5 Monetary policy: models & transmission

5.1 Learning outcomes

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

- Outline the models of monetary policy.
- Describe the cornerstones of monetary policy.
- Deliberate on the transmission of monetary policy.

5.2 Introduction

Formulation and implementation of monetary policy (aimed at achieving and maintaining price stability)
Formulation of monetary policy framework
Influence on level of interest rates (through bank liquidity management)
Open market operations
Banker and advisor to government
Banker to government
Public debt management
Administration of exchange controls
Management of the money and banking system
Lender of last resort (note: not a monetary policy function)
Currency management (notes and coins)
Banker to private sector banks
Settlement of interbank claims
Bank supervision
Supervision of payments system
Management of gold and foreign exchange reserves
Development of debt market
Provision of economic and statistical services
Provision of internal corporate support services and systems

Table 1: Functions of central banks

Table 1 presents our framework of the functions of central banks. We have left the most significant function to last: monetary policy, and have presented it in two parts. The first (the previous section) covered the measurement of money, money creation, the framework of monetary policy and related issues. With these as background, this final section discusses the three models of monetary policy, followed by a brief discourse on the transmission of monetary policy from changes in the KIR to inflation.

In summary, this section covers:

- Models of monetary policy.
- Path of monetary policy: from interest to inflation.

5.3 Models of monetary policy

5.3.1 Introduction

In a previous section we presented the primary instruments of monetary policy (LS = liquidity shortage):

- Creation of a LS condition to make KIR effective.
- Changing KIR when appropriate.
- Executing OMO in its various forms in order to ensure a LS condition.

We also presented Figure 1 which illustrates these primary instruments within the context of the objectives of monetary policy. We also made the statement that the effective application of these instruments is dependent on a developed financial system in which price discovery is efficient.

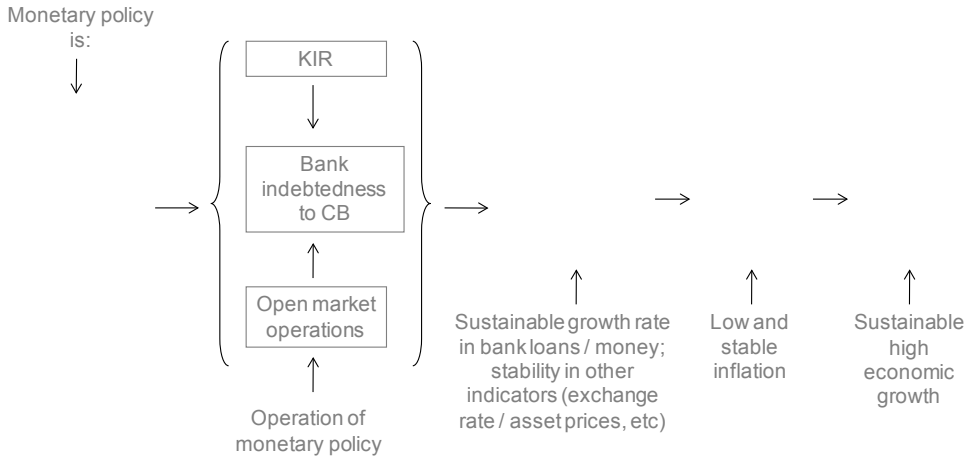

Figure 1: monetary policy

There are three models of monetary policy; we discuss these, and related issues, under the following sections:

- Firm required reserves model.
- Firm borrowed reserves model.
- Interbank rate model.
- Quoins of monetary policy.

5.3.2 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 1–4); it is the same as the one presented earlier but with the RR and the CB included.

BALANCE SHEET 1: COMPANY A (NBPS) (LCC MILLIONS)			
Assets		**Liabilities**	
Goods Deposit at bank	-100 +100		
Total	0	Total	0

BALANCE SHEET 2: COMPANY B (NBPS) (LCC MILLIONS)			
Assets		**Liabilities**	
Goods	+100	Loans from bank	+100
Total	+100	Total	+100

BALANCE SHEET 3: BANK (LCC MILLIONS)			
Assets		**Liabilities**	
Loans to Company B Reserves at CB (TR) (RR = +10)	+100 +10	Deposits of Company A Loan from CB @ KIR	+100 +10
Total	+110	Total	+110

BALANCE SHEET 4: CENTRAL BANK (LCC MILLIONS)			
Assets		**Liabilities**	
Loans to banks (BR) @ KIR	+10	Bank reserves (TR) (RR = +10)	+10
Total	+10	Total	+10

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 = LCC 100 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).

This model can be illustrated as in Figure 2. Once the banks have no excess reserves, they cannot make new loans. Therefore in the case of an upward shift in the demand for loans (from D_1 to D_2), interest rates will rise.

