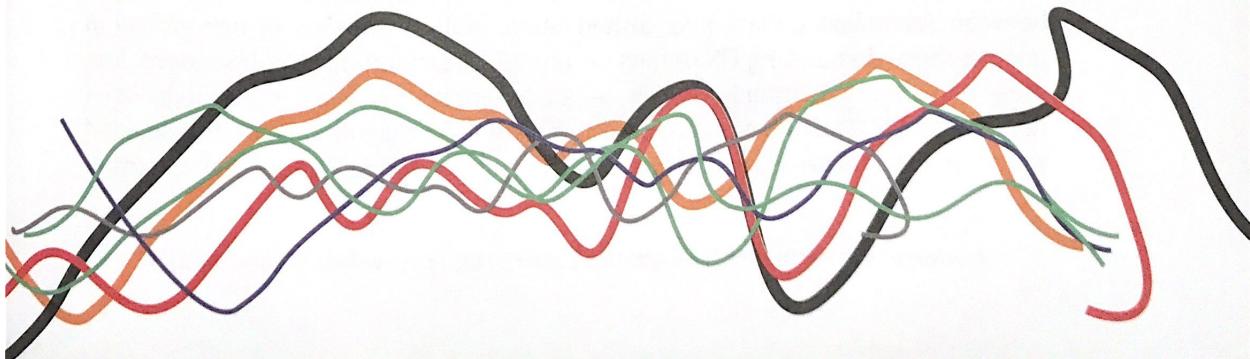


6

Exchange Rates

Chapter concepts

- *the concept of an exchange rate*
- *the determination of, and movements in, the exchange rate*
- *appreciation depreciation of the exchange rate under a freely floating system*
- *the factors influencing exchange rates in a freely floating system*
- *the concept of a ‘trade weighted index’*
- *the relationship between exchange rates and the balance of payments*
- *the effects of exchange rate movements on economic activity*
- *recent trends in Australia’s exchange rate movements*



Introduction

If all countries of the world used the same currency, international transactions would be very simple. As we know, every country has their own currency, meaning that a rate of exchange has to be established in order for trade to take place. The sidebar shows the rates of exchange between the Australian dollar and some of

Australia's main trading partners, and the movement in those rates between November, 2021 and November, 2022. The last item, the trade-weighted index, is a 'basket' of currencies weighted according to their importance in trade flows with Australia. While the US dollar is the most frequently cited exchange rate for the Australian dollar, it is the trade-weighted index which more accurately reflects changes in the value of the currency. In the table, the Australian dollar appreciated against most of the currencies listed, except for the Chinese Renminbi and the NZ dollar.

Value of AUD1			
Currency name and code		7 Nov 2021	7 Nov 2022
US dollar	USD	0.74	0.64
Chinese renminbi	CNY	4.73	4.64
Japanese yen	JPY	84.1	94.6
European euro	EUR	0.64	0.65
Korean won	KRW	876	902
Singapore dollar	SGD	1.00	0.90
New Zealand dollar	NZD	1.04	1.09
Indian rupee	INR	55.1	52.8
UK pound	GBP	0.55	0.57
Trade Weighted Index (TWI)		62.1	61.2

An exchange rate is simply the price of one country's currency in terms of another country's currency. From the data, one Australian dollar was equal to USD0.64 on November, 2022. This means that if a good in Australia costs AUD100, then an American buyer would need to pay USD64 to purchase the Australian good. If an Australian wanted to purchase a good in the United States costing USD 100, then they would have to pay AUD156.

$$\begin{array}{lll} \text{That is, if} & \text{AUD1} & = \text{USD0.64} \\ \text{then} & \text{USD1} & = \text{AUD1.56} \end{array}$$

Notice that the Australian dollar decreased in value against the US dollar by 13.5 per cent over the year, which can make a difference to international purchases. For example an iPhone 14 Pro in the US costs \$US999. At the current exchange rate (1AUD = US0.64) it would cost \$A1560. But if the exchange rate was 1AUD = US0.74, then the iPhone would be \$210 dollars cheaper!

The foreign exchange market is the market in which the currencies of different countries are bought and sold. Foreign exchange is the currency of another country that is needed to carry out international transactions. The foreign exchange market between Australian dollars and United States dollars consists of two groups of people: those demanding US dollars - an Australian importer of US goods; and those demanding Australian dollars - an American buyer of Australian goods. A demand for US dollars is matched by a supply of Australian dollars, while a demand for Australian dollars is matched by a supply of US dollars. An Australian farmer

selling wheat wants to be paid in Australian dollars, while an American computer manufacturer prefers to receive United States dollars. The currencies being traded can be thought of as goods, with the price of those goods being determined by the forces of supply and demand.

In our example of just two countries, the foreign exchange market consists of two sub-markets – the market for Australian dollars and the market for United States dollars. We can represent these foreign exchange flows by using a demand-supply diagram for each currency – the AUD and the USD. This is shown in figure 6.1. The price of the currency is shown on the vertical axis in terms of another currency. For example, the price of AUD1 in terms of US dollars or the price of USD1 in terms of Australian dollars. The horizontal axis shows the quantity of the currency being traded. In Figure 6.1 the supply of Australian dollars is equivalent to the demand for American dollars, while the demand for Australian dollars is equivalent to the supply of American dollars. Whatever happens in one market will be mirrored in the other market.

Assume that initially the rate of exchange between the two currencies is:

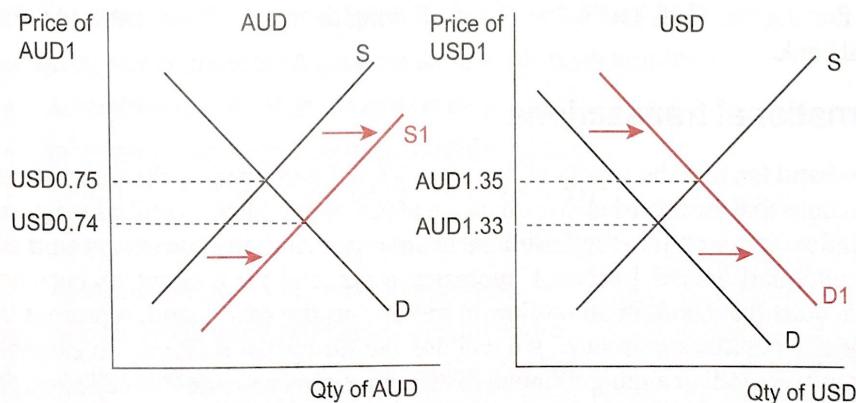
$$\begin{aligned} \text{AUD1} &= \text{USD}0.75 \\ \text{or } \text{USD1} &= \text{AUD}1.33 \end{aligned}$$

If Australians were to increase their imports from the United States, then they will supply more Australian dollars and demand more American dollars. The supply curve of AUD will increase (shift to the right), while the demand curve for USD will also shift to the right. In our example, the AUD has decreased while the USD has increased:

$$\text{AUD1} = \text{USD}0.74$$

Figure 6.1 Changes in the exchange rate

If Australia increases its imports from the US, there will be an increase in the supply of AUD, and an increase in demand for USD. The AUD will depreciate; the USD will appreciate.



