The chapter also introduced the related concepts of duration of unemployment and hysteresis. When there is a lot of slack in labour markets (the number seeking employment far exceeds the number of job openings), the average time spent unemployed tends to rise. A longer duration of unemployment tends to reduce the likelihood that one will be able to obtain a job – that is, the problem of hysteresis arises: more and more of the unemployed workers come to be seen by potential employers as unemployable.

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CHAPTER

6

SECTORAL ACCOUNTING AND THE FLOW OF FUNDS

Chapter Outline

Learning Objectives

- Develop an understanding of the sectoral balances identity: for every surplus there must be an equal deficit.

- Understand the relationship between sectoral balances and changes to net financial assets.

- Recognise the distinction between vertical and horizontal transactions in their impact on net financial assets.

- Interpret a balance sheet (stocks) and period-to-period changes of its items (flows).

6.1   Introduction

In Chapter 4 we saw that the national accounts divided the national economy into different expenditure categories: consumption by persons/households; investment by private business firms (as well as residential investment in housing); spending by the government; exports to and imports from the foreign sector.

The most basic macroeconomics rule is that one person's spending is another person's income. Another way of stating this rule is that the use of income by one person (that is, spending) will become the source of income for another person or persons.

In this chapter, we extend our understanding of the national accounts, which record these different flows of expenditure and income. The **sectoral balances perspective** of the national accounts brings the uses and sources of national income together. We show that when appropriately defined, the sectoral balances must sum to zero. We expand our discussion of stocks and flows and then introduce the flow of funds by reference to the sectoral balances.

There are many useful insights that can be gained from an understanding of a nation's sectoral balances. The sectoral balances approach helps us to understand the relations between the spending and income balances of the households, firms, government, and foreign sectors of the economy. For example, it illustrates that it is impossible for all sectors to run surpluses (that is, to 'save overall' or spend less than their income) simultaneously. For one sector to run a surplus, we need at least one other to run a deficit (spend more than their income). You will learn that for any of those nations which run external deficits against the rest of the world, in order for its private domestic sector (that is, households plus firms) to run surpluses (that is, to spend less than their income and save overall), it is necessary for the government to run fiscal deficits (that is, spend more than it taxes, net of transfers).

6.2   The Sectoral Balances View of the National Accounts

Introduction

The Australian Bureau of Statistics publication *Australian System of National Accounts: Concepts, Sources and Methods* (ABS, 2014) is an excellent resource for understanding the background concepts that are used to derive the sectoral balances framework. The discussion therein is generally applicable to all countries.

From the national accounts sectoral balances framework, economists derived what is called the basic **income-expenditure model** in macroeconomics to explain the theory of income determination that forms the core of the so-called **Keynesian** approach (see Chapter 15).

The income-expenditure model is a combination of accounting identities drawn from the national accounting framework and behavioural theories about how flows of expenditure by households, firms, governments, and foreigners combine to generate sales, which in turn motivate output and income generation.

Remember, that an expenditure **flow** is measured as a certain quantity of dollars that is spent per unit of time. Conversely, a **stock** is measured at a point in time and is the net sum of prior relevant flows.

The accounting aspects that underpin the income-expenditure model draw on several different ways that we can think about the national accounts.

First, from the perspective of the **sources** of national income, we can write out the sources of total spending that flow into the economy over a given period, using the following shorthand:

$$(6.1) \qquad Y \equiv C + I + G + (X - M)$$

Total national income (GDP, represented by Y) is the sum of total final consumption expenditure (C), total private investment (I), total government expenditure (G) and net exports ($X - M$). Note the use of the mathematical symbol $\equiv$, which denotes an **identity** that is true by definition. You should also note that we have seen this identity previously as equation 4.1. You might refresh your memory as to that discussion.

At this stage, we simply take these flows of expenditure as given and understand them to be parts of the national accounts of a nation.

When these components of spending are summed, they equal **aggregate demand for goods and services** in a particular period. Aggregate demand, in turn, generates a response by producers (private and public) in the form of production, which in turn generates flows of income to suppliers of inputs into production (wages, profits). The sum of those flows equals the national income.

As we noted in Chapter 4, the trade account is only one aspect of the financial flows between the domestic economy and the external sector. We must include net external income flows (FNI), which arise from the dividend and income flows that accrue to investments that residents make abroad minus the dividend and interest flows that residents must pay foreign investors who have financial interests within the nation.

Adding in the net external income flows (FNI) to Equation (6.1) for GDP we get the familiar definition of gross national product (GNP):

$$(6.2) \qquad GNP \equiv C + I + G + (X - M) + FNI$$

At this stage, we could make the analysis quite complicated by considering retained earnings in corporations and the like, but here we assume that all income generated by firms and corporations ultimately is received by households, that is, there are no earnings retained by firms.

To obtain the sectoral balances form of the identity, we subtract total taxes net of transfers (T) from both sides of Equation (6.2):

$$(6.3) \qquad GNP - T \equiv C + I + G + (X - M) + FNI - T$$

Now we can collect the terms by arranging them according to the three sectoral balances:

$$(6.4) \qquad (GNP - C - T) - I \equiv (G - T) + (X - M + FNI)$$

The terms in Equation (6.4) are relatively easy to understand now. The term $(GNP - C - T)$ represents total income less the amount consumed by households less the amount paid by households to government in taxes net of transfers. Thus, it represents household saving.

The left-hand side of Equation (6.4), $(GNP - C - T) - I$, thus is the **overall net saving** of the **private domestic sector**, which is distinct from total household saving (S) denoted by the term $(GNP - C - T)$.

In other words, the left-hand side of Equation (6.4) is the **private domestic financial balance** ($S - I$). If it is positive, then the sector is spending less than its total income (so the sector is adding to its stock of net financial assets), and if it is negative, the sector is spending more than its total income and running down its stock of net financial assets. More generally we define assets as items owned by households and government and non-government organisations which have value. These include financial assets (such as holdings of the money of account, bank deposits and shares) and real assets (such as capital equipment, land and property). On the other hand, liabilities can be held by the same entities and represent financial obligations which need to be settled over time, by some form of payment, which may take a financial form through the transfer of bank deposits or shares, or a real form, namely goods and services.

Note that by rearranging Equation (6.4) we get another version of the sectoral balances equation:

$$(6.5) \qquad (S - I) + (T - G) + (- CAB) \equiv 0$$

The term $(T - G)$ is the **government financial balance** or primary fiscal balance and is in deficit if government spending (G) is greater than government tax revenue (T), and in surplus if the balance is positive.

Finally, the other left-hand side bracketed term $-(X - M + FNI)$ is the negative of the **external financial balance**, commonly known as the current account balance (CAB). It is in surplus if negative and deficit if positive. It is the balance between the spending/income flows of foreigners in the nation and the spending/income flows by residents that go to foreign nations. More simply if the final bracketed term on the left-hand side is positive then there is a current account deficit (CAD).

From Equation (6.5), we can say that:

The private domestic financial balance plus the government financial balance plus the current account deficit equals zero.

This is an accounting statement.

For example, let us assume that the external or foreign balance equals zero. Let us further assume that the private domestic sector's income is $100 billion while its spending is equal to $90 billion, which delivers an overall surplus of $10 billion over the year. Then, from the identity, Equation (6.5), the government sector's fiscal deficit for the year is equal to $10 billion. We know that the private domestic sector will accumulate $10 billion of net financial wealth during the year, consisting of $10 billion of domestic government sector liabilities (given that the external balance is zero).

As another example, assume that there is a current account deficit of $20 billion, so that the spending/income flows from foreigners to the nation is less than the spending/income flows from residents that go to foreign

nations. At the same time, assume the government sector spends less than its income, running a fiscal surplus of $10 billion. From our accounting identity, we know that over the same period the private domestic sector must have run an overall deficit equal to $30 billion ($20 billion plus $10 billion). At the same time, its net financial wealth will have fallen by $30 billion because it sold assets and/or issued debt. Meanwhile, the government sector will have increased its net financial wealth by $10 billion (reducing its outstanding debt or increasing its claims on the other sectors), and the foreign sector will have increased its net financial position by $20 billion (also reducing its outstanding debt or increasing its claims on the nation's residents or government).