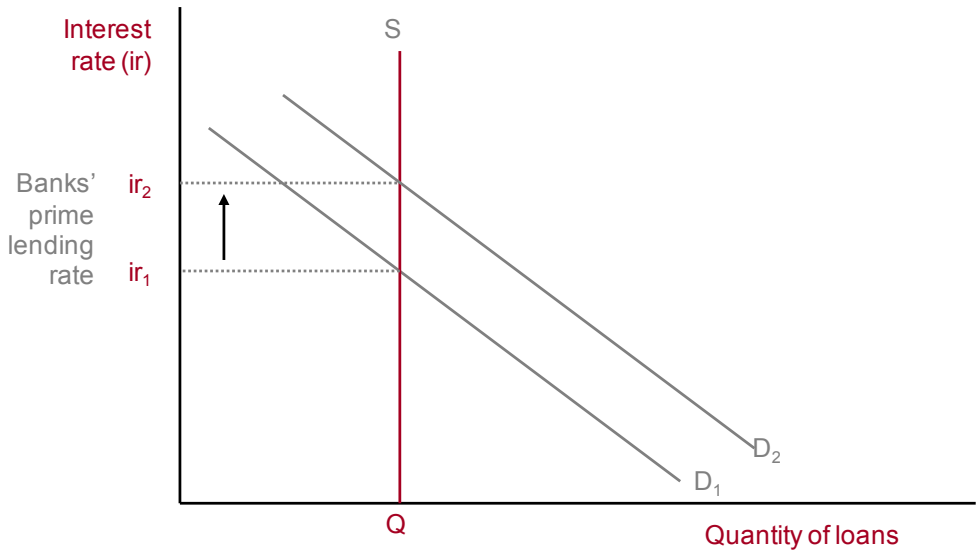

Figure 2: monetary base fixed; banks fully lent

Clearly this is the extreme case, which we present here to make a point. The central banks that operate this model (few[37] 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 5–6).

BALANCE SHEET 5: CENTRAL BANK (LCC MILLIONS)			
Assets		**Liabilities**	
Government bonds	+1 200	Bank reserves (TR) (RR = +0) (ER = +1 200)	+1 200
Total	+1 200	Total	+1 200

BALANCE SHEET 6: BANKS (LCC MILLIONS)			
Assets		**Liabilities**	
Government bonds Reserves at CB (TR) (RR = +0) (ER = +1 200)	-1 200 +1 200		
Total	0	Total	0

As noted, the banks will over time be able to meet new demand or loans; the final outcome is presented in Balance Sheets 7–8.

BALANCE SHEET 7: CENTRAL BANK (LCC MILLIONS)			
Assets		Liabilities	
		Bank reserves (TR) (RR = +1 200) (ER = -1 200)	0
Total	0	Total	0

BALANCE SHEET 8: BANKS (LCC MILLIONS)			
Assets		**Liabilities**	
Reserves at CB (TR) (RR = +1 200) (ER = -1 200) Loans to NBPS	0 +12 000	Deposits of NBPS	+12 000
Total	+12 000	Total	+12 000

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.

4.3.3 Firm borrowed reserves model

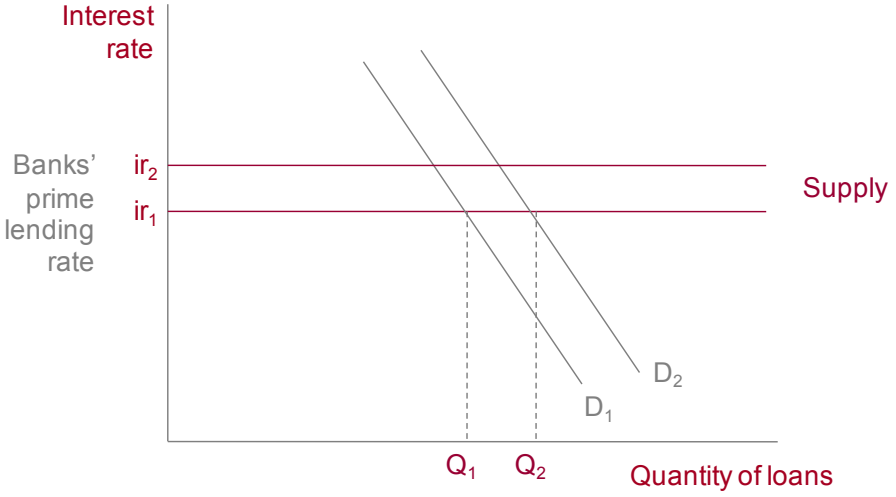

Figure 3: supply of & demand for bank loans

At the other extreme is the *firm-BR model* (see Figure 3). 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 undertake OMO to ensure that the banks are borrowing from the CB (or do 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.