Economic research - exchange rates**Learning activity**

Exchange rates are often quoted in the news media. You can keep up-to-date with exchange rate movements (as you can with many economic items) using an app on your smart phone. Download the app and choose the currencies in which you are interested. Include the trade-weighted index (TWI). Most apps offer exchange quotes in direct or indirect formats. In the direct quote, the domestic currency is the base currency - e.g. AUD/USD is a direct quote that expresses the number of units of the US currency that can be exchanged for one unit of the base currency (AUD). Practice changing between the direct and indirect quotes. Currency pair quotes are usually expressed to four decimal points, meaning the smallest unit for which a currency can be traded is one hundredth of a cent - a 'pip'. Note there is usually a difference between the bid and the ask price quoted by foreign exchange dealers acting as intermediaries, as they earn a commission for the service they offer.

$$\text{or } \text{USD}1 = \text{AUD}1.35$$

The Australian dollar is said to have depreciated - it is worth less in terms of US currency, while the American dollar has appreciated. It is important to realise that a country's exchange rate is closely related to its balance of payments. The balance of payments records all international transactions in goods, services, income and financial assets and liabilities. The exchange rate is the means by which these transactions are facilitated. In other words, the fundamental factors underlying the value of a country's exchange rate are determined by the transactions in the balance of payments.

There are two basic methods for determining the price of a country's currency - by allowing the market forces of supply and demand to freely set the value, or by artificially setting the price at a fixed rate. Exchange rates therefore can be either fixed or floating. Most countries have used both methods at different times but most economists believe that a free exchange rate is a 'no-brainer'. Australia adopted a freely floating exchange rate in December, 1983. Prior to that it used an administered or 'crawling peg' system where the value of the currency was tied to a specific group or 'basket' of currencies. A fixed exchange rate system implies that the value of the currency is maintained at the same rate for long periods of time. Most countries now use a floating exchange rate system with differing degrees of intervention by their central bank.

International transactions

The demand for, and the supply of, a currency are determined by the international transactions that are recorded in the balance of payments. All transactions that result in an inflow of money into the Australian economy, in both the current account and the capital and financial account, represent a demand for a country's currency. Transactions that result in an outflow of money, on the other hand, represent the supply of a country's currency. We will use the Australian dollar as an example. Assume an Australian mining company is exporting iron ore to the United States. The

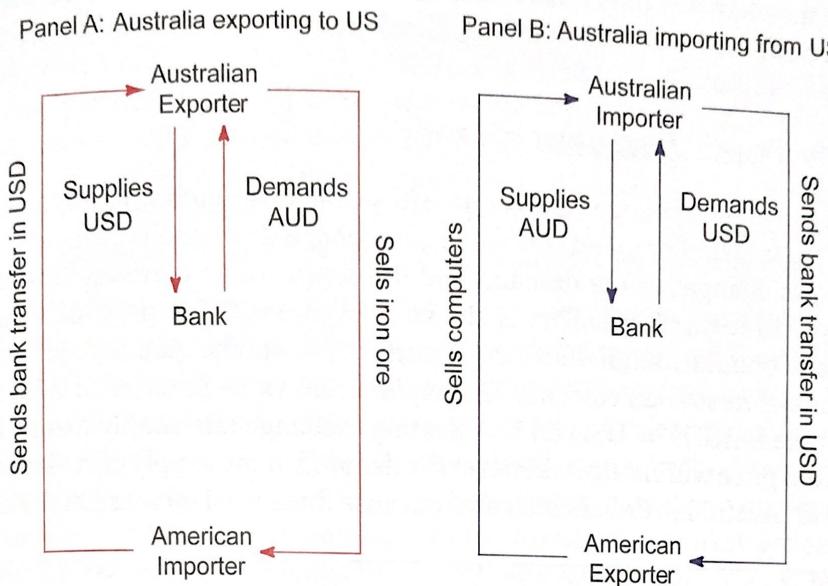


Figure 6.2 The foreign exchange market

contract is likely to be priced in US dollars (USD). Most international transactions are contracted in one of the key world currencies, for example, USD, Japanese Yen (JPY), Pounds Sterling (GBP) or the Euro (EUR). In terms of Australia's trade, around two thirds of exports and one half of imports are contracted in USD. The remainder of Australia's trade is contracted in AUD.

When the Australian exporter sells iron ore, he will receive a bank transfer in US dollars. He then must convert this into Australian dollars. The US buyer has supplied American dollars, while the Australian exporter will demand Australian dollars from the foreign exchange market. This example is shown in Figure 6.2 in Panel A. Panel B shows the opposite transaction where an Australian importer purchases a computer from an American firm. If the contract is written in US dollars, then the Australian buyer will first convert Australian dollars at his bank to obtain US currency to send to the seller in the United States as payment for the computers he is importing.

Essentially, the demand for Australian dollars will be determined by:

- Australian exports of goods and services;
- receipts of income from overseas residents; and
- capital inflow (foreign investment into Australia)

The supply of Australian dollars will be determined by:

- Australian imports of goods and services;
- payment of income to overseas residents; and
- capital outflow (Australian investment abroad).

Changes in balance of payments transactions involving goods, services, income or financial capital, will affect either the demand and/or the supply of the currency and thus affect its value.

