

# 6 Monetary policy

## 6.1 Learning outcomes

After studying this text the learner should / should be able to:

1. Appreciate the relationship between money and inflation.
2. Elucidate the origin of monetary policy.
3. Discuss the present status of monetary policy.
4. Expound on the monetary policy transmission mechanism.

## 6.2 Introduction

After abandonment of the gold standard, countries' stocks of money were no longer constrained by a shortage of gold. Now it was up to governments to take on the responsibility for maintaining the value of the currency. The temptations were too large and many governments after WWI and WWII could not resist the temptation of creating money by borrowing from their non-independent central bank and the banks.



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There are many examples of inflation after 1931, and a new term came into being: hyperinflation. The highest hyperinflation rate before the new century was recorded in Hungary in 1946. Amazingly, given the norm of sound monetary management examples after 1946, this record was breathtakingly exceeded in 2008 in Zimbabwe, which recorded an inflation rate of over seven sextillion percent per annum.

The source of inflation is excessive demand for loans leading to new money creation. As we know, since 1931, there is no natural brake on loan / money creation. Therefore, there has to be a policy on money creation: monetary policy, which is the primary function of the central bank (CB). And the primary operational tool of the CB is interest rates. Look at it this way: if the public regards bank deposits as the means of payments, and banks are able to create their own liabilities by making loans, there is theoretically an unlimited supply of funding. This is a recipe for close-to-zero interest rates (= limited or no price allocation function), and therefore high demand for loans, and therefore hyperinflation.

We know that hyperinflation creates major distortions and destroys economic growth. Therefore, an institution is required to set interest rates so that an allocation function is in place. This institution is the CB, and its responsibility is profound.

We have all been conditioned to believe that we live in a society / system that is well-ordered by a free market system. The most significant price, interest rates, is not a market-determined price, and central bankers are fallible, as evidenced in the continued existence of the cycles of boom and bust. The question arises: if central banks supervise banks, who supervises the central banks? It is supposed to be government, but governments are not always responsible either. These interesting issues are discussed in this section under the headings:

- Money and inflation.
- A policy on money: then.
- A policy on money: now.
- The path of monetary policy: from interest to inflation.

### 6.3 Money and inflation

Morgan<sup>136</sup> stated in 1965: “So long as [inconvertible notes and deposits] retain public confidence, they have great advantages of convenience, but they are liable to abuse and, on many occasions in their... history, they have broken down. The government which adopts an inconvertible currency, therefore, takes on a heavy responsibility for maintaining its value...”

## Box 1: Devaluation of money



Zimbabwe, 2008; money to settle a debt: a beer; internet floater; source unknown

It is interesting indeed to note that periods of high inflation in England occurred when the gold standard was suspended in 1797–1819 and 1914–1925. Newlyn<sup>137</sup> informs us that the 1797–1819 period of inconvertibility (which coincided with the French wars) “...produced one of the first major loans inflations and it was followed by one of the most famous inquiries of the many inquiries that have taken place... their report blamed the inflation upon the excessive issues of bank notes by the Bank of England and the consequential excessive issues by the country banks.”

We know that Britain also experienced high inflation during the 1914–1925 inconvertibility period, exacerbated by WWI. “Hyperinflation” became a new word in this period, but not in Britain; it reared its ugly head in Germany, also exacerbated by WWI. Germany at that time did not have a convertible currency. We also know that in the period after 1931, when the gold standard was finally done away with, many countries experienced hyperinflation, the highest being that of Hungary in 1946, as referred to earlier.

We also know that the inflation record of Hungary was finally broken in 2008 / 2009 by Zimbabwe. A reminder: there are no official numbers for the country, but John Robertson, a Zimbabwean economist, estimated the inflation rate to have been about 7 000 000 000 000 000 000 (7 sextillion) percent per annum. In 2009 the Zimbabwean dollar lost all its functions and qualities (medium of exchange, store of value and unit of account) when the USD and the ZAR (South African Rand) were officially designated legal tender.

Milton Friedman and Anna Schwartz famously wrote in the nineteen-seventies that “inflation is always and everywhere a monetary phenomenon.”<sup>138</sup> Today it is not even debated whether excessive monetary expansion causes inflation. It does! But how it comes about and what the consequences are, are the interesting parts of the equation.

On “how it comes about” we can only present you with a written offering at this stage of the discussion. In order to understand it fully, we need to conjure up the balance sheet analysis again. In short, the CB and the government are to blame. In most countries today the CB is immune to the monetary antics of government. If, for example, government borrowed excessively from the “institutions”<sup>139</sup> and the banks (which could only happen at high rates of interest), the CB will most likely increase interest rates by a large margin to curb the demand for loans (which we know if satisfied creates money). In other words the independent CB will “lean against the wind”.

In Zimbabwe the CB never was and still is not independent. The early phase of the inflationary period began with excessive borrowing from the banks by the issuing of treasury bills. This creates deposit money. Because inflation is rising, workers demand higher wages. In Zimbabwe government is the largest employer (civil service, defence force, police, etc.). More securities are issued to the banks which now demand higher rates, and so the process continues until a point of no return is reached: the dreaded *debt trap*. Government borrows more from the banks to pay interest on debt and the debt burden increases so that more is borrowed to pay the higher interest burden and so on and so on....

The government reaches a stage when it realises that a major reason for the sharply rising inflation is the interest burden. It then, via the CB, influences interest rates down. The banks, adversely affected by the high inflation rate, and now lower interest rates (lower than inflation), refuse to buy any further treasury bills. Then the principal hyperinflation cause kicks in: government forces the CB to buy its debt. Not only does this create money, it also creates liquidity in the banking system and interest rates fall further in relation to inflation. From this point on hyperinflation surges and can no longer be stopped.

On the ground the population loses confidence in the currency. They become reluctant to accept it as a means of payment, preferring to use the little foreign currency that may be available. If they cannot refuse the local money, they spend it as rapidly as possible, because its purchasing power falls quickly. The rush to spend increases prices further. As prices rise rapidly, the producers of goods, such as farmers, hold their produce back from the market. The shortage of goods is exacerbated and prices rise still further.

This process is cumulative and "...the situation soon gets completely out of hand; money ceases to perform its function as a means of payment and the public falls back on foreign currencies or commodities, or even reverts to barter. This process, of course, involves great disorganization of economic life, and the only remedy is to scrap the dislocated currency and replace it..."<sup>140</sup>

The shortage of goods is exacerbated by producers of goods, again like the farmers, transporting their goods over borders at night and selling them for the neighbours' stable currency. In the Zimbabwean case goods were smuggled over borders into South Africa, Mozambique and Botswana. Another factor that played a role at some stages is that government declared that the prices of certain commodities (like maize) were fixed. As input costs (such as fuel and fertiliser) were not fixed the farmers stopped producing because severe losses stared them in the face. Thus, the supply of these goods dried up and prices increased further.

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The consequences of hyperinflation are profound. Production fell sharply, in other words economic output declined. In terms of the identity  $MV = PT$ ,  $M$  increased exponentially,  $V$  probably increased as people spent as rapidly as possible,  $P$  increased exponentially, while  $T$  (real GDP) fell sharply. Although economic numbers dried up in mid-2008, it is reliably reported that unemployment rose to over 90%. With increased poverty, cholera broke out and many thousands died. The demise of many HIV/Aids sufferers was accelerated. People jumped borders nightly to offer their labour in neighbouring countries, not for money but for food. Those that could not find work had themselves apprehended by the across-border immigration authorities – because of the meal that was available. Many of the hunger-refugees were apprehended daily.

As we saw earlier, in early 2009 the Zimbabwean dollar lost all the qualities that made it money. Foreign currencies were adopted as the means of exchange.

In most countries the stock of money in circulation increases virtually each month and the task of the CB is to ensure that the increase remains in the moderate range. The objective (in most cases formalised in an inflation target set by government for the CB) is to ensure that inflation remains in an acceptable range or does not exceed a particular number. Many countries have adopted a target of a maximum inflation rate of 2% per annum. It is evident that this level is an acceptable “price” to pay for the benefits of money creation.

What are the benefits of money creation? The major benefit is that money is available for projects (= investments) and for consumption. This is “regulated” by the private sector banks in the first instance and the CB in the second. The first level involves the screening of the projects of corporations, and the creditworthiness of individuals. The second level involves responsible monetary policy: a policy on money.

