basis, such as that it includes transactions between residents, it omits transactions settled in domestic currency and it could also leave out transactions done through foreign bank accounts. Even more important, it excludes information that could have a significant bearing on exchange rate changes. For instance, a sharp decrease in foreign trade-related liabilities and a sharp increase in foreign trade-related assets may indicate that leads and lags in foreign payments and receipts are causing a depreciation in the external value of the currency.

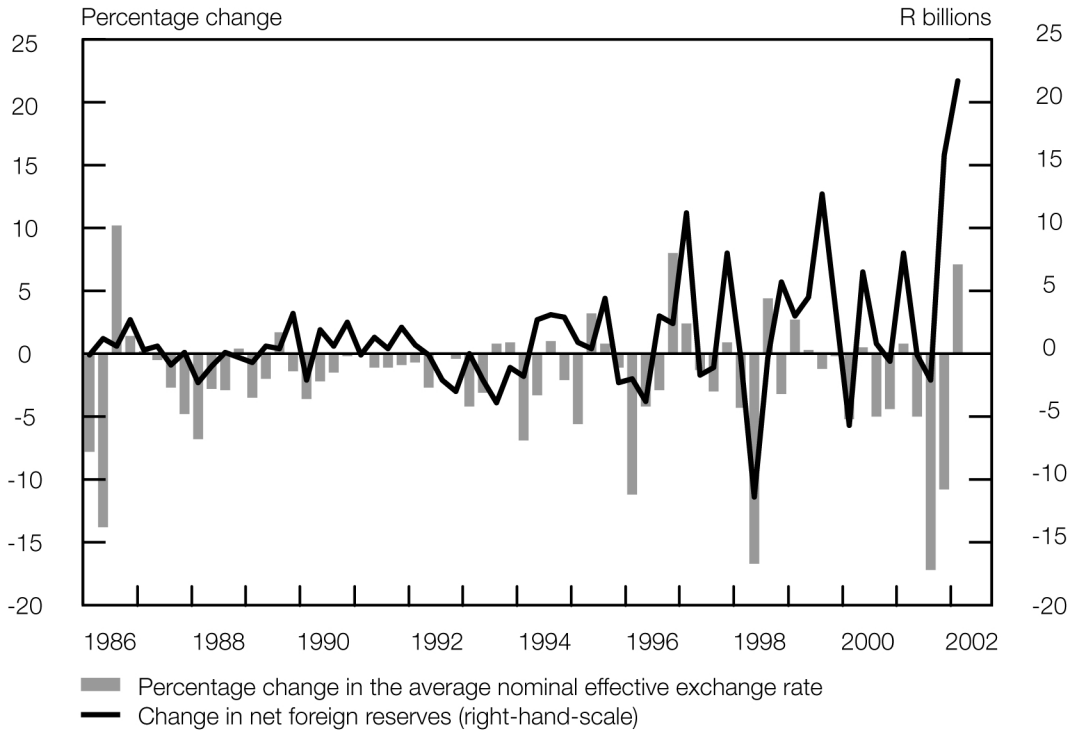
A detailed analysis of the transactions in the balance of payments compiled on an accrual basis is therefore essential to determine the underlying causes of exchange rate changes. However, as in most of the uses made of balance-of-payments statistics, it is useful to distinguish a specific balance on the account summarizing the effect of transactions on the exchange rate of the currency and then to turn to details. The overall balance or balance on official settlements is useful for this purpose, because it indicates how transactions with the rest of the world affected changes in the foreign reserve holdings of a currency.

In South Africa we have found that changes in the net gold and other foreign reserves are a meaningful indicator to explain changes in the exchange rate of the rand. The gold and other foreign reserves category is defined in South Africa to include the gold and foreign exchange holdings of the South African Reserve Bank, the government and private banks. Changes in these reserve holdings are recorded after taking into account changes in reserve-related liabilities and valuation adjustments.