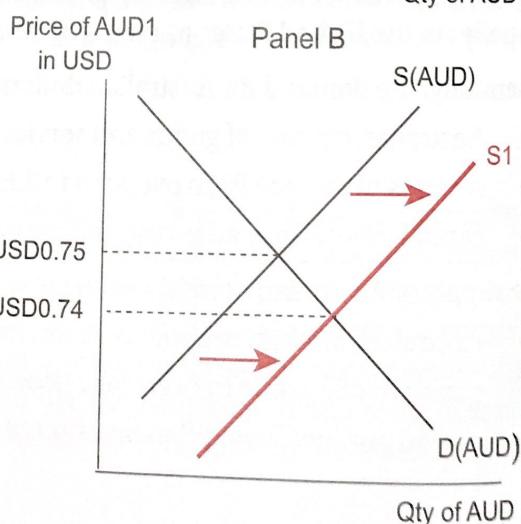
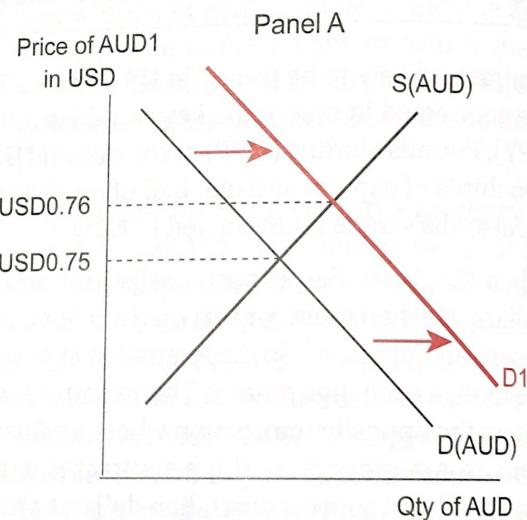
A freely floating exchange rate

A floating or free exchange rate is one whose value is determined by the market forces of supply and demand. Its value can change daily and even by the minute as it reflects changes in the demand and the supply of its currency. The demand and supply of Australian dollars is shown in Figure 6.3. The price axis measures the value of one Australian dollar in US currency while the quantity axis measures the volume of Australian currency. The equilibrium value in terms of US dollars in this example is AUD1 = USD 0.75. A floating exchange rate simply means that the equilibrium price will change whenever the demand or the supply curves shift. If the demand for Australian dollars increases because there is an increase in the demand

Figure 6.3 A floating exchange rate

If the demand for AUD increases then the demand curve shifts to the right, resulting in an appreciation of the currency. The AUD increases in value from USD0.75 to USD0.76. An increase in D(AUD) could occur if there was an

- increase in demand for Australia's exports;
- increase in foreign investment into Australia; and / or
- increase in income receipts from overseas residents.



If the supply of AUD increases then the supply curve shifts to the right, resulting in a depreciation of the currency. The AUD decreases in value from USD0.75 to USD0.74. An increase in S(AUD) could occur if there was an

- increase in spending on imports;
- increase in foreign investment to foreign countries; and / or
- increase in income payments to overseas residents.

for Australian exports or there was an increase of foreign investment into Australia, then the value of the Australian dollar will rise. This means that the Australian dollar will appreciate against the US dollar. Panel A in Figure 6.3 shows the effect of the increase in demand for \$A with the exchange rate appreciating to USD0.76. If there was an increase in the supply of Australian dollars, due to an increase in imports or increased Australian investment to overseas countries, then the value of the Australian dollar would decrease - it would depreciate against the US dollar. Panel B in figure 6.3 shows the value of the Australian dollar has decreased to USD0.74.

As long as the value of the Australian dollar is allowed to move in accordance with shifts in demand and supply, then it is a free or floating exchange rate. When the currency is allowed to float free from the interference of the central bank (in Australia, the Reserve Bank) then it is referred to as a 'clean float'. A managed exchange rate exists whenever there is official intervention in the foreign exchange market by the Reserve Bank. The Reserve Bank can act as either a buyer or a seller of the currency, indirectly influencing its rate through the market system. If, for example, the Reserve Bank wanted to prevent the exchange rate from falling to too low a level, it would enter the market as a buyer of Australian dollars and use its reserves of foreign exchange to bid up the price. Conversely if the Bank wished to stop the currency from appreciating, it would sell Australian dollars, increasing the supply and hence reducing any upward pressure on the exchange rate.

A second and more indirect method the Reserve Bank could use to affect the value of the exchange rate is through monetary policy. Monetary policy is used to set short term interest rates. If interest rates are increased, then foreign investment will be attracted to the Australian economy increasing the demand for Australian dollars and appreciating the currency. When the economy is in a contraction or a recession, then the Reserve Bank would prefer a lower currency than a higher one. This is because a lower AUD will have an expansionary effect on the economy by increasing net exports. How could the Reserve Bank indirectly lower the exchange rate? By simply reducing interest rates, which would reduce the demand for the currency. Whenever the central bank intervenes in the foreign exchange market to influence the movement of the currency, or to set its value in a particular 'range', then it is referred to as a 'dirty float'. The Reserve Bank of Australia claims that it only enters the foreign exchange market occasionally with a view to 'testing and smoothing' the underlying trend in the exchange rate. This is sometimes referred to as a 'lightly managed float'.

The free exchange rate and the balance of payments

Economists favour free markets so that changes in demand and supply will be reflected by changes in prices. For this reason, economists also favour free exchange rates rather than attempting to fix or peg their values to another currency. It would be similar to trying to fix the price of bread or petrol. By leaving markets to adjust to changes in market conditions, shortages and/or surpluses are avoided. A freely floating exchange rate is a perfect example of a competitive market where the price fluctuates in response to changes in the demand and supply of the currency.

A floating exchange rate regime has the advantage of providing automatic adjustment in the balance of payments. The exchange rate varies to change the prices of traded goods, services and assets. If for example, there is an excess supply of AUD, then a depreciation will raise the prices of imported goods and services in domestic currency and lower the prices of exported goods and services in foreign currencies. This will automatically help remove the excess supply. Under a floating exchange rate, the balance of payments does not affect the domestic money supply and this means that monetary policy is far more effective.

A free exchange rate helps to reduce swings in the current account balance. Usually a fall in the trade balance will lead to an exchange rate depreciation. This increases the price of imported goods and services and decreases the price of Australian exports. Demand for imports should fall (after a lag) while demand for exports will be increased, thus reducing a trade deficit. But this assumes that the demand for both imports and exports is responsive or elastic to the change in price. If demand is relatively inelastic, then higher import prices may actually lead to an increase in import payments. Similarly, if exports are relatively inelastic, then lower prices may initially lead to lower export receipts. The result is that a depreciation may actually decrease the trade balance in the short term. This is known as the 'J-Curve' effect. It all depends on elasticity - how responsive quantity is to a change in price. If the demand for exports and imports were price inelastic, then a price change would have little effect on the quantities traded. It is important to remember that the 'J curve' effect is a short term effect. Eventually the change in the exchange rate will have the expected effects on trade volumes.

