Explaining New Zealand's Monetary Policy

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ISBN 0-978-9582675-3-3 (print) ISBN 0-978-9582675-4-0 (online) Copyright © 2007 Reserve Bank of New Zealand First printed July 2007 Reprinted September 2009

What is

MONETARY POLICY?



Monetary policy is the term used by economists to describe ways of managing the supply of money in an economy.

The Reserve Bank of New Zealand has had the role of managing monetary policy in New Zealand since its foundation in the mid-1930s. Today, the Reserve Bank uses monetary policy to control inflation and keep it within a specific target band. Monetary policy is encountered by ordinary New Zealanders in several ways. New Zealanders directly encounter the main instrument of monetary policy, the Official Cash Rate (OCR), when they borrow money at retail interest rates through mortgages, credit cards or personal loans, or when they save money in bank accounts that earn interest. Retail rates of interest are directly related to the OCR set by the Reserve Bank.

Other ways that New Zealanders encounter monetary policy are through its effect on inflation and economic activity. Since the late 1980s, monetary policy has contained inflation within narrow limits – so effectively, in fact, that we forget that just a generation ago it was thought normal to have annual price rises of 16 or more percent. Monetary policy also helps prevent large swings in economic growth and employment.

Developments in

MONETARY POLICY

Monetary policy aims and methods have changed over time. In the mid-20th century, a period when government regulations played a significant part in the economy, the Reserve Bank was instructed to use monetary policy to enhance growth, reduce unemployment, and keep prices stable.

At the time, this was a largely administrative exercise. The exchange rate was fixed between 1949 and 1967, and there were no financial markets in the modern sense. However, the effort was not particularly successful, partly because the policy tools the Reserve Bank had to work with were not well suited for such a wide range of tasks.

Inflation targeting was a response to the experience of the 1960s and 1970s. New Zealand, like most western nations, suffered from high inflation from the late 1960s. Government efforts to reduce it by regulation were not effective, but both research and practical experience overseas indicated that inflation could be reduced by controlling the money supply.

Inflation control by the central bank has historical precedent. As early as the 1690s, the Bank of England was charged with maintaining the value of coinage, albeit in an economy that differed significantly from the modern one. In the 1930s, the Swedish Rijksbank set price stabilisation as a goal of monetary policy. This was price-level targeting rather than inflation control, but it has been argued that this helped the Swedish economy weather the worldwide depression of the day. At times in the past, the Reserve Bank of New Zealand was also instructed to keep prices under control, albeit as one of a wider – and not always compatible – range of monetary policy goals.

The worldwide trend to liberalise during the early 1980s – and the emergence of financial markets – made new avenues of inflation control possible. New Zealand's own period of liberalisation, in the mid-to-late1980s, thus effectively opened the way for inflation-control policies. A general drive to control inflation was fairly standard in western economies by this time, but in 1989/90 New Zealand pioneered a further monetary policy step – a specific target band.

Today, this style of inflation targeting is shared with a number of significant economies worldwide, including Canada, the United Kingdom, Norway, Poland, South Africa, Sweden, Australia and the Eurozone.

Further details of New Zealand's economic history and the Reserve Bank's role are published in the brochure *The Reserve Bank and the Economy*.

What is

INFLATION?

In 1989, the Reserve Bank was formally given the task of using monetary policy to control inflation.

Since 1999, the Bank has done so by setting the 'Official Cash Rate' (OCR) – in other words, by setting the wholesale price of borrowed money.

Through the OCR, the Reserve Bank is able to influence the wholesale price of money and, via the linkages that this has to the banking system and financial markets, influence a range of economic factors that help keep inflation under control. To understand monetary policy and the way the OCR works, we need to first understand inflation. This is the term used to describe the average rise in prices through the economy, and it means that money is losing its value.

The underlying cause is usually that too much money is available to purchase too few goods and services, or that demand in the economy is outpacing supply. In general, this occurs when an economy is so buoyant that there are widespread shortages of labour and materials, and people can charge higher prices for the same goods or services.

Inflation can also be caused by a rise in the prices of imported commodities, such as oil. However, this sort of inflation is usually more transient, and therefore less crucial than the structural inflation caused by an over-supply of money.

