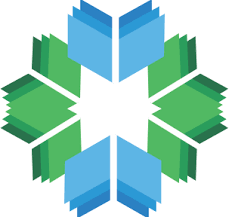
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**The impact of monetary policy on exchange rate fluctuations and global trade**

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**Introduction**

The world economy is experiencing the longest boom in over 30 years. Production growth is already in its fifth year, when it has been in place, does not exist, because it is valid. Still, the rise in prices and wages has remained moderate.

Not a monetary policy decision - other than central banks – own is its share of price development. The particular credibility of monetary policy has anchored inflation expectations close to central banks set inflation targets. It's on the hills of the raw materials market prices and wages. At the same time, it has been getting low-interest rates. As well as, a small change can lead to alteration of the whole economy as a butterfly effect.

The interaction and transmission systems between monetary policy, exchange rate, and global trade are broadly discussed topics in macroeconomics. Monetary policy shocks in the economy and their transmission mechanisms to the whole system are frequently analyzed by most economics.

Monetary policies ensure the adequate running of the economy of a country. A flexible policy which change over time can make the economy stable and strong. Now, the world is going through unfortunate phases in terms of economic conditions. So, the economies of many countries are in a downward period. In an economic crisis, just flexible monetary and fiscal policies can reinforce the economic system. In the first chapter, I will discuss the basic concepts of monetary policies, tools, and types, as well as, histories and development phrases of monetary policy.

In the second chapter, I mostly concentrate on two macroeconomic variables, such as exchange rate and global trade. This paper considers the using of interest rate policy to regulate exchange rate stability against stability in other economic variables. It makes two points. This section will illustrate relations between monetary policy, interest rate and the impact of the aforementioned correlation to the exchange rate. As we know there is a strong connection between other economic variables, therefore changing interest rate brings to the variation on global trade too. There are enough articles on the impact of exchange rate arrangements on trade. The monetary policy can be used in the floating exchange rate regime. This makes the effect of alternative monetary policy regimes on trade. This paper will enlighten these aspects by examining the effect of monetary policy regimes on bilateral and multilateral trade.

I also analyze all of the above-mentioned relations with countries examples by using historical data.

In the last chapter, I will analyze monetary policy in Azerbaijan related to three periods after independence, such as crisis period, recovery period and economic development period of Azerbaijan Republic. I will try to think about closely on the last period of economic recession that was connected with a sharply falling in oil price. This paper will emphasize the reasons for that recessions, exchange rate fluctuations and impact on global trade.

**Chapter 1 The importance of monetary policy**

Monetary policy is transmitted to the economy in many different ways. Monetary policy operations affect the liquidity of the banking system, market interest rates, and exchange rates. Credit and deposit rates, as well as long-term interest rates, are determined through financial market price formation. Monetary policy also indirectly affects asset prices, monetary and credit rates, inflation expectations, inflation, and other economic developments.

Monetary policy is primarily implemented by guiding the development of market interest rates. Market interest rates affect the cost of financing and thus the overall economic development. In situations where the amount of money in banks' central bank accounts exceeds the minimum reserve requirements for banks, the interest rate applied to the reception of central bank deposits rises to the point of interest rate control.

In addition to receiving credit operations and deposits, monetary policy tools include direct transactions in securities. These are particularly important in situations where the functioning of key market segments for the transmission of monetary policy has deteriorated or where further easing of financial conditions has become more difficult as a result of low interest rates.

* 1. **Definition of monetary policy**

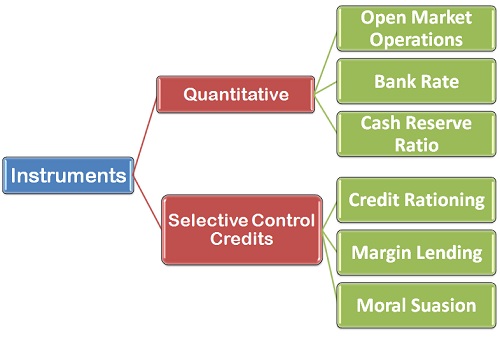
The public authority of the central bank or other monetary authority control the amount, value and interest rate of money in the national economy. Monetary policy is based on the central bank's exclusive right to issue central bank money consisting of legal tender (banknotes and coins) and deposits of credit institutions with the central bank (reserves). Monetary policy instruments are typically short-term collateralized credit operations or bond purchase or sale operations, whereby the central bank controls the amount of central bank money and sets interest rates on central bank credits and deposits. With monetary policy, the central bank influences credit growth and general interest rates in the national economy.

The main objectives of monetary policy are price stability, ie maintaining the purchasing power of money, as well as employment and economic growth. In addition, monetary policy ensures the liquidity of sound credit institutions.

**1.2 Methodological aspects of monetary policy**

**1.2.1Tools of monetary policy**

Monetary policy is implemented by a central bank to reach its objectives. In order to reach these goals, the central bank has at its uses various instruments that are illustrated below.

Source: [https://businessjargons.com/instruments-of-monetary-policy.html](https://businessjargons.com/instruments-of-monetary-policy.html)

**The quantitative measures** regulate the whole credit system without consider the special uses. The quantitative measures impact the economy totally and are non-discriminatory.

There are three quantitative measures:

1. Bank rate

The discount policy was an important monetary policy instrument of the Central Bank. It controls the monetary policy of the country with the help of this type of policy. For this purpose, she announced a discount rate at which the banks could sell bills to the Central Bank and obtain money in this way - rediscount credit. As the discount rate rose, the ability to raise funds became more expensive for the banks. Accordingly, they had to adjust their interest rates. As a result, interest rates rose,  and the  [economy slowed](https://www.rechnungswesen-verstehen.de/bwl-vwl/vwl/konjunktur.php) and monetary value stabilized. When lowered, this changed vice versa.

1. Open market operations

The **open market policy** refers to the purchase and sale of securities made by the central bank in the capital and money market. In doing so, trading in short- or long-term securities as well as by the central bank may take place for a certain period or finally.

As a final open-market transactions are sales or purchases of securities without repurchase agreement referred. By contrast, if the central bank only purchases the securities for a certain period of time and the bank commits to repurchasing them, this is a securities repurchase transaction.

Open market operations  affect the  [money supply](https://www.rechnungswesen-verstehen.de/bwl-vwl/vwl/geldmenge.php)  and the cost of credit in the  [economy](https://www.rechnungswesen-verstehen.de/bwl-vwl/vwl/vwl-grundlagen.php)  of . If the central bank buys securities in the open market, the money supply increases because the banking sector benefits from central bank money. In the event that more money is available for lending, there will be a reduction in interest rates and cheaper credit. A sale of securities by the central bank, however, leads to an increase in the cost of loans and reduces the money supply.

1. Variable cash reserve ratio.

These are compulsory deposits maintained at national central banks. The amount of the minimum reserve to be deposited by the individual institutions depends on the so-called reserve base. This reserve base is determined on the basis of the mandatory liabilities of each credit institution.

Originally, the minimum reserve served primarily to ensure the solvency of a bank at all times. If the minimum reserve ratio is lowered, a bank must deposit less money with the respective national bank. The direct consequence is that it provides additional funds for investment or lending.

An additional consequence may be that the money market is quickly saturated by the money freed up, thereby lowering interest rates. If the minimum reserve ratio is increased, the effects are exactly the opposite.

Then more money is tied to the respective national banks and the liquidity in the market is reduced. There is less money available for lending. The liquidity in the market decreases and as a result the interest rates can rise.

**The qualitative measures** don’t regulate the whole amount of credit that was created by the commercial bank. The qualitative measures make differentiation between good credit and bad credit. It regulates only credits, that create economic instability. Therefore, qualitative measures are also called the selective measures of credit control.

Qualitative credit control measures include:

a. Margin Lending

b. Credit rationing

c. Moral suasion

a. Margin Lending

Commercial banks keep margins when they supply loan against ‘securities’ or ‘stocks’. The difference between the market value of a securities and maximum value of loan is called margin.

At the point when national bank fell that costs of certain products are increasing sharply because of the speculative activities of specialists and businesspersons, it tries to discourage credit sources for this type of activities. So, central bank increases the margin requirement for demoralizing borrowing case for speculation. This brings to decline in money supply for undertaking speculation and hence inflationary circumstance is captured.

In the contrary, central bank encourages borrowing from the banks by declining the margin requirement. When there is a considerable flow of money that lend from commercial banks to different business fields, investment will increase. Salary of the general population rises. Interest for merchandise extends and deflationary situation is regulated.

b. Consumer credit regulation

Presently, the vast majority of the buyer durables like T.V., Refrigerator, Motorcar, and so on are accessible on portion premise financed through bank credit. Such credit made accessible by banks for the buy that kind of items with consumer credit.

If the demand for any durable items are high, then the central bank attempt to reduce consumer credit. There are two instruments for this. The first is increasing down payment, and the second is declining the quantity of installments of repayment.

If there is lacking interest for certain particular products causing deflationary circumstance, national bank can expand purchaser credit by (a) going down payment and (b) rising the quantity of installments of repayment.

1. Moral suasion

Moral suasion implies persuasion and solicitation. To capture inflationary circumstance national bank, try to persuade and demand the business banks to forgo giving credits for speculative and unimportant purposes. Then again, to halt the deflation national bank influences the business banks to broaden credit for various purposes.

National bank likewise requests commercial banks to stretch out their wholehearted co-task to accomplish the aims of monetary policy.

* + 1. **Types of monetary policy**

The central bank's arguably most important instrument is the monetary policy of the key interest rate. In a restrictive monetary policy, it raises the key interest rate so that borrowing becomes more expensive and, for example, a slowdown in the economy can be dampened. If the key interest rate is lowered, the loans will benefit and thus an expansive credit policy of the commercial banks will lead to a revival of the economy. Therefore, there are two types of monetary policy such as expansionary and contractionary monetary policy.

A shortage of money is thus a form of contractionary monetary policy and an increase in the money supply is a form of expansionary monetary policy.

The goal of expansionary monetary policy is to expand the money stock or money supply to stimulate the economy, for example during a recession. A shortage of money is referred to as a restrictive monetary policy.

If a central bank increases its money supply with the commercial banks, then they are able to lend increased loans. The higher supply of credit is usually followed by a reduction in the lending rate, which significantly increases the demand for credit. Credit-financed expenditures on consumer and capital goods are increasing, which in effect increases production and employment levels.The flip side of an expansionary monetary policy, on the other hand, is the rise in inflation.

In the short term, the expansionary monetary policy has a real and rapid effect on the production or interest rate of an economy. In the medium and long term, however, it is ineffective. In the end, it comes only to a price level increase. As long as production is above its natural level, the price level rises over time, as additional production lowers the unemployment rate and wages and prices rise.

Contractive monetary policy includes all measures taken by a central bank that reduce the amount of money in circulation. Above all, in times of economic overheating contractionary monetary policy can be an effective measure to curb inflationary tendencies. Typically, contractionary monetary policy involves the sale of securities for cash, which deprives the economy of money.

Basically, the draw of cash in an economy increases in interest rates, production and decline in investment and a slowdown in price levels increase the effect. Expansionary and contractionary monetary policy measures serve to regulate the money supply.

A contractionary monetary policy usually has the following effects:

* Interest on savings deposits rise
* Investment decreases
* The savings rate is rising (consumption is falling)
* Economic growth is falling
* Inflation is falling
* The currency is upgraded (capital imports)
* The demand for loans is falling
* Share prices are charged

**1.3 Historical appearance of monetary policy**

Without doubt the origin of monetary policy was the fixed exchange rate during the Bretton Woods System – that consists of the following phases have been common for significant countries. The primary utilization of begat cash likely began in the eighth century B.C. in the territory of Lydia in advanced Turkey. The Bank of England, contracted in 1694, began loaning to local organizations, in this manner controlling the measure of credit in the nation and making the principal utilization of monetary policy.

* + 1. **Initial theories**

Money related approach is related to interest rate and accessibility of credit. Bank reserves of the monetary base and short-term interest rate include the tools of monetary policy. For some hundreds of years, there were just two types of money policy approach: The first is the decisions about coinage, and the second is the decisions to print paper cash to make credit. With the appearance of bigger exchanging systems came the capacity to set the price among gold and silver, and the local currency value to the price of foreign currencies. This legitimate price could be authorized by law, regardless of whether it changed from the market price.