A free exchange rate is also advantageous because it can help to insulate the domestic economy from external shocks. A currency appreciation for example, can help to shield the economy from a positive external shock. Australia's mining boom during 2001–2011 occurred as a result of increased economic growth in China which boosted world commodity prices (especially iron ore and coal). This caused both Australia's terms of trade and exchange rate to more than double – rising from around USD0.50 in early 2001 to USD1.10 in July 2011. The mining boom increased mining investment and raised national income and wages. This would normally bring inflationary pressure, but the high Australian dollar helped to slow the economy by increasing export prices and reducing import prices. The non-mining sector of the economy was weakened by the high dollar, and this reduced inflationary pressures in the economy.

A currency depreciation, on the other hand, can help to shield the economy from a negative external shock. This occurred in Australia after 2012 when the exchange rate depreciated as a result of the end of the mining boom. The AUD fell from USD1.05 in July 2012 to USD0.70 by September 2015. This represented a 33 per cent depreciation. A depreciation reduces the prices of Australia's exports and provides Australian exporters with a competitive advantage in overseas markets. Services exports such as tourism and education are the big winners from a falling Australian dollar. A depreciation will have an expansionary effect on the economy which can help to re-balance the economy after a negative shock.

The major disadvantage of free exchange rates is that they increase the degree of uncertainty for buyers and sellers and uncertainty effectively increases the cost of international transactions. Exporters of goods and services may be unsure of how much money they will receive when they sell abroad or what their price will be. In a similar way importers will not be certain how much it is going to cost them to import a given amount of foreign goods. For example, if you ordered some champagne from France and agreed to pay EUR1000 in two months' time, you will not be sure of what the dollar price of EUR will be in two months' time.

To overcome this problem it is relatively easy to use a foreign exchange hedging strategy to avoid any exchange rate fluctuation. This is like insuring against an adverse movement in the exchange rate over the period between the contract and delivery. Rather than buying currencies for immediate use in the 'spot' market, you can buy currencies in the 'forward' or futures market at a set price. Forward contracts are a risk management tool that allows you to agree an exchange rate today to buy or sell currency at a date in the future. This means that a future payment or receivable can be priced in your currency with certainty, avoiding a possible loss if the exchange rate changes value. Has the uncertainty of flexible exchange rates decreased international trade? The evidence shows that international trade has actually grown more quickly as the world has shifted to free exchange rates.

The AUD is the fifth most traded currency in the world.

Recent trends in the AUD exchange rate

The exchange rate changes whenever demand or supply conditions change. An exchange rate appreciation will occur if either the demand for the currency increases or the supply of the currency decreases. For example, if Australia's exports and capital inflow increase then the demand for Australian dollars will increase. The D(AUD) curve will shift to the right, appreciating the currency. Alternatively, if there is a decrease in Australia's imports and capital outflow then the supply of Australian dollars will decrease. The S(AUD) curve will shift to the left, also resulting in an appreciation of the currency. A depreciation is the exact opposite to an appreciation - the value of the exchange rate falls due to either a decrease in the demand for the currency or an increase in the supply of the currency.

Figure 6.4 illustrates the volatility of the AUD exchange rate since 2012. The graph records movements in the Australian dollar against the US dollar and the trade weighted index (TWI). The TWI is a weighted average of a basket of currencies that reflects the importance of Australia's trade by country. The most important currencies in Australia's TWI are the Chinese renminbi, the Euro, the US dollar and the Japanese yen. These four currencies make up 64 per cent of the index. The TWI is considered a better indicator of general movements in the value of the Australian dollar than any single exchange rate. Between 2012 and 2022, the Australian dollar fluctuated between USD0.62 and USD1.04 and between 55 and 79 on the trade weighted index. During the period shown in the graph, the average value for the Australian dollar was USD0.78 – close to its long term average of USD0.76. Notice how closely the

The TWI is less volatile than a single exchange rate such as the USD.

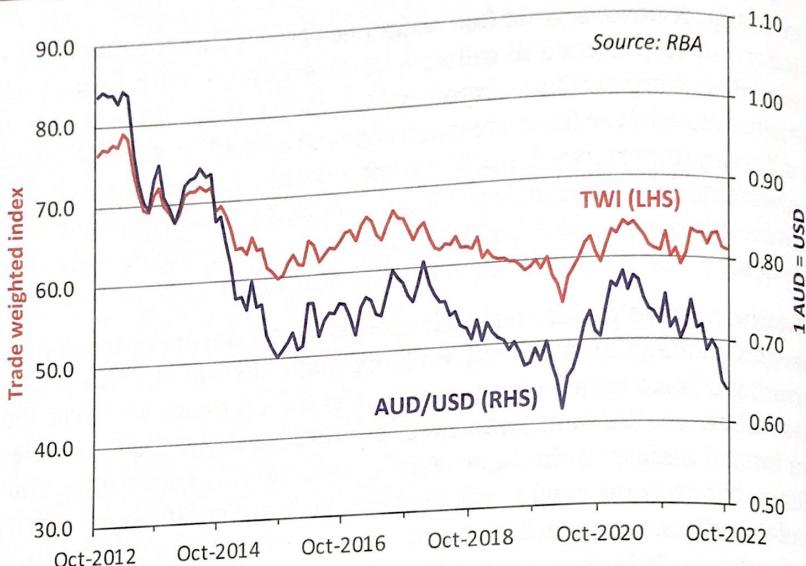


Figure 6.4 The AUD exchange rate

Two exchange rates track one another. It is important to remember though, that the TWI does not fluctuate as much (it is less volatile) since it is an average of Australia's major trading currencies.