In the past, the Reserve Bank has also intervened at times in the foreign-exchange market by making use of foreign-exchange swaps or even outright forward exchange transactions. This kind of transaction is not reflected in the balance sheet of the central bank and does not form part of the balance-of-payments statement because such transactions are concluded between residents. The objective of such transactions is, however, to affect the exchange rate of the rand. For this reason, changes in the net open foreign reserves position (NOFP) are an additional indicator that is used in South Africa to obtain a better understanding of movements in the external value of the rand. The NOFP is the sum of the net gold and other foreign reserves and the balance on the forward book of the Reserve Bank. The NOFP is negative if the balance on an oversold forward book is larger than the net reserves of a country.

Graph 3 compares the quarterly changes in the net foreign reserves of South Africa with the average quarterly changes in the nominal effective exchange rate of the rand. From this graph it is apparent that changes in these two aggregates are relatively closely correlated. Normally an increase in the net foreign reserves of South Africa is followed by an increase in the weighted external value of the rand, and vice versa. However, the graph also shows that, at times, changes in the nominal effective exchange rate lagged those in the net foreign reserves, and that there were periods in which the relationship between the changes in the two aggregates were disturbed completely. In particular, in the period from the middle of 1990 to the middle of 1992 and again from 1999 to 2002 the net foreign reserves of South Africa increased while the average nominal effective exchange rate continued to decline.

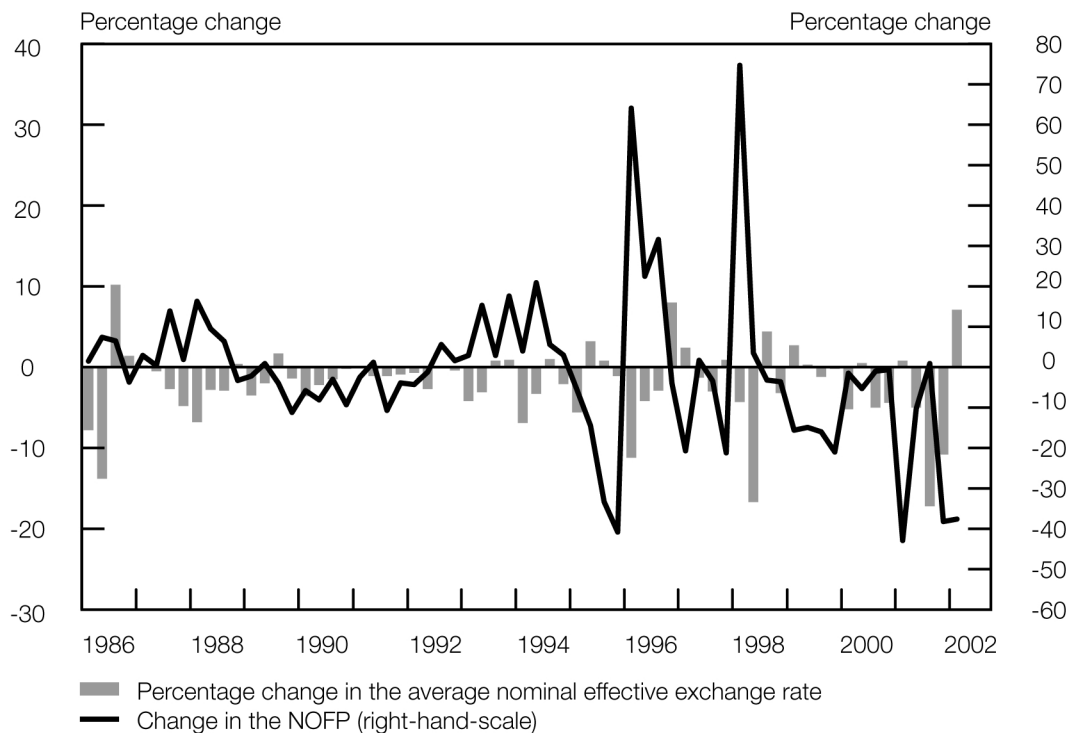
Graph 3: Change in the net foreign reserves and percentage change in the average nominal effective exchange rate of the rand