Paper money began from promissory notes called "jiaozi" in seventh-century China. The progressive Yuan Dynasty was the primary government to utilize paper cash as the transcendent coursing medium. In the later course of the tradition, confronting monstrous deficiencies of space to finance the war and their standard in China, they started printing paper cash without limitations, bringing about hyperinflation.

With the appearance of the Bank of England in 1694, that obtained the obligation to print notes and back them with gold, the possibility of monetary policy as free of official activity started to be established. The objective of monetary policy was to keep up the estimation of the coinage, print notes which would exchange at standard to specie, and keep coins from leaving money circulation. To achieve this end, national banks as a component of the highest quality level started setting the interest rate that they charged, both their very own borrowers and different banks who required liquidity. The highest quality level is a framework under which the cost of the national money is estimated in units of gold bars and is kept consistent by the administration's guarantee to purchase or sell gold at a fixed price as far as the base money. The Gold standards was related to the fixed exchange rate approach. These days this sort of monetary policy is never again utilized by any nation.

The fixed exchange rate, otherwise called as the Bretton Woods System and the gold exchange standard.

**1.3.2 Bretton Woods System**

The Bretton Woods system began in 1944 when World War II winning states gathered in the United States to Bretton Woods Village to agree on post-war international economic rules. As a result of the negotiations, the [International Monetary Fund (IMF)](http://maailmantalous.net/fi/node/515) and the International Bank for Reconstruction and Development (IBRD) emerged, which later evolved into the current [World Bank](http://maailmantalous.net/fi/node/544) . These organizations form the basis of the so-called Bretton Woods system.

The main characters of the Bretton Woods talks were the US negotiator Harry Dexter White and the British John Maynard Keynes, who practically represented the views of the European wars of the Second World War. Keynes is also known as an economist, according to which the named economic policy, [Keynesianism](http://maailmantalous.net/fi/node/525) , was widely followed in the post-war decades in different countries.

However, the United States went through its own performance. The Whit proposal for the dollar was the currency of the international exchange, and the US Federal Reserve undertook to exchange dollars for gold. The dollar thus became the central currency of the world economy. The proposal was useful to the winning United States; other countries had to buy dollars to participate in international trade, and in order to get dollars they had to sell the products to the United States. The United States only had to print dollars - which was virtually free - and take care of its gold reserves so that it could buy consumer goods from others.

Whit and the United States proposal won, even though some compromises were made. It was decided that the International Monetary Fund's leadership should always choose the European candidate and the candidate for the World Bank as the US candidate. In practice, the superpower policy dictated the decision-making structure of the Bretton Woods organizations, whose undemocracy has since caused much criticism.

The impact of the two world wars is clearly behind the Bretton Woods system. The winning countries wanted to increase economic cooperation in the world and to strengthen economic stability in order to avoid future economic problems experienced between wars. The rise of Nazi rule in Germany was largely due to the recession and mass unemployment of the 1930s and the massive war compensation imposed on Germany after the First World War.

The Bretton Woods system has been considered to have benefited the United States and European countries in particular, which has been criticized. In the longer term, the United States also benefited greatly from the fact that foreign exchange reserves of other countries were largely held in dollars. The International Monetary Fund also required this from developing countries that had to go through the structural adjustment programs of the IMF. Western Europe is considered to have benefited from the arrangement after the wars, at least in such a way that industrial production of the continent was quickly launched.

The actual Bretton Woods era is considered to have ended in 1971, when the United States stopped exchanging dollars for gold. At the same time, for example, the launching of the dollars needed for oil trading became more profitable for the United States. The Bretton Woods Institutions, the World Bank and the IMF, still exist, and use considerable power.

* + 1. **Monetary policy in the modern world**

What numerous individuals don't understand is that until 1971, gold was still at the focal point of currency system. All monetary standards in those days could be traded into dollars, which thusly could be traded into gold at a fixed cost. This would "limit" the activities of monetary policy.

Previously, monetary policy was commonly regulated for maintaining the currency value stability in the point of gold.

How can banks maintain stability? By regulating money supply. When the value of the currencies was appreciated against gold, country directly issues money. When the value of it is below, then the best option is the buying currency back, using gold, or bonds too. They can also maintain the price and money stability, when demand changes.

Nowadays, central banks manage base money by using several open market operations. The single difference between present system and the gold standards, or other systems — currency basket, currency peg, CPI target, commodity basket, and so on - is how much and when to regulate base money. The modern system is the interest rate targeting in the short- term. When the market interest rate for interbank credit is more than the Central bank’s target, the CB raise base money supply. On the other hand, the Central Bank decreases the base money supply.

I mentioned before which tools are using by central banks for managing money supply in the economy. Financial analysts presently trust that the economy can be by one way or another "supported" through money related approach. The fundamental thought is that by diminishing the loan cost, more cash will be spent, individuals will get more and spend more. The economy will enter an upright circle.

Paving the way to the 2008 global financial crisis, then the central banks continued diminishing interest rates with an end goal to prevent the rise from blasting Was this useful?

Moreover, after the 2008 emergency, all of the central banks kept on lower interest rates. When they couldn't do that any longer, they turned to straight-out buys of debt (quantitative facilitating). In the U.S. banks as well as even auto firms were basically safeguarded utilizing cash made out of nowhere.

Dissimilar to the involvement in some different nations like the United Kingdom or New Zealand, where expansion inflation targeting came into power in sensational routine moves. A portion of the key components of the inflation targeting on methodology was set up very early. The numerical goal of 2– 3 percent inflation started showing up in open explanations by Governor Fraser in 1992 and 1993.

This change in central bank policy began with the US mortgage crisis in 2008. At that time, the Fed cut interest rates more or less to zero, providing banks with unlimited reserves of additional reserves, especially by providing them with scrap securities that had become worthless as a result of the crisis bought from. This was accompanied by a rapid increase in reserves, which today is 35 times larger than in August 2008. The minimum reserve requirement, which was relatively tightly met by commercial banks until 2008, is now 18 times higher. This means that the banks are swimming in reserves and will not need the central bank until further notice.

And so it should stay. US Federal Reserve Chairman Ben Bernanke has announced that he intends to stick to this zero interest rate policy of unrestricted reserves by 2014. The development of the money stock is thus determined exclusively by the lending of the commercial banks, and the central bank has de facto no influence on it. Their only job at the moment is to preserve the stability of the financial system.

**Chapter 2 The impact of monetary policy on macroeconomic indicators**

**2.1 The impact of monetary policy in different economic period**

The Central banks influence economic development that initially based on a monopoly position. The Central banks has a monopoly on the issuance of cash and minimum reserves in the country. No other institution is authorized to do so.

 The central bank money stock is an important indicator of the supply of liquidity. A change in the money market initially brings to variation of interest rate that influence consumption level of individuals. For example, people change their consumption and investment plans because of a changed interest rate. These changes are then gradually reflected in changes in macroeconomic variables such as economic activity and price levels.

This transfer process is quite complex and, although broadly agreed, it is controversial in its details. However, three features of the monetary policy transfer process are widely accepted:

1. In the very short term, ie over a period of less than 12 months, monetary policy decisions have little impact on economic activity and price levels. While monetary policy influences other macroeconomic variables within this time frame, such as interest rates on multi-maturity investments, the change in the prices and production is rather slow. In this context, however, it is important to influence the expectations of economic agents through monetary policy.
2. In the medium term, ie over a period of about 1 to 3 years, monetary policy decisions over a long chain of adjustment processes affect both the level of economic activity and the price level.
3. In the long term, however, monetary policy is largely neutral in the real economy. Long-term neutrality means that once all monetary policy adjustments have been fully implemented, monetary policy will only have an effect on the general price level but not on the level of real economic activity, assuming that increased economic activity leads to higher inflation and subsequently again leads to higher interest rates.

Although a central bank in the long run can hardly influence real economic dimensions such as growth and production by changes in the money stock, I would like to underline the importance of communicating monetary policy and influencing expectations in the short term.

In the communication of central banks two main principles are considered important:

1. A central bank should formulate a clear goal definition: is the goal the stabilization of the exchange rate or is it price stability?
2. A central bank should be as transparent as possible in the choice of its instruments and methods of achieving that objective. Monetary policy decisions should be understandable to outside observers, and the central bank's assessment of the economic situation should be made transparent in the publication of economic forecasts.

**2.2 Role of exchange rate in economy**

Inflation and exchange rate developments influence completely globalized world with a smooth international traffic of goods, services, capital and labor inflation in the short term largely through the global balance of supply and demand. So you can assume globalization leads to domestic economic developments and have a stronger impact on inflation.

International economic relations differ from national ones, among other things, in that exports are paid in foreign currencies and foreign currencies are needed for purchases abroad. Exporters offer foreign currencies (foreign exchange), importers ask for foreign exchange. There are markets where exchange rates are formed.   
  
The exchange rate is the price of a foreign currency unit (for example, for one dollar) expressed in the local currency. In April 2019 you had to pay for a dollar 0.89 euros, or you received for one euro 1.12 US dollars. In the first variant one speaks of the price quotation of the dollar rate, in the second one of its quantitative quotation. Price and quantity quotations are reciprocal to each other, ie one quotation is the reciprocal value of the other.

**2.2.1 Exchange rate theories**

The external value of a currency can influence the domestic economy in various ways.

· A long-term mismatch affects the relative international competitiveness.

· An appreciation or devaluation can lead to more or less inflation and a stronger or lead to weaker growth.

· The volatility of exchange rates can drive up prices, the markets destabilize and lead to misdirection of capital.

Economics does not provide a single, simple explanation for exchange rate fluctuations. However, floating exchange rates can "as a result of the interaction of supply and demand in the foreign exchange markets "(OECD) Parity changes in these markets can also be explained by "random market models". There are several theoretical models.

**· Trade balance**. The currency of an economy with a trade deficit should fall

and that of an economy with a trade surplus soar, so a balance is established**.**

**· Open interest parity.** Exchange rates reflect different interest rates in

different securities issued plus or minus risk premiums resist, ie. the money goes to the economies that offer higher nominal interest rates, provided that the currency is not considered to be more than that interest rate differential is devalued.

**· Capital flows**. Economies with higher economic growth rates bring to long-term investments so that any current account deficit is compensated and an appreciation of the currency takes place.

According to all models, careless monetary policy is likely to lead to a devaluation. Inflation causes exports to stop at the original exchange rate are competitive, risk premiums are rising and markets are no longer ready, finance deficits through capital inflows.

**Purchasing Power Parity Theory**

The purchasing power parity theory is based on the fundamental principle of "arbitrage".

By this one understands that economic subjects with regional price differences for an identical tradable good have a strong incentive to do so on the cheaper place to buy and sell it in the more expensive place again. The arbitrage leads to that tradable goods are offered everywhere at a uniform price. Then we speak about of the "law of one price". Deviations from this law may result from transaction costs.

In the international framework, the arbitrage mechanism requires that a free goods exchange is possible at all. Customs or non-tariff barriers (e.g. import quotas) are thus also an important cause of deviations from the "law of one price ".

**2.2.2 Determinations of the exchange rate**

The pricing of foreign exchange, for example, the US dollar, follows the known laws of supply and demand. The demand for foreign exchange results

* domestic demand for foreign goods and services (import),
* the taking up of credits abroad, the purchase of foreign securities or the acquisition of foreign companies by nationals (capital export).

The supply of foreign currency is a consequence

* the demand of foreigners for domestic goods and services (export),
* the taking up of loans in your country, the purchase of domestic securities or the acquisition of domestic companies by foreigners (capital import).

In addition, foreign exchange supply or demand arises as a result of financial transactions between states or international organizations (for example for development aid or payments to the UN).