It is apparent then that, as noted previously, for one sector to run a surplus, at least one other sector must run a deficit. In terms of stock variables, in order for one sector to accumulate net financial wealth, at least one other sector must be in deficit. **It is impossible for all sectors to accumulate net financial wealth by running surpluses.**
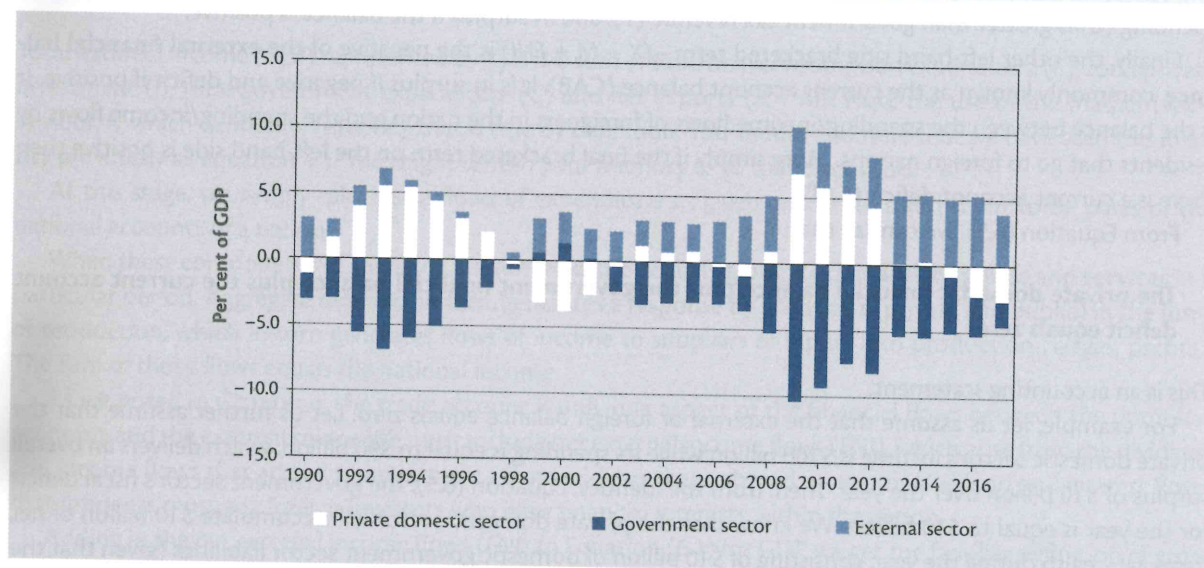
How can we use the sectoral balances framework?

The UK sectoral balances shown in Figure 6.1 replicate Equation (6.5), except that the balances are expressed as percentage shares of GDP. Note that the balances sum to zero.

At this stage three observations are appropriate:

1. Despite the contemporary rhetoric about the desirability of 'getting back to' running an annual fiscal surplus, the UK has rarely done so. Indeed only seven fiscal surpluses have been achieved since 1960, each relatively small and short lived. This is common for other developed nations, too.

2. Like a number of other developed economies, including the US and Australian, current account surpluses have also been relatively rare.

3. Private sector balances have typically been in surplus. The limited occurrences of private sector deficits have been often accompanied by fiscal surpluses. The three annual fiscal surpluses between 1998 and 2000 shown in Figure 6.1 were accompanied by current account deficits and relatively large private sector deficits (7.3 per cent of GDP in 2000). The 2001 economic slowdown followed. In most advanced economies, sharp, severe economic downturns typically follow a period when fiscal surpluses are accompanied by large private sector deficits.

| Figure 6.1 | UK sectoral balances, 1990 to 2017 |

Source: Data from OECD (2015).

Note: Imports include net income flows in this graph.

A graphical framework for understanding the sectoral balances

From Equation (6.5) we learned that the sum of the sectoral balances is zero as a matter of accounting. We can construct a diagram defining four quadrants. Figure 6.2 depicts the government fiscal balance on the vertical axis and the external balance on the horizontal axis.

Thus, all points above zero on the vertical axis represent a government fiscal surplus ($T > G$) and all points on the vertical axis below the origin denote government fiscal deficits ($G > T$).

Similarly, all points to the right of the origin on the horizontal axis denote external surpluses ($X + FNI > M$) and all points to the left of the origin on the horizontal axis represent external deficits ($X + FNI < M$). While we shall refer to surpluses and deficits with respect to the sectoral balances, these balances should be understood as being expressed as shares of GDP.

Clearly, the origin of both axes denotes a position where all balances are equal to zero. From Equation (6.5), we also know that when the private domestic balance is zero ($S = I$), then the government fiscal deficit(surplus) will equal the external deficit(surplus). From Figure 6.2, the diagonal 45-degree line thus shows all combinations of government fiscal balances and external balances where the private domestic balance is zero ($S = I$). We will refer to this as the **SI line**.

We can use that knowledge to determine the segments of the diagram where the private domestic balance is in surplus ($S > I$) and in deficit ($S < I$). To make it easier, we will use Equation (6.4) re-written in this way:

$$(6.6) \qquad (S - I) \equiv (G - T) + (X - M + FNI) \equiv (G - T) + CAB$$

where ($GNP - C - T) - S$ and $CAB = (X - M + FNI)$. This isolates the private domestic balance on the left-hand side.

We need to identify combinations of the fiscal and external sector balances which yield a private domestic surplus (deficit). At points A and C in Figure 6.3, there is a private domestic balance. Point B corresponds to a

| Figure 6.2 | A graphical sectoral balances framework |
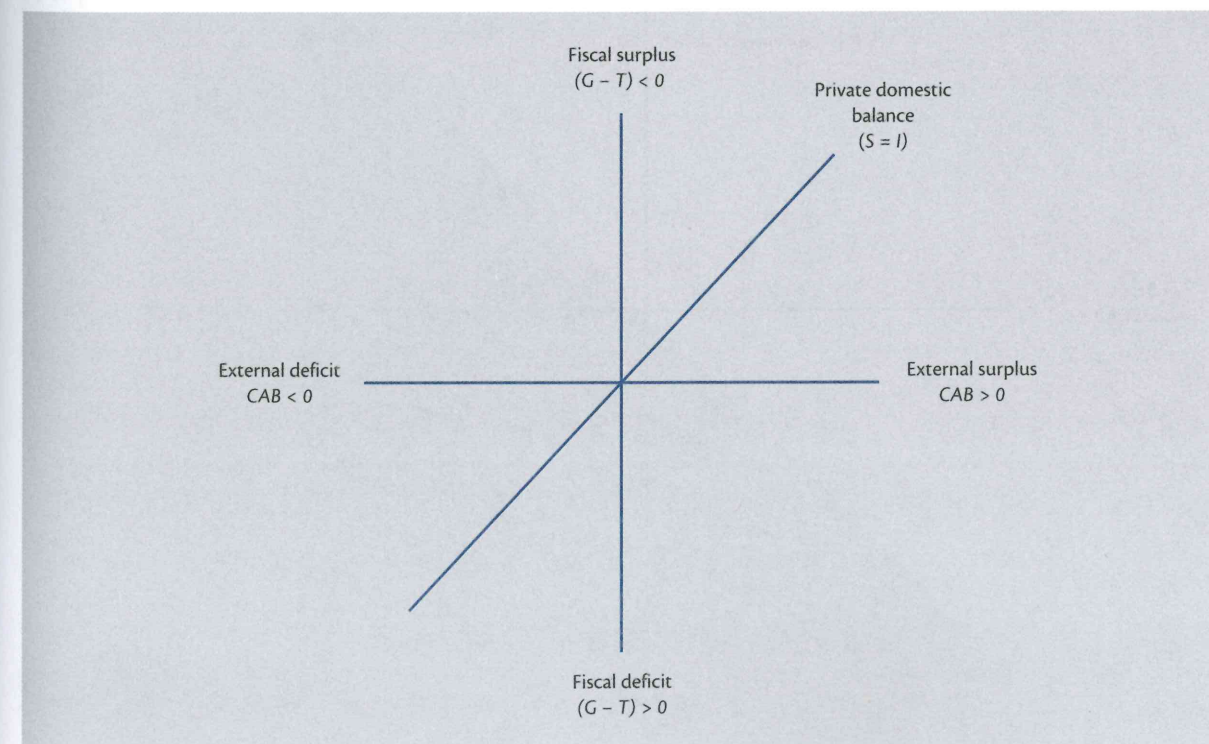
fiscal deficit ($G > T$) and an external surplus ($CAB > 0$). Thus the private sector must be engaging in positive net saving ($S > I$). Then between points B and A, and also B and C, net saving by the private sector is falling until private domestic balance is achieved at points A and C respectively.

Similarly, it can be readily shown that at D, the private domestic sector is net spending ($S < I$). Between points D and C and D and A, net spending by the private sector declines until private domestic balance is achieved at points A and C respectively.