As you know, in 2008 neither level of responsibility was effectively executed. The underlying problem, which was not well recognized, was excessive money creation for the previous four to five years. It was a failure of monetary policy (inter alia). However, as indicated in the foregoing, the world experienced worse situations in the past. And we have the satisfaction of knowing that the central banks had the right tools to quickly reverse the 2008/09 recession. These tools have to do with money and the price of money, interest rates, and, judging by the shortness of the recession, they are effective.

## 6.4 A policy on money: then

### 6.4.1 Introduction

As we know, money creation is a significant feature of the economic landscape. Without money creation the financial system and the economy cannot expand, except through productivity improvements. Money is created by bank lending and bank lending is controlled by the management of interest rates. However, in the past it was different.

In the distant past and up to the first half of the twentieth century, a number of phases in the history of money and money creation can be identified and each one is a little different in respect of money creation. Essentially, there was a natural brake on money creation (it was not always respected though, with dire consequences) and this was *convertibility of bank liabilities into gold*. This natural brake was abandoned in 1931, and in the short period after this hyperinflation was invented.

The Bank of England over more than two hundred years assumed the functions we now associate with central banking, and their lead was followed by many other countries. The tools of central banking forged over many decades were interest rates, open market operations and required reserves, which were ineffectually implemented in the early days of central banking.

#### 6.4.2 Essence of monetary policy: managing interest rates

Monetary policy is the implementation of decisions made by the MPC that are aimed at achieving the objectives of high and sustainable growth, through the central bank’s limited range of instruments, which is to manage money stock growth to a level consistent with the capacity of the economy to expand, in order to avoid inflation rising above an acceptable level. As mentioned earlier, if we take a cue from Britain, Europe and other Old World countries, an acceptable level of inflation is around 2% pa. At this level business’s attention is not deflected from business. Thus, with low and stable inflation the economic setting is conducive to growing output (and the dreaded *deflation* – falling prices – is kept at bay).

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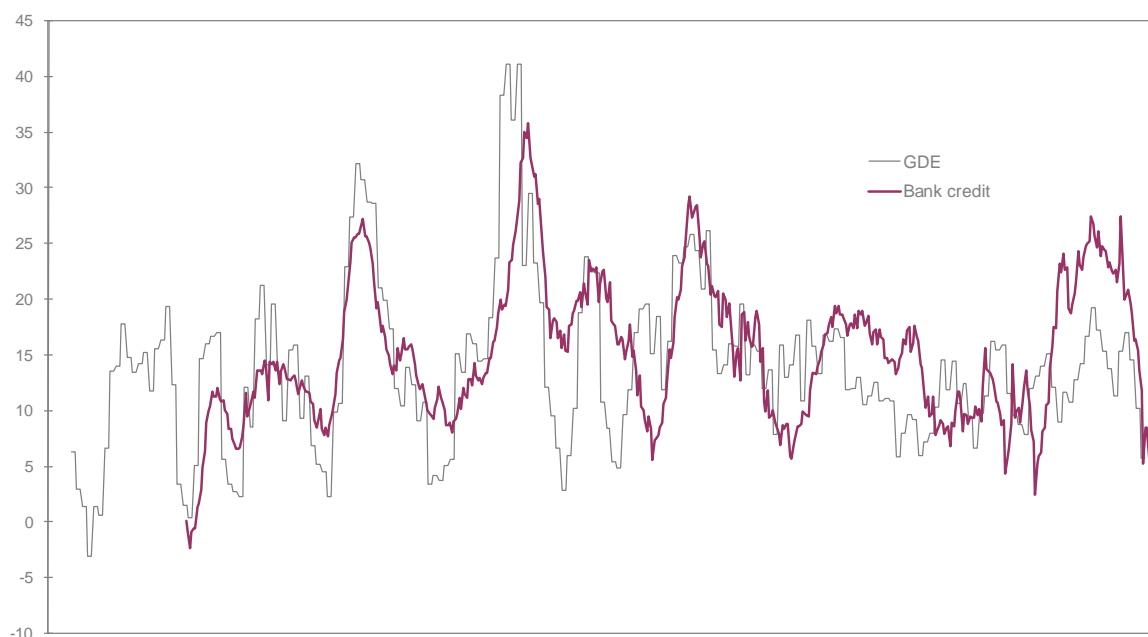
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With the existing monetary system in place in most countries, money creation drives a higher level of economic growth. Think about this carefully again: the “demanders of bank loans”, the borrowers (individuals, companies and government) borrow with the purpose of spending – either on investments (in housing, plant and equipment, inventories, roads, harbours, etc.) or on consumption (new fridges, beds, lounge furniture, etc.). So underlying the demand for loans is higher investment and consumption expenditure. What makes up GDE? Consumption and investment spending does (remember  $GDE = C + I$ ).