Changes in exchange rates, in turn, affect international trade and capital movements. If there is an appreciation of the euro - US citizens now have to pay more for the euro, Europeans less for the dollar - this means from a European union country perspective that our exports, measured in foreign currency, will become more expensive. This tends to slow exports. On the other hand, shopping in the dollar area becomes cheaper, so that imports tend to increase from there and foreign production locations gain currency-related cost advantages. This is problematic for companies that pay most of their workforce and suppliers in euros and sell their products in US dollars, such as the European aircraft manufacturer Airbus. In this case, shifting production into the dollar space is an approach to face this problem. Conversely, a devaluation of the euro and, at the same time, an appreciation of the dollar will tend to improve domestic export opportunities and increase the price of imports.

Exchange rate fluctuations are the result of price and interest rate differentials between home country and abroad. If, for example, the price level rises more sharply at home than abroad, domestic demand for goods and services in relatively less expensive foreign countries will increase, resulting in an import boom. Foreign exchange is in greater demand. At the same time, foreign demand for domestic goods is declining: they are becoming comparatively more expensive, export opportunities are worsening, and foreign exchange is being earned. As a result, the supply and demand curves in the foreign exchange market shift and offset each other at a new exchange rate. In our example, the foreign currency rate is rising. One speaks of an appreciation of the foreign currency or equivalent of a devaluation of the domestic currency.

In addition to these rather long-term dominant real economic factors, speculative and political factors play an important role. Expectations about future price and interest rate developments exert a significant influence on the supply and demand on foreign exchange markets. An increase in prices on commodity markets (such as oil) is often less the effect of a supply shortage that has already occurred, but rather the result of feared shortages as a result of a political crisis. Oil is settled in US dollars on international markets. In anticipation of expected price increases, traders and consumers are now buying US dollars, thereby boosting demand in the currency markets and causing the dollar to rise, which, when expressed in local currency, still multiplies the oil price increase (self-fulfilling prophecy).   
It turns out that a large number of explanations for exchange rate changes has to be taken into account, and menopausal approaches fall short. Real economic factors tend to explain longer-term trends in exchange rates, while short-term fluctuations in exchange rates can be explained more strongly by speculative influences.

**2.2.3 Exchange rate and currency systems**

The exchange relationships between two currencies can be regulated in different ways. One distinguishes between convertible and non-convertible currencies as well as between systems with fixed or flexible exchange rates.   
In a system of flexible exchange rates, supply and demand in foreign exchange markets determine the exchange rate. Because it is left to market forces, the exchange rate helps to offset different economic developments between states. For example, increasing imports in one country will lead to rising foreign exchange demand. This drives up the exchange rate of the foreign currency. This dampens import demand; At the same time, domestic export opportunities are improving. Both tendencies lead to a new exchange rate, in which foreign exchange supply and foreign exchange demand are offsetting each other again.   
  
However, exchange rate fluctuations, especially if they lead speculatively to short-term, violent fluctuations, but can trigger significant price fluctuations. An example is an abrupt increase in domestic oil prices or an increase in exports of exported goods abroad, which can endanger jobs at home. Fluctuating exchange rates affect the planning security of importers and exporters. While currency forwards can hedge exchange rate risks, there are additional costs involved. Risks and costs of fluctuating exchange rates are considered as disadvantages of the system.   
  
Fixed exchange rates provide a simple calculation basis for international goods and capital transactions. Price risks no longer apply, prices and interest rates are directly comparable. Fixed exchange rates promote and reduce international exchange. However, this only applies as long as the exchange rates are stable and in line with the market. If the price and interest rates of two countries differ, the exchange rate would have to change. If it does not change, the central banks must intervene. In the event of an oversupply of foreign exchange, the central bank would have to buy it with its own currency and thus expand the domestic money supply, which favors inflation. In the case of a foreign exchange deficit, the central bank would have to put its foreign exchange reserves on the market.   
  
The experience with fixed exchange rate systems show that such crises occurred from time to time again and again when the economic development of states diverged and the Governments and central banks were unwilling to focus their economic and monetary policies primarily on stabilizing the exchange rate. As a result, more and more countries have adopted a system of flexible exchange rates. This system eliminates the need for central banks to intervene. In principle, this opens up greater scope for action for national economic policy, in particular monetary policy, than in the case of fixed exchange rates. Therein lies the advantages of flexible exchange rates from an economic point of view.   
  
It can be said with caution that a system of flexible exchange rates has its strengths where countries that are heavily focused on national policies are engaged in international trade. A system of fixed exchange rates (or even the abolition of exchange rates through the introduction of a single currency) has advantages in the case of very closely interlinked economies, which have achieved a high level of convergence in their economic development. It can only exist if the countries involved are willing to harmonize their economic policies closely

**2.3 Monetary policy with fixed and floating exchange rates**

For central banks operating in open economies, the interest rate parity theory as well as the purchasing power parity theory represent an important limitation of their monetary policy leeway. As we have already seen, there are significant differences depending on whether a country belongs to a system of fixed or flexible exchange rates.

**2.3.1Fixed exchange rates**

A good example of a fixed-rate monetary policy is Denmark. The Danes did not succeed in 1992 in participating in European Monetary Union, but at the same time they have always endeavored to maintain a fixed exchange rate for their currency with Germany and, since 1999, with the euro. Due to the interest rate parity theory, it is to be expected that the Danish central bank's interest rate policy is thus largely tied to the monetary policy of the ECB.

This lack of interest autonomy is the crucial deficit of a system of fixed exchange rates. However, the example of Denmark also shows that a country can achieve good macroeconomic results even without its own interest rate policy. This presupposes that the central bank in the anchor currency country (in this case the ECB) pursues an interest rate policy which is also appropriate for the economic situation in Denmark. This is particularly the case if Denmark is hit as much by supply and demand shocks as Euroland, and if the purchasing power parity theory ensures that the Danish inflation rate is broadly in line with price inflation in Euroland.

Fixed exchange rates are therefore especially recommended for countries with very similar economic structures.

In any case, countries involved in a fixed - price system must have a sufficiently flexible fiscal policy, as this is the only actor that will be able to stabilize the economy even if there is a domestic demand shock. The main advantage of a system of fixed exchange rates is that it ensures a stable competitive environment for foreign trade. The exchange rate is a crucial determinant of the international competitiveness of a country. Above all, abrupt appreciation of the national currencies is problematic, as they mean either a massive decline in sales for the domestic companies or a significant reduction in profits (with a "pricing-to-market").

**2.3.2 Flexible exchange rates**  
Flexible exchange rates can be found today especially in the relationship between the currencies of the major currency areas (US dollar, euro, yen). Together with the economic size and thus the relatively small share of foreign trade in gross domestic product, the responsible central banks - Federal Reserve  
System, ECB, Bank of Japan - pursue a largely autonomous interest rate policy. However, the example of Japan shows that even such large countries are not completely immune to external disturbances. So has the  
Japanese yen nearly doubled in value in the first half of the nineties against the US dollar, without it would have been even remotely comparable inflation differentials. Thus, there was a massive departure from the purchasing power parity theory, which led to a serious deterioration of Japan's international competitiveness.

The strategy of flexible exchange rates is also pursued in many smaller economies. Examples include Great Britain, New Zealand, Poland and Switzerland. Compared to a system of fixed prices, these countries have the advantage that they are exempt from the rigid restriction of a given foreign interest rate level. In all four countries, monetary policy is operated in the conceptual framework of inflation targeting. Thus, the central bank with its interest rate policy respond to national supply and demand shocks. However, such a policy strategy is not without problems. These result from the fact that - as already mentioned - with flexible exchange rates there are always currency increases or devaluations that in no way correspond to the given differences in inflation rates. This is even more problematic for smaller economies, which often have a very high share of foreign trade in gross domestic product, than for large economies. Especially in the case of a massive real appreciation, it can then come to considerable difficulties for the export economy of a country.

* 1. **The impact of monetary policy on exchange rate**

Two commonly used ways to control money supply are changing the interest rates or reserve requirements of a bank.

**2.4.1 Change in interest rates affects the money supply and the impact on country’s currency**

A central bank can raise interest rates to limit the capital available in an economy. This effectively limits the amount of credit that consumers or businesses can borrow, because higher interest rates mean higher loan costs. Reducing borrowing in an economy also reduces spending and investment. As a result, demand for goods and services is falling. As a rule, inflation is brought under control because, as a result of lower demand for goods and services, prices tend to rise more slowly, or even decline in some cases.

To increase the amount of capital available in an economy, a central bank can lower interest rates. This will make borrowing cheaper and increasing borrowing and spending will stimulate the economy.

Restrictive monetary policy has a positive effect on one currency

A restrictive monetary policy usually strengthens the value of a currency because higher interest rates attract new capital into the economy. The reason for this is that high interest rates are usually signs of a strong economy. Investors receive higher returns on their capital invested in banks in this economic area.

## Loose monetary policy has a negative impact on one currency

A loose monetary policy is usually detrimental to a currency, as more readily available capital tends to be inflationary. This reduces the purchasing power of a currency and the value of the currency falls. In addition, investors receive lower returns on lower interest rates for their capital invested in the economic area. Instead, they try to invest their capital elsewhere, which contributes to the depreciation of the currency.

**2.4.2 Control of reserve requirements for banks influences the money supply and country’s currency**

Another way to control the money supply is to limit the amount of money a bank can lend to consumers and businesses. For this purpose, the minimum reserve requirements are set for banks.

Banks have only a small portion of their assets in cash, which can be withdrawn at any time and without delay. The remaining capital - usually the bulk of a bank's capital - has been invested or lent in the form of loans or mortgages.

The central bank sets the minimum amount that must be available for immediate withdrawal - the so-called reserve requirement.

If a central bank raises the minimum capital requirements, this reduces the amount banks have available for lending. The volume of capital in an economic area is effectively reduced - the money supply is declining.

A reduction of the minimum capital reserve has the opposite effect. Banks can lend and invest more, and the amount of money circulating in the economy increases.

Changing the reserve requirements may affect the value of a currency

The impact on the economy is similar to that of an interest rate change by the central bank.

If a bank needs to retain more capital than reserve, it will reduce the amount it can lend. Borrowers may be charged higher interest rates. However, higher interest rates benefit savers who receive higher returns for their savings.

The currency is likely to increase in value. More capital flows into the economy as investors seek to take advantage of higher interest rates. Similarly, a reduction in reserve requirements is likely to have a negative impact on a currency. Banks can afford to lend more and lower interest rates.

* 1. **The Mundell–Fleming Model**

##### The Mundell– Fleming model is a nearby relative of the IS-LM model. The two models pressure the collaboration between the goods market and the money market.

##### **The goods market and the *IS* curve**

The Mundell– Fleming model depicts the market for services and goods as the IS-LM model does, yet it includes another term for net export. Specifically, the goods markets are indicated with the below equation:

*Y* = *C* (*Y* – *T*) + *I*(*r*) + *G* + *NX*(*e*).

This equation expresses that total income Y is the entirety of consumption C, government spending G, Investment I and finally net export NX. Consumption depends decidedly on disposable income that can indicate as Y − T. There is a negative relationship between the interest rate and investment and also exchange rate and net export. As previously, we characterize the exchange rate e as the measure of foreign currency per unit of the home country money unit for instance.

**FIGURE**

**12-3**

Exchange rate,

*e*

Income, output,

*Y*

*Equilibrium*

*exchange rate*

*Equilibrium*

*income*

*LM\**

*IS\**

**The Mundell–Fleming**

**Model**

This graph of the

Mundell–Fleming model plots

the goods-market equilibrium

condition

*IS*

\*

and the money

market equilibrium condition

*LM*

\*

. Both curves are drawn

holding the interest rate con-

stant at the world interest rate.

The intersection of these two

curves show the level of

income and the exchange rate

that satisfy equilibrium both in

the goods market and in the

money market.

Sources: The macroeconomics, N. Grigory Mankiw, seventh edition p: 352

Economy under floating exchange rate:

Before examining the effect of approaches in an open economy, we should indicate the global monetary system related framework in which the nation has worked.

##### We begin with the framework significant for most real economies today: floating exchange rates. Under an arrangement of floating exchange rate, the exchange rate is set by market powers and is permitted to vacillate in light of changing financial conditions. Change in economic conditions leads to alteration in equilibrium point.

##### We should now consider three strategies that can change the harmony: trade, monetary and fiscal policies. We will likely utilize the Mundell– Fleming model to demonstrate the effect of approach changes, especially, the impact of monetary policy.

