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## **MAJOR FACTORS INFLUENCING**

## **AMERICAN INTEREST RATES**

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### **INTRODUCTION**

This paper tries to discuss the major factors influencing American interest rates. To do so, it begins summarizing interest rates theories, focusing on Classical, Loanable Funds, Monetarist and Neo-Keynesian approaches.

The structure and main functions of the Federal Reserve, the major player in the financial market and the one that determines the economy's short-term interest rate level, will be summarized, concentrating on monetary police tools B reserve requirements; interest rates on loans to banks through the Federal Reserve discount window; and open market operations.

This paper also focuses on comments by Mr. William J. McDonough, president of the Federal Reserve Bank of New York, about price stability, what for, what is, and how to achieve it.

## **CLASSICAL THEORY**

According to the Classical theory of interest rates, the money supply does not affect interest rates. This theory considers that the interest rate determinants are business investment and savings by individuals.

The demand for money comes from the business that compares the rate of return on their investments with the interest rate. If the expected return of the investment is bigger than the interest rate, the money is borrowed; if it is smaller, the borrowing is not made.

The countless investments made in the economy have different rates of return. If they were sorted in decreasing order and cumulative amounts, it would be possible to draw a graphic showing the rates of return versus a cumulative amount invested. This curve that has a downward slope is called MARGINAL EFFICIENCY OF CAPITAL, or MEI. The Classical theory assumes that all business investment is debt financed with no equity financing, what is far different from what occurs in reality.

Saving by individuals is the other factor determining interest rates in the Classical theory. According to this view, interest payments represent a compensation to savers for postponing consumption. It means that consumers want to be compensated by more consumption in the future, if they have to give up consumption now. This idea means that, in the classical vision, with higher interest rates individuals tend to save more. A graphical representation of this theory will show a curve, labeled as S, with an upward slope.

The equilibrium of demand and supply of money is the point where the MEI curve intersects the S curve. It means that the interest rate is equal to the return on the marginal investment undertaken B the last investment made, if they are sorted in a decreasing order and risk adjusted. It is also equal to the return required by the marginal saver.

A disequilibrium condition will appear, if investment does not equal saving. Supposing that the interest rate is below the equilibrium level, more investment will be made. With lower rates, individuals will save less, reducing the supply of money, which, thus, will drive up the interest rate back to the equilibrium point.

## **LOANABLE FUNDS APPROACH**

This approach considers that the interest rate is determined by the supply of and the demand for loanable funds. The demand curve has an downward slope, indicating that a lower interest rate will cause a greater private demand for loanable funds, that, afterward, will decrease with a higher interest rate. The supply curve has an upward slope, because with higher interest rates more funds are supplied to the market. The point where the two curves cross determines the interest rate and the amount of funds transacted.

The loanable funds approach is similar to the classical one. The main difference is that the loanable funds approach includes more entities as demanders and as suppliers. This theory adds to business investment B that is considered in the classical view the only demander of money B consumers, government, and foreign sector as demanders of funds.

In the supply side, the classical view assumes that individuals are the only supplier of savings. In the loanable funds approach is included saving from businesses and increases in the money supply, including the rest of the world, also, as source of funds.

The demand for funds is formed by individuals borrowing for consumption; business investments in plants and equipment; and government deficits. It is important to make some considerations about the assumed downward slope of the demand curve for funds.

Consumer borrowing for expensive items, as house or car, can be considered interest-rate sensitive, allowing us to consider that the curve has really a downward slope. For other inexpensive items, such as credit card debt, though, the curve's slope is not clear. But for the total consumption of individuals is much probably downward slope.

Government borrowings in order to match budget deficit is probably not affected by the interest rates level, at least when they are not very high. Sometimes is politically difficult to cut government's expending, or to raise taxes, in order to reduce budget deficit. Apart from this, a higher interest rate implies in more government expending on interest rates, due to previous debt.

The demand for funds by business investors, in the loanable funds approach, is based in the marginal efficiency of capital, that had already been discussed by the classical theory.