This divergence from the pattern that could have been expected was brought about by attempts by the South African Reserve Bank to reduce a large net oversold forward balance during these two periods. As shown in Graph 4, the NOFP was reduced significantly from the beginning of 1989 to the end of 1992. This caused a decline in the nominal effective exchange rate of the rand because of the reduced supply of foreign currency, more specifically US dollars, in the market. In the period starting from 1999 the relationship between changes in the net foreign reserves and changes in the external value of the rand was disrupted because of the announced policy objective of the authorities to bring down to zero the oversold NOFP position of the Reserve Bank. As a result, the central bank purchased large amounts of dollars in the market to offset forward exchange transactions whenever the overall balance of payments position allowed it to do so. As market participants became more aware that the central bank was intent on achieving this objective, the rand became a one-way bet. This contributed to a substantial decrease in the nominal effective exchange rate of the rand in 2000 and 2001, and the South African Reserve Bank had to reassure the market that the NOFP position would be closed in an orderly manner from the special proceeds of foreign exchange arising from government loans or privatisation.

Graph 4 also illustrates that in certain periods, such as 1992 to 1994, 1996 and 1998, there was an inverse relationship between changes in the NOFP and changes in the nominal effective exchange rate of the rand. In these periods, heavy intervention by the Reserve Bank to support the external value of the rand, resulted in an increase in the oversold NOFP position while the average nominal effective exchange rate of the rand at first continued to decrease and only later started to rise.

Graph 4: Percentage changes in the NOFP and the average nominal effective exchange rate of the rand



Changes in the net gold and other foreign reserves of South Africa therefore provide a better explanation than changes in the NOFP of movements in the nominal effective exchange rate of the rand. However, the exchange rate, like all other prices determined in markets, is forward looking, whereas balance-of-payments transactions reflect the outcome of decisions made in the past. Balance-of-payments statistics normally become available about eight weeks after a quarter and can only then be used to understand why the supply of and demand for foreign currencies changed. In the meantime, exchange rate determination depends heavily on expectations. In turn, expected changes in the exchange rate of a currency are influenced by developments in economic, psychological and technical factors.

As they become available, economic data have a significant influence on exchange rate movements. This complicates the *ex post* analysis of why the exchange rate of a currency behaved in a specific manner. Moreover, the release of data could have completely opposite effects on the exchange rate, depending on underlying circumstances. For example, news that economic growth is accelerating in a country could lead to a decline in the exchange rate because of an expected deterioration in the trade balance arising from an increase in imports. By contrast, higher growth could also lead to an appreciation in the currency of a country if it is expected that such growth would attract foreign capital that would improve the country's overall balance of payments position. Similarly, rising interest rates could strengthen a currency if they are expected to attract foreign investments, but could also be regarded as a reflection of economic weakness and could then cause a fall in the exchange rate.

What makes it even more difficult for analysts to determine the direction of exchange rates, is the fact that many non-economic factors could have an influence on the external value of a currency. What is important in this regard is the political outlook of the country. Here analysts give careful consideration to the stability of the government, the maintenance of law and order and the protection of property rights. Not only domestic political conditions could affect the exchange rate of a currency, but also political developments in neighbouring countries or in countries with which the specific country has close relationships or even only shares specific characteristics. Internal industrial relations could also impact on a currency. This depends on relationships between capital and labour, production costs, competition and many other developments. Examples of technical factors that could influence exchange rate developments include regulations in respect of the open positions of exchange-market participants and rules about cross-border movements of goods, services, income and capital.

Although all these factors could influence the external value of a currency, they are in the end reflected *ex post* in the balance of payments as one or other transaction between residents and non-residents. Despite the effect of all these factors on the exchange rate, the balance of payments therefore after the event still provides a useful framework for understanding why the exchange rate behaved in a particular manner.

## **8. CONCLUSION**

Although the collection of trade statistics dates back as far as the Fourteenth Century, the compilation of balance-of-payments data really only took off in the 1920s. The standardisation of concepts and definitions by the IMF with the first publication of the *Balance of Payments Manual* in 1948 broadened the uses made of balance-of-payments statistics. Today these statistics are employed in many ways with different objectives in mind by the private and the public sectors.

In the determination of monetary and fiscal policy, balance-of-payments data serve as an early indicator of whether countries are living within their means. If current account deficits are unsustainable, it is important that the necessary corrective actions should be taken as soon as possible to attain high economic growth and price stability. Balance-of-payments data are also of great significance in understanding changes in the money supply, money-market liquidity and the exchange rate of a currency, which are all important factors in the determination of monetary policy.

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