Monetary Policy

We know that central banks can increase the money supply in the economy. If the price level is fixed, that we assumed in our model, the expansion in the money supply implies a rise in real money balances. The expansion in real balances shifts the LM curve to one side, as in Figure 12-5. Thus, an expansion in the money supply brings an increase in income level and go down the exchange rate.

**FIGURE**

**12-5**

Exchange rate,

*e*

Income, output,

*Y*

*. ... which*

*2*

*lowers the*

*exchange*

*rate ...*

*3*

*. ... and*

*raises income.*

*1*

*-*

*. A monetary expan*

*sion shifts the LM\**

*curve to the right*

,

*...*

*LM\**

1

*IS\**

*LM\**

2

**A Monetary Expansion**

**Under Floating Exchange**

**Rates**

An increase in the

money supply shifts the

*LM*

\*

curve to the right, lowering

the exchange rate and raising

income.

Sources: The macroeconomics, N. Grigory Mankiw , seventh edition p: 354

#### When expansion in the money supply begins putting descending weight on the domestic interest rate, capital goes out of the economy, so investors look for a higher return somewhere else. This capital surge averts the interest rate of the home country from declining to the lower level from the world interest rate. It additionally has another impact: since putting abroad requires changing the home county currency into foreign currencies, so the capital outflow causes the depreciation of the domestic currency. This deterioration makes local merchandise cheap with respect to foreign products, that stimulate total income and net export. Thus, in the open economy, monetary policy impacts income by adjusting the exchange rate as opposed to the interest rate.

Economy under the fixed exchange rate:

Under an arrangement of fixed exchange rates, a national bank stands prepared to purchase or sell the local money for another country's currencies at a foreordained price. In a fixed exchange rate system. the single aim of monetary policy is to keep the exchange rate at the fixed level.

The increase in the money supply moves the LM bend to one side, that reduces exchange rate. On the other hand, the fall in the money supply moves the LM bend to the left side and leads to increasing in exchange rate.

Source: The macroeconomics, N. Grigory Mankiw, seventh edition p: 358

**How a Fixed Exchange Rate Governs the Money Supply**

In panel (a), the equi-

librium exchange rate initially exceeds the fixed level. Arbitrageurs will buy foreign

currency in foreign-exchange markets and sell it to the Fed for a profit. This process

automatically increases the money supply, shifting the

*LM*

\*

curve to the right and

lowering the exchange rate. In panel (b), the equilibrium exchange rate is initially

below the fixed level. Arbitrageurs will buy dollars in foreign-exchange markets and

use them to buy foreign currency from the Fed. This process automatically reduces

the money supply, shifting the

*LM*

\*

curve to the left and raising the exchange rate.

**FIGURE**

**12-7**

Exchange rate,

*e*

Exchange rate,

*e*

Income, output,

*Y*

Income, output,

*Y*

*Equilibrium*

*exchange*

*rate*

*Fixed exchange*

*rate*

*Fixed*

*exchange*

*rate*

*Equilibrium*

*exchange*

*rate*

**a) The Equilibrium Exchange Rate Is**

**(**

**Greater Than the Fixed Exchange Rate**

*LM\**

1

*LM\**

2

*LM\**

1

*LM\**

2

*I*

*S\**

**b) The Equilibrium Exchange Rate Is**

**(**

**Less Than the Fixed Exchange Rate**

*IS\**

Monetary policy

The underlying effect of this approach is to move the LM bend to the right side, bringing down the exchange rate, as in Figure 12-9. Consequently, financial approach as for the most part directed is insufficient under a fixed exchange rate. By consenting to the fixed exchange rate, the national bank surrenders its power over the cash supply.

The following figures indicate these relations broadly.

**FIGURE**

**12-8**

*2*

*. ... a fiscal*

*expansion shifts*

*the IS\* curve*

*to the right*

,

*...*

Exchange rate,

*e*

Income, output,

*Y*

*LM\**

1

*LM\**

2

*IS\**

1

*Y*

1

*Y*

2

*IS\**

2

*1*

*. With a fixed*

*exchange*

*rate ...*

*. ... and*

*4*

*raises income.*

*3*

*. ... which*

*induces a shift*

*in the LM\**

*curve ...*

**A Fiscal Expansion Under**

**Fixed Exchange Rates**

A

fiscal expansion shifts the

*IS*

\*

curve to the right. To main-

tain the fixed exchange rate,

the Fed must increase the

money supply, thereby shift-

ing the

*LM*

\*

curve to the

right. Hence, in contrast to

the case of floating exchange

rates, under fixed exchange

rates a fiscal expansion raises

income.

Sources: The macroeconomics, N. Grigory Mankiw, seventh edition, p: 360

**FIGURE**

**12-9**

Exchange rate,

*e*

Income, output,

*Y*

*Fixed*

*exchange*

*rate*

*LM\**

*IS\**

**A Monetary Expansion Under**

**Fixed Exchange Rates**

If the

Fed tries to increase the money

supply—for example, by buying

bonds from the public—it will

put downward pressure on the

exchange rate. To maintain the

fixed exchange rate, the money

supply and the

*LM*

\*

curve must

return to their initial positions.

Hence, under fixed exchange

rates, normal monetary policy is

ineffectual.

Sources: The macroeconomics, N. Grigory Mankiw, seventh edition, p: 360

* 1. **The impact of monetary policy on global trade**

Trade and macroeconomic policies are well known instruments of the public authorities. What we know less, it is the links between them and the way in which they influence each other.

On the other hand, the heads of central banks and finance ministries are mainly concerned, respectively by inflation, the state budget and fiscal policy. Central banks generally monetary or inflation-related objectives at the national level, while the commercial performance of a country is only of concern from the point of view of the evolution of foreign exchange reserves or the widening of deficits unsustainable from the current balance.

The main objective of this section is to identify the links between trade and macroeconomic results and those between trade and macroeconomic policies.

**2.6.1.Trade and Macroeconomics: Intuitive Explanations**

Trade and macroeconomic variables do not operate in a vacuum. They are closely related between them and interdependent. Before clarifying their links formally, it may be useful to give some intuitive explanations.

In general, these links are of two kinds. First, trade influences variables, such as national income, employment, price level, overall investment and consumption (and hence savings). It weighs on macroeconomic performance by influencing economic growth, stability and distribution.

Imports can be used as inputs in production and, therefore, influence directly on the level of production and indirectly on the demand for labor, so on employment. Imports of consumer goods reflect the choice of consumers and hence their decisions to spend their income or to save. In addition, they compete with and may lead to the foreclosure of domestic firms in the market. Domestic production is altered, as well as income and employment - negatively if domestic firms are not able to compete or positively if they become more competitive.

Exports, which are a component of aggregate demand, boost output growth and therefore income and employment. By expanding open markets to national companies, they create the conditions for lower production costs, as companies benefit from savings scale, which leads to an increase in their productivity. Many countries have relied on to "drive" their economic growth.

Second, the reverse causality - the influence of macroeconomic variables on trade - is also true. Domestic growth leads to increased demand for imports and divert resources from the production of exportable goods to the production of goods for the internal market. All other things being equal, the trade balance will tend to deteriorate.

Abroad: As a result, exports will tend to increase and the trade balance will improve.

Changes in the level of domestic prices also affect trade. Inflation erodes competitiveness of domestic firms against foreign imports and external markets. Again, imports tend to increase and exports decline, and trade balance deteriorates accordingly. Foreign price changes are also important for trade and macroeconomic performance particularly for small countries which by their nature are more dependent on international trade.

The increase in world prices relative to domestic prices encourages exports and discourages imports. In addition, higher import prices increase imported inputs and may inflationary pressures. Higher export prices increase the profitability of export operations and improves the self-financing capacity of exporting firms, which are more likely to transfer resources towards the production of tradable goods. Changes in foreign relative prices abroad change the terms of trade of a country and, nevertheless, the situation of its balance of payments.

Trade is also sensitive to changes in macroeconomic policies. For example, a expansion of monetary or fiscal policy increases overall spending, including on import, and influences the allocation of resources between tradable and non-tradable goods. The macroeconomic policies also affect the conditions of the financial markets, that push the flow of capital to enter or leave a country. This in turn is a determining factor the amount of external resources available to finance current account deficits.

The last observation concerns the comparative importance of economic factors and microeconomic forces for trade. Trade can be determined by changes in macroeconomic variables, such as consumer spending or investment. If, for example, the authority’s monetary policy cuts interest rates, domestic spending on commodities and imports will increase. Similarly, there may be resources available to produce exportable goods are transferred to the production of goods for the domestic market.

**2.6.1.1 Theoretical framework**

**The monetary model of the balance of payments**

The role of monetary and fiscal policies in restoring and maintaining the balance of the external balance can be better understood using theoretical models based on the balance of payments approach by "absorption" or conform to this approach. The latter are themselves based on the fundamental macroeconomic equation established below. One of these models - arguably the best known - is the monetary model.1

The IMF's monetary model includes (among others) the following elements:

 dM = dR + dDC (1)

Identity (1) indicates that the change in money supply (dM) is, by definition, equal to the change a country's foreign exchange reserves (ie its net foreign assets) (dR) plus the change in credit banking system (dDC).

 dR = X - IM -NF + dK (2)

Identity (2) indicates that the change in foreign exchange reserves (dR) is, by definition, equal to exports (X) less imports (IM) of goods and services, less net factor current transfers (NF), plus net inflows of foreign capital from the non-banking sector (dK).

The link between monetary and fiscal policies and external accounts is established by the equation macroeconomic fundamentals ". If we define first of all:

 Y = GDP-NF (3)

 GDP = C + I + (X-IM) (4)

 A = C + I (5)

 CAB = X-IM-NF (6)

where Y - represents the gross national income available,

 A - represents the internal absorption (C consumption, and I investment),

 CAB - represents the current balance, and if we replace (4), (5) and (6) in (3), we obtain the following "basic macroeconomic equation":

 Y = C + I + (X-IM) -NF ¨ Y = A + CAB, and hence CAB = Y-A (7)

The current account balance (CAB) is the difference between a country's income (Y) and its domestic absorption (A). equation (7) also shows that the current account records a surplus if the income is higher than the absorption and a deficit in the opposite case. The current account deficit can therefore be reduced by lowering absorption (in relation to income) or an increase in income (in relation to absorption).

Moreover, by combining equations (7) and (2), we obtain:

 dR = Y-A + dK (8)

which shows that if the excess of domestic absorption over income is not entirely financed by foreign capital inflows, this will reduce the net external assets of the banking system.

Equation (1) can be modified to link the change in net foreign assets to the difference between the change in the money supply (dM) and the change in domestic credit (dDC):

 dR = dM-dDC (9)

Equation (9) shows that foreign exchange reserves decrease to the extent that the change in money supply total is lower than the change in domestic credit. By combining equations (7), (8) and (9), we obtain:

 Y-A + dK = dM-dDC (10)

Thus, the excess of the change in domestic credit in relation to the change in the money supply is equal to current account deficit (assuming no net inflow of foreign capital)

**2.6.1.2 Are macro- economic results important for trade?**

Empirical evidence on the effects of macroeconomic factors on trade is scarcer and relatively newer. Work in this area has focused on two main aspects of the results macroeconomic effects, namely the effects of economic growth on trade and economic cycles, on the one hand, and on trade flows on the other. Special attention has been paid to the dedicated studies the effects of economic recessions and macroeconomic instability on trade.

**a) Economic recessions and trade policy**

The effects of economic growth on trade are felt both in the short term and in the long term. The short-term effects are changes in imports that generally result from fluctuations in the level and composition of domestic expenditure, due to changes in the relative prices of commodities. The Long-term effects reflect changes in production techniques and longer-lasting fluctuations in request. These may have been less studied and understood.

On the other hand, the most well-known studies of the effects of economic growth on trade concerned economic recessions. These effects are both direct and indirect. Direct effects result from a real decrease aggregate demand and inflation, while the indirect effects result from increased pressures by national companies to be protected against foreign competition. In addition, strengthening the protection in a country may lead to retaliation, thus a decline in other trading partners on themselves ("every man for himself" policy). The extreme case of the recession of the 1930s was marked beginning with the adoption of such policies, with countries having created barriers to trade to protect domestic producers of foreign imports in the face of declining domestic demand.