The funds supplied to the market include savings from individual consumers, business savings, and increases in money supply. The supply curve is drawn with an upward slope, suggesting that higher interest rates lead to more supply of funds. Yet, there is also debates upon the upward slope of the supply of funds in the loanable funds theory.

First of all, considering that consumers save out of current income for future consumption, the amount of individual saving depends more upon preferences, current income, and wealth than upon interest rates.

The impact of the interest rate is not entirely clear in business savings. Business savings represent retained earnings and depreciation. The latter is a function of usage and accounting rules, and is probably not affected by interest rates.

In retained earnings, the impact of interest rates is ambiguous. Retained earnings equal earnings minus dividends and so, is difficult to realize what is the impact of interest rates on it. In a bank, for instance, interest rates have a bigger impact than in other firms.

The interest rates level probably does not affect the government savings, as it was already analyzed in the demand for funds side.

The major player on the money supply is the Federal Reserve, as it will be further analyzed, that largely acts according to its own monetary police, affecting directly the interest rate level.

Another supply source of funds is the foreign sector, that could provide funds for the economy. In this case, an important influence is the difference from domestic to external interest rates. If the domestic interest rate is bigger than the average of international interest rates, there would be an international capital inflow, increasing the supply of money. The expectations of relative changes in exchange rates and country risk factors also influence the international capital movement.

## **THE MONETARIST VIEW OF INTEREST RATES**

The money supply is considered in the monetarist view of macroeconomics as the major factor determining the course of the economy. This view includes three areas: the old quantity theory, the classical quantity theory, and the modern quantity theory.

In the past, when only coins made out of precious metals were considered money, it was observed that large increase of the supply of precious metals was followed by increase in price levels. This argument came to be known as the quantity theory of money.

With the financial systems increasing complexity by the nineteenth century, money was no longer restricted to coins but included paper currency and checking deposits. So, a more sophisticated quantity theory was developed.

Beginning with the equation of exchange:

$$M.V = P.Q$$

In this equation, the total amount spent in a year is  $M.V$ , what is equivalent to the amount of money ( $M$ ) times the velocity of money, or the number of times money turns over ( $V$ ). The total amount spent in a year also equals the price level ( $P$ ) times the level of real (or physical) output ( $Q$ ).

The equation of exchange can be approximately expressed in terms of rates of change, as:

$$m + v = p + q$$

In the equation of exchange, these letters represent the rate of growth: in the money supply ( $m$ ), of the velocity ( $v$ ), in prices ( $p$ ) or the inflation rate  $B$ , and in the real output ( $q$ ).

According to the classical quantity theory, velocity is constant, meaning that  $v = 0$ , and implying that:

$$m = p + q$$

Solving the equation for the inflation rate, we will have:

$$m - q = p$$

In other words, the rate of growth in the money supply must equal the rate of growth in real output, in order to do not have inflation.

There are some assumptions made by the classical quantity theory, that are constant velocity  $B$  already mentioned  $B$ , and that the economy has full employment. This means that changes in the money supply have no impact upon gross domestic product (GDP), because the economy is always producing at maximum capacity. So, changes in the money supply affect the price level exclusively.

## THE MODERN QUANTITY THEORY

In the modern quantity theory, the money supply is the most important determinant of GDP.

Second, most modern monetarists believe in strict rules for government economic policy than wide discretion. According to this view, government should estimate economy's long-run a real sustainable growth rate and set money supply equal to it.

Third, modern monetarists also feel that changes in money supply have a wide-ranging impact upon the economy, affecting holdings of all assets, not just bonds.

Fourth, in the monetarist framework, increases in money supply have three impacts, which may be offsetting. First, the added money tends to bid prices of bonds up and interest rates down. Then the increase in money supply tends to stimulate output and this puts upwards pressure on interest rates. Finally, changes in money supply affect inflationary expectations. If bond holders fear a rapid growth in money supply with resulting inflation, an inflationary premium is added onto the interest rate. In the modern monetarist view, an increase in money supply may result in a net increase in interest rates, if inflationary expectations are raised sufficiently.