In July 2011, the AUD reached its highest value since the dollar was floated in 1983 of USD1.10. This was the peak of Australia's mining boom - fueled by strong demand by China for Australia's mining resources. Between 2012 and 2015 the Australian dollar depreciated against both the USD and the TWI as commodity prices fell and the mining boom ended. The AUD fell to USD0.70 by September 2015. Between 2016 and 2017, the AUD began appreciating again as commodity prices rose and Australian mining exports increased. By January 2018, the AUD had risen to USD0.81. During 2018 and 2019 the AUD depreciated significantly as the world economy slowed. The COVID pandemic of 2020 caused a global recession and the AUD fell to USD0.62 - its lowest level in over a decade. After recovering during 2021, the AUD depreciated against the USD in 2022 as world inflation increased.

Factors affecting the exchange rate

There are many factors that affect the value of a country's currency. Anything that affects the demand for a country's goods and services by overseas buyers or affects the flows of international capital funds (foreign investment) will be reflected in the exchange rate. The main factors which affect whether an exchange rate is likely to appreciate or depreciate in the medium term are:

- movements in the terms of trade (and commodity prices) – this has a major influence on Australia's exchange rate. The AUD is known as a commodity currency because Australia's exports are dominated by commodities such as iron ore, coal and natural gas. When commodity prices increase, the D(AUD) increases and the currency appreciates;

The trade weighted index (TWI)

The TWI is a weighted average of a basket of currencies that reflects the importance of Australia's trade by country. The weights are based on the composition of Australia's goods and services trade for the latest year. For example, China accounted for 36.7% of Australia's trade in 2021 and so its weight in the TWI = 36.7%. Currently there are 17 currencies that make up the TWI.

The TWI provides a measure of whether the Australian dollar is rising or falling on average against the currencies of Australia's trading partners. This is often a better measure of general trends in the Australian dollar than any one single exchange rate, such as the US dollar. Why? Because the AUD appreciates against the USD, that might be due to the US dollar's weakness. But, if Australia's TWI increases, this shows the AUD is getting stronger against its main trading partners. The TWI is also subject to less pronounced swings in value compared with a single bilateral exchange rate.

The weights for the TWI are changed every 12 months based on changes in the direction of Australia's trade. The weights for the top 10 currencies are shown below. Note that the top four currencies comprise 65 per cent of the TWI.

Chinese renminbi	36.7%	UK pound	4.0%
European euro	9.3%	Singapore dollar	3.9%
United States dollar	9.3%	Indian rupee	3.7%
Japanese yen	9.1%	New Zealand dollar	3.2%
South Korean won	5.3%	Malaysian ringgit	2.9%

Source: RBA

- relative interest rates (the interest rate differential) – if interest rates in the United States rise relative to Australia, then there will be a decrease in capital inflow to Australia and an increase in capital outflow. This means that the D(AUD) will decrease and at the same time the S(AUD) will increase causing a strong currency depreciation.
- relative inflation rates – inflation reduces the competitiveness of industries in the traded goods sector. A high inflation rate relative to other countries is likely to decrease the exchange rate – the D(AUD) will decrease while the S(AUD) will increase;
- international capital flows – if investors believe Australia to be a relatively more attractive destination for their funds compared to other economies then D(AUD) will increase and the Australian dollar would appreciate;
- domestic economic growth – strong economic growth in Australia will lead to an increase in demand for imports, which will increase the S(AUD) causing a currency depreciation; but at the same time, a stronger economy will attract foreign investment which will increase the D(AUD) increasing the exchange rate; and
- world economic growth – an increase in global GDP (esp. China), increases world commodity prices which increases the D(AUD) and appreciates the currency; and

There have been many studies examining the key factors affecting the Australian dollar. This research has highlighted two significant factors which appear to drive Australia's exchange rate. The first factor is commodity prices. The Australian dollar

is often referred to as a 'commodity currency'. Around 70 per cent of Australia's exports are made up of primary commodities - rural goods and resources. These commodities include iron ore, coal, natural gas, gold, wheat, beef and wool. Changes in the prices of these commodities have a significant effect on export values and ultimately on Australia's national income. Remember that exports of goods and

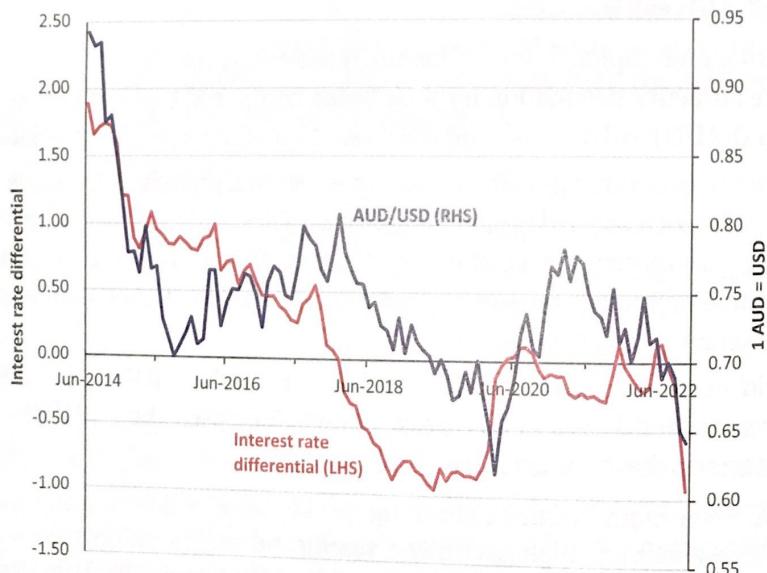
The Australian dollar is known as a 'commodity' currency since most of our exports are resources.

services contribute around 25 per cent of Australia's GDP. There is a very strong positive correlation between movements in commodity prices and the Australian dollar. The Reserve Bank of Australia compiles an index of commodity prices weighted according to the importance of the commodity in Australia's trade. A general increase in commodity prices, *ceteris paribus*, will result in an appreciation of the Australian dollar.

The second key factor affecting the Australian dollar is Australia's interest rate differential with the United States. This is usually measured by the difference in 3 year government bond rates between the two countries. For example in June 2016, the 3 year bond rate in Australia was 1.58 per cent while in the United States, the equivalent rate was 0.86 per cent. So the interest rate differential was 0.72 per cent. Note that if the Australian bond rate was lower than the US bond rate, then the interest rate differential would be negative. For example in June 2022, the 3 year bond rate in Australia was 3.45 per cent while in the United States, the equivalent rate was 4.38 per cent. So the interest rate differential was -0.93 per cent. Australia's interest rate differential with the United States is shown below in figure 6.5 along with the value of the AUD/USD exchange rate. The graph shows a very strong positive relationship.