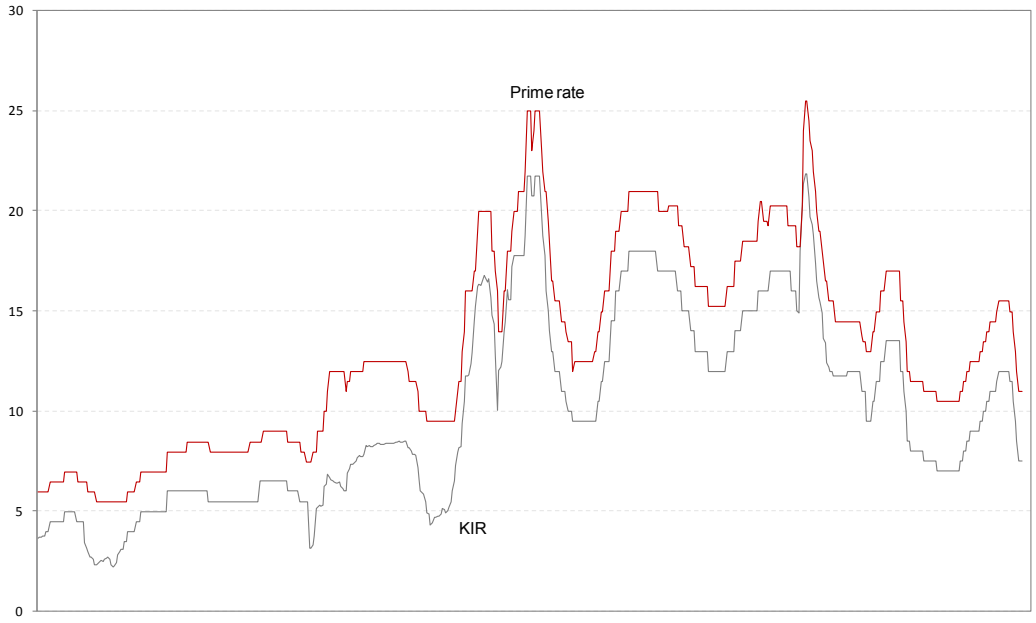

Figure 4: KIR & PR (month-ends over 50 years)

The Bank of England[38] 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.[39] 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[40] 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 bank 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.

BALANCE SHEET 9: RETIREMENT FUNDS (NBPS) (GBP BILLIONS)			
Assets		**Liabilities**	
Government bonds Deposits at banks	-200 +200		
Total	0	Total	0

BALANCE SHEET 10: BANKS (GBP BILLIONS)			
Assets		Liabilities	
Bank reserves (TR) (ER = +100)	+100	Deposits of NBPS Loans from CB (BR)	+200 -100
Total	+100	Total	+100

BALANCE SHEET 11: BANK OF ENGLAND (GBP BILLIONS)			
Assets		**Liabilities**	
Government bonds Loans to banks (BR)	+200 -100	Bank reserves (TR) (ER = +100)	+100
Total	+100	Total	+100

The Reserve Bank of Australia[41] has a similar monetary policy execution style (note that "overnight loans" are 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."*

5.3.4 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.

A good example of this method on monetary policy is Canada. The Bank of Canada states:[42]

> *"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)[43].

5.3.5 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 DM × DV = DP × Dreal GDP (assuming V to be stable), DM3 should not exceed the economy's capacity to expand at a rate, Dreal GDP, that will deliver a DP 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?

5.4 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.

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 + × – M = 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 is the banks' 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[44].

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.

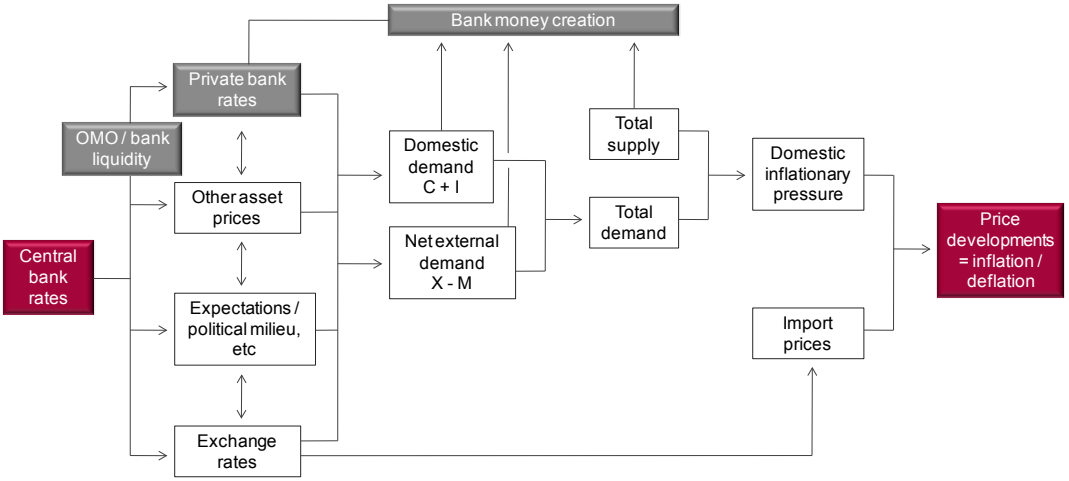

Figure 5: MPTM

The genesis of interest rates is the administratively determined rates of the CB[45]. 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 impact 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.

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 2007–08 we saw the ugly side of the monetary system. Money creation was excessive (prior to this period) and 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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