The continual increase in the general price level is called **INFLATION**. Individuals try to protect their purchasing power, as prices go up, taking actions that inadvertently contribute to "feed" the inflation, boosting and tending to perpetuate the increase in general price level. Generally, inflation has a significant impact upon economic activity, including interest rates.

The precise measurement of inflation is very difficult. In extreme, each person has its own inflation rate, according to the price fluctuation of its own goods and services consumption. Even when a consumption average is made, there are problems. Basket of goods and services varies according to person's wealth. For instance, the share of basic goods, as food, in Poor's household basic goods consumption is higher than in the richest's. Therefore, changes in basic goods prices affect much more the inflation on economy's poorest side, distorting the inflation of the wealthy society part.

Another problem with inflation measurement is due to changes that happen in time within the basket goods and services consumption. Individuals vary their preferences according to price, preferences, trends, etc. These alterations are not easily captured by the bureaus of statistics.

Finely, and the most difficult to determined, are the technological innovations. If we compare a PC microcomputer from 1987 B a 386, for instance B with one from 1997 B a Pentium 300 MHz B we would not probably see a huge difference on the prices of those equipment B maybe Pentium 300 MHz price is lower B, even though technological improvement on them had been impressive. The problem is how to measure "how much cheaper" is a Pentium 300 MHz compared with a 386, due to the huge technological improvements made? Yet this is an extreme example, it can be applied to several different goods and services B such as cars, TV set, clothes, etc. B, and, as they are not captured by statistics, the inflation rate measurement would be higher than it should be.

If a lender has a complete certainty of a future inflation, this expectation will be added as an interest rate premium, to compensate the lender for declining future purchasing power.

It's possible to calculate the increase in interest rate level stemmed from expected inflation. In order to compensate lenders exactly for the declining purchasing power of money, in a tax-free condition, the following condition must hold:

$$i = r + p + r.p$$

Where:  $i$  is the nominal interest rate asked by the lender;  $r$  is the real interest rate, defined as the rate that would prevail in an inflation-free world;  $p$  is the inflation rate; and  $r.p$  represents the interest rate over the inflation rate, that has to be compensated. What makes the nominal interest rate bigger than real interest rate is the amount of expected inflation.

If the government tax the interest income with a rate  $t$ , then nominal interest rate must be increased to compensate the lender for taxes paid. That is 1 plus the after-tax yield to maturity should equal  $(1 + r)$   $(1 + p)$ . In equation form, we will have:

$$i = (r + p + rp) / (1 - t)$$

or,

$$i = r / (1 - t) + (p + r.p) / (1 - t)$$

Where:  $i$  is the before-tax nominal;  $r / (1 - t)$ , is the before tax real return; and  $(p + r.p) / (1 - t)$  is the before-tax inflation premium. With government's positive tax, nominal interest rate grow even more.

## NEO-KEYNESIAN MODEL

The Neo-Keynesian Model is a revised and improved version of the original Keynesian Model, developed by Jonh Maynard Keynes, in the 1930's. In the neo-Keynesian approach, interest rates are affected by several interrelated factors, as:

1. decisions by investors to save or consume;

2. investment decisions by firms;
3. investors' preferences to hold money balances for speculative purposes;
4. demand for money balances for transactions purposes;
5. government spending and taxes; and
6. total supply of money set by the monetary authorities.

Each of these factors will be briefly discussed, showing their interactions. The Neo-Keynesian model assumes a domestic economy without international trade or international cash flows.

Decision by investors to save or consume is affected by many factors, including income level, wealth, consumer durables holdings, the population age distribution, attitudes, customs, and taxes. The neo-Keynesian model assumes that consumption is largely a function of permanent income. The GDP could be expressed as equal to production or to income, because if something is produced, something/somebody has to receive the income. In equilibrium, aggregate expenditure ( $C + I + G$ ) must equal to aggregate income ( $C + S + T$ ), where  $C$  is total consumption,  $S$  is total saving,  $T$  is total tax;  $I$  is total investment; and  $G$  is total government spending. Simplifying,

$$I + G = S + T$$

Therefore, the equilibrium condition that expenditures must equal income is equivalent to the condition that investment plus government spending must equal savings plus taxes.