How inflation is measured

There are various ways of measuring inflation. The one used in the Policy Targets Agreement (PTA) is the All Groups Consumers Price Index (CPI) published by Statistics New Zealand. This records the change in the price of a weighted 'basket' of goods and services purchased by an 'average' New Zealand household. The percentage change of this index is typically referred to as 'CPI inflation'.

The contents of the basket are defined by Statistics New Zealand, which periodically reviews and re-weights them, using data obtained from its annual Household Economic Survey. This is necessary because the basket of goods and services purchased by the average household changes over time.

Graph 1



1860 1870 1880 1890 1900 1910 1920 1930 1940 1950 1960 1970 1980 1990 2000

Why inflation is damaging

Inflation can be damaging to individuals, firms and the economy as a whole. Individuals may be left worse off if prices rise faster than their incomes. This is likely to have more impact on the poor, who are on modest and fixed incomes, while the more affluent may be more able to protect themselves from inflation.

High inflation, which generally coincides with variable inflation, also makes it more difficult for individuals and firms to efficiently plan their decisions to invest, save and consume. This is because high inflation reduces people's certainty around how much their money will be worth in the future. Firms may then become reluctant to invest in longterm projects, such as research and development, even though in the long term those projects may be of great value. This inevitably reduces the economy's long-term growth potential. Inflation also discourages savings; if prices are increasing, it is better to spend now.

Bouts of high inflation also tend to go hand in hand with an overheated economy and can accentuate boom-bust cycles in the economy. Such volatility in the economy can have destructive social consequences, including large swings in unemployment.

When inflation gets rampant

The practical damage done by high inflation is made very clear if we look at times and places where it got completely out of hand – where 'hyper-inflation' broke out.

Between 1922 and 1924, German inflation got so bad that workers were paid every hour and sent to spend the cash before it lost value. Children made kites from banknotes that had become worthless. Mothers lit fires with cash because it was cheaper than buying kindling. Note-printers could not keep up with demand for notes of ever-increasing denomination. Unemployment skyrocketed, people went hungry, government lost revenue – because businessmen could delay paying tax and thus eliminate the true cost – and the economy began to collapse.

This sort of experience has occurred at other times and places; in 1993–94, for instance, Yugoslav prices doubled every 16 hours. In the year ended April 2007, Zimbabwe was reported to have experienced inflation above 3730 percent.

The Reserve Bank Inflation Calculator

The Reserve Bank has published an interactive inflation calculator on its website, at:

http://www.rbnz.govt.nz/ statistics/0135595.html

This calculator allows users to input a sum of money and compare its value between any two quarters from 1862 to the latest quarter for which CPI figures are available. From 1914 onwards the calculator uses the CPI, while prior to 1914 it uses other measures of inflation.



Deflation

The flip-side of inflation is deflation. This occurs when average prices are falling, and can also result in a range of damaging economic effects. People will put off spending if they expect prices to fall and businesses will not be prompted to produce, because holding cash is sufficient to make money. Sustained deflation can thus cause a rapid economic slow-down. If businesses and consumers stop spending on a large enough scale, then economic activity will rapidly contract and deflation will become even more entrenched, increasing the incentive to put off spending even more. If such an economic implosion gains too much momentum, banks and other financial institutions may fail and unemployment will increase rapidly.

The Reserve Bank is just as concerned about deflation as it is about high inflation. In New Zealand, however, it has historically been more usual for prices to rise. As graph 1 on page 6 shows, New Zealand has not had significant deflation since the economic depression of the 1930s.

Monetary policy implementation in New Zealand

In the late 1980s, the government gave the Reserve Bank responsibility for keeping New Zealand inflation low and more stable than it had been.

The Policy Targets Agreement

After a period of analysis and debate, the Reserve Bank was given statutory authority to control inflation, provided for in section 8 of the Reserve Bank of New Zealand Act 1989. The specifics were set out in a contract between the Governor of the Reserve Bank and the Minister of Finance, signed in 1990. This Policy Targets Agreement (PTA) initially called for a reduction of inflation to a 0-2 percent increase in the CPI by 1992. This arrangement was unique at the time, although it has since been adopted elsewhere. The target was publicly viewed with scepticism at the time, but in fact the Bank reached it ahead of schedule.

There was a good deal of cynicism about the Reserve Bank's ability to control inflation even before the first official inflation target of 0-2 percent per annum by 1992 was announced in 1990. In the event, this target was hit early.