The elasticity of the response of firms and households to changes in their disposable income generally differs according to the nature of commodities. It is very low for products like fuels, energy or products and higher for fashion and luxury goods. Changes in domestic demand may also weigh on exports in the short term, although the actual reaction function depends on the specific situation in each country. In some countries, exporters respond positively to a decline in domestic sales by seeking new markets; in other countries they are much slower to react.

**(b) Effects of real and monetary shocks**

As noted above, the main channel of transmission of macroeconomic shocks to trade is the foreign exchange market, which acts through the instability of exchange rates and the level of domestic prices. In addition, nominal internal shocks may result from changes in monetary policies, which are transmitted by financial markets. The second series of empirical studies therefore mainly studies the short-term effects and long term, nominal (monetary) shocks to trade.

Inflation is detrimental to trade for several reasons. It creates uncertainty that can lead to misallocation of resources whenever investment decisions distort the allocation of resources between tradable and non-tradable goods. Prices rising, unstable and therefore unpredictable discourage investment. Very high rates of inflation may even lead to investor flight who are moving away from financial and productive assets to safer markets. Inflation can also lead demand for increased protection against foreign competition, as the existing level of protection is compromised by rising domestic prices.

Empirical work on business cycles has focused on three distinct approaches. The first consisted to assess the importance of common international shocks in relation to shocks affecting certain countries or certain branches of production. The second was to assess the role of international trade as a mechanism transmission of shocks resulting from business cycles. The third, finally, consisted in simulating the dynamics of links between trade and business cycles in dynamic general equilibrium models.

**2.7 The influence of Exchange rate policy on trade**

A more direct method of adjusting the balance of payments exists in the context of exchange rate regimes flexible. Capital movements are not necessary in the event of an imbalance in the current account, as this imbalance is automatically corrected by changes in the exchange rate. These variations occur as soon as there is demand or excess supply of foreign currency. Thus, when imports increase relatively faster than exports, the supply of foreign exchange on the exchange markets dominated by is not sufficient to satisfy the demand for foreign exchange. Currencies appreciate in case of surplus of the current balance, and vice versa in the opposite case.

The exchange rate adjustment has two effects: first, it modifies the relative prices of foreign products by price of domestic products. For example, the devaluation of a currency makes imports by domestic goods, which tends to lower the demand for imports. On the other hand, devaluation makes domestic products more competitive abroad and therefore encourages production for export. A revaluation of the currency has the opposite effect.

Second, a change in the exchange rate results in a change in the prices of tradable goods compared to non-tradable goods. This fluctuation in national relative prices not only growth in exports and imports, but also changes consumption patterns and investment in the internal market. In other words, any change in relative prices leads to adjustment two important macroeconomic variables, namely consumption and investment.

If the external balance is the sole objective of the public authorities, a flexible exchange rate system is preferable customs duties. Exchange rate adjustments are symmetrical because they affect both the demand imports and on export incentives. In general, however, government authorities concern not only with the external balance but also with the internal balance. The choice of devaluation as means of intervention poses a problem because the depreciation of the currency leads to a fall in real incomes expressed in foreign currency and an increase in production costs expressed in national currency.

Economists agree that the exchange rate is the best instrument for restoring external equilibrium, but the choice of exchange rate regime is nonetheless the subject of an ongoing debate. What is the exchange rate regime?

Fixed exchange rates have the advantage of providing an anchor for monetary policies, that is, predictable policies that maintain stable price levels and avoid transaction costs multiple exchange rate regimes cause in international transactions, whether they concern the trade or capital movements. Flexible exchange rates have the advantage of giving some independence of the national monetary authorities, to better isolate the economy from real shocks and to less disruptive adjustment mechanism in the face of nominal rigidities. Long-term observations seem indicate that fixed exchange rates result in lower average inflation rates, but there is no systematic relationship between economic growth and the exchange rate regime.

Over the past decade, countries have been moving towards adopting exchange rates that vary from one extreme to the other. They choose either the monetary union (or some form of actual attachment to an anchor point) or a system floating exchange rate. Indeed, countries where capital movements are free from restrictions have found that intermediate exchange rate regimes "[were] subject to crises and unsustainable over long periods". After the Asian financial crisis, similar guidance was recommended to developing countries. It's about avoid intermediate regimes, neither fully fixed nor fully flexible, which can be attacked speculative. This idea is based on the argument that the overvaluation of the real exchange rate – observed generally before the onset of crises - and the intermediate exchange rate regimes adopted by countries in crisis have allowed speculators to bet against the currencies of these countries.

Most economists would probably agree that there is not a monetary system suitable for all countries or at all times. In the end, it is likely that the choice of a foreign exchange regime is less important that the establishment of adequate budgetary, financial and monetary institutions to ensure macroeconomic stability, especially in emerging economies.

**2.8 The influence of monetary policy on trade**

An examination of the links between monetary policy and trade assumes that two scenarios are distinguished, depending on whether the economy does or does not record capital flows. We will first assume the absence of capital movements and consider an economy with a current account deficit.

Financing of current account imbalances in the absence of capital in a fixed exchange rate regime.

If the monetary authorities do not take countervailing measures, a current account deficit leads to a monetary contraction and a tension in interest rates. Rising interest rates lead to a decrease in private sector (firms and households), and in particular the demand for interest rates, such as capital goods (and therefore investment) or consumer durables.

Moreover, as demand for financial assets rises with interest rates, central banks may be tempted to intervene. A policy of monetary expansion may or may not succeed in lowering rates interest, but it will accompany the rise in production costs and the depreciation of the real exchange rate.

It should be noted that monetary policy is not used to restore the external balance in countries which maintain exchange restrictions (that is, non-convertible currencies). The external equilibrium is maintained by imposing restrictions on access to and use of foreign exchange. These restrictions allow maintaining the total foreign exchange expenditures at the same level as current foreign exchange earnings, but nevertheless distortions that result in multiple exchange rates and a change in volume and of the structure of trade. These distortions are not affected by monetary policies (and budget), which can only target domestic monetary variables.

Monetary policy in case of capital movements and flexible exchange rate:

In case of perfect mobility of capital, the adjustment mechanism is somewhat different. If a small open economy considers desirable to have a capital market, monetary authorities lose a little of their freedom. They must choose between a fixed exchange rate accompanied by a loss of monetary autonomy, and floating rate, maintaining their monetary sovereignty. If the authorities choose monetary sovereignty and floating exchange rate, monetary policy will act on the current account through domestic interest rates.

Current account imbalances will be fully financed by capital inflows and surpluses offset by capital outflows.

Monetary expansion policies (lowering short-term interest rates) lead to lower demand financial assets denominated in the national currency and, consequently, a depreciation of the exchange rate. If product prices are depressed, this translates into a real depreciation that makes exports more competitive and imports more expensive. The monetary policies that accompany the economic situation will therefore be normally to an improvement of the current account. This will go hand in hand with a corresponding deterioration of balance of capital transactions, as investors will withdraw from domestic financial assets. Policies restrictive policies will have the opposite effect on exports, imports and the current account.

Monetary policy in case of capital movements and fixed exchange rate:

Again, current account deficits are entirely financed by capital inflows, and current account surpluses offset by corresponding capital outflows. However, contrary to what happens in a rate exchange rate, monetary policy cannot be effective in an economy where exchange rates are fixed. Any attempt to change the money supply and interest rates is offset by capital, and therefore by corresponding pressures to change the exchange rate. The central bank must intervene to maintain the fixed exchange rate at a certain level. So there is no effect on trade.

It should be noted that the monetary intervention margin is small, even if the capital markets are imperfect.

In an open economy, the challenge for monetary authorities is to ensure that domestic instability does not lead to external instability and imbalance. The question of optimal policies in the "normal" period, when governments do not have to respond to an external crisis, there is an ongoing debate. The Theoretical discussions on optimal monetary policies focused on the choice between taxation rules or the granting of a certain latitude. Rules, such as a fixed growth rate of money supply or the targeting of inflation, give a more predictable character to monetary policy. In addition, when the monetary authorities follow very specific rules and undertake in advance not to take unannounced measures.

The rules allow for a lower long-term inflation rate. Nevertheless, there is a disadvantage: central banks are not able to react in the event of unforeseen circumstances. The margin of discretion benefit to them gives the central banks some leeway in determining the policy to be followed, but represents a source of significant uncertainty for the economy.

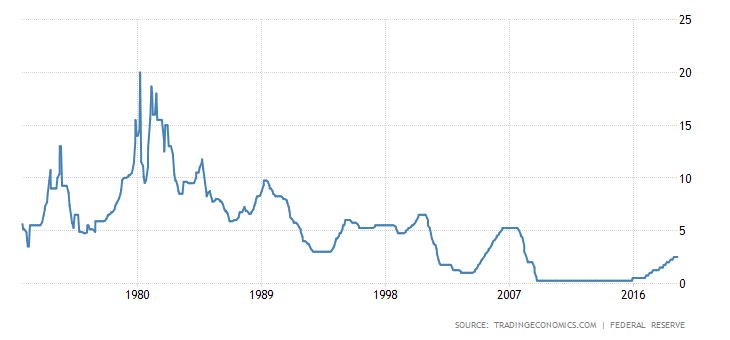
In the past, central banks have combined these two approaches. However, the idea that monetary policy should obey relatively simple rules is gradually gaining ground, the only question being which rule would be the best. Paradoxically, the rules have been better received as the targeting of monetary aggregates was losing its importance. Indeed, the relation between money supply and economic activity, namely the speed of circulation, has become less predictable, probably due to distortions in the functioning of the banking system in the process of financial intermediation. Much attention has been given recently to the Taylor's rule that short-term interest rates adjust positively to the rise in core inflation and gaps in production relative to the natural growth rate. In recent years, many central banks have adopted inflation targeting instead of the Taylor rule.

**2.9 Real case example in US**

Jimmy Carter who was the chairman of FED, tried to stimulate industrial development, had maintained a low interest rate, aimed at maintaining a relatively low exchange rate of the dollar for facilitating the export of goods, limiting the export of capital. When Carter appointed Volcker to the management of the Fed (July 1979), he decided to reverse US monetary policy: he raised the interest rate and hence the exchange rate of the dollar.

The objectives of this new policy are to fight against inflation and to stop the process of depreciation of the dollar against other currencies. For this, the FED decides to raise the discount rate to a record level (12%) and the obligation of the reserve requirements that must constitute banks to the FED. Moreover, the priority mission of the intervention of the monetary authorities changes its meaning. It is no longer to regularize the evolution of interest rates, but to limit quantitatively the expansion of the money supply. This monetarist policy will be made even more rigorous in 1981.

United Sates interest rate



Source: <https://tradingeconomics.com/united-states/interest-rate>

The shortage of domestic liquidity resulting from this policy further increases, mechanically this time, US interest rates; these high interest rates, attracting foreign capital, lead to a very strong appreciation of the dollar.

It must be stressed that this change in American policy is not part of an event outside the crisis, it is part of this crisis. Due to the generalized instability of the world economy, the (real) "fundamentals" now have less influence on exchange rates than capital movements; it is therefore no longer in function of the internal (real) equilibrium that the interest rate is fixed, it is manipulated according to the desired exchange rate.