We can generalise this knowledge and conclude that all points above the 45-degree line on each side of the vertical axis correspond to private domestic sector deficits and all points below the 45-degree line on each side of the vertical axis correspond to private domestic sector surpluses. Consider point b for example, which corresponds to a private domestic surplus, whereas points a and c correspond to a private domestic balance.

The graphical framework thus allows us to examine the implications of different policy options. For a sovereign, currency-issuing government, all combinations of the sectoral balances represented by the points in the four quadrants are permissible. With private sector spending and saving decisions combining with the flows of income arising from trade with the external sector driving national income, the government sector can allow its balance to adjust to whatever magnitude is required to maintain full employment and price stability.

For example, if the external account is in deficit and the private domestic sector is saving overall, then the drain on aggregate demand would require the government to run a deficit of sufficient size to ensure that total spending is sufficient to absorb the real productive capacity available in the economy.
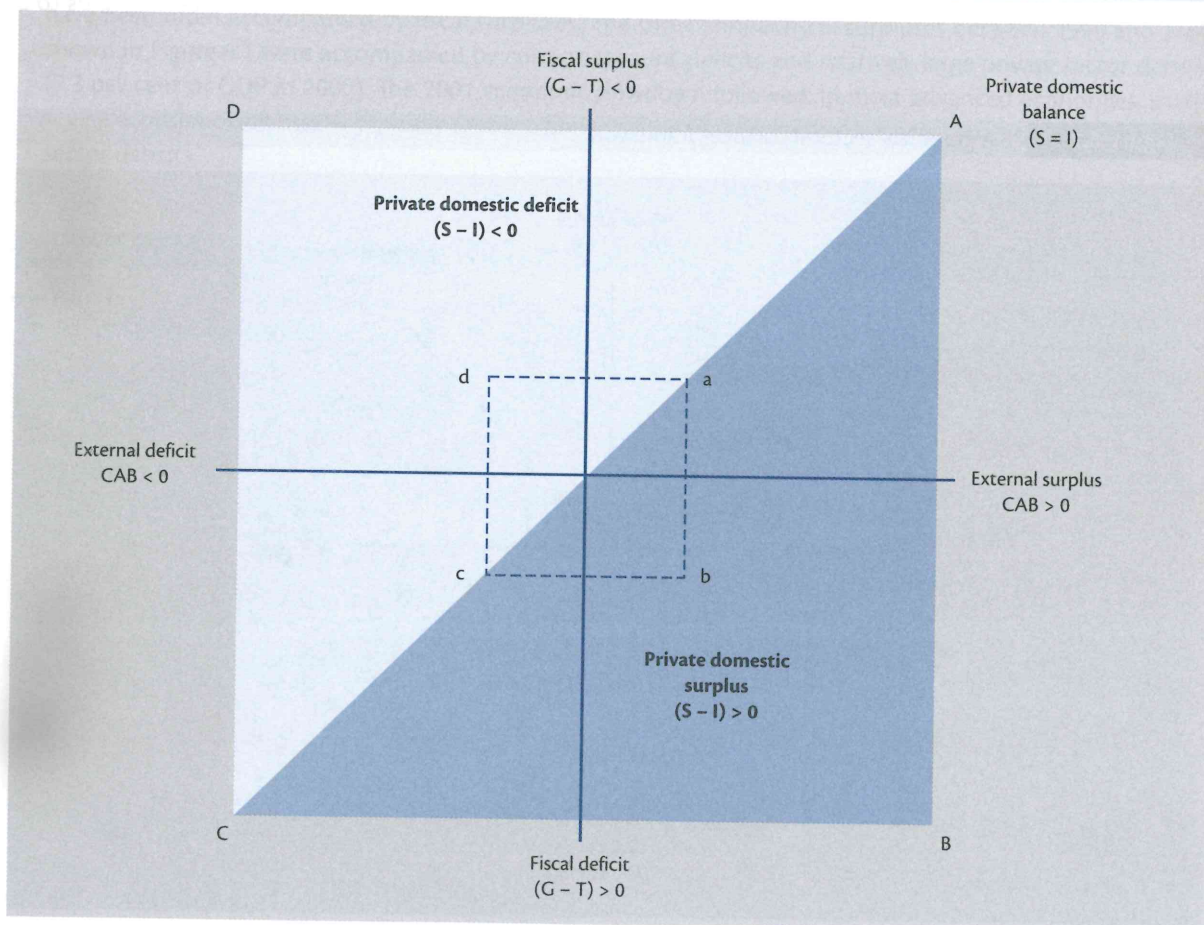
Alternatively, the external account might be in surplus, which would add to aggregate demand, while the private domestic sector might be spending more than it is earning, that is, in deficit overall. In these situations the government would have to ensure it ran a surplus of sufficient size to ensure that the economy did not overheat and exhaust its productive capacity. The strong economy would be associated with robust tax revenue growth, which would help the government achieve its surplus. Discretionary adjustments in spending and taxation rates might also be required.

But while these combinations of sectoral balances are permissible, we know that the private domestic sector cannot sustain deficits permanently. This is because the flows of spending which deliver deficits must be funded. As we learned earlier when we considered stocks and flows (see also the discussion in Section 6.4), private domestic deficits ultimately manifest in an increasing stock of debt being held on the private domestic sector's balance sheet.

This process of debt accumulation is limited because at some point the susceptibility of the balance sheet to cyclical movements (for example, rising unemployment) increases and the risk of default rises. In some historical instances, this process has collapsed after serious debt defaults occurred (for example, in the early months of the Global Financial Crisis in 2007–8 (GFC)). At other times, the private sector starts to reduce the precariousness of its balance sheet by reducing spending and increasing saving to bring the debt it is carrying down to a more sustainable level. This will slow economic growth unless it is matched by increased spending by the government or foreign sector.

In the long term, the only sustainable position is for the private domestic sector to be in surplus. An economy can absorb deviations from that position but only for short periods.

Figure 6.4 shows what we might define as the sustainable space available to governments that issue their own currency. Note that this excludes permanent private sector deficits, which are unsustainable.

Figure 6.3   Private domestic surpluses and deficits

Figure 6.4   Sustainable space for sovereign governments
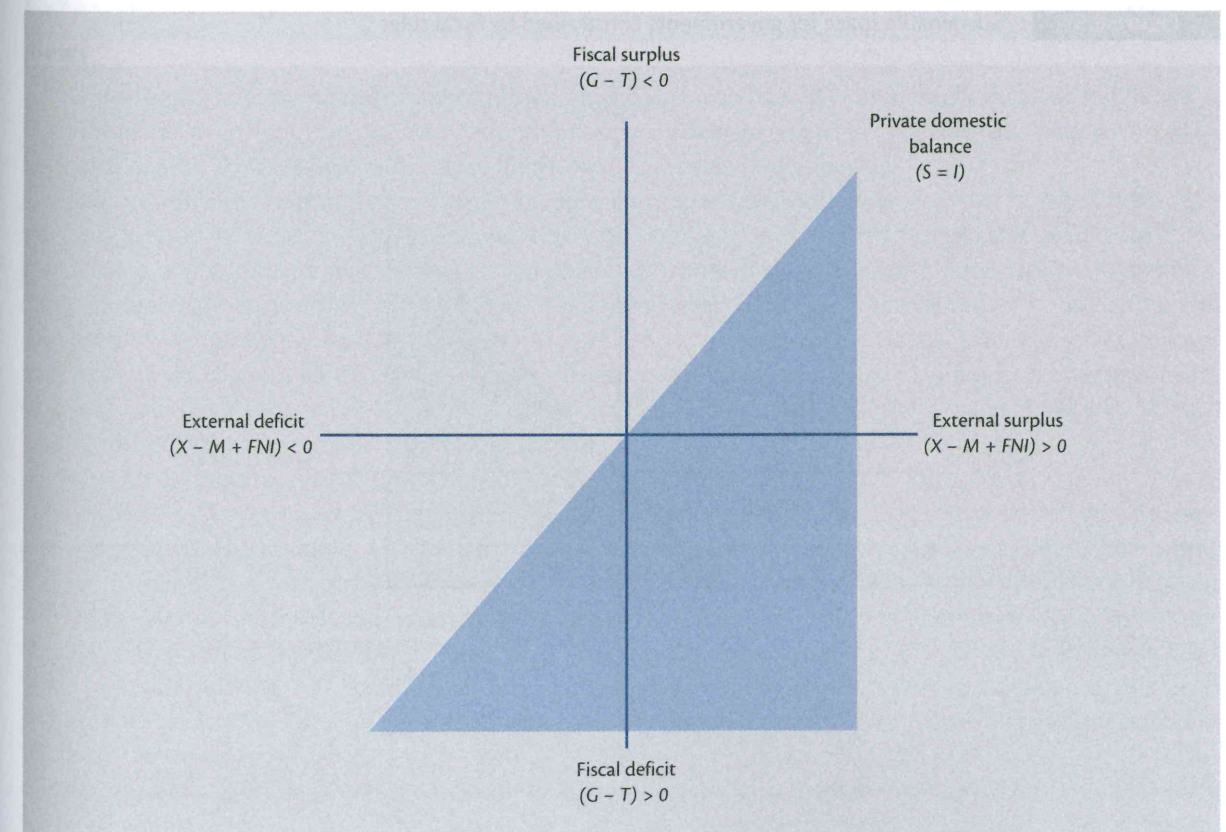
Now imagine that the government is forced to operate under a fiscal rule that bans fiscal deficits greater than three per cent of GDP (as shown in Figure 6.5 by the black line). The formation of the European Economic and Monetary Union (Eurozone) introduced just such a fiscal rule under its Stability and Growth Pact. The aim was to restrict the capacity of each member state to run government fiscal deficits.