The consumption function represents the desired level of expenditures under the assumption that this desired level of expenditures is exclusively dependent upon the level of GDP or income. It can be represented as:

$$\text{Expenditures} = a + b.GDP$$

This equation means that, even if GDP was equal to zero, people would still like to consume the amount  $a$ . The slope of the consumption function  $B$  the letter  $b$   $B$  is called the **marginal propensity to consume** (mpc), meaning that for each unit added of income, the person will increase its consumption in the mpc amount.

As people save what they don't consume, the **marginal propensity to save** (mps) is equal to 1 minus the marginal propensity to consume.

In the consumption function, propensities to consume and to save are assumed stable and constant. Social customs and attitudes determine these propensities, by the age distribution of the population, and other factors, and they are considered to have small changing over time.

Adding to the consumption function business investments and government spending, we will obtain the economy's total expenditure. In equilibrium, when consumers have picked their desired level of consumption, production (GDP) equals expenditures.

An exogenous change in one of the expenditure part ( $C$ ,  $I$  or  $G$ ), implies a changing in the equilibrium point. The size of the change equals to the out side shock times  $1/(1 - mpc)$ . This term is called the **multiplier**. As mpc is smaller than one, the multiplier is bigger than one. This fact means that an increase of one unit of money in the economy will imply a GDP increase of one times the multiplier. The multiplier increases as the marginal propensity to consume increases or as the consumption function gets steeper.

The **marginal efficiency of capital function** (MEI) is the second component of the neo-Keynesian model. MEI is also an important part of the classical theory of interest rates discussed earlier. This function represents the amount of business investment for a given interest rate. As in the classical view, the MEI function also has a downward slope, indicating that an increase in the interest rates induces a decrease in the investments.

There are two motives for holding money in the neo-Keynesian framework: transactions motive and speculative motive. Transactions balances are the cash put apart to run the day-by-day business and are not invested. Transaction balances depend upon production or income level.

Speculative balances are cash balances held to buy securities at lower and more attractive prices, than traded at the time speculative balances were held. Bond prices and interest rates are inversely related.

The total demand for money is the sum of transaction demand and speculative demand. The monetary authorities set the supply of money. The equilibrium interest rate is where the demand curve matches the supply curve.

In the neo-Keynesian approach, transaction balances are a percentage of GDP. This is similar to the classical quantity theory. However, there are huge differences between the neo-Keynesian approach and the classical quantity theory. In the neo-Keynesian framework money demand has transactions balances and speculative balances. As money supply varies in the neo-Keynesian world, interest rate changes because of the speculative demand function. The changing in interest rate affects investment, which affects GDP. The classical quantity theory does not have speculative balances, implying no change in interest rates when the money supply varies. Besides, the neo-Keynesian model does not assume full employment, as in the classical theory.

The neo-Keynesian model encompasses four components that are interrelated: the consumption function, the marginal efficiency of investment function (MEI), the transaction demand for money, and the speculative demand for money.

The impact of a given change in the money supply upon interest rates and the other variables depends upon four factors:

1. The size of the multiplier. The bigger the multiplier, the bigger the impact. Since the multiplier is directly related to the marginal propensity to consume, the impact of a change in the money supply is bigger for a larger marginal propensity to consume.
2. If investment is more sensitive to changes in interest rates, a change in money supply has a bigger impact upon GDP.
3. If the demand function is steep, changes in the money supply cause large changes in interest rates and GDP.
4. If transaction balances are a small percentage of GDP, a change in money supply has a relatively large impact upon GDP. For instance, with an increase in money supply, the initial response is a drop in interest rates, an increase in business investment, and a positive impact in GDP. Since GDP has increased, more money is needed for transaction balances, implying bigger demand for money, what boosts interest rates, and undo some of the effects of the original change. The size of the shift in the demand function for money depends upon the proportion of GDP held as transaction balances. A small proportion causes a small shift in the demand for money and a small offsetting effect. With a small proportion of GDP held as transaction balances, an increase in the money supply has a relatively large impact.