A new PTA must be signed each time a Governor is appointed or reappointed, but a new PTA can also be written at other times. Since 1990, there have been a number of PTAs, and the target band has been revised several times as circumstances have changed. The agreement signed in September 2002 required the Reserve Bank to keep inflation between 1–3 percent a year, on average, over the medium term. This means that inflation can go outside the 1-3 percent target range in the short term. However, it must remain within that band, on average, over longer periods. The same PTA also requires the Reserve Bank to accomplish this task without 'unnecessary instability in output, interest rates and the exchange rate'.

Under section 12 of the Reserve Bank of New Zealand Act 1989, the government has the power to override the PTA for a 12-month period. However, any over-ride must be done publicly and transparently.

For more details on the PTA, the text of the latest PTA, and the historical texts of earlier ones, go to our website at: http:// www.rbnz.govt.nz/monpol/pta/

Graph 2 CPI Inflation 2000-2007



The Official Cash Rate

Since March 1999, the Reserve Bank has implemented monetary policy with an instrument known as the OCR. This is an interest rate set by the Reserve Bank to meet the inflation band specified in the PTA. The OCR is reviewed eight times a year by the Reserve Bank. Unscheduled adjustments to the OCR may occur at other times in response to unexpected developments; this occurred following the 11 September 2001 attacks on the World Trade Centre in New York.

The OCR influences the price of borrowing money in New Zealand, and is a fairly conventional monetary policy instrument by international standards. Before 1999, the Reserve Bank used a variety of other instruments to control inflation, including influencing the supply of money and signalling desired monetary conditions to the financial markets via

GRAPH 3 **OCR** MOVEMENTS 1999-2007 % 8 7 6 5 5 4 4 3 3 2 2 1 1 0

a 'Monetary Conditions Index' (MCI). Such mechanisms were more indirect, more difficult to understand, and less conventional.

2001 2002 2003 2004 2005 2006 2007

1999 2000

OCR accountability

The thinking behind the Reserve Bank's setting of the OCR is published four times a year in an accountability document known as the *Monetary Policy Statement*. This is available free of charge, on request, from the Reserve Bank Knowledge Centre, and by download from the Reserve Bank website, http://www. rbnz.govt.nz/monpol/statements/



LATEST DATA

The OCR is reviewed every six weeks. For the current OCR, go to the front page of our website: www.rbnz.govt.nz

The monetary policy process IN New Zealand



By setting the OCR, the Reserve Bank is able to influence interest rates and exchange rates, which in turn affect the level of economic activity and inflation.

THE OCR'S IMPACT

Most registered banks hold accounts at the Reserve Bank, which the banks use to settle obligations with each other at the end of the day. For example, if you write out a cheque or make an EFTPOS payment, the money is paid by your bank to the bank of the recipient. Many hundreds of thousands of such transactions are made every day, and the net result is either a credit or debit balance in each registered bank's settlement account. The Reserve Bank pays interest on settlement account balances, and charges interest on overnight borrowing, at rates related to the OCR. The most crucial part of the system is the fact that the Reserve Bank sets no limit on the amount of cash it will borrow or lend at these interest rates.

The effect of this is that no commercial bank is likely to offer short-term loans at a rate significantly higher than the OCR, because other banks would undercut the interest rate using credit from the Reserve Bank. Similarly, a bank is not likely to lend short term at rates far below the OCR because the same bank can lend to the Reserve Bank and receive interest at the OCR level. As a result, market interest rates are generally held around the Reserve Bank's OCR level.

Of course, although the OCR influences New Zealand's market interest rates, it is not the only factor doing so. New Zealand financial institutions are net borrowers in overseas financial markets, so market interest rates – particularly for longer terms – are also affected by the interest rates prevailing offshore. Movements in overseas rates can lead to changes in interest rates even if the OCR has not changed.

The impact on

THE EXCHANGE RATE

When the Reserve Bank increases the OCR, the value of the New Zealand dollar relative to other currencies tends to increase, and vice versa. This is because when local interest rates go up, New Zealand interest-earning investments become more attractive to foreign investors. If more investors buy New Zealand dollars, this will push up the price of the New Zealand dollar.