What does such a fiscal rule mean for both permissible and sustainable spaces available to a macroeconomic policymaker?

Clearly any point above the three per cent of GDP fiscal deficit line in Figure 6.5 is permissible. However, using the same logic as before, the sustainable space requires that the private domestic sector be in surplus overall, even though short-term deviations from this can occur from time to time.

Figure 6.5 shows the sustainable space for such an economy (the combination of grey and blue areas). The blue shaded area shows the sustainable space available to policymakers in nations that run external surpluses. The grey shaded area shows the sustainable space available to policymakers in nations that run external deficits.

Thus, the policy space that governments have to operate within when fiscal rules are imposed is very limited relative to the options available to a sovereign, currency-issuing government, operating without any direct quantitative restrictions on the deficits they can run.

Why is this important? An unconstrained government can always utilise the available space to ensure aggregate demand is sufficient to maintain full employment and price stability.

By definition, not every nation can run an external surplus because an external surplus in one nation has to be matched by external deficit(s) in other nations. While the external surplus nations have more policy flexibility when operating under a fiscal rule of the type shown in Figure 6.5, the fact remains that the allowable fiscal deficits may be insufficient to maintain the aggregate demand necessary to sustain full employment.

The policy inflexibility facing nations which run external deficits and simultaneously have to operate under fiscal rules becomes even more restrictive, as shown in Figure 6.5 by the small grey triangle. When such an economy

| Figure 6.5 | Sustainable space for governments constrained by fiscal rules |
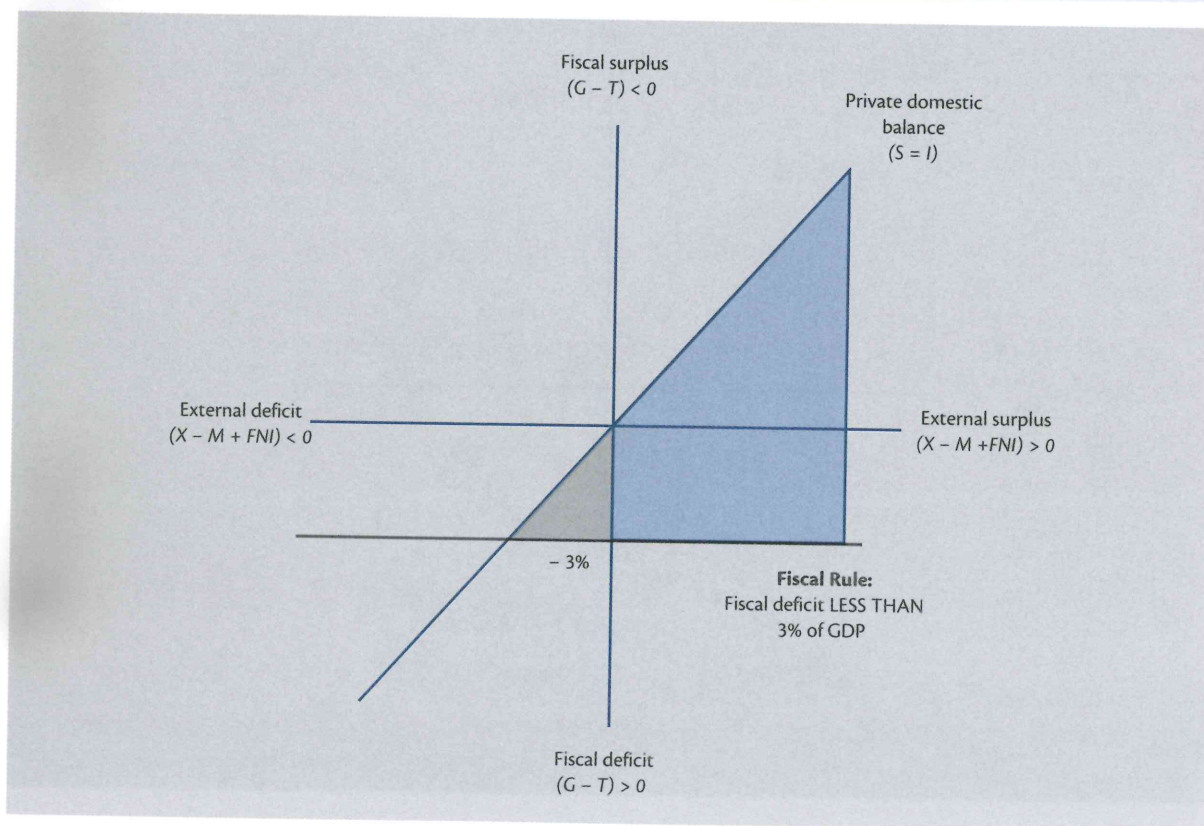
experiences a negative economic shock significant enough to drive the private sector to reduce its spending and target a sectoral surplus, the extent to which the fiscal deficit can be used to absorb the loss of overall aggregate demand is very limited.

It is highly likely that such an economy will experience enduring recessions as a result of the artificial fiscal rules (restrictions) that are placed on its government. Note that such a situation befell Greece and some other Mediterranean European nations after the GFC impacted.

Note that Figures 6.2–6.5 show the feasible combinations of sectoral balances under the constrained and unconstrained scenarios, but do not show which combinations are associated with full employment.

REMINDER BOX

The sustainable goal for a government should be to maintain full employment and price stability and allow its fiscal balance to adjust accordingly to ensure aggregate demand is consistent with those goals. A sovereign, currency-issuing government can always meet those goals if it chooses.

However, the imposition of fiscal rules restricts the government from achieving these goals and makes a predetermined fiscal outcome the target of macroeconomic policy rather than the more significant macroeconomic objectives of full employment and price stability.

The lesson here is that the government should never specifically target any particular fiscal outcome, but rather, should target employment growth and price level stability.

6.3 Revisiting Stocks and Flows

Flows

In this section we re-examine the concepts of stock and flow variables, which were briefly outlined in Chapter 1. This will enable us to clearly set out the relationships between deficit spending and saving, and between financial deficits and debt. This section clarifies these fundamental accounting relationships.

Flow variables are measured over time. The simplest example is personal income, which can be stated as $10 per hour, or $400 per week, or $20,000 per year. The important point is that without a clear statement of the time component, any statement about a flow is incomplete and somewhat meaningless. If one says one's income is $100, we need to know whether that is per hour, per day, per week, or per year to make sense of it. It is also useful to work with the growth of flow variables, often calculated as annual growth rates. For example, your employer might offer a labour contract that provides for annual cost of living increases equal to four per cent per year. In the first year, you would receive $20,000, while in the second you would receive a wage income of $20,800 ($20,000 plus 4% of $20,000, which is equal to $800).

What flows? When we speak of the flow of a river, it is obviously water that is flowing, measured in terms of thousands of cubic metres per second. However, it is not so clear what is flowing when we discuss flows of income and expenditure. For example, what 'flows' to provide a wage income equal to $20,000 per year? The simple answer is 'dollars'. You work for your employer for eight hours a day, five days a week, and after two weeks you receive an electronic transfer for the sum of $800 (ignoring here for simplicity any possible deductions for taxes and benefits). Even on payday, it is difficult to think of the electronic transfer as the 'dollars' that were flowing while you were working. As we will see in Chapter 9, the payment (say, in the form of an electronic transfer) is just an IOU issued by your employer's bank that is denominated in your nation's money of account; dollars in our example.