In summary, the interest rate depends upon the following in the neo-Keynesian model: the demand for speculative balances and for transactions balances, the money supply, the MEI curve, the marginal propensity to consume and the multiplier, and government spending and taxes.

## **THE FEDERAL RESERVE SYSTEM**

The central bank of the United States is the Federal Reserve System, which major functions are to:

1. Set and administer monetary policy. This involves controlling the money supply and/or interest rates.
2. Act as a lender of last resort to banks through the discount window.
3. Assist the payments and collections systems. The Federal Reserve System plays a major role in the check clearing process and the electronic wire transfer of funds.
4. Regulate commercial banks. The Federal Reserve System, concurrently with the Comptroller of the Currency, the Federal Deposit Insurance Corporation (FDIC), and state bank authorities, has regulatory authority over commercial banks.

### **FEDERAL RESERVE ORGANIZATION**

The Federal Reserve system consists of two major parts: the Board of Governors and the 12 Federal Reserve District banks and branches. The Federal Reserve Board is composed of seven members appointed by the President of the United States for 14-year terms. The terms are staggered so that a new governor must be appointed every two years. The President as Chairman of the Board of Governors appoints one of the governors for a four-year term.

The Federal Reserve System is composed of 12 districts, each of which has a federal reserve district bank and branches. The commercial banks that are Federal Reserve members in that district own, privately, these Federal Reserve banks, and receive dividends.

Each district Federal Reserve bank has nine directors, six of who are selected by commercial banks that are members of that district and three selected by the Board of Governors. Each district bank has a president who participates in the Federal Open Market Committee (FOMC).

The FOMC is responsible for setting the monetary policy, in its eight regular meetings a year. The voting members of the FOMC are the seven governors, the president of the federal reserve district bank of New York, and, on a rotating basis, and four presidents of the other federal district banks. The primary task of these FOMC meetings is to draft a monetary policy directive, which sets guidelines for the growth rate of the money supply and interest rates level. This FOMC policy directive is kept secret for six weeks after the meeting.

The Federal Reserve is technically independent from the executive and legislative branches of the government, and there are two reasons for this. The first is that it earns more money from its operations than it needs to cover its operating expenses, not needing to ask Congress for funds. Second, the Board of Governors is appointed for a 14-year terms and the Federal Reserve banks are privately owned by the commercial banks that are members in each district.

The main objectives of monetary policy are to promote economic growth, achieve full employment, all of this with low inflation. Economic growth means increases in the wealth of the overall economy, that could be achieved if the average worker produces more or if there is an



enlargement in economy's productivity. The latter could be improved by increasing the amount of equipment available to workers and/or making better use of those equipments.

The meaning of full employment bounds the situations in which all people that want to work are able to get a job. It recognizes the existence of a so-called frictional unemployment, meaning that some percentage of the population is between jobs.

Inflation is an increase in the general price level, and it was already discussed. Low inflation has the meaning of relative price stability.

Besides the difficulties of measuring economic growth, employment and inflation, these policy goals can be competing, forcing the Federal Reserve to make harsh policy choices. Sometimes, to keep (or drive the economy to) a low inflation rate, the Federal Reserve may have to tighten the monetary policy. Thus, this drives up the interest rate, and reduces investments, income, and employment in the short run. In the long run, with low inflation rates helping to increase the confidence in the economy, and with its returning to the equilibrium point, interest rates go down, and, thus, help investment to go up, and that raises income and employment.

The previous paragraph describes in generic terms what happened with the American economy in the early 1980's. This example illustrates the importance of an independent central bank including the Federal Reserve system. In the short run, the high unemployment rates generated huge pressure over the Federal Reserve to loosen the monetary policy. The fact that the Federal Reserve was independent allowed it to proceed with its restrictive policy. With inflation rate reduced, the Federal Reserve decreased the interest rate, inducing a greater economic activity.

Another important reason for an independent central bank is that with the economic agents working with the idea that the central bank will follow a stable policy, this fact will generate a higher confidence in the economy as a whole, driving up investments and wealth. This idea will be afterward specified.