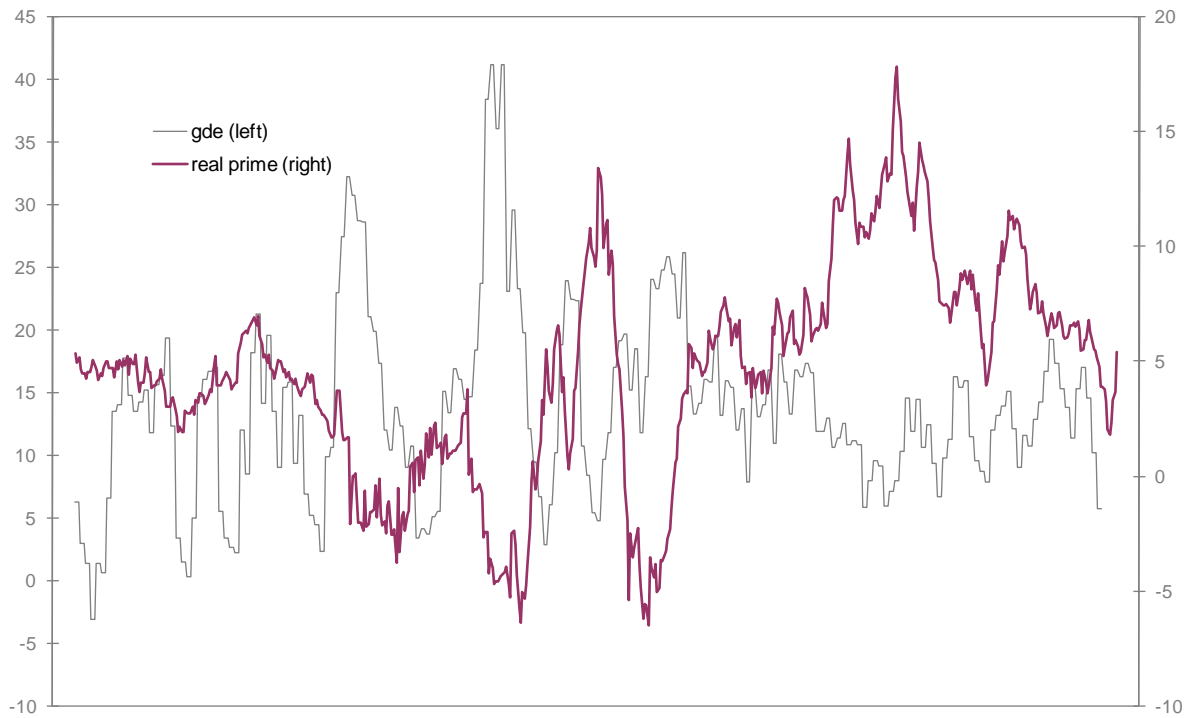


**Figure 1:** GDE and bank loan extension (yoy %)

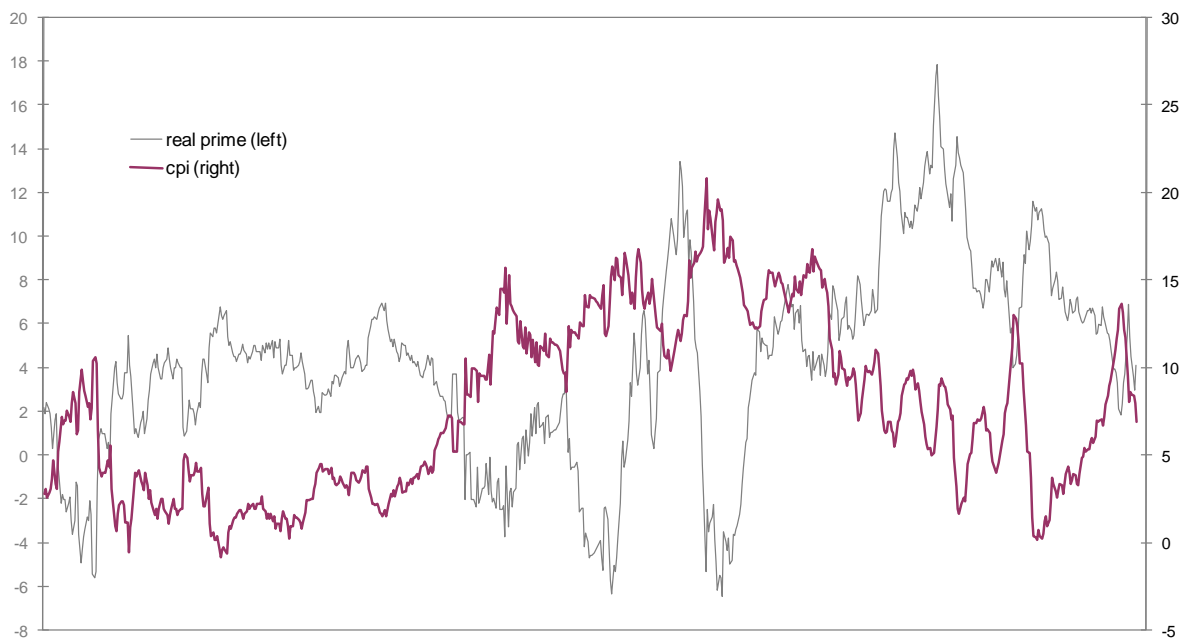
So the demand for loans by the NBPS and government and its satisfaction by the banking sector influences economic growth? Yes, indeed. Take a careful look at Figure 1. It shows the year-on-year growth rates for nominal GDE (grey line) and bank loan extension for a particular country over almost fifty years on the same scale. The correlation (coefficient = 0.6) is obviously high, providing strong evidence of the statement. It will be seen that at times the growth rates in both the time series was excessively high (at one stage 35–40% pa). These periods were associated with high inflation periods (see later chart).

Now a vital question: how does the CB manage money stock (and, to a large degree through it, GDE) growth? The answer in the past was a series of tools which we will come to shortly. In these modern times it is interest rates (in most countries) and the target is prime rate (specifically in real terms) because this is the benchmark rate for bank loan extension, i.e. the benchmark rate at which loans are made to the NBPS. As we have seen, this rate is heavily influenced by the central bank’s KIR. Chart 2 shows the powerful role that real prime rate plays in influencing GDE growth (over almost 50 years in the same country as in the previous chart). (Prime rate has been advanced by 12 months because of the lag in the effect of policy action.)





**Figure 2:** current GDE (yoy %) & real prime (adv 12 months)



**Figure 3:** real prim and CPI inflation (yoy %)

Figure 3 is also a telling one. It again shows the real prime rate but now includes inflation as measured by the CPI. The inverse correlation over almost sixty years is quite startling, again indicating the compelling force of interest rates.

The use of interest rates as the principal operational tool of monetary policy was not always the case. We now briefly go back to history to sketch the development of monetary policy over time, followed by the “models” of monetary policy followed today.

#### 6.4.3 Development of monetary policy: five periods before the Bank of England

The history of monetary policy is closely aligned with the history of banking and of central banking, particularly the history of the Bank of England. As you know, the Bank of England was formed in 1694, and it gradually transmuted into a CB. It is the oldest CB in the world in the sense that it was the first bank “...of issue to assume the position of a central bank and to develop what are now generally recognised as the fundamentals of the art of central banking.”<sup>141</sup>

Before central banking emerged in the late seventeenth century in the form of some of the functions of the Bank of England, there were five periods that can be identified on which something can be said about “primitive” monetary policy. The first is the barter period: monetary policy was non-existent because there was no money. The second was the days of primitive money, when the amount of money in circulation could increase only if more of the *generally accepted means of payment* were found or produced, for example, cowrie shells, maize, cattle; however, no institution was charged with the task of monetary control.



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The third period: the days just before precious metal coins, i.e. the brief time of gold and silver nuggets in Lydia, which were used by weight. There was a natural shortage of the metals, so excess money creation and inflation were not issues. The same applied in the fourth period, the precious metal coinage age, except when the kings debased the coins or large amounts of the metals or coins were plundered from enemies or deposits were discovered, as in the case of Spain mentioned earlier. During these stages no institution / body was charged with the task of controlling the volumes of precious metals coins.

However, in the case of debasement, the public had a monetary policy role – in the form of protests against debasement. Later (in England) parliament had a role to play, and it is safe to say that this was the first flicker of monetary policy. As stated by Morgan, in these times “...the only issues which could possibly be called monetary policy concerned the maintenance of the standard, the enforcement of the state prerogative of coinage and the relative values of the precious metals. It was generally held to be an important duty of a ruler to maintain a coinage of fixed weight and fineness though...impecunious governments were often forced into debasement.”<sup>142</sup>

During these times an important function was to endeavour to keep the precious metal coins from being lost to the country. Morgan<sup>143</sup> informs us that because coins were in short supply, “...from the end of the thirteenth century the nations of Western Europe were competing vigorously for bullion by prohibiting its export, attempting to compel its import, controlling the foreign exchanges, and trying to secure a favourable balance of trade.” It will be evident that the problem then was not excessive money but a shortage of money, prohibiting trade. Numerous laws were passed to curb expenditure on foreign goods, and thus to protect the balance of trade (and thereby the loss of gold to the country).

The fifth period was the goldsmith-banker period in which the creation of bank notes and deposits emerged. Generally this was welcomed because it increased the amount of money in circulation to ease the shortage of gold and silver coins. Monetary policy in respect of the goldsmiths’ creation of these new forms of money was non-existent until the formation of the Bank of England and its emerging monetary policy functions. However, there was a natural brake on excessive money creation in the form of convertibility of bank notes and deposits into gold. As we know, despite this, many goldsmith-bankers and country banks failed as a result of indiscriminate lending and not being able to repay depositors (aided, as we saw, by the government renegeing on its debt).

6.4.4 Bank of England: early days: some functions

The Bank of England was formed (in 1694) to fulfil the need for a large and stable bank in England (and Scotland where the Bank of Scotland was formed a little later), to compete with the remaining goldsmith-bankers (whose practices were often frowned upon – such as the high interest rates charged for loans) and to make loans to government (at the time of the French wars – which started in 1689). It was given the sole right to issue bank notes (except for smaller banking partnerships), a right that was entrenched in 1833 when its notes were the only notes declared legal tender. Take a look at Balance Sheet 1, a typical balance sheet of a CB, as a backdrop to this discussion.

<b>BALANCE SHEET 1: CENTRAL BANK (LCC MILLIONS)</b>	
Assets	Liabilities
D. Foreign assets	A. Notes and coins
E. Loans to government	B. Deposits
	1. Government
	2. Banks' reserve accounts (TR = RR + ER)
F. Loans to banks (BR) @ KIR	C. Foreign loans

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In its year of establishment, the Bank of England already was beginning to perform some of the functions of modern central banks: it was the (almost) sole issuer of bank notes (item A) (coins were then a liability of government); it was banker to government (item B1); it was making loans to government (item E). We hasten to add that this is not a true, lasting function. Although it started out in this way, making loans to government (by buying their debt instruments) is highly inflationary. This later gave way to the holding of government securities only for OMO purposes.

We saw earlier that shortly after its establishment, the goldsmith-bankers opened accounts with the Bank of England, and deposited gold coins. These deposits with the Bank of England and its notes became to be held by other banks as reserves – to ensure that withdrawals could always be met. As time went by the Bank of England came to be known as the government’s banker and agent and its notes “...commanded the greatest confidence and the widest circulation.”<sup>144</sup>

The convention of keeping larger balances with the Bank of England “...grew as time went on, and when the wide-spread establishment of the joint-stock banks in England began in 1826, the Bank of England had already come to be regarded as the custodian of the cash reserves of the private banks, and thus of the country’s gold reserves.” In terms of Balance Sheet 1, we can now tick off items D (foreign assets<sup>145</sup>) and B2 (reserve accounts) of CB functions. This function of “the custodian of the cash reserves of the private banks” was a critical juncture in the history of central banking and monetary policy.

The central banking function of being host to the settlement of interbank claims (over their CB accounts) was embraced in 1854, when “...its position as the centre of the English banking system banking structure was further strengthened...when the plan was adopted of settling the differences between the various banks at the end of each clearing by transfers between their respective accounts at the Bank.”<sup>146</sup> The “Bank” referred to was the Bank of England. Initially this was accomplished by the banks meeting in person at the Bank of England, exchanging cheques and settling the differences. As we saw earlier, this is now achieved in electronic fashion (and has been since the advent of computers).