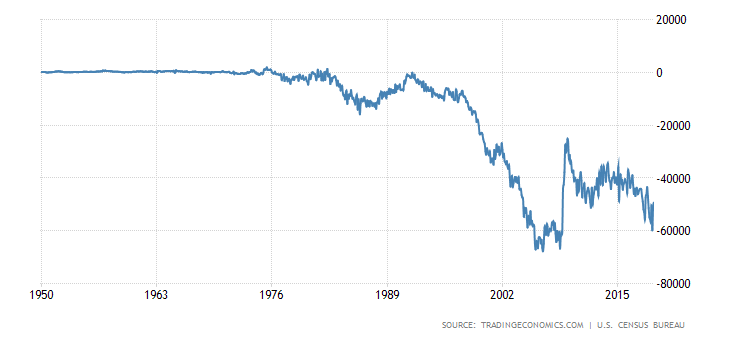
The result of the Volker policy is the raising of the interest rate and, hence, that of the dollar exchange rate: the short-term nominal interest rate jumps from 7.4% in 1978 to 14% in 1981, the long-term rate of 7.9 to 12.9. The exchange rate of the dollar (in ECU) rose by 29.9% between 1978 and 1982, by 66.9% between 1978 and 1985 (against the franc, the exchange rate of the dollar had fallen by more than 20% between 1969 and 1980, it increased by more than 100% between 1980 (4.5 F) and 1985 (10.5 F). A significant portion of the debt was subscribed at variable rate, and denominated in dollars: the reversal of the American policy thus radically changed the debt data.

This decision is all the more unfortunate as it comes at a time when there are serious difficulties for the indebted countries:

- extinction of the first grace periods;

- reduction in imports from central countries (between 1979 and 1981, Europe reduced them by 3.8%, the United States by 5.2%, Japan by 8.3%);

United State Balance of Trade



Source: <https://tradingeconomics.com/united-states/balance-of-trade>

- a reduction in inflation which is beginning at the Center (which will weigh on the export earnings of the peripheral countries) and which will rapidly be reinforced by the fall in the price of raw materials, which begins with the fall in the price of oil.

**Chapter 3 Monetary policy in Azerbaijan and its impact on economy**

**3.1 Monetary policy**

In the early years of the transition period in all post-Soviet countries, high inflation was observed. Taking steps towards liberalization in prices, foreign trade activities and financial sector has naturally brought increases in the general level of costs. In such a condition, the only way out is to balance the amount of money in circulation through monetary policy and thus, to cease the rise seen in general price level. However, the most important things are to provide high-level development of money amount beyond the general level of prices following the example of balanced, stably growing, developing countries and use it efficiently to eliminate unemployment.

The tough monetary policy which was applied in mid-1990s and yielded successful results to prevent inflation, unfortunately led to the decrease of money amount in circulation in terms of the formation of demand necessary for investment volume and offer front (production) in economy. While the conducted tough monetary policy kept hyper-inflation under control in 1995-96, after 1997, it gave a rise to some negative effects. The emergence of the deflation after the implementation of the tight monetary policy affected real sector negatively. Importers taking benefit from the stability of US dollar were able to fill the country’s markets with imported goods without encountering any limit. Thereby, the consumer goods market in Azerbaijan almost consist of imported commodity. It goes without saying that the prices in consumer sector are connected to US dollar. Consequently, the change in dollar’s rate does not make sense alone, but as all the imported goods are estimated with dollars, the costs of them change in connection with the variation in the rate of dollar.

Dollar was chosen as the major currency among bank deposits. Between the years 2006-2008, the inclination to dollar fell to some extent, while the rate of currency accounts continued at a high level.

The main objectives of the implemented monetary policy in 2015 were obtaining stability in prices and rate of exchange, protecting currency reserves, improving bank system and eliminating the lack of money in the economy. The Central Bank utilized the means in its own control to attain the pre-planned goals related to monetary policy. Furthermore, thanks to the President’s decision on the development of private sector, the percentage of loans given to this sector was lowered from 10% to 7%. The loan interest rate in Azerbaijan is the lowest among the CIS countries.

Azerbaijan interest rate



Source: <https://tradingeconomics.com/azerbaijan/interest-rate>

The drop of oil prices in 2015 resulted in the decline of exchange reserves which became 7 billion dollars (2014). The Central Bank took this into account and realized 2 devaluations, the first one in February, the second at the end of December, as a result US dollar has risen twice against manat. In 2016, it is intended to continue the monetary policy applied in 2015. The Central Bank also put the monetary policy into practice in 2015, this policy is thought to help the rapid growth in the economy, preserve macro-economic stability and management. In particular, the implementation of the inflation rate of 3-4% in 2015 was in the top of the goals and it was achieved. Some necessary measures were taken to minimize the negative effect of the money to enter the country through oil and foreign investment on exchange rate.

Azerbaijan inflation rate (CPI)



Source: <https://tradingeconomics.com/azerbaijan/inflation-cpi>

The targeted macro-economic situation will cause the national currency to strengthen. It is possible to say that this factor will contribute to reinforce the country’s international competitiveness. How is this affordable? The Central Bank is thinking of offering securities and other exchange tools to the market in accordance with the objectives of the monetary policy. To advance the financial markets, the Bank is planning to cooperate with the Ministry of Finance for long term securities proposals. Taking such a step may inhibit the existing proposal in the financial market, as well as the growth of inflation rate.

For the Central Bank, 2016 is the year of comprehensive measures in accordance with the reliable and efficient development strategy of banking system. That is, since January of 2015, the commercial banks that will not increase their authorized capital to 50 billion manats and private banks that will not apply international management mechanisms to create reliable banking system, will be in the focus of the Bank’s attention.

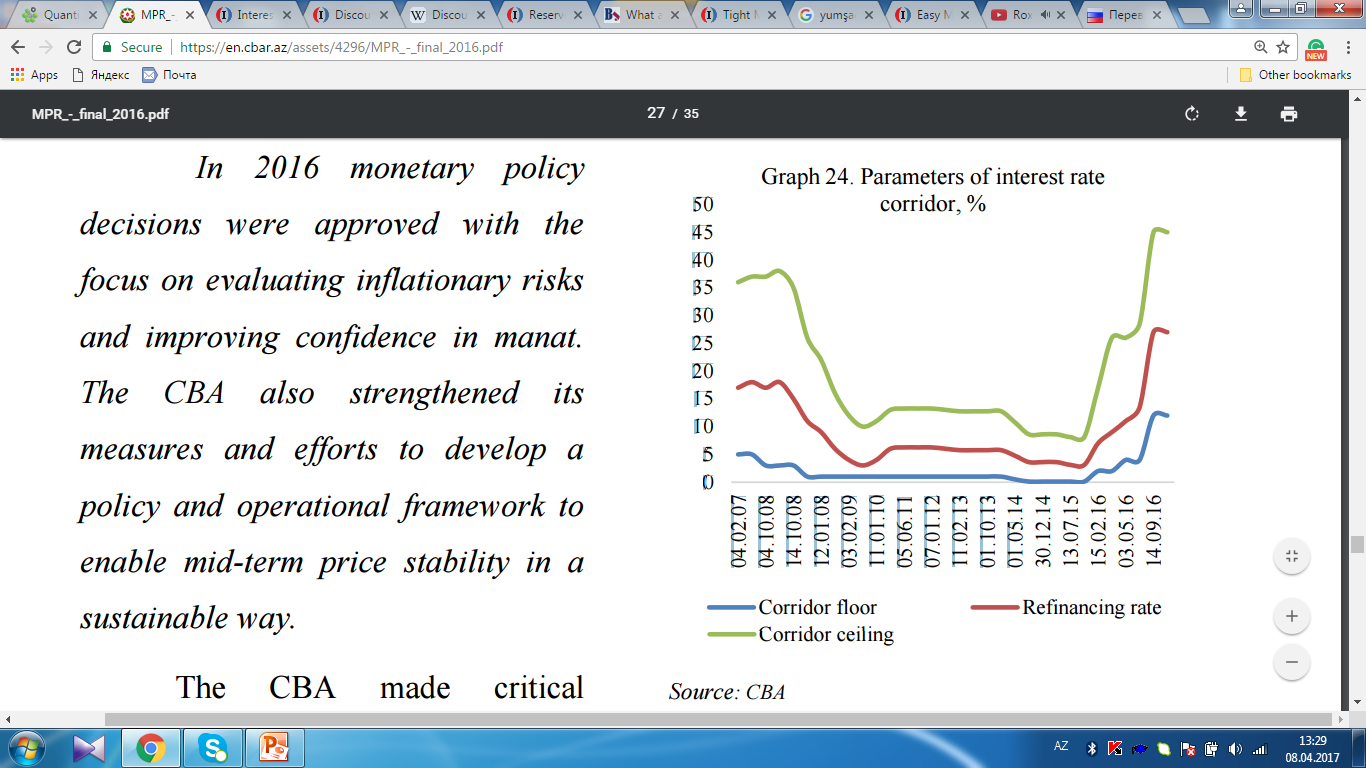
The main objectives of implemented monetary policy in 2015

* obtaining stability in prices and rate of exchange
* protecting currency reserves
* improving bank system
* eliminating the lack of money

The main objectives of implemented monetary policy in 2016

* monetary policy decisions were approved with the focus on evaluating inflationary risks
* improving confidence in manat.

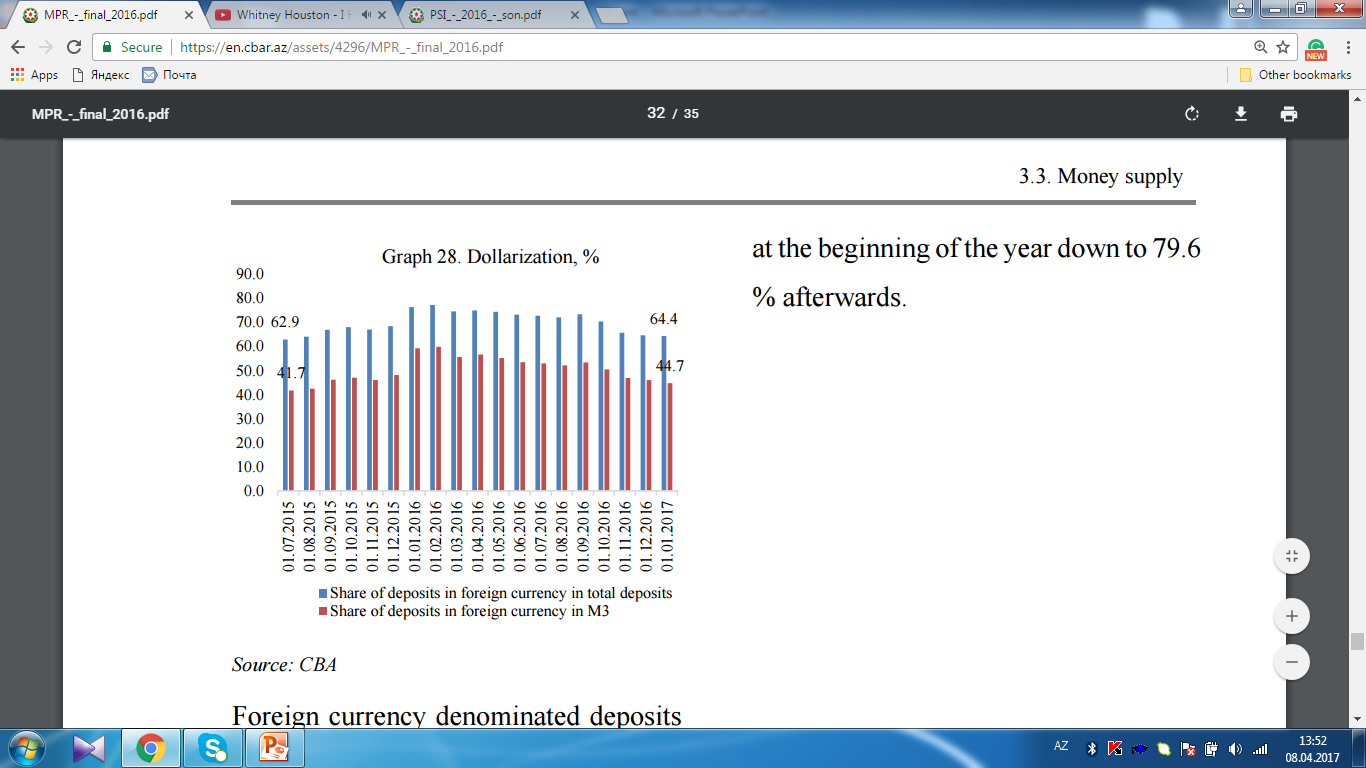
The board of Central Bank of Azerbaijan decided to shift the refinancing rate from 3% to 15 %, the interest rate floor from 0.1% to 12 % and the ceiling from 5% to 18 %.