The Federal Reserve is responsible for monitoring the money. The term money is subject to considerable controversy. Money has three characteristics: a medium of exchange, a unit of account, and a store of value. The money supply measures are primarily intended to determine money as a medium of exchange.

## MONETARY POLICY TOOLS

The establishment and administration of monetary policy guidelines for money supply and interest rates are the primary tasks of the Federal Reserve. There are three possible tools of monetary policy:

1. changing reserve requirements;
2. changing the interest rates on loans to banks through the Federal Reserve's discount window;  
and
3. open market operations.

By changing the reserve requirements, the Federal Reserve can control the money supply and related monetary conditions. For instance, if the Federal Reserve increases the reserve requirements, this will imply a withdrawal of money from the banks, they will have less funds to lend, which will drive up the interest rate.

The discount window allows the Federal Reserve to make loans to banks, making the Federal Reserve a lender of last resort to banks in need. The interest rate in discount window is, usually,

lower than the federal funds rate. However, a frequently borrowing in the discount window by a bank is a sign to the Federal Reserve that that bank could be in trouble, and needing an accurate fiscalization. This is probably the reason why few banks borrow via the discount window.

Open market operations involve the purchase and sale by the Federal Reserve of U.S. Treasury securities in the open market. When the Federal Reserve sells a security to the market, receives cash, decreasing the economy's amount of money in the same amount of the security price. When a security is purchased, the opposite happens.

In day-to-day operation, the Federal Reserve concentrates on open market operation due to the possibility of fine adjustments in monetary policy. In contrast, changing reserve requirements or changing the discount rate tends to result in larger and fewer changes in monetary policy.

The Federal Reserve system plays a major role in funds transfer and check clearing. It uses the Federal Reserve Wire to effect electronic (wire) transfer, for a fee. The Federal Reserve System also plays an important role in the clearing and collection of checks from different parts of the United States, providing a system to expedite check collection at a moderate cost. These functions of the Federal Reserve help to improve economic activity in the United States.

The Federal Reserve has also the power to regulate borrowing for the purchase of securities, a so-called margin purchase. The objective is to avoid a financial leverage high enough to hazard the economy, repeating the 1929's crisis that brought huge problems to the whole world economy.

Another assignment of the Federal Reserve is regulating commercial banks, including the power to regulate the entry of banks into nonbanking activities. It also regulates foreign banks that have opened offices in the United States.

There is an interrelation between the level of the domestic interest rate and an alteration on the exchange value for a country currency. A high interest rate attracts foreign funds, boosting the exchange rate of a particular country, for instance. In this case, exchange rate goals and domestic policy goals could be in conflict, and Federal Reserve has to weigh the relative importance of these goals.

The Federal Reserve Act lays out the goals of monetary policy. It specifies that, in conducting monetary policy, the Federal Reserve system and Federal Open Market Committee should seek "to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates."

Analyzing these three goals stated by the Federal Reserve Act, two of them can be considered vague. How is possible to measure a "maximum employment" and a "moderate long-term interest rates"? What is this level? This two goals seems more like a political objective than an economic one.

To define "stable prices", it will be used the definition made by Mr. William J. McDonough, president of the Federal Reserve Bank of New York. Mr. McDonough says: "... a goal of price stability requires that monetary policy be oriented beyond the horizon of its immediate impact on inflation and the economy. This immediate horizon is on the order of two to three years. This orientation properly puts the focus of a forward-looking policy on the time horizon over which monetary policy moves today will have their effect and households and business will do most of their planning. This is the horizon that is relevant for the definition of price stability articulated by Chairman Greenspan: that price stability exists when inflation is not a consideration in household and business decisions."

"In my view, a key principle for monetary policy is that price stability is a means to an end B to promote sustainable economic growth. Price stability is both important and desirable because a rising price level B inflation B even at moderate rates, imposes substantial economic costs on society. All countries incur these costs. They entail, for example:

1. increased uncertainty about the outcome of business decisions and profitability;
2. negative effects on the cost of capital resulting from the interaction of inflation with the tax system;
3. reduced effectiveness of the price and market systems; and
4. in particular, distortions that create perverse incentives to engage in nonproductive activities."