In fact, we can conceive your work for hourly wages as an implicit accumulation of the IOUs of your employer. Over the course of the two weeks during which you worked, you earned a flow of wages equal to ten dollars for each hour worked, received in the form of an implicit promise from your employer to pay you in dollars at the end

of the two-week period. Indeed, in the event of a dispute, the court system would recognise the legal obligation of your employer to pay dollars to you for hours worked. In this sense, we can think of each hour worked leading to your accumulation of the IOUs of your employer as being denominated in dollars. On payday, your employer extinguishes the IOUs by delivering to you a funds transfer for the total obligations accumulated over the two-week period. Two important conclusions follow from this example.

Flows are measured in terms of money. The money of account is how we measure flows of income or spending. The associated flow of currency can take the physical form of notes and coins, but equally can be an electronic deposit, say in a private bank account. Thus, in contrast to a flow of water, the flows of spending or income do not always take a physical form.

As we will explore later, metal coins and paper currency are nothing more than government IOUs denominated in the money of account. While government currency differs in some respects from the implicit IOUs you accumulate against your employer, all share the common characteristic that all are IOUs, denominated in dollars.

We also need to differentiate between flows of income and spending denominated in the money of account from the associated flows of (labour) services and consumer goods and services. In principle, consumer goods and services are used up to satisfy the needs and desires of households. However, consumption purchases made this week could include goods that will be used for many months or even years. Economists typically record consumption at the time the purchase is made and at the dollar value of the purchase even while recognising that goods and services purchased might provide a stream of 'satisfaction' over a longer period of time.

Stocks

Flows accumulate as stocks. The flow of water in a stream can be accumulated in a reservoir behind a dam, or in the cup we dip into the stream. The stock of water is then the number of cubic metres in the reservoir, or the half litre in the cup. Unlike a flow, a stock can be measured without reference to a time period because it exists at a point of time. We can measure the stock of water in a lake at noon on the last day of the summer as 1.5 billion cubic metres, and at noon on the last day of the following winter as 2.0 billion cubic metres. Because the stock has increased, we can surmise that the inflow of water during the passing of six months has been greater than the outflow of water over that period, by an amount of 0.5 billion cubic metres.

Let us continue to assume that you receive a biweekly wage payment in the form of an electronic transfer for $800, 25 times a year, for a total annual income of $20,000 (note the slight inaccuracy with respect to a standard calendar year – we want to keep the numbers easy). On each payday, the electronic transfer appears in your bank account, increasing your deposits by $800. Your bank deposit represents a portion of your wealth, held in the form of a financial asset, which is a claim on your bank. (We examine the properties of financial assets in Chapter 10.) Because wealth is measured at a point in time, it is a stock variable. In addition to your bank account, you might also hold other forms of financial wealth (stocks and bonds, currency in your pocket, other types of bank deposits) as well as real wealth (a car, real estate, a business firm, art and jewels). Again, these are stock variables whose value is measured in terms of the money of account at a point in time.

Once you have received the $800 transfer, you begin to draw down your bank account to finance your purchases. Let us assume that your annual consumption will be $18,000 for the year, comprising purchases of consumer goods (food, fuel for your automobile, clothing) and consumer services (entertainment, medical care, legal services). Hence, between wage payments, you spend a total of $720 for consumption, drawing down your bank account by that amount to finance these purchases.

Over the year, your flow of wage income has been equal to $20,000 and you have spent $18,000 of that on consumption. Your flow of saving over the year is also equal to $2,000, because saving is defined as the residual dollar value of income that has not been spent over the period.

This will accumulate as an addition to your stock of wealth. If you allow the funds to accumulate in your bank account (which we will initially assume does not earn interest), the annual addition to your financial wealth will be $2,000. Alternatively, you could purchase interest earning bonds, which is another form of financial wealth. In this case, however, you will also have a flow of interest earnings in addition to your labour income. The flow of

interest income (let us say it amounts to $200 over the course of the year) will also add to your stock of financial wealth so that the total addition to your stock of financial wealth will be $2,200 over the year.

However, there are many other possible uses of your saving flow. You might decide to buy stocks or other kinds of financial assets. Or, you might purchase real assets: a classic car, real estate, or equipment for your family's business. Your saving decision can be analysed as a two-step process: first as a decision to withhold a portion of your income flow from spending, and second a decision as to the form in which your wealth will be accumulated. An income flow is first realised as an accumulation of IOUs, normally claims on a bank in the form of a deposit, that in the second step is used to purchase an asset, which might be another financial IOU, or a real asset.

One person's financial asset is another's financial liability. It is a fundamental principle of accounting that for every financial asset there is an equal and offsetting financial liability. The bank deposit account is a household's financial asset, offset by the bank's liability (or IOU). A government or corporate bond is a household asset, but represents a liability of the issuer (either the government or the corporation). The household probably has some liabilities too, such as student loans, a home mortgage, or a car loan. These are held as assets by the creditor, which could be a bank or any of a number of types of financial institutions including pension funds, hedge funds, or insurance companies. A household's net financial wealth is equal to the sum of all its financial assets (equal to its financial wealth) less the sum of its financial liabilities (all of the money-denominated IOUs it issued). If the overall sum is positive, the household has positive net financial wealth.

Examples of stocks include stock of capital, inventories, financial wealth, and net worth.

Inside wealth versus outside wealth

It is often useful to distinguish between types of sectors in the economy. The most basic distinction is between the public sector (including all levels of government) and the domestic private sector (households and firms). Note that we are simplifying by excluding the foreign sector as if the economy were completely closed to trade and capital flows.

If we were to take all of the privately issued financial assets and liabilities, it is a matter of logic that the sum of financial assets must equal the sum of financial liabilities. In other words, net financial wealth would have to be zero if we consider only private sector IOUs. This is sometimes called 'inside wealth' because it is 'inside' the private sector. In order for the private sector as a whole to accumulate net financial wealth, the inflow must be in the form of 'outside wealth', that is, financial claims on another sector. Given our basic division between the public sector and the domestic private sector, the outside financial wealth takes the form of government IOUs. The private sector holds government currency (including coins and paper currency) as well as the full range of government bonds (short-term bills, longer maturity bonds) as net financial assets, which is a portion of its positive net wealth.

Net private financial wealth equals public debt in our closed economy without a foreign sector. Recall from our discussion above that the accumulation of stocks requires flows. The private sector's accumulation of net financial assets over the course of a year is made possible only because its spending is less than its income over that same period. In other words, it has been saving, which enables it to accumulate a stock of wealth in the form of financial assets. In our simple example with only a public sector and a domestic private sector, these net financial assets are government liabilities – government currency and government bonds. These government IOUs, in turn, can be accumulated only when the government spends more than it receives in the form of tax revenue. This is called the fiscal deficit, which is the flow of government spending less the flow of government tax revenue measured in the money of account over a given period (usually a year). This deficit accumulates to a stock of government debt, which will be equal to the private sector's accumulation of financial wealth over the same period.

A complete explanation of the process of government spending and taxing will be provided in Chapter 20. What it is necessary to understand at this point is that in our two-sector example the net financial assets held by the private sector are exactly equal to the net financial liabilities issued by the government. If the government's spending always equals its tax revenue, the private sector's net financial wealth would be zero.

Rest-of-world debts are domestic financial assets. We can broaden our analysis by considering the financial assets and liabilities of the rest of the world. Thus, we now form three sectors in this open economy: a domestic private sector, a domestic public sector, and a 'rest of the world' sector that consists of foreign governments, firms, and households. In this case, it is possible for the domestic private sector to accumulate net financial claims on the rest of the world, even if the domestic public sector's spending over the period exactly equals its tax revenue. The domestic sector's accumulation of net financial assets is equal to the rest of the world's issue of net financial liabilities. Finally, and more realistically, the domestic private sector can accumulate net financial wealth consisting of both domestic government liabilities and rest-of-world liabilities. It is also possible for the domestic private sector to accumulate government debt (adding to its net financial wealth) while also issuing debt to the rest of the world (reducing its net financial wealth).

Non-financial wealth (real assets)

One's financial asset is necessarily offset by another's financial liability. However, real assets represent one's wealth that is not offset by another's liability so at the aggregate level net wealth equals the value of real (non-financial) assets. To be clear, you might have purchased an automobile by going into debt. Your financial liability (your car loan) is offset by the financial asset held by the auto loan company. Since that asset and liability net to zero, what remains is the value of the real asset, the car. In most of the discussion that follows we will be concerned with financial assets and liabilities, but we will keep in the back of our minds that the value of real assets provides net wealth at both the individual level and at the aggregate level. Once we subtract all financial liabilities from total assets (real and financial) we are left with non-financial (real) assets, or aggregate net worth.

6.4   Integrating NIPA, Stocks, Flows and the Flow of Funds Accounts

The sectoral balances framework, which is derived from the national accounts framework, was explored in Section 6.2. It is intrinsically linked to the **flow of funds analysis**. They are different, but related, ways of considering national economic activity.