The impact on economic activity

Interest rates and the exchange rate influence demand. For example, if interest rates are increased, this encourages consumers and firms to borrow less, because they will have to pay more interest on their loan, and save more, because their savings get a higher rate of interest. When consumers and firms borrow less and save more, they spend less money on consumption and investment goods. This reduces activity in the economy. Conversely, a fall in interest rates increases demand for consumption and investment goods.

Meanwhile, the exchange rate influences the foreign currency prices of our exports. If the exchange rate is high, then the foreign currency prices of our exports will also be high, which reduces demand for our exports. In addition, a high exchange rate reduces the New Zealand dollar price of imports, increasing demand for imports and reducing demand for domestically produced goods. Therefore, a higher exchange rate will also reduce economic activity.

GROSS DOMESTIC PRODUCT

Gross Domestic Product (GDP) measures the total value of goods and services produced in New Zealand over a specified period. It is also equivalent to total spending by consumers, firms, and the government, plus exports and less imports. It is often useful to think of GDP in terms of the following equation:

 $\mathsf{GDP} = \mathsf{C} + \mathsf{I} + \mathsf{G} + (\mathsf{X} - \mathsf{M})$

Where,

C = consumption (spending by consumers)
I = investment (spending by firms)
G = government spending
X = exports
M = imports

The impact on inflation

An increase in demand puts upward pressure on prices. This can be shown using the supply and demand diagram, opposite. When there is an increase in demand (shown as a shift of the demand curve from D to D') then both the quantity and price will generally increase. Conversely, if demand fell (the demand curve shifts from D' to D) there is likely to be a decline in both quantity and prices.

Therefore, if the Reserve Bank increases the OCR, which then reduces demand (as discussed above), this will put downward pressure on prices, thus reducing inflation. A decrease in the OCR will have the opposite effect, resulting in an increase in inflation.

The OCR can also influence inflation via its effect on the exchange rate. As discussed above, an increase in the OCR tends to push New Zealand's exchange rate higher. An increase in New Zealand's exchange rate reduces the New Zealand dollar price of imports, thus putting downward pressure on inflation.

Trading partner inflation also has an impact on New Zealand inflation pressures. New Zealand imports a range of goods, and the price we pay for these imports depends on the price for these goods in their country of origin.

SUPPLY AND DEMAND

The principle or 'law' of supply and demand is one of the most important concepts in economics. It explains how producers and consumers interact to set the price and quantity traded of goods or services. The law of supply and demand can also be applied to foreign exchange markets or to the economy as a whole.

On one side we have consumers who 'demand' goods or services. The higher the price of the goods or service, the less consumers will demand. Meanwhile, we also have producers who 'supply' goods or services. They will be willing to supply more the higher the price is.

This is best shown graphically using demand and supply curves. The demand curve (D) slopes downwards because consumers demand less as the price increases, while the supply curve (S) slopes upwards because producers are willing to supply more as the price increases. The intersection point between the supply and demand curves is called the equilibrium. At the equilibrium price, consumers demand the same quantity as producers are willing to supply.

The supply and demand curves can shift. For example, overall demand in the economy could increase if people's incomes increase. An increase in demand will shift the demand curve from D to D', which results in the equilibrium price and quantity both increasing.



SUPPLY AND DEMAND



INFLATION EXPECTATIONS

Another factor that the Reserve Bank has to consider when setting monetary policy is the expectations that people have about inflation. If a manufacturer or service provider expects inflation to be high, they will increase the prices of their goods or services accordingly. Consumers will also increase what salary or wage they expect to get paid to compensate for the higher prices they expect. These higher inflation expectations can therefore fuel higher inflation.

Figure 2 summarises the monetary policy process that we have been talking about. It shows all the links between movements in the OCR and CPI inflation.

Figure 2



The monetary policy process in New Zealand

MONETARY POLICY

COMPLICATIONS

There are a number of complications that the Reserve Bank faces when running monetary policy. One of the largest is the lag that occurs between applying a policy setting and the moment when the effects of that setting become evident. The effect has been likened to steering a supertanker. The helm is put over, but time passes before the ship begins to turn. In the case of monetary policy and the economy, this delay can be anything up to 24 months. Therefore, the Reserve Bank must act on its expectations for the economy rather than what is happening at the time. This helps explain why observers are sometimes puzzled by the Reserve Bank's actions.