The overinvestment of resources in the financial sector is nonproductive, and, thus, brings negative effects onto the economy. During high inflation periods, there is a boost in the amount of banks and branches. The financial system becomes bigger than it would be in a low inflation economy. This inflated financial system diverts resources from the economy, reducing its productivity.

When an economy moves from huge inflation toward low inflation, the financial system has to be reduced, due to the removal of the distorted incentive B inflation. What occurs is business failures and unemployment. The avoidance of such unnecessary, and costly, boom-bust cycles is possible only in a low-inflation environment.

Mr. McDonough adds that: "What monetary policy can do is to anchor inflation at low price levels over the long term and thereby lock in inflation expectations. In addition, monetary policy can help offset the effects of financial crises as well as prevent extreme downturns in the economy." This comment is based upon the fact that policymakers and economists, during the past twenty years, are agreeing "that an active monetary policy to stimulate output and reduce unemployment beyond its sustainable level leads to higher inflation but not to lower unemployment or higher output." In fact, economic growth is originated from expansion in the supply of capital and labor and the productivity with which labor and capital are used, and they are not directly influenced by monetary policy. "However, without doubt, monetary policy can help foster economic growth by ensuring a stable price environment", according to McDonough.

He also emphasizes that: "Allowing even a low level of inflation to persist without a commitment to bring that level downward toward price stability permits B and they even encourage B expectations for still sharper price rises in the future. Such expectations provide an opening for a demand-driven burst of inflation".

McDonough considers that "a central bank must look at a broad array of economic indicators that reflect *demand pressures and supply developments in the economy*." However, monetary policy can and must also maintain the broad environment for sustainable economic growth, while its one explicit goal must be price stability.

The question is, in practical terms, what does price stability means over both the intermediate and the long term? As currently measured, price stability is not equal to a zero inflation rate. "This is because of well-known errors in measuring inflation that stem from many factors, including how quality improvements and new products are valued in the consumer price index... In most studies, the error has been estimated to range from 0.5% to 2.0%", says McDonough.

The problem of a monetary policy is that inflation is harmful to the economy, and so is a deflation. "The worst financial crises in our history have been associated with deflationary periods. Therefore, were we to set a numerical inflation goal for monetary policy, I believe that an appropriate number for this goal should be within the reasonable range of measurement error B but in the upper end of the range

because of the dangers of deflation. Such a numerical goal could be understood as the premium needed to prevent the economy from being tipped toward deflation or needlessly forgoing output," states McDonough.

The central bank will have an easier time reaching its goals if public understands them and believes that the Federal Reserve will take the steps necessary to reach these goals. A believable anti-inflation policy, for instance, implemented through a deceleration of aggregate demand, will more quickly lead the public to expect lower inflation, and such expectation will itself help bring down inflation. In that case, workers will not feel the need to demand large wage increases to protect themselves against expected price hikes. Higher real wages lead to higher unemployment, and business will be less aggressive in raising their prices, because it would have losses in sales. In these circumstances, inflation will come down more or less in line with the slowing of aggregate demand, with much less slack emerging in resource markets than if workers and businesses continued to act as if inflation were not going to slow.

A main question to the Federal Reserve is how to achieve the monetary policy goals that are spelled out in law. The actions taken in the reserves market affect the economy with considerable lags. If the Federal Reserve waits to adjust rates until it sees an undesirable change in employment or prices, it will be too late to achieve its objectives. Consequently, the Federal Reserve has to pay attention to guides to policy that are intermediate between operations in the reserves market and effects in the economy. Among those frequently mentioned are monetary and credit aggregates, interest rates, and the foreign exchange value of the dollar.

The Humphrey-Hawkins Act has something to say about the guides for monetary policy. It specifies that each February the Federal Reserve must announce publicly its objectives for growth in money and credit and that at midyear it must review its objectives and revise them if appropriate. This provision of the act was based on the presumption of a reasonably stable relation between growth of money and credit, on the one hand, and the goals of monetary policy, on the other. A relation that could be fruitfully exploited in achieving those goals. Control over the money stock, it was thought, could in effect anchor the price level in much the same way that the former gold standard what thought to have anchored the price level.