An early exponent of the flow of funds approach, Lawrence Ritter (1963: 220) wrote that:

The flow of funds is a system of social accounting in which (a) the economy is divided into a number of sectors and (b) a 'sources-and-uses-of-funds statement' is constructed for each sector. When all these sector sources-and-uses-of-funds statements are placed side by side, we obtain (c) the flow-of-funds matrix for the economy as a whole.

Thus, the flow of funds accounts allow us to link a sector's balance sheet (statements about stocks of financial and real net wealth) to income statements (statements about flows) in a consistent fashion. In a monetary economy, flows of expenditures measured in terms of the money of account spent over a period involve transactions between sectors in the economy, which also have logical stock counterparts; that is, flows feed stocks. The flow of funds accounts ensure that all of these transactions are correctly accounted for.

This thinking underpinned the work of the so-called New Cambridge approach that was part of the Cambridge Economic Policy Group at the University of Cambridge in the early 1970s. Key members of this group were Martin Fetherston, Wynne Godley and Francis Cripps, all of whom were of a Keynesian persuasion.

While the sectoral balances approach had been understood much earlier (for example, by Nicholas Kaldor and others), it was popularised by the New Cambridge macroeconomic analysis which put the concept of the **net acquisition of financial assets (NAFA)** into the forefront of its Keynesian income-expenditure model.

Like Lawrence Ritter, the Cambridge economists were interested in tracing the flow of funds between the different sectors of the economy, which they divided into the government sector, the private domestic sector and the external sector. These transactions are recorded for a given period, and each sector could record a financial deficit or surplus.

We can rewrite Equation (6.6) as follows:

(6.7) $(S - I) \equiv NAFA \equiv (G - T) + CAB$

$(S - I)$ is the private domestic financial balance or *NAFA* of the private domestic sector. The private domestic sector is in financial surplus(deficit) when its disposable income $(GNP - T)$ exceeds(is less than) its spending on consumption goods and investment goods.

From a stock perspective, *NAFA* can also be measured by the difference between the private domestic sector's stock of net financial assets at time $t - 1$ and the stock at time t, so if t is 2017, $t - 1$ would be 2016.

If $G - T < 0$, then the government sector is spending less than it is taking out of the economy in taxation and undermining the capacity of the other two sectors to accumulate net financial assets by running surpluses and vice versa.

CAB is the external sector financial balance (the current account balance) and comprises the **trade balance** (that is, the difference between export and import revenue on goods and services) and the **net income flows** that accrue to residents as a consequence of interest and dividends received on overseas ownership (offset by similar payments to foreigners).

If the overall external sector balance is in deficit, then the national economy is issuing liabilities abroad or running down its net financial position in other ways, and foreigners are accumulating financial asset claims (and vice versa when the external balance is in surplus).

Noting the stock/flow distinction, Equation (6.7) can be interpreted as meaning that if its right-hand side is positive, then $(G - T) + CAB > 0$, and the government sector fiscal balance plus the current account balance jointly generate national income and additional net financial assets for the private domestic sector. Then *NAFA > 0*, which means that the private domestic sector is running a surplus and acquiring new assets and/or reducing its existing debt obligations.

Conversely, if the government sector fiscal balance plus the current account balance is negative, this would reduce national income and undermine the capacity of the private domestic sector to net save and add to its stock of net financial assets. In this case *NAFA < 0*, so that the private domestic sector is running down its net financial position by borrowing from the other sectors and/or by liquidating some of its stock of accumulated wealth.

Equation (6.7) can also be written as:

(6.8) $[(S - I) - CAB] \equiv (G - T)$

where the term on the left-hand side $[(S - I) - CAB]$ is the non-government sector financial balance and is of equal and opposite sign to the government financial balance, $(G - T)$.

This is the familiar MMT conclusion that a government sector deficit (surplus) is equal dollar for dollar to the non-government sector surplus (deficit).

Importantly, **transactions within the private domestic sector do not alter the net financial position of that sector overall.** So, if a bank creates a loan for one of its customers then its assets rise but on the other side, the liabilities of the customer increase by an equal amount, leaving no change in the net position of the sector.

The only way the private domestic sector can increase its net financial assets overall is through transactions with the government or external sector, for example, by acquiring a government bond or buying a foreign government bond (or a foreign corporate bond). These two points are key MMT insights.

Once we understand the interlinked nature of the three sectors, then it is a simple step to realise that if one sector has improved its position by the net acquisition of financial assets, following a financial surplus, at least one other sector must have reduced its net financial assets or run a financial deficit.

The flow of funds framework allows us to understand that the funds which a particular sector receives during a period (from current receipts, borrowing, selling financial assets, and running down cash balances) have to be equal to the total of its current expenditures, capital expenditures, debt repayments, lending, and accumulation of cash balances. This approach clearly allows us to trace the uses and sources of funds for each sector.

It should be emphasised that the flow of funds approach is based on accounting principles rather than being a behavioural (theoretical) framework for understanding why these flows occur. Nor do we gain any insights as to the adjustment processes that govern the change in net financial assets in each sector. That caveat is not to be taken as a criticism of the approach; but merely an observation of its restrictions. It also doesn't reduce the utility and insights that the approach provides. Often economists like to denigrate analyses that manipulate accounting identities as being too low brow. But any approach is valuable if it provides useful ways of thinking.

Causal relationships

From the discussion above, it is clear that a non-government surplus is the same thing as a saving flow which leads to the net accumulation of financial assets. By the same token, a deficit reduces net financial wealth. If the private domestic or external sector runs a deficit, it must either use financial assets that it has accumulated in previous years (when surpluses were run), or it must issue new IOUs to offset its deficits (that is, borrow).

Thus, the sector 'pays for' its deficit spending by selling assets and reducing its bank deposits ('dissaving'), or it borrows (issues debt) to obtain bank deposits. Once it runs out of accumulated assets, it has no choice but to increase its indebtedness every year that it runs a deficit. On the other hand, if the external or private domestic sector runs a surplus then it will be accumulating net financial assets. This will take the form of financial claims on at least one of the other sectors.

As we will discuss later, it is misleading to apply terminology such as 'dissaving' or 'borrowing' to the sovereign government, which issues the currency.

While we have identified an accounting relationship between the sectoral balances, we can also say something about the causal relationships between the flows of income and expenditure and the impact on stocks.

Individual spending is mostly determined by income. For the individual, it is plausible to argue that income determines spending because an individual with no income is certainly going to be severely constrained when deciding to purchase goods and services. However, on reflection it is apparent that even at the individual level, the link between income and spending is loose; one can spend less than one's income, accumulating net financial assets, or one can spend more than one's income by issuing financial liabilities and thereby becoming indebted. Still, at the level of the individual household or firm, the direction of causation runs from income to spending, even if the correspondence between the two flows is not perfect.

Deficits create financial wealth

We can also say something about the direction of causation regarding accumulation of financial wealth at the level of the individual. If a household or firm decides to spend more than its income by running a deficit, it can issue liabilities to finance the additional purchases. Another household or firm will accumulate these liabilities as net financial wealth. Alternatively, they might allow the government to run a fiscal surplus. Of course, for this net financial wealth accumulation to take place, we must have one household or firm willing to deficit spend, and another household, firm, or government willing to accumulate wealth in the form of the liabilities of that deficit spender-'it takes two to tango'. However, the decision to deficit spend is the initiating cause of the creation of net financial wealth. No matter how much others might want to accumulate financial wealth, they will not be able to do so unless someone is willing to deficit spend. Still, it is true that the household or firm will not be able to deficit spend unless it can sell some of its accumulated assets or find someone willing to hold its liabilities, such as a bank through the creation of a loan.

In the case of a sovereign government, there is a special power – the ability to tax – that guarantees that households and firms will want to accumulate the government's debt. We conclude that while causation is complex, it tends to run from individual deficit spending to accumulation of financial wealth, and from debt to financial wealth. Since the accumulation of a stock of financial wealth results from a surplus, that is, from a flow of saving, we can also conclude that causation tends to run from deficit spending to saving. At the sectoral rather than individual level the same principles apply. Thus, one sector cannot run a deficit if no

other sector will run a surplus. Equivalently, we can say that one sector cannot issue debt if no other sector is willing to accumulate the debt instruments.