#### 6.4.5 Bank of England: early days: lender of last resort & Bank rate

The function of “lender of last resort” (as reflected in item F in Balance Sheet 1) was assumed a little later. The phrase was coined by Walter Bagehot (1826–1877), an essayist, journalist and businessman, whose book “Lombard Street: a description of the money market” was regarded as the seminal work on the British banking system and money market at the time. This function was executed mainly in periods of crisis in the early days of the Bank of England. According to De Kock<sup>147</sup>, “...it was brought home to the Bank that in certain circumstances financial panic could easily be brought about by the fear that the requisite banking facilities could not be obtained, and that it could be promptly allayed by the assurance that all legitimate requirements would be met by the Bank, although at temporary higher rates...”



The last point is significant: the use of interest rates, and specifically Bank rate<sup>148</sup> (as the KIR was termed then), to influence the banking system. As noted earlier, some central banks still use this term; others use *base rate*, *repo rate*, *discount rate*, and so on. Bank rate then became an instrument of monetary policy; Bank rate was used “...with the object of limiting the demand for accommodation to the most urgent and essential needs and securing the contraction of loans as a whole.”<sup>149</sup>

Morgan informs us that Bank rate became an important tool of the Bank of England in the nineteenth century: “The main instrument which the Bank used was the variation of the published minimum rate at which it would discount approved bills of exchange...known as Bank rate...in the crisis of 1847... it was changed eight times...and from henceforth it was firmly established as the Bank’s major policy instrument.”<sup>150</sup>

It is evident that the Bank received bills for discount from the banks, and it came about that Bank rate (as is the case today) had a major impact on market rates: “A convention soon grew up by which the other banks varied the rates which they charged for overdrafts with variations in Bank rate...a change in Bank rate had an immediate impact on the cost of this form of borrowing. Otherwise, the direct effect of a change in Bank rate was on the rates charged in the discount market.”<sup>151</sup> *Discount market* was a name used for the major part of the money market in earlier days (when discount houses – specialised banks – were the main participants).

As noted earlier, the Bank of England was competing also with the banks in the bills of exchange (i.e. prime lending) market. At the same time it was cognisant of its role of controller of the loan creating activities of the banks, as reflected in its Bank rate often being set at higher rates than the market rate – which inevitably led to the market following this course. Morgan<sup>152</sup> tells us that at the beginning of the second half of the nineteenth century the Bank of England “...was torn between these two policies. It had always competed for business...and the profit motive urged the directors still to do so. On the other hand, the difficulties of acting both as competitor and controller grew steadily more apparent and in the 1870s, the practice of keeping Bank rate above market rate became established and has continued ever since.”

In these times the Bank of England quickly realised when Bank rate was ineffective: *when the banks had large reserves* – often a result of the Bank’s own loan business. You will recall that when a CB extends loans (buys government bonds or in this case bills of exchange), it increases deposits in the banking system. These deposits invariably came back to the Bank of England in the form of deposits by the other banks (= an increase in reserves).

In these circumstances of high bank liquidity the Bank of England resorted to open market operations (OMO – in this case sales of securities). Morgan<sup>153</sup> tells us: “...suppose that the Bank sold Consols [= bonds]; the buyers would pay by cheques on their commercial banks; the payment of these cheques would reduce the commercial banks’ balances with the Bank of England. And so they would have smaller reserves and could lend less in the money market...these operations were always subordinate to Bank rate, and were used as a means of ensuring that Bank rate was ‘effective.’” As we saw earlier and will belabour again later, this remains an essential element of monetary policy today.

As we have seen, in the majority of countries, the central bank’s KIR has become the primary tool to influence bank loan extension / client loan demand behaviour without resorting to “penal” rates<sup>154</sup>. The other operational “tool” that makes the rate effective is OMO to ensure that the banks are indebted to the CB.

So, by approximately the middle of the nineteenth century the Bank of England pretty much has assumed all of the functions that we all now associate with central banking. It was in this century that most of the European central banks were established, no doubt motivated by the Bank of England. They were followed somewhat later – in the first half of the twentieth century – by the New World countries (America, Canada, South Africa, Australia, New Zealand, Chile, etc) and some Old World countries (China, India, etc). For example, the American Federal Reserve System (of twelve Federal Reserve Banks) was established in 1914, the Central Bank of China in 1928, the Reserve Bank of India and the Bank of Canada in 1935.<sup>155</sup>

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There is an item missing from Balance Sheet 1 (representing the balance sheet of the Bank of England in the past), and this is “loans to NBPS”. In its early days the Bank was also competing with the private bankers and was involved in discounting commercial bills of exchange (“discounting” refers to buying them at a discount to face value, the difference being the interest earned; it is simply a means of providing loans to the NBPS, which of course is money creation). The money created then was a combination of NBPS deposits and bank notes, mainly the latter. This lending activity of course meant that as time went by there were more and more deposits / bank notes backed by a more or less unchanged volume of gold reserves, making the Bank vulnerable.

As we know, the Bank of England experienced a number of crises, and it was obliged to suspend convertibility of notes and bank deposits on a number of occasions in these times, semi-finally in 1914, and finally in 1931. The end of convertibility of bank notes and deposits into gold was inevitable, and is related to the simple fact of increasing bank lending to the NBPS, and the gold backing bank notes and deposits, while not reducing absolutely, certainly reduced relatively.

#### 6.4.6 Monetary policy after partial and final inconvertibility

We now come to monetary policy after semi- and final-inconvertibility of bank notes / bank deposits. The world had entered a new era; its economies were no longer constrained by a lack of money. By this time the Bank of England and many other central banks had much experience in the art of central banking. They had all the tools of central banking in place to effectively manage the growth rate in the money stock. The quins of effective monetary policy were in place: centralised bank reserves, Bank rate, and the ability to make Bank rate effective (OMO).

However, this ability to effectively control money creation was put on hold for many years after 1931. Morgan informs us dramatically that: “During the nineteen years from 1932 to 1951 traditional monetary policy was deliberately thrown over.”<sup>156</sup> An era of cheap money and excessive money growth was to take place. The principal instigator, the cause, was government (and the related fact the central banks were subject to the dictates of government), and specifically the swelling budget deficits, which were largely financed by the banking sector, and specifically the central banks. As seen before, a CB purchase of an asset not only creates money it creates reserves (increases bank liquidity), ensuring low interest rates. Low rates were at times reinforced by Bank rate policy. During WWII at one stage “...the Bank of England announced its willingness to buy any Treasury bills offered to it on a 1 per cent basis.”<sup>157</sup>

As we have shown, a little time before 1931 (when there was partial inconvertibility), and certainly after 1931, a number of bouts of severe inflation in Europe were experienced, particularly after the World Wars. Morgan tells us that in these times: “The fact not generally appreciated was that...the money supply was accompanied by budget deficits which caused demand to outrun productive capacity.”<sup>158</sup> A new phrase emerged – hyperinflation – and the consequences were profound. There were calls to return to the gold standard. This was never to come about again.

However, following these bouts of severe inflation, the relationship between budget deficits (largely financed by the banking sector) and inflation came to be recognised, and so emerged an appreciation of the importance of the co-ordination of monetary and fiscal policy. Much later this was to be embodied in calls for the independence of central banks, which came about in the nineteen-eighties and -nineties (but only in a handful of countries).

After the Korean War (1950–53) monetary policy returned to “normality” in the sense that it was recognised that inflation was to be avoided and the cause addressed (the main one being large budget deficits financed in the banking sector). Central banks in the following few decades adopted specific economic objectives, which shifted from one period to another between: balance of payments stability, maintaining a fixed and stable exchange rate, low unemployment, high and sustainable economic growth, low inflation (or combinations of these). For example, in 1957 the UK Chancellor of the Exchequer, in announcing the appointment of the Radcliffe Committee stated: “...there is general agreement as to the objectives of monetary policy. This country stands determined to maintain a fixed and stable exchange rate. The primary requisite for this is that we shall be able and determined to avoid inflation at home. Equally, it is also agreed policy to avoid slumps and severe unemployment.... These objectives are not open to question.”<sup>159</sup>

Although the Bank of England had all the tools to implement monetary policy, as did many other countries, they were ineffectually utilised in the ensuing few decades – until it was realised that the adoption of an inflation target and success in this regard addressed all the objectives: that low inflation (meaning domestic demand was kept in check) created an environment that was most conducive to economic growth, low unemployment, and balance of payments stability. But this was to come later. In the decades before inflation targeting, the Bank of England, and many other central banks, flirted with monetary policy tools such as: a liquid asset requirements (of which the *cash* reserve requirement was a part) and variations in the ratio, quantitative bank loan ceilings, special deposit requirements, hire-purchase restrictions, and so on. None of them worked effectively.