Nonetheless, the law foresaw that revision might be appropriate should, for example, the relation between the monetary or credit aggregates and the economy or the velocity of money or credit change unpredictably. In these circumstances, adherence to the initial objectives for money or credit growth would lead to an undesirable outcome for output or prices. The Federal Reserve is not required to achieve its announced objectives for these financial aggregates, but if it does not, it must explain the reasons to Congress and the public.

The usefulness of the monetary aggregates for indicating the state of the economy and for stabilizing price level has been called into question by frequent departures of their velocities from historical patterns.

The velocity of M2 had, until recently, been fairly stable over long periods, although it did vary over shorter periods in ways related to the interest-rate cycle. In the early 1990's, the velocity of M2 departed from this pattern and drifted upward. This upward drift occurred even as market interest rates were moving down, a change that should have added to the attractiveness of deposits in M2 and lowered its velocity. Such departures from historical experience have made forecasting velocity, and thus the rate of monetary growth needed to achieve economic objectives, more difficult.

The growing variety of new financial assets offered to the public, such as new kinds of mutual funds and mutual funds services, and changes in the way people manage their financial portfolios are being considered the responsible for this unusual monetary behavior. Some analysts expect that rapid financial change will continue and will further undermine the value of the monetary aggregates as guides to policy. On the other hand, others expect the process to settle down as people complete their

shifts of investment-type balances to assets outside M2. In this view, once the shift is fairly complete, M2 B perhaps measured somewhat differently B will again behave in reliable way and can again be used effectively as a guide for monetary policy.

## CONCLUSION

Contrasting the Federal Reserve Bank of New York president B perhaps the most important of the Federal Reserve System B, Mr. William J. McDonough, comments with what was written about inflation rate theory is possible to infer some observations.

The Federal Reserve doesn't follow, strictly, any of the interest rates theories. As the major determinant of money supply, the Federal Reserve has the power to set interest rates in its desirable level, according to its own monetary policy goals.

As Mr. McDonough defends price stability as the main goal of monetary policy, this idea clashes with the modern monetarists that state a money supply equal to an estimated economy's long-run real growth rate, as monetary policy.

With the Neo-Keynesian theory of government spending helping economic growth B in other terms, an active monetary policy to induce bigger output B there is a complete difference on monetary policy development role.

In Mr. McDonough' words: "Over the past twenty years, there has been an emerging consensus among policymakers and economists that an active monetary policy to stimulate output and reduce unemployment beyond its sustainable level leads to higher inflation but not to lower unemployment or higher output. ... And what monetary policy cannot do, in and of itself, is produce economic growth." Besides, bounds monetary policy to "help foster economic growth by ensuring a stable price environmental".

Reading carefully Mr. McDonough words about indicators of future inflation: "a central bank must look at a broad array of economic indicators that reflect *demand pressures and supply developments in the economy*. Unfortunately, there is *no single summary measure that provides a reliable overall assessment of the many complex and diverse influences on inflation*, which makes it more difficult within most countries to reach a national consensus on policy at any point."

But which are the economic indicators that reflect demand pressures and supply developments in the economy, so to determine the major factors influencing American interest rates? M2, that had a large influence in the past, had departed from its pattern, what made its importance decrease.

However, if economic growth is originated from expansion in the supply of capital and labor and, also, the productivity with which labor and capital are used, the indicators of economic growth and the ones that helps measure capital, labor, and productivity increase are important.

Brazilian international accounts still depend on foreign financial capital inflow, though net direct investments have been rising during the last four years. In order to continue to receive hard currency, the Central Bank of Brazil has to establish the domestic interest rate in a level equal to international interest rates plus a premium, that depends on the Brazilian country risk.

As the world's biggest economy is the United States, the interest rates practiced in that country exert huge influence on international capital flows. U.S interest rates are linked to the Federal Funds interest rate of the Federal Reserve System. So, it is important for the Central Bank of Brazil to keep track of the behavior of this important reference to the Brazilian economy, i.e., the Federal Funds.

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