The Reserve Bank can also face an economy that is growing in some areas, but not in others. For example, as graph 4 shows, in the mid-1990s to mid-2000s, there was strong domestic demand but weak exports, coupled with a high dollar which helped fuel domestic demand through cheap imports.

This situation came about for a variety of reasons. A growth period that began in 1998 was coupled with a jump in net migration during 2001. Demand for housing and goods went up, and house price inflation increased very rapidly. Homeowners were encouraged, by this increase, to spend more and save less. Large quantities of cheap imported goods were also available, partly as a result of the high exchange rate at the time. The growth in domestic demand outstripped the growth in the capacity of the economy to sustainably supply goods and services. However, exports remained weak.

In this circumstance, the Reserve Bank needed to dampen domestic demand, while at the same time supporting the export sector. However, monetary policy could not be so specifically targeted. In the event, the Reserve Bank judged that the inflationary risks from the domestic sector were high, and this is why the Reserve Bank increased the OCR during 2004 and 2005.

Finally, the Reserve Bank also has to deal with 'price shocks'. These most commonly relate to key commodities such as oil, and while the effects are usually transient, they can feed into inflation very quickly.

Graph 4

Contributions to GDP growth



ECONOMIC PROJECTIONS

Working out where the economy is going has always been crucial to monetary policy, even before the current OCR and low inflation regime.

International work along these lines was pioneered by a New Zealander. In the 1940s, talented New Zealand economist and inventor Bill Phillips identified the relationships between elements of the mid-20th century economy and showed how they worked together. He then invented a hydromechanical analogue computer, the MONIAC, to calculate the trends. This was the world's first computerised 'econometric model'.

The advent of digital computers made it possible to build considerably more sophisticated mathematical models. The main econometric model used by the Reserve Bank from the late 1990s and into the early 21st century was the 'Forecasting and policy system' (FPS).

Right: New Zealand inventor and economist Bill Phillips developed the Monetary National Income Automatic Computer (MONIAC) in the 1940s. Although long superseded, it remains a pioneering device. The Reserve Bank Museum has a working example on display, on longterm loan from the New Zealand Institute of Economic Research.

How monetary policy works

OVER THE BUSINESS CYCLE

It is difficult to talk about how monetary policy works without referring to business cycles. The direction that inflation is projected to take depends heavily on the position of the 'business cycle'. As the term suggests, this is the fluctuation of the economy between periods of faster or slower growth. The way the business cycle works is as follows. If the overall demand for goods and services exceeds the ability of the economy to sustainably supply them, then there will be shortages of goods and services. Because of the principle of supply and demand, prices will tend to rise. This is known as a 'positive output gap'. The reverse occurs when there is more production than demand. In such circumstances, inflation can fall.

Estimating the size and movement of the output gap helps the Reserve Bank identify where the economy is in the business cycle. The aim of monetary policy is to try and push demand closer to the economy's long-term capacity to supply. Because the output gap constantly changes, depending on the position of the business cycle, monetary policy settings require constant adjustment. The ultimate aim is to smooth out otherwise destructive boom-and-bust cycles.

Graph 5, overleaf, displays the principle of the business cycle and the output gap. In this graph, the straight blue line AB is the capacity of the economy to supply goods and services, over the medium term, without inflation increasing. The wavy red line CDE is demand. Where demand exceeds supply, at point D, the output gap is positive and there is pressure for prices to rise. Where supply exceeds demand, at points C and E, the output gap is negative, and there is pressure for prices to fall.

Graph 5

The Business Cycle





Why do business

CYCLES OCCUR?

Business cycles occur for many reasons. In New Zealand, these can include movements in the terms of trade, developments in the global economy, and changes in migration.

The 'terms of trade' are the ratio between the price of export commodities and the price of import commodities. When the terms of trade increase, we pay less for our imports – or, put another way, we give up fewer exports for the imports we receive. Higher terms of trade mean that exporters will receive more New Zealand dollars for their exports than they would if the terms of trade were lower. Therefore, high terms of trade boost growth as they encourage exporters to export more goods.

New Zealand depends heavily on trade, so developments in the global economy can have a significant impact on the New Zealand economy. If growth in the economies we export to is slow, then demand for our exports is likely to wane. Conversely, if growth is strong, then demand for our exports may increase. This will affect both the price and quantity of our exports.