The tone of monetary policy at this time was set by the 1957 Radcliffe Committee, and the essence of why monetary policy was not effective in the ensuing decades was a reluctance to allow interest rates to play the major role in curbing demand. The Committee stated that: “The Bank cannot restrain the lending operations of the clearing banks by limiting the creation of cash without losing its assurance of stability of the rate on Treasury bills...the Bank of England had chosen stability of the Treasury bill rate.”<sup>160</sup> This policy philosophy remained in place until the adoption of inflation targeting. Under inflation targeting the main policy instrument is *interest rate management*, which can only be executed if the *KIR is made effective*, and this can only be achieved if the banks are *permanently indebted to the CB*.

Even though the holy grail of monetary policy was discovered with inflation targeting, all is not well in the State of Denmark. This issue will not be belaboured here, because this is a work on the mechanics of monetary policy; instead we now address the mechanics of monetary policy as applied today.

## 6.5 A policy on money: now

### 6.5.1 Introduction

We know that banks create money by extending loans, and that CB management of the growth rate of money creation is a critical issue. There are three methods or models of monetary policy implementation: (1) the firm required reserves model, (2) the firm borrowed reserves model and (3) the interbank rate model. The first one was flirted with in the past (and even a few central banks do today). The second and last models are about CB control of bank liquidity through open market operations and through this making the CB lending rate to banks effective. The first impact is on the b2b interbank rate. The interbank rate has a major impact on bank deposit rates and, through the margin that banks endeavour to maintain (in the interests of profit maximisation), on bank lending rates. Bank lending rates impact on the behaviour of the NBPS and therefore on the demand for loans; the latter is largely the counterpart of money creation.

Modern monetary policy (modern being from the last quarter of the twentieth century) revolves around the same elements as the Bank of England identified and it was maturing: the reserve requirement (the amount of which we call the RR, and the ratio the  $r$ ), the central bank's lending rate to the banks (the KIR), and open market operations (OMO), which is used to make the KIR effective, through ensuring that the banks are indebted to the CB at all times.





We hasten to add that while this is the norm, it is not followed to the T by all central banks as we shall see. For example, we will show that not all central banks in this modern age have a reserve requirement (which does not mean that they cannot make loans). Similarly, not all central banks keep the banks in the red at all times; the mere threat of them being forced to borrow from the CB is enough to ensure that the banks' interbank rates (think: Fedfunds market) are closely aligned with the central bank's KIR.

We also hasten to add that in some countries, as Zimbabwe in 2008 / 2009, monetary policy has been conducted in a bewilderingly irresponsible manner. Generally, this can be ascribed to the lack of independence of the CB. Independence from government is a critical factor in the success of monetary policy. As we saw earlier, the co-ordination between monetary and fiscal policies needs to be in place. Ideally, government's deficit should not be financed by the banking sector (= money creation); neither should government borrow in the NBPS (which is mainly the retirement funds and insurers, where money is not created) to such an extent that the private sector's requirements for equity finance are "crowded out". Ideally, government and the CB need to collaborate closely in these matters, and if this is not the case, the CB should be able to carry out a restrictive monetary policy freely.

In this modern age there are essentially three methods (models) of monetary policy. We like to call them: (1) the firm required reserves model (firm-RR model), (2) the firm borrowed reserves model (firm-BR model) and (3) the interbank rate model (IBR model). The latter model is only slightly different to the firm-BR model as you will see.

#### 6.5.2 Firm required reserves model

Let's commence with the first model: the *firm-RR model*. Note here that we assume that N&C do not rank as reserves. Where N&C do rank as reserves (in text books it is called the "monetary base model") it is a minor part of the story, and its inclusion would only serve to mask the principles.

As you now know, in real life the causation path of money creation runs from bank loans (= bank asset) to money (= bank liability). The RR comes into play in that as deposits (= money) increase, as a result of *new bank loans extended or the purchase of newly issued securities* (= bank loans), the amount of RR to be held with the CB increases. But, the banks can get the additional reserves required only by borrowing from the CB.

The previous example of government borrowing and spending is a true life example. Here we provide another (see Balance Sheets 2–5); it is the same as the one presented earlier but with the RR and the CB included.

<b>BALANCE SHEET 2: COMPANY A (NBPS) (LCC MILLIONS)</b>			
Assets		Liabilities	
Goods	-100		
Deposit at bank	+100		
<b>Total</b>	<b>0</b>	<b>Total</b>	<b>0</b>

<b>BALANCE SHEET 3: COMPANY B (NBPS) (LCC MILLIONS)</b>			
Assets		Liabilities	
Goods	+100	Loans from bank	+100
<b>Total</b>	<b>+100</b>	<b>Total</b>	<b>+100</b>

<b>BALANCE SHEET 4: BANK (LCC MILLIONS)</b>			
Assets		Liabilities	
Loans to Company B	+100	Deposits of Company A	+100
Reserves at CB (TR) (RR = +10)	+10	Loan from CB @ KIR	+10
<b>Total</b>	<b>+110</b>	<b>Total</b>	<b>+110</b>

<b>BALANCE SHEET 5: CENTRAL BANK (LCC MILLIONS)</b>			
Assets		Liabilities	
Loans to banks (BR) @ KIR	+10	Bank reserves (TR) (RR = +10)	+10
<b>Total</b>	<b>+10</b>	<b>Total</b>	<b>+10</b>

We emphasise here again that no bank can create CBM (reserves); only the CB can. Therefore what happens in the above case? The simple answer is that it cannot, *unless the CB allows it to come about by providing the reserves* (note that  $+BR = +RR$ ). You will recall that where a reserve requirement exists, which applies to bank deposits, there is a fixed relationship between RR and bank deposits (BD):

$$RR = BD \times r$$

Thus if  $BD = \text{LCC } 100 \text{ million}$  and  $r = 10\%$ , we have:

$$\begin{aligned} RR &= \text{LCC } 100 \text{ million} \times 0.1 \\ &= \text{LCC } 10 \text{ million.} \end{aligned}$$

This means that the banks cannot supply any further loans unless the CB supplies BR. So, without the CB supplying BR, the banking system comes to a halt in terms of new loans, and therefore money creation. It will be evident that in such a system, assuming the existence of a demand for loans, interest rates (prime rate – PR) will rise up to a point where new projects are rendered non-viable. Recall that companies need to have an expected return on the project for which borrowing is required, which is higher the cost of borrowing (PR).

Clearly this is the extreme case, which we present here to make a point. The central banks that operate this model (few<sup>161</sup> do) provide reserves to the extent that is consistent with their money growth target. The calculation is simple. If the banking system is in balance (= no BR and no ER) and the money stock in the form of BD is LCC 100 billion, and the CB would like the money stock in this form to grow by 12% over the next twelve months (to LCC 112 billion), it will supply additional reserves to the extent of LCC 1.2 billion, which will be used by the banking sector as the “backing” for money stock growth of LCC 12 billion.

How does the CB achieve this? The answer is OMO purchases of government securities (bonds) to the extent of LCC 1.2 billion. We assume these are forthcoming from the banks (they will offer them at a tender). The CB will do this in stages, to avoid a sharp drop in interest rates that accompanies the creation of ER. For the sake of clear illustration we assume it is done in one go (see Balance Sheets 6–7).



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<b>BALANCE SHEET 6: CENTRAL BANK (LCC MILLIONS)</b>			
<b>Assets</b>		<b>Liabilities</b>	
Government bonds	+1 200	Bank reserves (TR) (RR = +0) (ER = +1 200)	+1 200
<b>Total</b>	<b>+1 200</b>	<b>Total</b>	<b>+1 200</b>

<b>BALANCE SHEET 7: BANKS (LCC MILLIONS)</b>			
<b>Assets</b>		<b>Liabilities</b>	
Government bonds	-1 200		
Reserves at CB (TR) (RR = 0) (ER = +1 200)	+1 200		
<b>Total</b>	<b>0</b>	<b>Total</b>	<b>0</b>

As noted, the banks will over time be able to meet new demand or loans; the final outcome is presented in Balance Sheets 8–9.