This means that a fall in Australia's interest rate differential with the US should cause the AUD to depreciate. The simple reason is that the interest rate differential affects

Figure 6.5 Australia's interest rate differential



the flow of foreign investment between countries. International investors seek out the highest returns for their funds. Much of the financial capital that flows into Australia is portfolio investment. If interest rates in Australia fall relative to the US, as occurred during 2022, then Australia's interest rate differential decreases which will cause the AUD to depreciate. Less foreign investment will flow into the Australian economy, decreasing the demand for AUD and at the same time increasing the supply of AUD as Australian investors shift funds to the US economy. Notice how a change in relative interest rates causes both the demand and supply curves of the AUD to shift. This is why interest rates have such a powerful effect on the exchange rate. If Australia's interest rate differential were to increase, then the AUD would appreciate because there would be an increase in demand for the AUD and at the same time, a decrease in the supply of the AUD.

Effects of exchange rate movements

Changes in the exchange rate can have important implications for the domestic economy. Is it better for an economy to have a low or a high exchange rate? The answer is neither! Many people associate a high exchange rate with a prosperous economy and think that a rising exchange rate is a sign of economic strength and will be beneficial for the economy. However, there can be both pluses and minuses associated with a strong exchange rate – it all depends on whether you are an importer or an exporter and whether you are a consumer or a producer. A high exchange rate is good for some groups in the economy, but bad for others. Likewise, a low exchange rate can be good news for some but impose costs on others. We will examine the costs and benefits of both a currency depreciation and an appreciation.

Effects on the macroeconomy

First consider a currency depreciation. One advantage to an economy is that a depreciation bestows a competitive advantage through the relative price effects on exports and imports. The prices of Australian goods and services in foreign currency (Australia's exports) fall while the prices of overseas goods and services (Australian imports) in Australian currency rise. The depreciation will encourage resources to flow into the traded goods industries – both export and import competing industries. Domestic producers who compete with imports are now more competitive because import prices have increased. A depreciation will provide a boost for the domestic tourism industry encouraging foreign tourists to visit Australia. A depreciation should increase exports and decrease imports, increasing net exports and aggregate demand in the economy.

A depreciation will benefit exporters but hurt importers. A depreciation will boost net exports and increase real GDP.

In this way, a depreciation will have an expansionary effect on economic activity through an increase in real GDP. But a depreciation is likely to result in an increase in the consumer price index because import prices have risen and therefore lead to an increase in cost inflation. Demand inflation may also rise since a depreciation will increase income and spending in the domestic economy.

Causes

A decrease in demand for AUD

- decrease in exports
 - decrease in income credits
 - decreased capital inflow
 - fall in commodity prices
 - fall in the interest rate differential
 - higher relative inflation
- An increase in supply of AUD
- increase in imports
 - increase in income debits
 - increased capital outflow
 - fall in the interest rate differential

Effects

- prices of Australian exports to foreign buyers decrease
- prices of imports rise
- improvement in international competitiveness
- net exports will increase
- real GDP increases
- boost to economic activity
- increase in production costs due to higher import prices
- cost inflation increases

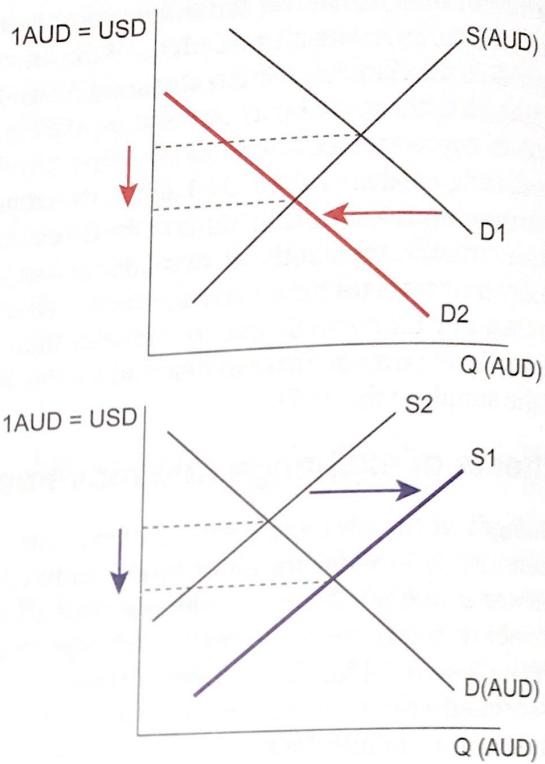


Figure 6.6 A currency depreciation - causes and effects

Effects on consumers and business

A depreciation harms consumers since they must pay higher prices for imported goods such as cars, petrol, household appliances and overseas travel. Domestic businesses that sell imported goods will also be at a disadvantage - they will see a decline in sales. Many domestic firms rely on imported goods and services as inputs for their business. So a depreciation will result in higher costs of production, including freight, petrol, motor vehicles, computers and machinery. Which businesses benefit from a depreciation? Obviously firms that are exporting gain a competitive advantage - overseas demand is likely to increase for their goods and services. Firms that compete with imports will also gain since their competitiveness improves. For example local manufacturing firms will find it easier to compete against .

The effects of an exchange rate appreciation will be the opposite to what we have discussed above:

- Australian exporters lose as exports become more expensive to foreign buyers;
- cost of imported goods falls benefiting both consumers and producers;
- import competing firms lose;
- firms selling imported goods benefit e.g. Harvey Norman, JB HiFi, Bunnings;
- Australian tourists travelling overseas benefit; and
- net exports decrease which has a contractionary effect on the economy.

Worksheet

1. What is an exchange rate and why is it necessary?
2. If AUD1 = USD0.80, how much would an American have to pay for an Australian boomerang costing AUD60?
3. What is the 'trade weighted index' (TWI)?
4. What is the foreign exchange market? Explain what happens in the foreign exchange market if Australia sells more exports to the U.S.
5. How is the balance of payments and the exchange rate linked?
6. Distinguish between the demand for a currency and its supply.
7. Explain how a freely floating exchange rate is determined.
8. Explain how interest rates can affect the exchange rate?
9. Use separate demand/supply diagrams to show the effect on Australia's exchange rate of each of the following:
 - interest rates in Australia fall.
 - commodity prices rise.
 - inflation in Australia falls.
 - economic growth in China increases.
10. What are the advantages of a freely floating exchange rate?
11. Explain how the uncertainty associated with a floating exchange rate can be reduced.
12. Distinguish between a currency appreciation and a depreciation.
13. What are the two most important factors driving the Australian dollar?
14. Explain the effects of a currency depreciation on the balance of payments, GDP and the price level.