Source: web side of Central bank of Azerbaijan

To give an impetus to dollarization and strengthen the banking system financial stability, the Board of the CBA decided:

* to raise the reserve requirement from 0.5% to 1 % on liabilities denominated in foreign currency
* leaving reserve requirements for liabilities denominated in national currency, as well as liabilities in precious metals unchanged.



Source: Central bank of Azerbaijan

**3.2 Exchange rate policy**

In 2014, Manat was controlled by the Central Bank and it was very important for the Central Bank to hold the currency at a stable rate since the oil prices were continuously dropping which was the main cause of the decline in the Central Bank reserves. The foreign currency reserves started to decrease slowly in July 2014. At the time, the reserves were over 15 billion dollars. After December 2014, its volume started to decrease sharply due to the increase in demand for dollar supply in the market. Manat devaluated about 30 % till the end of February in 2015. At the end of 2015, the reserves were only 5 billion dollars which meant around 65 % decrease since 2014 July.

This decline was one of the causes of a deterioration of the fiscal balance. There- fore, on February 21, 2015, the Central Bank of Azerbaijan made a decision to set the exchange rate against Dollar as 1.05 which was 0.78 before. This corresponded to a 34% devaluation. However, after this devaluation, banking sector faced enormous problems. Banks could not get back dollar credits, depositors started to get back their currencies from their savings accounts and converted these currencies dollars. Foreign- currency loans comprised 27% of total lending at the end of 2014.

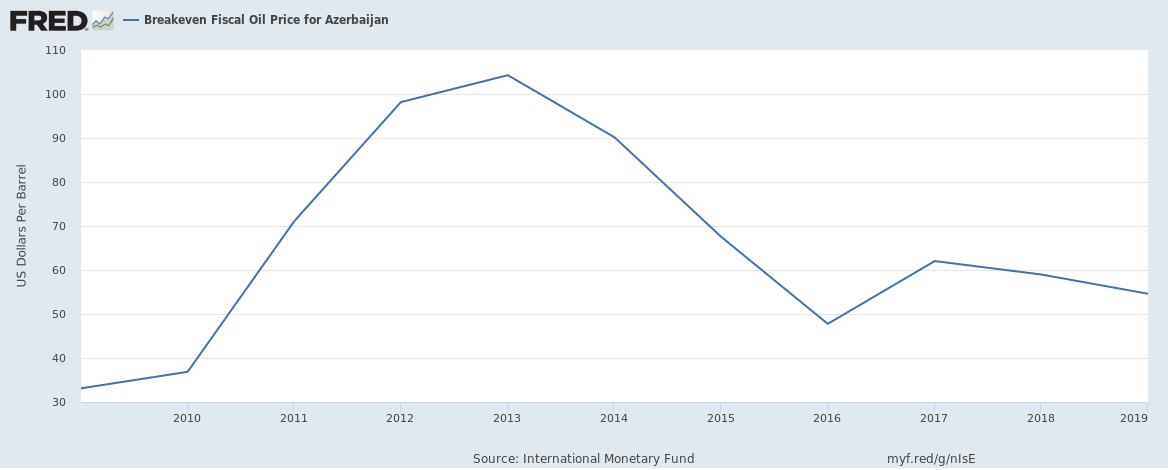
As known, on December 16, 2015, FED raised interest rates by 25 basis points. This was the first rise since 2006. Following this decision, on December 21, 2015, the Central Bank of Azerbaijan switched to a floating rate regime causing Manat to lose half of its value against Dollar (1 Dollar=1.55 Manat). The Azerbaijani Central Bank officials explained the reason of this switch to floating exchange rate by “intensifying external economic shocks”. In fact, this devaluation which was the result of shifting to floating exchange rate can be considered as the second major devaluation within the same year. This currency falls helped the government, which had drawn up its 2016 budget on the basis of a $50 oil price, to balance its books. But, this decision had negative effects on the banking sector and Azerbaijani citizens whose salaries and pensions and depositors whose savings were in terms of Manat.

Azerbaijani Manat against USD



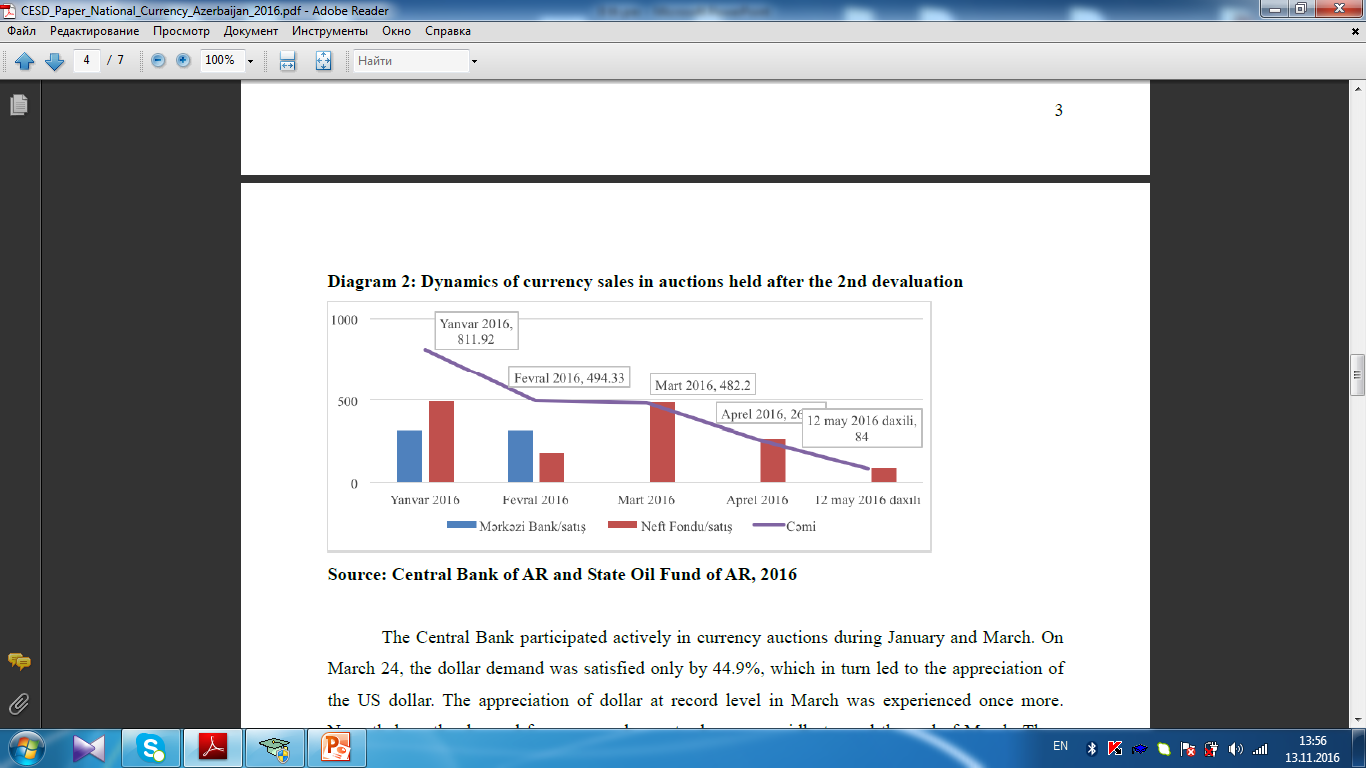
Source: <https://tradingeconomics.com/azerbaijan/currency>

Oil price for Azerbaijan



Source: <https://fred.stlouisfed.org/series/AZEPZPIOILBEGUSD>

The Central Bank also limited the currency exchange rate corridor within 4% of the official rate by purchasing -4% of the official rate and selling +4% of the official rate with an instruction which was sent to the banks. Due to these changes a black market emerged in the country.



Source: CESD\_Paper\_National\_Currency\_Azerbaijan\_2016.pdf p:4

Critics declare that shifting to flexible exchange rate had to happen sooner or later because Azerbaijan’s economy depends on oil. However, the main criticism is about the timing. The step should be taken long before, before the decline of reserves to $14 billion. Before 21 December decision, only four banks were having problems about meeting capital requirements, but today many banks have been suffering from this problem. Economists comment that, the number of these banks will increase to 23-24 in near future. Consolidation is the most effective way of meeting the capital requirement. That’s why, the majority of banks have been discussing the possibility of consolidation. In fact, the Central Bank of Azerbaijan is suggesting the development options of capitalization, consolidation, or ultimately going out of business for the banks.

The current situation of the banking sector makes it once again clear that, dependence on oil prices does not predict future stable development for the country especially for the banking sector. Dependence on oil must be reduced to the lowest level. Foreign investments should be attracted to non-oil sector and the business climate for these investments should be improved. Trade barriers should be reduced. Anti-corruption programs should be applied more effectively.

The factors affecting the exchange rate of manat are as following.

Positive factors:

a) The end of dollarization; b) The presence of administrative regulation; c) The lower supply of manats; - Decreases in budget spending, - Limited credits in manats; d) Decreased imports; e) Foreign borrowing opportunities; f) The psychological effect of rising oil prices;

Negative factors:

a) Reduced value of exports; b) Lower foreign exchange reserves of the Central Bank; c) The limited intervention of the State Oil Fund in exchange markets; d) Decrease in the value of remittances; e) Poor development of domestic production and dependence on raw materials

**3.3 Trade in Azerbaijan**

**Trade structure and dynamics in Azerbaijan**

The foreign trade turnover of the country in January-August 2018 amounted to $ 20275.7 million, including $ 13412.2 million for export and $ 6863.5 million in imports, resulting in a positive trade surplus of $ 6548.7 million. Foreign trade turnover increased by 34.8 percent in real terms compared to January-August 2017, including exports by 37.7 percent and imports by 29.5 percent. In real terms, circulation increased by 0.2 percent, including exports by 1.0 percent, while imports dropped by 1.2 percent.

According to the State Customs Committee, 27.7 percent of exports were exported to Italy, 8.4 percent to Turkey, 6.7 percent to Israel, 4.8 percent to Germany, 4.6 percent to India, 4.3 percent to Taiwan (China province), 3.8 percent 3.6 per cent to Canada, 3.3 per cent to Canada, 3.2 per cent to Russia, 3.1 per cent to Portugal, 3.0 per cent to France, 2.8 per cent to Georgia, 2.6 per cent to Spain, 18.1 per cent to Spain the cost of products sent to other countries.

15.5 percent of total imported products are from Russia, 14.6 percent in Turkey, 10.5 percent in China, 6.3 percent in Germany, 5.2 percent in the US, 4.0 percent in Ukraine, 3.2 percent in Italy, 8 percent in Japan, 2.6 percent in Iran, 2.4 percent in South Africa, 2.3 percent in the United Kingdom, 2.2 percent in Switzerland and 28.4 percent in other countries.

Non-oil products worth $ 1093.7 million were exported in January-August of 2018, which is 13.5 percent more than in January-August 2017 and 4.0 percent in real terms.