<b>BALANCE SHEET 8: CENTRAL BANK (LCC MILLIONS)</b>			
<b>Assets</b>		<b>Liabilities</b>	
		Bank reserves (TR) (RR = +1 200) (ER = -1 200)	0
<b>Total</b>	<b>0</b>	<b>Total</b>	<b>0</b>

<b>BALANCE SHEET 9: BANKS (LCC MILLIONS)</b>			
<b>Assets</b>		<b>Liabilities</b>	
Reserves at CB (TR) (RR = +1 200) (ER = -1 200)	0	Deposits of NBPS	+12 000
Loans to NBPS	+12 000		
<b>Total</b>	<b>+12 000</b>	<b>Total</b>	<b>+12 000</b>

The money stock has increased by LCC 12 billion and ER has shifted to RR. It will be quite evident by now that once the banking system has expanded to the point where all its ER shifted into RR, it cannot expand any further. Interest rates in this system are free to find their own levels, and will now reflect the quantitative constraint on money growth. The lending rate of the banks (PR) will increase sharply.

As the scholars of money and banking will know, essentially this is a theoretical money “supply” model. Some of the world’s large central banks flirted with this model in the past but rejected it because the profound consequence of the quantitative control of bank reserves was extremely volatile interest rates. As noted, in some parts of the developing world this model is imposed on the central banks as part of developmental programmes that includes donor funds.

A final word: you will understand that the RR has replaced the gold coin / bullion holdings of the banks / central banks of old, which were held against deposits and bank notes issued. Because the deposits / bank notes were convertible to gold, the bankers could not afford to allow the gold reserves to drop too low in relation to deposits / notes. This represented the brake on the system.

### 6.5.3 Firm borrowed reserves model

At the other extreme is the *firm-BR model*. In this model the CB ensures that the banks are indebted to it (the CB) at all times, and whether the banks have a reserve requirement or not (which is the case in a few countries) is immaterial. The CB relies entirely on interest rates to allocate funds (new money in fact), and the CB has absolute control over interest rates. Therefore, in this system monetary policy is virtually all about the item in the central bank’s books: “loans to banks” (BR) and the KIR that is applied to these loans. The existence of loans to banks, the outstanding amount of which is also called the liquidity shortage (LS), is what makes the KIR effective and influences the banks’ interest rates on both sides of their balance sheets, and through their lending rate (PR) the demand for loans (and other economic variables / prices such as the exchange rate).

The CB makes daily and longer forecasts of the items that influence bank liquidity, which impact on the net reserve balance of the banking system that will reflect on the reserve accounts at the end of the business days, and then undertakes OMO to ensure that the banks are borrowing from the CB (or does nothing if the net amount remains negative). The KIR is applied to the CB loans to the banks.

There are a number of central banks that engage this model. The South African Reserve Bank follows this model; the banks are permanently indebted to the CB and it has been able to “control” the banks’ lending rates in an almost exacting fashion, as indicated in Figure 4.



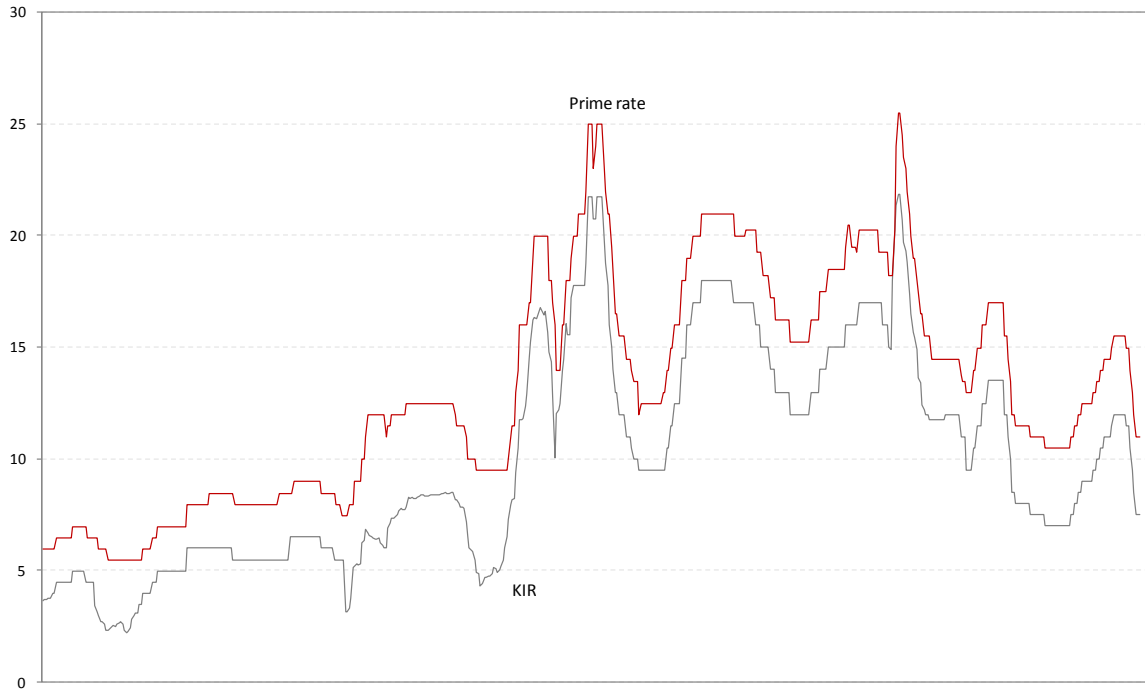


Figure 4: KIR & PR (month-ends over 50 years)

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The Bank of England<sup>162</sup> also follows this model, as indicated in the following:

*“In practice the pattern of Government and Bank operations usually results in a shortage of cash in the market each day. The Bank supplies the cash which the banking system as a whole needs to achieve balance by the end of each settlement day. Because the Bank is the final provider of cash to the system it can choose the interest rate at which it will provide these funds each day. The interest rate at which the Bank supplies these funds is quickly passed throughout the financial system, influencing interest rates for the whole economy. When the Bank changes its...rate, the commercial banks change their own base rates from which deposit and lending rates are calculated.”*

We hasten to add that there are extraordinary times when drastic measures are taken – away from CB lending to the banks and toward creating a money market surplus (a +ER condition):

*“In March 2009, the Monetary Policy Committee announced that, in addition to setting Bank Rate at 0.5%, it would start to inject money directly into the economy in order to meet the inflation target.<sup>163</sup> The instrument of monetary policy shifted towards the quantity of money provided rather than its price (Bank Rate). But the objective of policy is unchanged – to meet the inflation target of 2 per cent on the CPI measure of consumer prices. Influencing the quantity of money directly is essentially a different means of reaching the same end.*

*“Significant reductions in Bank Rate have provided a large stimulus to the economy but as Bank Rate approaches zero, further reductions are likely to be less effective in terms of the impact on market interest rates, demand and inflation. And interest rates cannot be less than zero. The MPC therefore needs to provide further stimulus to support demand in the wider economy. If spending on goods and services is too low, inflation will fall below its target.*

*“The MPC boosts the supply of money by purchasing assets like Government and corporate bonds – a policy often known as ‘Quantitative Easing’. Instead of lowering Bank Rate to increase the amount of money in the economy, the Bank supplies extra money<sup>164</sup> directly. This does not involve printing more banknotes. Instead the Bank pays for these assets by creating money electronically and loaning the accounts of the companies it bought the assets from. This extra money supports more spending in the economy to bring future inflation back to the target.”*

Let us analyse this statement: the Bank of England buys securities (assume government bonds) from retirement funds to the extent of GBP 200 billion. The banking system was indebted to the Bank by GBP 100 million. [Note that we have ignored the reserve requirement here for the sake of simplicity.] The transaction has increased the money stock by GBP 200 billion and created GBP 100 in ER (the other GBP 100 was used to repay the banks’ BR to the Bank of England). The banks’ ER reinforces the lower Bank rate (i.e. KIR) and puts pressure on them to make loans to the NBPS at lower rates.

The reference to bringing inflation back to the target (of 2%) is an allusion to the dangers of *deflation* (when prices decline) – which makes assets (like homes) worth less, while keeping debts (like mortgage debt) unchanged. Deflation has a major negative impact on  $C + I = GDE$ , because investors in assets are worse off.