Application

For each of the following events, indicate whether it would affect the demand for AUD or the supply of AUD, the type of movement (increase, decrease) and whether the AUD would appreciate or depreciate - the first event is done as an example.

	Events	Demand for AUD	Supply of AUD	Exchange rate
1	Increased imports	No change	Increase	Depreciate
2	Increased exports
3	Number of outbound tourists (from Australia to overseas) increases
4	Interest rates decrease in Australia relative to the rest of the world
5	World economy grows faster than the Australian economy
6	Mining boom increases investment
7	Inflation in Australia falls relative to our trading partners
8	Australia's terms of trade increase
9	Japanese investors purchase Australian shares
10	China's economy slows

Multiple choice

1. Which of the following would lead to an increase in the value of the AUD?
- Rising interest rates in the United States.
 - An increase in imports into Australia.
 - A rise in commodity prices, such as iron ore and coal.
 - Restrictions on the inflow of capital into Australia.
2. Assume the following exchange rate: AUD1 = USD0.92. What will be the cost in AUD of an imported American car valued at USD20 000?
- AUD18 400
 - AUD21 739
 - AUD21 600
 - AUD20 000
3. If there is an increase in the Australian demand for Korean motor vehicles then
- the supply of AUD in the foreign exchange market will increase and the AUD will appreciate.
 - the demand for AUD in the foreign exchange market will increase and the AUD will appreciate.
 - the supply of AUD in the foreign exchange market will increase and the AUD will depreciate.
 - the demand for AUD in the foreign exchange market will decrease and the AUD will depreciate.
4. If an Australian can buy EUR66,666 for AUD100,000, then one Euro will equal
- AUD0.67
 - AUD1.50
 - AUD6.66
 - AUD15.00
5. With a free exchange rate, the price of the AUD will tend to rise when
- more Australian tourists go abroad.
 - Germans switch from French wine to Australian wine.
 - Australians switch from Holden Commodores to BMWs.
 - Australian aid spending abroad is increased.
6. If there is an increase in the Australian demand for US computers then
- the demand for \$US shifts to the right and the \$US depreciates.
 - the supply of \$US shifts to the right and the \$US depreciates.
 - the demand for \$US shifts to the left and the \$US depreciates.
 - the demand for \$US shifts to the right and the \$US appreciates.
7. A depreciation of the Australian dollar in the foreign exchange market means that
- imported goods become cheaper for Australian residents.
 - Australian exports become less expensive for foreign buyers.
 - Australian exports become more expensive for foreign buyers.
 - the Australian dollar can purchase more foreign goods and services.
8. If real interest rates are higher in Australia than overseas, then the demand for the AUD will
- increase and the AUD will depreciate.
 - increase and the AUD will appreciate.
 - decrease and the AUD will depreciate.
 - decrease and the AUD will appreciate.
9. If the Australian dollar depreciates it means that
- the value of the Australian dollar has increased.
 - the value of foreign exchange has decreased.
 - fewer Australian dollars are required to purchase foreign exchange.
 - more Australian dollars are required to purchase foreign exchange.

10. Which of the following will result in an increase in the supply of Australian dollars in foreign exchange markets?
 - a. a reduction in the number of Australians travelling overseas.
 - b. an increase in interest rates in the United States.
 - c. a reduction in imports into Australia.
 - d. a reduction in income payments to foreigners.
11. If Australia's inflation rate rises relative to the inflation rates in its major trading partners then the demand for the Australian dollar will:
 - a. rise and the Australian dollar will depreciate.
 - b. fall and the Australian dollar will appreciate.
 - c. fall and the Australian dollar will depreciate.
 - d. rise and the Australian dollar will appreciate.
12. If Australia's interest rates fall by comparison with overseas rates this will cause:
 - a. an appreciation of the Australian dollar.
 - b. an inflow of foreign investment.
 - c. a decrease in the terms of trade.
 - d. a depreciation of the Australian dollar.
13. An appreciation of the Australian dollar would tend to make Australian manufactured goods:
 - a. less competitive in all markets outside Australia.
 - b. more competitive in all markets outside Australia.
 - c. less competitive in some markets outside Australia but more competitive in others.
 - d. cheaper in Australian markets.
14. If the United States of America experienced a significant depreciation of its currency, what would be the most likely effect in Australia?
 - a. imported inflation from the USA would increase.
 - b. Australia's competitiveness with the USA would improve.
 - c. Australia's terms of trade with the USA would improve.
 - d. imports from the USA would be cheaper.
15. Which of the following circumstances would cause an increase in the AUD.
 - i Increased demand in China for Australian iron ore.
 - ii Increased demand in Australia for imported cars.
 - iii Increased inflation in Australia.
 - iv Higher interest rates in Australia relative to overseas.
 - a. i and iii.
 - b. ii and iii.
 - c. ii and iv.
 - d. i and iv.

Data analysis - exchange rates

Read the data and answer the questions that follow.

	AUD1 = USD	TWI	AUD1 = CNY	AUD1 = JPY	AUD1 - EUR
Jun-2019	0.70	60.1	4.82	75.54	0.62
Jun-2020	0.69	60.0	4.85	73.94	0.61
Jun-2021	0.75	62.7	4.86	83.07	0.63
Jun-2022	0.69	61.8	4.61	93.95	0.66

1. Name the 5 exchange rates in the table.
2. Over the period shown, against which currencies did the Australian dollar appreciate and against which currencies did it depreciate?
3. Calculate the percentage change for each currency between Jun 2021 and Jun 2022. Against which currency did the AUD depreciate the most?
4. What factors might have been responsible for the fall in the AUD/USD during 2021-22?
5. Andrea Fitzpatrick, an international currency speculator, decided to exchange AUD 1 million dollars for USD in June 2021. If she exchanged her quantity of USD back into Australian dollars in June 2022, did she make a profit or loss and how much?
6. What is the TWI? Why is it the best indicator for changes in Australia's exchange rate?
7. What are the four most important currencies in the TWI?
8. Explain who benefits and who loses from an exchange rate depreciation.

AUD in the news

Refer to the separate articles to answer the following questions.