Changes in migration also contribute to driving business cycles in New Zealand. For example, in 2000, departures exceeded arrivals by about 10,000. However, in the year ended March 2003, net migration added over 40,000 people to the population. When net migration is strong, growth is driven higher as the new immigrants buy houses and durable goods (such as cars, furniture and appliances), and as they start participating in the labour force.

Other factors that may help drive business cycles in New Zealand include weather, government decisions, and delays between commercial decisions and their effects.

Other roles for

MONETARY POLICY

In the past, monetary policy was targeted at a range of economic goals, including maximising employment and growth. This was also a period of significant government regulation and a fixed or pegged exchange rate.

Since then, structural changes have occurred in the economy, but occasionally there are suggestions that monetary policy could be directed towards these goals again.

MONETARY POLICY AND

Growth in an economy is driven by many factors, most of which have nothing to do with monetary policy. One of the most important long-term drivers in New Zealand is increases in the total workforce. One way the workforce can increase is via immigration. However, this only makes sense if output *per capita* goes up as a result, as strains can be imposed on the nation's infrastructure by excessively high levels of immigration. The workforce can also be increased by increasing labour force participation by people already in New Zealand. Social policies have a big impact in this regard.

Over the long run, an economy's performance is ultimately determined by productivity. Some of the key ways of enhancing productivity are through better education and training, capital investment, and improvements in technology. This last is particularly important in the emerging post-industrial, digital economy.

MONETARY POLICY AND

EMPLOYMENT

Between 1992 and 2006, unemployment dropped from nearly 11 percent to less than 4 percent. At the same time, labour force participation rose. In the modern context, it has been shown that employment is maximised by having the economy operate as productively as possible. Price stability can assist, but is far from the only factor affecting employment. For example, educational standards, skill levels, labour laws, and social policies can all increase employment levels, and these things have nothing to do with the Bank's operation of monetary policy.

Monetary policy and the current account

One of the major issues in the New Zealand economy of the early 21st century was the current account deficit. Between 2000 and 2006, the annual current account deficit increased from about 3 to 10 percent of GDP. Over the medium term, monetary policy has little effect on the current account deficit. This deficit is caused by New Zealand's spending exceeding income; put another way, New Zealanders have not been willing to save enough to fully fund investment in New Zealand. The difference has come from



overseas investors, who in effect have funded the gap between our spending as a nation and what we earn.

There is little the Reserve Bank can do to reduce the current account deficit. An increase in the OCR tends to slow down domestic spending and thus reduce imports, improving the current account deficit; but at the same time, it also increases the exchange rate, making the current account deficit worse. Conversely, a reduction in the OCR tends to push down the exchange rate, decreasing imports and making the current account deficit better, but accelerating domestic spending – making the current account deficit worse. The real answer to the current account deficit is to spend less and save more.

GLOSSARY

Business cycle – the cyclic movement of an economy between periods of high and low growth.

CPI – Consumers Price Index published by Statistics New Zealand.

Current account deficit – the amount by which national expenditure exceeds income over a particular period. If national expenditure is less than income over a particular period, then there is a current account surplus.

Deflation – a decrease in average prices over time. In New Zealand, this is usually measured using the all-groups CPI.

EFTPOS – electronic funds transfer, point of sale.

GDP – Gross Domestic Product. The total value of goods and services produced over a specified period, usually a year.

Growth – in an economic sense this is the increase in economic activity over a particular period (usually a year), measured as the percentage increase in GDP growth.

Hyper-inflation – very rapid increases in the general price level, a very high rate of inflation.

Inflation – an increase in average prices over time. In New Zealand, this is usually measured using the all-groups CPI. Labour force participation – the percentage of the working age population that is working or looking for work.

MCI – Monetary Conditions Index. This was a method for implementing monetary policy used in New Zealand until 1999.

MONIAC – Monetary National Income Analogue Computer. A hydro-mechanical computer invented by New Zealand economist Bill Phillips in the late 1940s.

OCR – Official Cash Rate. The wholesale price of money, which is set by the Reserve Bank.

Output gap – the gap between demand in the economy and the economy's capacity to sustainably supply goods and services.

Price shock – a sudden or unexpected shift in the price of a good or service.

PTA – Policy Targets Agreement.

Real interest rate – the rate of interest less inflation.

Terms of trade – the ratio of the price of export commodities to the price of import commodities.