<b>BALANCE SHEET 10: RETIREMENT FUNDS (NBPS) (GBP BILLIONS)</b>			
<b>Assets</b>		<b>Liabilities</b>	
Government bonds	-200		
Deposits at banks	+200		
<b>Total</b>	<b>0</b>	<b>Total</b>	<b>0</b>

<b>BALANCE SHEET 11: BANKS (GBP BILLIONS)</b>			
<b>Assets</b>		<b>Liabilities</b>	
Bank reserves (TR) (ER = +100)	+100	Deposits of NBPS	+200
		Loans from CB (BR)	-100
<b>Total</b>	<b>+100</b>	<b>Total</b>	<b>+100</b>

<b>BALANCE SHEET 12: BANK OF ENGLAND (GBP BILLIONS)</b>			
<b>Assets</b>		<b>Liabilities</b>	
Government bonds	+200	Bank reserves (TR)	+100
Loans to banks (BR)	-100	(ER = +100)	
<b>Total</b>	<b>+100</b>	<b>Total</b>	<b>+100</b>

The Reserve Bank of Australia<sup>165</sup> has a similar monetary policy execution style (note that “overnight loans” is loans from the CB to the banks, and the interbank rate is termed “cash rate”):


*“Monetary policy decisions involve setting the interest rate on overnight loans in the money market. Other interest rates in the economy are influenced by this interest rate to varying degrees, so that the behaviour of borrowers and lenders in the financial markets is affected by monetary policy (though not only by monetary policy). Through these channels, monetary policy affects the economy in pursuit of the goals...”*

*“From day to day, the Bank...has the task of maintaining conditions in the money market so as to keep the cash rate at or near an operating target decided by the Board. The cash rate is the rate charged on overnight loans between financial intermediaries. It has a powerful influence on other interest rates and forms the base on which the structure of interest rates in the economy is built.... Changes in monetary policy mean a change in the operating target for the cash rate, and hence a shift in the interest rate structure prevailing in the financial system.”*


6.5.4 Interbank rate model

The *IBR model* is a variation of the *firm-BR model*. It is a model where a number of central banks position themselves in terms of monetary policy. They set a target range for the second stage of the monetary policy transmission mechanism (MPTM): the interbank rate. You will recall that this is the b2b IBM, which takes its cue from the KIR, *provided that the banks are indebted to the CB (have a +BR number in their balance sheets)*. The argument is that when the “short” banks in the interbank clearing are attempting to avoid borrowing from the CB they are willing to pay interbank rates that are a fraction below the KIR.

There is a proviso to this, and that is when the banking system is in balance (no surplus with the CB (no ER) and no borrowing from the CB (no BR) (= an unusual state because CB forecasts cannot be precise), just the mere threat of borrowing from the CB is sufficient to make the KIR effective. Furthermore, there are central banks that allow ERs to exist and make their interest rate policy effective by paying an interest rate on these amounts. The effective rate then becomes this rate [let’s call this the KIR-D – for KIR for bank deposits (ER); while the CB lending rate becomes the KIR-L (i.e. for BR)]. Thus, through this mechanism the CB can create a “tunnel of KIRs” and this becomes the cue or the target for the b2b IBM rate. Clearly the KIR-L forms the upper level of the tunnel and the KIR-D the bottom level.

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A good example of this method on monetary policy is Canada. The Bank of Canada states:<sup>166</sup>

*“The Bank carries out monetary policy by influencing short-term interest rates. It does this by raising and lowering the target for the overnight rate.*

*“The overnight rate is the interest rate at which major financial institutions borrow and lend one-day (or “overnight”) funds among themselves; the Bank sets a target level for that rate. This target for the overnight rate is often referred to as the Bank’s key interest rate or key policy rate.*

*“Changes in the target for the overnight rate influence other interest rates, such as those for consumer loans and mortgages. They can also affect the exchange rate of the Canadian dollar.*

*“The instrument that the Bank uses to ensure that inflation remains within this target range is the Bank Rate – the rate of interest that the Bank charges on short-term loans to financial institutions.*

*“More specifically, the Bank sets a target band for the market rate for overnight transactions. The upper end of the band is the Bank Rate, the rate charged on loans to financial institutions participating directly in the payments system. The bottom end of the band is the rate the Bank pays on settlement balances held by participating financial institutions.”*

The essence of the European Central Bank’s (ECB’s) monetary policy style is to create a “corridor” of interest rates within which the “overnight market interest rate” (that is, the b2b IBM rate) is determined (i.e. same as explained earlier). It announces its “key interest rates” (it actually terms its rates as such) from time to time, thus broadcasting its monetary policy stance.

As in the case of Canada, it has two KIRs: the interest rate on the *marginal lending facility* (i.e. for overnight loans), which constitutes the ceiling rate for the overnight b2b IBM rate (as KIR-L above), and the interest rate on the *deposit facility* (for overnight deposits when the banking system has a surplus = ER), which constitutes a floor rate for the overnight b2b IBM rate (as KIR-D above). These transactions (lending and taking of deposits) are not undertaken by the ECB itself, but by the individual National Central Banks (NCBs).

The US monetary policy system operates in a similar fashion. The Federal Reserve targets the “Federal funds – Fedfunds – rate”, which is a b2b IBM rate, and they steer the liquidity of the banking system such that they at most times utilise the lending facility (there are 3), called the discount window, at the “discount rate”. Given a liquidity shortage, this rate has a powerful influence on the b2b IBM rate, and so influences the banking sector’s deposit and lending rates (and the exchange rate)<sup>167</sup>.

### 6.5.5 Quoins of monetary policy

The essence of monetary policy will now be clear to you. It is a *policy on money creation* and specifically on the *growth rate* in money creation. No CB would like to engineer negative money growth because this could lead to deflation, and deflation means a decline in asset values, which means a decline in wealth. And a decline in wealth means a fall in consumption and investment expenditure (GDE), the principal driver of economic growth (GDP). So the policy is aimed at sustainable economic growth which requires a stable and low inflation environment. Therefore, in terms of the identity  $\Delta M \times \Delta V = \Delta P \times \Delta \text{real GDP}$  (assuming  $V$  to be stable),  $\Delta M3$  should not exceed the economy's capacity to expand at a rate,  $\Delta \text{real GDP}$ , that will deliver a  $\Delta P$  of not more than the inflation target (which in most cases is 2% pa). Thus, monetary policy implementation must include a position on the economy's elasticity of supply.

You know that money is created by bank loans to the government and the NBPS and that bank purchases of forex also create money. So the drivers of money growth are the demand for loans by government and the NBPS and decisions by banks to purchase forex (= a minor factor usually). You know that central banks have tools at their disposal to control the creation of money and these are the reserve requirement (the  $r$  can also be changed but is rarely used), the KIR and OMO.

Under the *firm-RR model* the reserve requirement is used to curb M3 growth in a quantitative manner via creating, through OMO purchases, a desired volume of reserves (ER). Interest rates are free to find their own levels (or should be because a CB cannot control both without creating unsustainable distortions).

Under the *firm-BR model* the main operational tool is the central bank's lending rate (KIR-L) to the banks which is made effective by ensuring through OMO a liquidity shortage (BR) at all times (i.e. the CB keeps the loans-to-banks window open at all times). The "effective-making" of the KIR filters through to the banks' prime rate (and to all other rates and the exchange rate), thus influencing the demand for loans (the main driver of money creation).

The *IBR model* is similar to the *firm-BR model* but focuses on the banks' interbank rate and influences it in conditions of both bank liquidity surpluses (ER) and bank liquidity shortages (BR). As in the former case this model also aims to ultimately bring to bear a major impact on the banks' lending rates (and the exchange rate and other rates), and so influence demand. It will be evident that under the latter two models the reserve requirement (if it exists; as we have seen, it does not in all cases) is an *unimportant* element in money creation; it is merely one of many factors that influence bank liquidity, as detailed earlier.



A final word before we get to the more substantial (than the previous) monetary policy transmission mechanism (MPTM): the monetary authorities (CB and Treasury) do not always get it right. Banks are supposed to provide loans to creditworthy customers and for projects that are viable. Central banks have all the tools to curb excessive money growth. The system is an elegant one because money is always available, liberating economies from the stifling lack of money (gold coins and bullion) in earlier times, but there is much evidence that the authorities are not being responsible enough. The consequences are painful. Is a new implementation model required, one that takes due account of the elasticity of the economy? A model in terms of which bank borrowing by the governments of poor countries for developmental projects can take place to the extent that the borrowings create revenue to cover the borrowing interest rate, assuming that the domestic economy can produce the goods (for development) demanded?

### 6.6 The path of monetary policy: from interest to inflation

Visits to central banks' websites will reveal that all of them have an *objective of monetary policy* and it is that inflation should be subdued. The rationale underlying this objective is that a low inflation environment is conducive to sustainable economic growth. High inflation can be destructive for economic growth because the attention of the consumer and business is directed at safeguarding / hedging wealth as opposed to efficiency in production. Inflation feeds upon itself and it is difficult indeed to eradicate.