1. Why are we preoccupied with movements in the Australian dollar?

Because it can make travelling more or less expensive, it can turn a business profit into a loss and a weak currency can cushion the blow of a collapsing economy. By far and away the biggest factor affecting the Australian dollar, against the US dollar, is the interest rate differential between the two countries. It's for obvious reasons too. Traders and investors chase "yield" or a "return" on investment.

An interest rate is a return on money held in deposit. So if you're able to borrow money in a low interest rate environment, and invest it in a higher interest rate environment, of course you would. So if Australia's official cash rate is higher than the US Fed Funds rate, then Australian deposits will look more attractive, and foreign investors will buy Australian dollars in order to take advantage of that "yield differential". But if Australia's cash rate falls below its US equivalent, then foreign investors will look elsewhere and the \$A will fall. That's why we all go so bananas over an RBA interest rate decision ... because it ultimately has a direct affect on the Australian dollar.

Economic data plays a big role in moving the Australian dollar too. Much of it though is indirect — meaning that better economic news points to the likelihood of a rate rise in the near term, while poor economic news points to a rate cut. For example, a weak jobs report would see the Australian dollar fall while strong employment growth would see it rise.

Another crucial indicator is inflation or the Consumer Price Index (CPI). Central banks around the world, including Australia's Reserve Bank, actually target a level of inflation. In the RBA's case it's for a CPI of between 2 and 3 per cent. That's considered to be a "goldilocks" range for inflation, which keeps the economy humming along nicely.

The Australian dollar is a commodities currency. That means the dollar generally appreciates when commodities prices (such as iron ore and coal) rise in value. Australia is a resource-rich country, so naturally as commodities prices rise and fall, so does Australia's overall 'worth', and the currency responds to that.

Source: www.abc.net/news

Questions for article 1

1. What is considered the biggest factor affecting the AUD?
2. Explain why the exchange rate and interest rates are 'best friends'.
3. Explain why "... we all go bananas over an RBA interest rate decision ..." .
4. Why would a 'weak jobs report' result in a fall in the AUD?
5. Explain why increased monetary stimulus in the United States would result in a higher AUD.

2. When is a low Aussie dollar – a good thing?

A low dollar can bring happy, smiley faces to our farmers, manufacturers, tourist operators and education providers. These industries are part of the non-mining tradeables sector of the economy. It is important to note that about three-quarters of Australian industry is 'non-tradeable' - it neither exports nor competes against imports. What are some examples? Mainly services such as haircuts, restaurants & cafes and health services. The non-tradeable sector is not directly affected by the exchange rate, except to the extent that it uses imported components and capital equipment.

A lower exchange rate is expansionary and thus does a similar job to a cut in interest rates. It raises the price of imported goods and services and lowers the price of exports, thus increasing net exports. A lower dollar also helps to redirect some domestic demand to domestic firms (for instance, it makes locals more inclined to holiday at home than abroad). So, to some extent, a lower exchange rate is a substitute for cuts in the official interest rate if the economy is subdued.

Australia's terms of trade have fallen from the dizzy heights when the economy was in the peak of the mining boom. The initial effect is a huge decrease in the nation's real income which causes the economy to contract - real GDP falls, unemployment rises, the inflation rate falls and the exchange rate takes a hit. But the big advantage of a floating exchange rate is that by depreciating, it reduces the impact of a terms of trade shock. How does this happen? By increasing the competitiveness of the tradeables sector.

The second element of the end of the resources boom is that it generated a huge decrease in mining investment resulting in a major change in Australia's industry structure. The oil and mining industry, the mining services industry and the engineering construction industry all contracted, releasing resources into other sectors. This means that labour and capital had to move from mining industries to the non-mining sector. This is where the floating dollar helps - it assists the reallocation of resources by causing the non-mining tradeables sector to expand.

Questions for article 2

1. Explain the benefits of a low dollar and the costs of a low dollar.
2. What is the non-mining tradeable sector of the economy? Provide examples of industries in this sector.
3. Why does a low dollar bring gains to the non-mining tradeables sector?
4. Explain how a low exchange rate is expansionary.
5. How does a free exchange rate reduce the impact of a terms of trade shock?
6. How does a floating exchange rate help to reallocate resources in the economy?
7. Why would a low dollar be an advantage if the economy was in a contraction?

Data interpretation

The questions below to the edited extract overleaf, taken from the Reserve Bank's Statement on Monetary Policy (November 2022).

1. By how much did the Australian dollar depreciate against the US dollar during 2022?
2. Explain why the Australian dollar did not fall on a trade weighted basis.
3. Explain two reasons from the extract for the depreciation of the AUD.
4. Choose one of these reasons and using a model of the Australian dollar, illustrate and explain why the Australian dollar depreciated.
5. Explain the effects of a depreciation on the household and business sectors. (4 marks)

The Australian dollar has depreciated

The Australian dollar has depreciated by about 2 per cent on a trade-weighted (TWI) basis since early August, and is around 8 per cent lower against the US dollar over the same period. This is consistent with the decline in yield differentials between Australian Government bonds and those of the major advanced economies. The currency depreciated to a year-to-date low of around US\$0.62 in mid-October, amid concerns about the outlook for global growth.

The RBA Index of Commodity Prices has declined over recent months to be around levels seen earlier this year, with higher coal prices partly offsetting declines in the prices of iron ore and base metals. Despite having depreciated by around 12 per cent against the US dollar over the year to date, the Australian dollar is around its levels at the beginning of 2022 on a TWI basis. The difference largely reflects the appreciation against the Japanese yen earlier in the year, although the Australian dollar also remains higher against several other currencies, including the South Korean won the British pound.

Source RBA Statement on Monetary Policy, November 2022

Extended responses

Each of the following questions should be answered in 2-3 pages of writing. Include diagrams and examples where appropriate. Pay attention to the allocation of marks when writing your answer.

1. a. Distinguish between factors affecting the demand for a currency and the supply of the currency. [10 marks]
- b. Explain the link between the balance of payments and the exchange rate. [10 marks]

2. The two key determinants of the Australian dollar are commodity prices and relative interest rates. Using appropriate models, explain how these factors influence the value of the Australian dollar. [20 marks]

3. Describe the trend in the Australian dollar during 2022. Identify the factors that have affected this trend, and outline the effects of the change in the Australian dollar on the economy. [20 marks]