**1. Dynamics of foreign trade turnover**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Years** | **In million US dollars** | | | |
| **turnover** | **imports** | **exports** | **balance** |
| **1991** | 4,002.2 | 1,881.2 | 2,121.0 | 239.8 |
| **1992** | 2,423.8 | 939.8 | 1,484.0 | 544.2 |
| **1993** | 1,353.5 | 628.8 | 724.7 | 95.9 |
| **1994** | 1,430.6 | 777.9 | 652.7 | -125.2 |
| **1995** | 1,304.9 | 667.7 | 637.2 | -30.5 |
| **1996** | 1,591.9 | 960.6 | 631.3 | -329.3 |
| **1997** | 1,575.7 | 794.4 | 781.3 | -13.1 |
| **1998** | 1,682.6 | 1,076.5 | 606.1 | -470.4 |
| **1999** | 1,965.6 | 1,035.9 | 929.7 | -106.2 |
| **2000** | 2,917.3 | 1,172.1 | 1,745.2 | 573.1 |
| **2001** | 3,745.3 | 1,431.1 | 2,314.2 | 883.1 |
| **2002** | 3,832.9 | 1,665.5 | 2,167.4 | 501.9 |
| **2003** | 5,216.6 | 2,626.2 | 2,590.4 | -35.8 |
| **2004** | 7,131.4 | 3,515.9 | 3,615.5 | 99.6 |
| **2005** | 8,558.4 | 4,211.2 | 4,347.2 | 136.0 |
| **2006** | 11,638.9 | 5,266.7 | 6,372.2 | 1,105.5 |
| **2007** | 11,771.7 | 5,713.5 | 6,058.2 | 344.7 |
| **2008** | 54,926.0 | 7,170.0 | 47,756.0 | 40,586.0 |
| **2009** | 20,824.5 | 6,123.1 | 14,701.4 | 8,578.3 |
| **2010²** | 33,160.7 | 6,600.6 | 26,560.1 | 19,959.5 |
| **2010** | 27,960.8 | 6,600.6 | 21,360.2 | 14,759.6 |
| **2011²** | 44,161.7 | 9,756.0 | 34,405.7 | 24,649.7 |
| **2011** | 36,326.9 | 9,756.0 | 26,570.9 | 16,814.9 |
| **2012²** | 43,813.5 | 9,652.9 | 34,160.6 | 24,507.7 |
| **2012** | 33,560.9 | 9,652.9 | 23,908.0 | 14,255.1 |
| **2013²** | 43,554.1 | 10,712.5 | 32,841.6 | 22,129.1 |
| **2013** | 34,687.9 | 10,712.5 | 23,975.4 | 13,262.9 |
| **2014²** | 39,407.5 | 9,187.7 | 30,219.8 | 21,032.1 |
| **2014** | 31,016.3 | 9,187.7 | 21,828.6 | 12,640.9 |
| **2015²** | 25,809.0 | 9,216.7 | 16,592.3 | 7,375.6 |
| **2015** | 21,945.8 | 9,216.7 | 12,729.1 | 3,512.4 |
| **2016²** | 21,596.6 | 8,489.1 | 13,107.5 | 4,618.4 |
| **2016** | 21,946.7 | 8,489.1 | 13,457.6 | 4,968.5 |
| **2017²** | 24,257.6 | 8,782.0 | 15,475.6 | 6,693.6 |
| **2017** | 22,593.6 | 8,782.0 | 13,811.6 | 5,029.6 |

**Source:** <https://www.stat.gov.az/source/trade/>

|  |  |  |  |
| --- | --- | --- | --- |
| **Years** | **percentage change from previous year** | | |
| **turnover** | **imports** | **exports** | |
| **1991** | x | x | x | |
| **1992** | 60.6 | 50.0 | 70.0 | |
| **1993** | 55.8 | 66.9 | 48.8 | |
| **1994** | 105.7 | 123.7 | 90.1 | |
| **1995** | 91.2 | 85.8 | 97.6 | |
| **1996** | 122.0 | 143.9 | 99.1 | |
| **1997** | 99.0 | 82.7 | 123.8 | |
| **1998** | 106.8 | 135.5 | 77.6 | |
| **1999** | 116.8 | 96.2 | 153.4 | |
| **2000** | 148.4 | 113.1 | 187.7 | |
| **2001** | 128.4 | 122.1 | 132.6 | |
| **2002** | 102.3 | 116.4 | 93.7 | |
| **2003** | 136.1 | 157.7 | 119.5 | |
| **2004** | 136.7 | 133.9 | 139.6 | |
| **2005** | 120.0 | 119.8 | 120.2 | |
| **2006** | 136.0 | 125.1 | 146.6 | |
| **2007** | 101.1 | 108.5 | 95.1 | |
| **2008** | 466.6 | 125.5 | 788.3 | |
| **2009** | 37.9 | 85.4 | 30.8 | |
| **2010²** | 106.5 | 105.0 | 106.9 | |
| **2010** | 120.0 | 105.0 | 125.3 | |
| **2011²** | 104.0 | 145.3 | 92.6 | |
| **2011** | 103.9 | 145.3 | 88.7 | |
| **2012²** | 95.5 | 96.9 | 95.1 | |
| **2012** | 89.3 | 96.9 | 86.2 | |
| **2013²** | 102.7 | 109.1 | 100.7 | |
| **2013** | 106.3 | 109.1 | 105.1 | |
| **2014²** | 95.7 | 85.4 | 99.0 | |
| **2014** | 94.1 | 85.4 | 98.0 | |
| **2015²** | 99.9 | 99.5 | 100.1 | |
| **2015** | 104.3 | 99.5 | 106.3 | |
| **2016²** | 92.7 | 89.6 | 94.4 | |
| **2016** | 112.9 | 89.6 | 129.7 | |
| **2017²** | 89.3 | 83.9 | 92.9 | |
| **2017** | 80.0 | 83.9 | 77.6 | |

Source: <https://www.stat.gov.az/source/trade/>

**3.4 Econometric analysis of the impact of money supply on exchange rate and trade balance in Azerbaijan case.**

**Analysis of exchange rate dependency from other variables in Azerbaijan**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: LNEXC | | |  |  |
| Method: Least Squares | | |  |  |
| Date: 05/02/19 Time: 19:43 | | |  |  |
| Sample (adjusted): 1 32 | | |  |  |
| Included observations: 32 after adjustments | | | |  |
| LNEXC=C(1)+C(2)\*LNM2+C(3)\*LNGDP+C(4)\*LNINF+C(5)\*LNRINT+C(6) | | | | |
| \*LNINTBD | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C(1) | -0.142587 | 0.017559 | -8.120218 | 0.0000 |
| C(2) | -0.054892 | 0.008014 | -6.849336 | 0.0000 |
| C(3) | 0.003996 | 0.013713 | 0.291446 | 0.7730 |
| C(4) | -0.003012 | 0.001314 | -2.292889 | 0.0302 |
| C(5) | -0.000897 | 0.001327 | -0.675606 | 0.5053 |
| C(6) | 0.030665 | 0.004312 | 7.110981 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.985915 | Mean dependent var | | -0.185120 |
| Adjusted R-squared | 0.983207 | S.D. dependent var | | 0.054611 |
| S.E. of regression | 0.007077 | Akaike info criterion | | -6.896573 |
| Sum squared resid | 0.001302 | Schwarz criterion | | -6.621748 |
| Log likelihood | 116.3452 | Hannan-Quinn criter. | | -6.805476 |
| F-statistic | 363.9931 | Durbin-Watson stat | | 1.282168 |
| Prob(F-statistic) | 0.000000 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

My first model indicates relationship among exchange rate (LNEXC), broad money supply (LNM2), gross domestic product (LNGDP), inflation (LNINF), real interest rate (LNRINT), and interest rate of bank credit (LNINTBD). The analysis was implemented by using time series data in eviews econometric analysis program. The used method is least squared method. Number of observations equals to 32. From the first glance, we clearly see that there is negative relationship between exchange rate and M2, inflation, real interest rate.

According to IS-LM curve increase in money supply leads to rise in interest rate. Due to our model, 1 billion azn increase in money supply brings to 0.05 devaluation in azerbaijan manat against USD. As known that, standart deviation measures risk level, and in our model s.d is low level so model can be consider significant related to risk aspect. Probability of t statistics equal to zero. R squared measures the variation among dependent variables. If it close to one, it means the regressions fit absolutely to perfect model. In my analysis R-squared equals to 0.986. The Durbin Watson statistics interpret autocorrelation in analysis. In our model autocorrelation is acceptable leval because it is close to 2.

|  |
| --- |
|  |

**Analysis of trade balance dependency from other variables in Azerbaijan**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: TB | | |  |  |
| Method: Least Squares | | |  |  |
| Date: 05/02/19 Time: 19:33 | | |  |  |
| Sample: 1 23 | |  |  |  |
| Included observations: 23 | | |  |  |
| TB=C(1)+C(2)\*LNEXC+C(3)\*LNM1+C(4)\*LNFDI+C(5)\*LNGDP+C(6) | | | | |
| \*LNGLINX | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C(1) | 20.13028 | 48.23397 | 0.417347 | 0.6816 |
| C(2) | -14.43777 | 4.526350 | -3.189715 | 0.0054 |
| C(3) | 2.328401 | 4.037759 | 0.576657 | 0.5717 |
| C(4) | -0.217467 | 1.292679 | -0.168230 | 0.8684 |
| C(5) | 4.481455 | 5.985059 | 0.748774 | 0.4642 |
| C(6) | -11.30147 | 10.63395 | -1.062772 | 0.3027 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.872666 | Mean dependent var | | 6.026957 |
| Adjusted R-squared | 0.835214 | S.D. dependent var | | 8.463137 |
| S.E. of regression | 3.435510 | Akaike info criterion | | 5.525666 |
| Sum squared resid | 200.6464 | Schwarz criterion | | 5.821882 |
| Log likelihood | -57.54516 | Hannan-Quinn criter. | | 5.600164 |
| F-statistic | 23.30134 | Durbin-Watson stat | | 1.175605 |
| Prob(F-statistic) | 0.000000 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

The second regression model indicates relationship among trade balance (TB), exchange rate (LNEXC), money supply (LNM1), foreign direct investment (LNFDI), gross domestic product (LNGDP), and globalization index (LNGLINX). Number of observations equals to 23. There is positive relationship between trade balance and M1 in Azerbaijan case.

According to our regression analysis, 1 million USD increase in money supply brings to 2.3 billion USD increse in trade balance. Probability of z statistics equal to zero. R squared measures the variation among dependent variables. If it close to one, it means the regressions fit absolutely to perfect model. In my analysis R-squared equals to 0.87. The Durbin Watson statistics interpret autocorrelation in analysis. In our model autocorrelation is acceptable level. That statistics equal to 1.18.

**Conclusion**

In this paper, two groups of channels were examined, over which monetary policy may have influenced exchange rate and trade by using examples and statistical data analysis.

Two commonly used ways to control money supply are changing the interest rates or reserve requirements of a bank.

A restrictive monetary policy usually strengthens the value of a currency because higher interest rates attract new capital into the economy. The reason for this is that high interest rates are usually signs of a strong economy. Investors receive higher returns on their capital invested in banks in this economic area.

A loose monetary policy is usually detrimental to a currency; as more readily available capital tends to be inflationary. This reduces the purchasing power of a currency and the value of the currency falls. In addition, investors receive lower returns on lower interest rates for their capital invested in the economic area. Instead, they try to invest their capital elsewhere, which contributes to the depreciation of the currency.

If a bank needs to retain more capital than reserve, it will reduce the amount it can lend. Borrowers may be charged higher interest rates. However, higher interest rates benefit savers who receive higher returns for their savings.

The currency is likely to increase in value. More capital flows into the economy as investors seek to take advantage of higher interest rates. Similarly, a reduction in reserve requirements is likely to have a negative impact on a currency.

If the authorities choose monetary sovereignty and floating exchange rate, monetary policy will act on the current account through domestic interest rates.

Monetary expansion policies lead to lower demand financial assets denominated in the national currency and, consequently, a depreciation of the exchange rate. If product prices are depressed, this translates into a real depreciation that makes exports more competitive and imports more expensive. The monetary policies that accompany the economic situation will therefore be normally to an improvement of the current account. This will go hand in hand with a corresponding deterioration of balance of capital transactions, as investors will withdraw from domestic financial assets. Policies restrictive policies will have the opposite effect on exports, imports and the current account.

However, contrary to what happens in the exchange rate, monetary policy cannot be effective in an economy where exchange rates are fixed. Any attempt to change the money supply and interest rates is offset by capital, and therefore by corresponding pressures to change the exchange rate. The central bank must intervene to maintain the fixed exchange rate at a certain level. So there is no effect on trade.

According to the result of econometric analysis, in Azerbaijan 1 billion azn increase in money supply brings to 0.05 devaluation in azerbaijan manat against USD. Due to the seconnd econometric analysis 1 million USD increase in money supply brings to 2.3 billion USD increse in trade balance.

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**Annexes**

CB- Central Bank

CPI- Consumer Price Index

ECB- European Central Bank

GDP- Gross domestic product

IBRD- International Bank for Reconstruction and Develomet

IMF- International Monetary Fund

OECD- Organisation for Economic Co-operation and Development

UN- United Nations

US- United State