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To give substance to the objective, most of the developed countries of the world have inflation targets in place, and they are either set at 2% pa or have a range of 2–3% pa (or have a flexible target as in the case of the US). The target is generally set by government and executed by the CB, which is in most cases operationally independent of government. This separation from government is generally accepted as crucial because the CB may need to take monetary policy actions that are counter-veiling to government financial (and other) activities. A country whose CB is not operationally independent of government is not taken to be part of the big league.

Inflation of 2–3% is considered acceptable because at this level economic growth and wealth creation prospects are optimal. At higher and lower levels the destructive effects of safeguarding / hedging wealth enter the equation. The principal cause of unacceptably high inflation is total demand [ $C + I + X - M = \text{GDP (expenditure on)}$ ] outstripping the capacity of the economy to deliver (total supply). Underlying the *growth* in demand and supply is the capacity of the banking system to create money. The principal cause of deflation is stagnant or negative money creation.

Giving rise to money creation is the demand for loans by government, businesses and individuals, and underlying growth in the demand for loans in the bank's lending rate (PR and related). The corporate and household sectors are particularly interest rate sensitive. The lending rate of the banks is determined almost exactly by the CB through the operational tools it has at its disposal: the reserve requirement (in most cases), open market operations to influence bank liquidity, and the rate/s set by the CB for their loans to banks (BR) (KIR-L) or for excess reserves (ER) (KIR-D).

Essentially the above is the path of monetary policy in reverse. We now present a brief description of the so-called monetary policy transmission mechanism (MPTM) which starts with the central bank's rates and ends with the inflation rate.

Another visit to central banks' websites will reveal that many of them have illustrations of their view of the MPTM, i.e. the path from CB rates to price developments (inflation or the dreaded deflation). Figure 5 is an amalgamation of some of them<sup>168</sup>.

Before we begin with an elucidation of the MPTM we need to underscore the significant reality that the transmission of a change in monetary policy can take between one and two years to influence price developments. Therefore, monetary policy needs to be anticipatory in nature; for this reason central banks make use of extremely sophisticated econometric modelling, which is constantly under revision.

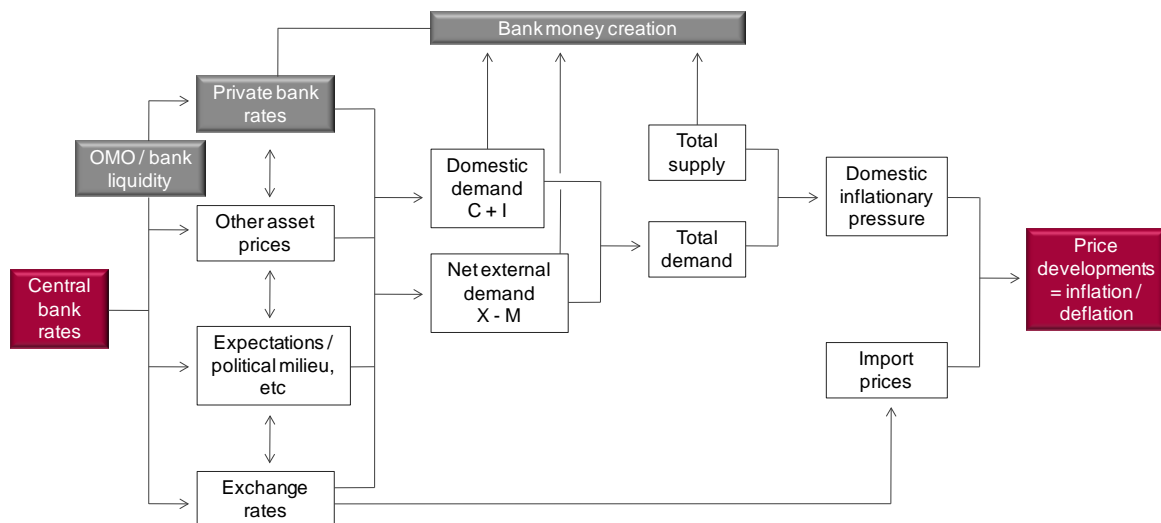


Figure 5: MPTM

The genesis of interest rates is the administratively determined rates of the CB<sup>169</sup>. As we have seen, some central banks have one “official” rate – a KIR-L – which is applied to a liquidity shortage and some have two “official” rates: the aforementioned and a deposit rate for bank surpluses – KIR-D. Both models impact directly on the b2b IBM rate, which in turn impacts significantly on the call money rates of the banks (especially the rate on wholesale one-day deposits). All other deposit rates of the banks are affected by this rate.

The banks, in their endeavours to maximise profits for shareholders, attempt to maintain a fixed margin between the cost of deposits / loans and earnings on assets. Therefore a change in the official rates impacts significantly on bank lending rates. The high profile loans extension rate of the banks is prime rate (PR); all lending rates of the banks for NMD are benchmarked on PR. The rates on marketable debt (MD – such as treasury bills and commercial paper) are also significantly influenced. In general, changes in the central banks’ KIRs are matched by a change in bank lending rates.

Bank lending rates are a major input in decisions to borrow. Individuals borrow from the banks and consume in anticipation of future income. Companies borrow for the purpose of expansion (on inventories and expansion to business infrastructure). The banking sector accommodates the demand for loans and creates money (deposits), provided individuals are creditworthy (employed and able to service the debt) and companies are borrowing for new projects on which the future cash flows / returns (FVs) exceed the cost of borrowing. A rise in rates will render more individuals un-creditworthy and more projects unviable, reducing the growth rate in bank loans, while a fall in rates will do the opposite. Borrowing / money creation is a major factor in changes in domestic demand (C + I).

Not every individual and company borrows from the banking sector. A large number of the public are lenders / savers, and interest rates to them are just as important as for borrowers. A lower interest rate makes saving less attractive and spending more attractive. The converse also applies.

A change in the official rates has an immediate impact also on other asset prices. What are these? These are the prices of assets other than bank asset prices, and they are bonds, equities (shares), property, and commodities. With the exception of commodities, the assets mentioned (bonds, shares and property) all have cash flows in the future. You will recall that to value them (= PV) their future cash flows (FVs) are discounted by certain relevant interest rates to PV. Thus when rates rise asset values fall, and vice versa. Commodities don't have cash flows in the future, but higher rates make them less attractive and vice versa. Because individuals and companies are the owners of the assets of the financial system (directly or indirectly via the banks and investment vehicles) asset values have a major impact on domestic demand (C + I).

Changes in the central bank's official rates also impact on the expectations and the confidence levels of companies and individuals, which have an impact on domestic demand. They also impact on the foreign sector and therefore on the exchange rate. The exchange rate impacts significantly on net external demand (X - M) and on import prices.

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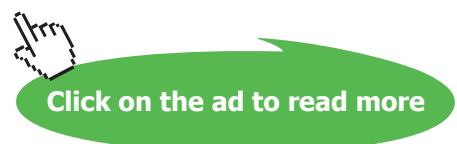
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Changes in domestic demand have an impact on employment. If there is pressure on the supply of skills, there is pressure on wages, which in turn impacts on consumer prices.

As seen, all of the above are significant factors in domestic demand, and the banking system assists demand through the provision of loans [loans satisfaction is the counterpart of new bank deposits (= money)]. The ability of the economy to supply new goods and services to satisfy increased demand is a critical factor. The wider the gap between aggregate (= total) demand and aggregate supply is the foremost factor in price developments. The change in the prices of imported goods, to a large degree a function of the exchange rate, is the other important factor, but this depends on the size of net external demand relative to domestic demand.

The circle is completed when one considers that price developments in turn impact on monetary policy decisions.

A final word: in the last couple of years we have seen the ugly side of the monetary system. Money creation was excessive and we saw inflation rising worldwide, as reflected in rising international commodity prices such as oil, food, steel and so on. As you know, it was to a large extent (in the US) based on bank lending to un-creditworthy (non-prime) borrowers. This was a failure not only of the position of trust that banks occupy, given their ability to create money – because we the public generally accept bank deposits as our main means of payments – but also of the failure of some of the allied participants in the monetary system: the central banks in their ineffectual conduct of monetary policy, the bank regulators who did not supervise the banks effectively, and some of the large loans rating agencies which were blinded by the revenues emanating from rating the debt of special purpose vehicles / entities (SPVs / SPEs) and forgot about the significant conflict of interests they have. Obviously, this did not apply to all countries.

But we must not forget the good times preceding this period when wealth creation was unprecedented. This was the elegant side of the monetary system, made possible by the miracle of money creation.

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