At the aggregate level, taking the economy as a whole, causation is clearer. A society cannot decide to have more income, but it can decide to spend more. Further, all spending must be received by someone, somewhere, as income. In other words, aggregate spending creates aggregate income. Finally, as discussed above, spending is not necessarily constrained by income because it is possible for households, firms, or government to spend more than income. Indeed, any of the three main sectors can run a deficit with at least one of the others running a surplus. However, it is not possible for spending at the aggregate level to be different from aggregate income since the sum of the sectoral balances must be zero. For all of these reasons, we must reverse causation between spending and income when we turn to the aggregate level: while at the individual level income causes spending, at the aggregate level spending causes income.

In MMT, we differentiate between horizontal and vertical transactions within the economy. Horizontal transactions occur between people and firms within the non-government sector (for example, purchases of goods and services, borrowing from banks). Vertical transactions occur between the government sector and the non-government sector (for example, government spending and taxation).

Horizontal transactions do not add to the stock of net financial assets held by the non-government sector. Much of the debt issued within a sector will be held by others in the same sector. For example, if we look at the finances of the private domestic sector we will find that most business debt is held by domestic firms and households. In the terminology we introduced above, this is 'inside debt' of those firms and households that run budget deficits, which is held as 'inside wealth' by those households and firms that run budget surpluses. Likewise, if households choose to deficit spend, that is, spend more than their flow of annual income, then they may secure bank loans. In this case the net asset position of the private sector is unchanged. These are horizontal transactions. Student loans may be privately financed or financed by government. In both cases there is a horizontal transaction. If the domestic private sector taken as a whole spends more than its income, it must issue 'outside debt' held as 'outside wealth', typically held by the foreign sector. However, the stock of net financial assets held by the non-government sector (private domestic plus foreign) is again unchanged, since these are horizontal transactions.

The initiating cause of the private sector deficit is assumed to be a desire to spend more than income, so the causation mostly goes from deficits to surpluses and from debt to net financial wealth. While we recognise that no sector can run a deficit unless another wants to run a surplus, this is not usually a problem because there is a propensity to net save financial assets.

Vertical transactions add to the stock of net financial assets held by the non-government sector. On the other hand, assume that a fiscal deficit occurs (perhaps as a result of increased government spending), and for simplicity the CAB is zero, then the private sector achieves a net increase in its stock of financial assets. This transaction between the government and private sector is referred to as a vertical transaction, and in this instance, leads to an increase in net financial assets held by the non-government sector. On the other hand, if the government runs a fiscal surplus (by taking net spending out of the economy), with the CAB again being zero, the non-government sector (specifically the private sector) suffers a loss in its net holdings of financial assets.

In this section, we demonstrate how a flow of funds approach to the analysis of monetary transactions highlights both the importance of the distinction between vertical and horizontal transactions and the fundamental accounting nature of the so-called government 'budget' constraint (GBC) identity, which we will refer to as the government fiscal constraint.

6.5   Balance Sheets

Following Ritter, we can present a very simple 'generalised balance sheet', which would apply to any sector, as being depicted in the T account shown in Figure 6.6. By a T account we are referring to a set of financial records that uses double-entry bookkeeping.

Figure 6.6   A stylised sectoral balance sheet

Assets	Liabilities and net worth
Financial assets:	Liabilities
1. Money	
2. Other	
Real assets	Net worth
Σ	Σ

When we consider the monetary system as a whole, we conclude that financial assets and financial liabilities net to zero: that is, the total value of the financial assets equals the total value of outstanding liabilities.

This accounting also tells us that for the overall economy, net worth equals the monetary value of the real assets in the economy.

The balance sheet depicts stocks but we can easily see how it might provide us with information about flows, in the way the national accounts do. A stock is measured at a point in time (say, the end of the year) whereas flows measure monetary transactions over a period (say, a year).

If we examine the difference between a balance sheet compiled at, say, 31 December 2017, and a balance sheet compiled at 31 December 2018, we will be able to represent the information in the balance sheet about assets, liabilities and net worth as flow data.

Consider Figure 6.7 (where the Δ symbol refers to changes over the period concerned). Now the entries in the T account denote uses and sources of funds (that is, flows) over the period of interest. There are two components, one relates to real assets and net worth, and the other to financial assets.

A given sector (for example, household, firm, government) can in the first instance obtain funds by increasing their liabilities through borrowing and incurring debt (ΔL). They can apply those funds to accumulating more financial assets (ΔFA) or building cash balances (ΔM).

If we wanted to complicate matters we could decompose ΔFA, ΔM and ΔL further, by recognising that a given sector can also sell existing financial assets or run down cash balances to obtain new funds. Similarly, it might use funds to reduce liabilities (pay down debts). Thus the entries in Figure 6.7 are to be considered as **net transactions**.

The second source and use of funds for a sector relates to changes in real assets (ΔRA) and the change in net worth (ΔNW) over a given period.

In the national accounts framework (see Chapter 4), we considered the division between the capital account and the current account, where the former related to investment in productive capacity and the latter referred to recurrent spending and income. The capital account measured transactions, which change the real assets held and the net worth of the economy.

Figure 6.7   A uses and sources of funds statement

Uses	Sources
Δ Financial assets (lending)	Δ Liabilities (borrowing)
Δ Money (cash balances)	
Δ Real assets (investment)	Δ Net worth (saving)
Σ	Σ

Several points are worth noting. Real assets only appear on the balance sheets of their owners. Financial assets are different to real assets because they represent the indebtedness of other sector(s). This means that they will be matched by a financial liability on at least one other sector's balance sheet.

Financial assets denote monetary amounts owned by that sector, which by the same logic as before means that there will be a matching liability on at least one other balance sheet within the system.

What do we mean by a change in real assets? In the national accounts, we considered gross capital formation or investment, which is defined as expenditure on productive capital goods (for example, plant and equipment, factories). This is a use of funds by firms in the current period. Depreciation represents the difference between gross and net investment. For now, though, we abstract from that real world complexity of depreciation.

Finally, we consider the change in net worth for a sector in a given period to be the residual after all the uses and sources of funds have been accounted for. From an accounting perspective, net worth is equal to the difference between total assets and total liabilities.

It follows that a change in net worth over the period of interest is equal to the difference between the change in total assets and the change in total liabilities. If total assets increase by more(decrease by less) than total liabilities increase(decrease) then the net worth of the sector has risen.

Another way of thinking about the change in net worth, which is a flow of funds, is to link it to the national accounts concept of saving.

In the national accounts framework, we consider household saving, for example, to be the difference between consumption (a use) and disposable income (a source). This concept generalises (with caution) to the statement that the surplus of a sector is the difference between its current revenue and its current expenditure.

What happens to the flow of surplus funds? If the current flow of income is greater than the current expenditure, then at the end of the period, the sector would have accumulated an increased stock of total net assets, by increasing the actual assets held and/or reducing liabilities owed.

The surplus between current income and current expenditure must be matched dollar for dollar by an increase in the stock of total net assets. We have already discussed total net assets above but in different terms.

We defined the change in net worth over a period as the difference between the change in total assets and the change in total liabilities. That difference is exactly equal to the surplus of current income over current expenditure.

Thus, from an accounting perspective, we can consider saving to be the change in net worth over a period.

Figure 6.7 however only implicitly includes the current account transactions, the flow of current income and expenditure, since we defined the change in net worth (ΔNW) to be the difference between the two current flows.

The simplicity of Figure 6.7 is that it shows that if a sector is running a deficit (that is, it is spending more than it is earning or in the parlance used above, it is investing more than it is saving) then it must obtain the deficit funds from its available sources:

- Increasing borrowing (ΔL > 0)
- Running down cash balances (ΔM < 0)
- Selling existing financial assets (ΔFA < 0)
- Selling existing real assets (ΔRA < 0)

More generally, a given sector (for example, household, firm, government) may be running a deficit, but could choose to reduce their liabilities (ΔL < 0) by running down their stocks of financial assets (ΔFA < 0), real assets (ΔRA < 0) or cash balances (ΔM < 0).

Clearly there is an infinite number of combinations of changes in liabilities and changes in the holdings of the different types of assets, but overall total assets minus total liabilities (net worth) has declined.

Conversely, a sector that is running a surplus (that is, it is spending less than it is earning or in the parlance used above, it is investing less than it is saving) must be using the surplus funds to:

- Repay debt (ΔL < 0)
- Build up cash balances (ΔM > 0)
- Increase its financial assets (increasing lending) (ΔFA > 0)
- Increase real assets (ΔRA > 0)

More generally, a given sector (for example, household, firm, government) may be running a surplus, but could choose to obtain additional funds by increasing its liabilities by borrowing and incurring debt (ΔL). It can apply those funds to accumulating more financial assets (ΔFA) or building cash balances (ΔM).

Again, there is an infinite number of combinations of changes in liabilities and changes in the holdings of the different types of assets, but overall total assets minus total liabilities (net worth) has increased.

If we wanted to complicate matters we could decompose ΔFA, ΔM and ΔL further, by recognising that a given sector may sell some financial assets and buy new financial assets. Similarly, it might refinance by taking on new liabilities when existing liabilities need to be repaid. So, the entries in Figure 6.7 are to be considered as **net transactions**.

We also have to be cautious in our terminology when considering the different sectors. If we are considering members of the household sector, then it is clear that if they spend less than their income and thus save, they are deferring current consumption in the hope that they will be able to command greater consumption in a future period. The increase in their net worth provides for increased future consumption for the household.

Similarly, for a business firm, if it is spending less than it is earning, we consider it to be retaining earnings, which is a source of funds to the firm in the future.

In summary, net worth for a sector in a given period is the residual after all the uses and sources of funds have been accounted for. From an accounting perspective, net worth is equal to the difference between total assets and total liabilities.

It follows that a change in net worth over the period of interest is equal to the difference between the change in total assets and the change in total liabilities. If total assets increase by more(decrease by less) than total liabilities increase(decrease) then the net worth of the sector has risen.

We consider the private domestic sector as a whole (the sum of the households and firms) to be saving overall if total investment by firms is less than total saving by households. From the national accounts, we consider that households save and firms invest.

However, in the case of the government sector such terminology would be misleading. If the government spends less than it takes out of the non-government sector in the form of taxation we say it is running a fiscal surplus. A fiscal deficit occurs when its spending is greater than its taxation revenue.

But a fiscal surplus does not increase the capacity of the sovereign government to spend in the future in the same way that a surplus (saving) increases the capacity of a household to spend in the future.

REMINDER BOX

As we saw in Chapter 1, a sovereign, currency-issuing government faces no intrinsic financial constraints, and can at any time purchase whatever is for sale in the currency that it issues. Its capacity to do so is not influenced by its past spending and revenue patterns.

Figure 6.8 provides the most comprehensive framework for analysing the flow of funds because it brings together the current transactions (income and expenditure), the financial transactions, and the capital transactions that we have dealt with earlier. The capital and financial transactions are captured in changes to the balance sheet (Figure 6.6).

Note that when we talk about the sovereign government we are excluding the levels of government that do not issue the currency. State and local governments are more like households or firms in that respect, although they do have the capacity to tax and issue fines.

| Figure 6.8 | A complete sector uses and sources of funds statement |

The transactions above the dotted line comprise the income statement and record current expenditure (uses). The balancing item above the dashed line constitutes the change in net worth (ΔNW) or 'saving'.

The changes in the balance sheet are shown below the dashed line and the balancing item is once again, the change in net worth (ΔNW).

You can see that we could cancel out the change in net worth (ΔNW) because it is the balancing item in both the income statement and the change in the balance sheet. This would leave us with the accounting statement that sources of funds to a sector through current income and borrowing must be used for current expenditures, investment, lending, and/or building up cash balances.

6.6   The Flow of Funds Matrix

The T accounts tracing the sectoral sources and uses of funds can be summarised for all sectors in the economy by the flow of funds transactions matrix, a stylised version of which is shown in Figure 6.9.

The overriding accounting rule that governs the presentation of the flow of funds accounts is that for the economy as a whole and for each sector in the economy, the total sources of funds must be equal to the total uses of funds. Remember that sources of funds provided by the various sectors in the economy are used by those sectors.

Figure 6.9 (taken from Ritter, 1963) shows three sectors and the total economy. At the most aggregate level, the three sectors could be the private domestic sector, the government sector and the external sector.

For each period being accounted for, the statistician would record the flows of funds that related to each of the row categories in the matrix. Most importantly, we have learned that for every deficit sector, which saves less than it invests, there has to be offsetting surpluses in at least one other sector.

Ritter (1963: 228) described this result as:

an interlocking self-contained system ... [which] shows, for a specified time period, the balanced sources-and-uses-of-funds statements for each sector, the interrelations among the sectors, and the aggregate totals of saving, investment, lending, hoarding, and borrowing for the economy as a whole. Any one sector may invest more or less than it saves, or borrow more or less than it lends. However, for the economy as a whole, saving must necessarily equal investment, and borrowing must equal lending plus hoarding.

Thus, a deficit sector – which saves less than it invests – must be offset by at least one other surplus sector to net the flows to zero.

What are the advantages of presenting economic data in this way? Various practical uses can be made of the information provided in the flow of funds accounts.

| Figure 6.9 | A stylised three-sector flow of funds matrix |

Flow	Sector 1		Sector 2		Sector 3		Sector 4	
	U	S	U	S	U	S	U	S
Saving (ΔNW)								
Investment (ΔRA)								
Lending (ΔFA)								
Cash balances (ΔM)								
Borrowing (ΔL)								

Source: Adapted from Ritter's (1963: 228–9) economy-wide flow of funds matrix.

- They provide information of all financial flows within the economy on a sector-by-sector basis. They allow researchers and policymakers to understand how funds flow from any one sector through the banking system and on to final users by, for example, firms engaged in productive investment.
- They allow researchers and policymakers to monitor major economic trends such as the changing indebtedness of the sectors of the economy and the sources of funding for the respective sectors. For example, an understanding of the flow of funds accounts would have indicated the growing indebtedness of the private sector prior to the GFC, and perhaps alerted policymakers to the likely financial instability arising from it.
- They allow researchers to study saving patterns in the economy, and show us where the savings of a sector are being deployed. The accounts can tell us which sector(s) are accumulating surpluses or deficits and the division between financial and real assets. They also allow us to understand patterns of gross capital formation.
- They permit researchers to examine the dynamics of such concepts as household wealth. We can learn how household balance sheets change over time and how that wealth is composed. For example, one of the hall-marks of the period leading up to the GFC in many countries was the shift in household wealth to riskier categories, such as share purchases sourced from margin loans. The shift in importance in overall wealth from more secure home mortgages to more risky sources of wealth was significant because it exposed the economies to an increased risk of financial instability.
- Central banks use the flow of funds accounts to help them estimate the sensitivity of the economy to changes in the availability of credit.

Flow of funds accounts and the national accounts

The flow of funds accounts complement the national accounts and the balance of payments accounts, which are produced by national statistical agencies on a regular basis as a way of measuring economic activity in total and across the broad economic sectors.

We will consider the balance of payments accounts in Chapter 24.

There are important differences between the flow of funds accounts and the national accounts, which can be summarised as:

- The national accounts contain no data pertaining to financial transactions, borrowing, lending or changes in cash balances. Only non-financial transactions are measured. The flow of funds accounts fill that void.
- The national accounts focus on the current flows of final expenditure, output and income. As we saw in Chapter 4, transactions that involve so-called double counting or intermediate transactions are excluded from the calculations of final expenditures. The flow of funds accounts allow us to trace transactions involving assets that have been created in past periods.
- The structure of the national accounts is such that consumer durable expenditure is included under current expenditure when conceptually it should be considered as investment activity. In the flow of funds accounts all sectors can invest and save.

Conclusion

We began this chapter with a discussion of stocks and flows and then introduced the concept of sectoral balances. We showed how a sector's net income flows are related to its accumulation of financial assets and liabilities, and how one sector's balances are interrelated to another's balances. Finally, we introduced balance sheets used to account for an individual economic entity's uses and sources of funds.

We have seen throughout the chapter how the sectoral balances framework, and the accounting structures that underpin it, empower us to fact-check the internal logic of arguments made by politicians and media commentators about such things as government and private debt retrenchment.

This framework alone does not allow us to determine the validity of politically driven pronouncements such as 'austerity measures will stimulate growth'. At that point, we also need to apply theory but we can – and should – still use the sectoral balances framework to draw macroeconomic inferences about how sectoral balances will respond to the imposition of austerity.

So, if a politician says that the government and non-government sectors should simultaneously reduce their net indebtedness (increase their net wealth by running surpluses) then we know that that is not possible unless the current account surplus grows. In other words, the politician who advocates belt tightening by both the domestic private sector and the government sector in order to reduce indebtedness must also explain their plan for inducing foreigners to increase their own indebtedness to make this possible.[1] We don't have to resort to theory to draw those sorts of conclusions.

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Endnote

1. Such a policy prescription was advocated for Greece in 2012 and beyond in order to reduce both government and private indebtedness. However, the Troika that pushed the policy never admitted that this could not happen unless countries like Germany increased their own indebtedness by running current account deficits against Greece.

Visit the companion website at www.macmillanihe.com/mitchell-macro for additional resources including author videos, an instructor's manual, worked examples, tutorial questions, additional references, the data sets used in constructing various graphs in the text, and more.