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International currency and credit relations. Currency dealing

Tutorial

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МИНИСТЕРСТВО ОБРАЗОВАНИЯ И НАУКИ РОССИЙСКОЙ ФЕДЕРАЦИИ

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Международные валютно-кредитные отношения. Валютный дилинг

Учебно-методическое пособие

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Unit 1: Currency Relations as a Form of Economic Relations

Global currency system is a form of currency relations established in international economics.

It was formed following global market development and is supported by international agreements.

Global currency system consists of the following elements:

- 1) international payment instruments;
- 2) means of currency exchange rates determination and maintenance;
- 3) international currency exchange equilibrium procedure;
- 4) conditions of convertibility of currencies;
- 5) currency and gold markets operating practices;
- 6) rights and obligations of international institutions involved in currency relations regulation.

Global currency system development stages

Stage 1. Gold standard system establishment (between the 19th and the beginning of the 20th centuries) when gold was widely accepted as primary currency in international monetary and credit system.

Gold standard benefits include the following features:

- “ absence of acute fluctuations in currency exchange rates;
- “ low inflation level.

Among demerits of the golden standard the following should be named:

- rigid connection between the volume of money supply in circulation and the volume of gold extraction and production (discovery of new deposits led to inflation, while lag between gold production and increase in actual production led to deficiency of cash resources);
- pursuing independent national monetary and credit policy was impossible.

Stage 2. In 1922 at Genoa Conference an agreement was reached to return to gold exchange standard. The principle means of international settlements were gold substitutes, that is national or common currency exchange bills. Crediting and non-cash money prevailed.

Stage 3. In 1944 the major participants of international trade held a conference in Bretton Woods (USA). The purpose of the gathering was to regulate the international monetary and financial system (which was later named Bretton -Woods after the area). For the purpose of implementing and managing this system International Monetary Fund (IMF) was established.

The new system was based on the principle of dual cover of the paper money, with gold and dollar. Participating countries fixed exchange rates of their currencies in relation to US dollar. The dollar itself was expressed in gold (\$35 per ounce (31.1 g).

The dollar was accepted as reserve and currency unit of account since it was freely convertible into gold.

Stage 4. It was legally arranged in 1976 in Kingston, Jamaica. The countries were offered the right to choose any currency exchange rate regime. A model of free floating of currency rates between countries was formed.

Pursuant to the agreement exchange rate was determined by market forces (demand and supply).

Jamaica currency system was based on special drawing rights (SDR as a unit of account), floating exchange rates and defining and regulating role of IMF.

Jamaica monetary system gave currency a new feature, product quality, as under conditions of transfer to floating rate currency price fluctuated depending on the situation at the market.

Currency (price, cost) means money in actual circulation in a particular country.

Any national monetary unit is currency and it acquires a number of supplementary functions and features as soon as it is perceived from the point of view of a participant of international economic relations.

Currencies can be divided into 3 categories:

1. Freely convertible currencies (FCC) refer to currencies of the countries where no restrictions on currency transactions under any types of operations (trading, non-trading, capital movement) is practised either for residents or non-residents.
2. Partially convertible currencies (PCC) refer to currencies of the countries which impose quantitative restrictions or special licensing procedures on currency exchange for certain types of transactions or for certain counterparties to transactions.
3. Inconvertible (blocked) currencies mean currencies of the countries which practice restrictions for almost all types of transactions.

In the global currency system there are 3 modes of exchange rate determination:

1. **Based on gold parity (under gold standard).** This mode was based on gold value of monetary units, that on gold parity. Correlation of currencies fixed to the value of gold was based on fixed exchange rate. Gold standard served as automatic regulator of global market.
2. **Fixed rate.** National exchange rate is determined by Central Bank which undertakes to buy and sell any amount of foreign currency and at the determined rate. As a rule, Central Bank sets limits for free fluctuations of national currency exchange rate for the purposes of macroeconomic stabilization.
3. **Floating rate.** Exchange rate is determined based on free fluctuations of demand and supply as an equilibrium price of currency at currency market.

Currency exchange rate means the price of a monetary unit of a particular country expressed in monetary units of another country upon purchase and sale

transactions. Such price may be either determined based on correlation between demand and supply for certain currency under conditions of free market or be strictly regulated by decisions of the government or Central Bank.

Currency exchange rate depends on several factors, and in the first place on demand and supply of currency at the market, and therefore all the factors which influence currency demand and supply subsequently influence its exchange rate. Below are some of such factors:

1. *Inflation rate.*
2. *State of balance of payments.*
3. *Variance of interest rates in different countries.*
4. *Activity of currency markets and speculative currency exchange transactions.*
5. *Degree of utilization of a certain currency at Euromarket and in international transactions.*
6. *Acceleration or delay of international payments.*
7. *Credibility value of currency at national and global markets.*
8. *State currency policy* has a certain influence both on its domestic affairs and on its position in international economics.

State currency policy of countries with developed economy normally comes down to currency exchange rate policy, official interventions and management of gold reserves. In a generalized sense currency policy includes currency regulation and supervision, international monetary and financial cooperation including membership in international organizations, interactions between central banks.

In the legal sense currency policy is presented by currency legislation (body or regulations governing the procedure of transactions with currency valuables both in the country and outside its borders) and currency agreements (bilateral and multilateral) between different countries or groups of countries.

International and regional monetary, credit and financial organizations include institutes established in pursuance of international agreements for the purpose of regulation of international economic relations, in particular currency, credit and financial relations. Such organizations include: Bank for International Settlements, International Monetary Fund, International Bank for Reconstruction and Development, as well as regional development banks.

Unit 2: Currency Markets: Types, Organization, and Participants

According to Forbes magazine, 24% of the world's billionaires are people who made their fortunes dealing at global financial markets.

There are several financial markets:

- securities market for stock trade;
- commodity market for supply contracts trade;
- currency market for currency trade.

The name **FOREX** comes from **FOREIGN EXCHANGE**, or currency market. **FOREX market** is a global decentralized market for various investment, trading, speculative transactions with currency which works through a system of financial institutions.

Forex market trades 24 hours a day, and the trading begins in New Zealand followed by Sydney and then gradually goes on to the rest of the world.

Since there is no need to wait for the market to open, at the Forex market investors have opportunity to respond to fluctuations of prices for various currencies which were affected by economic, political, social or other events. This is exactly what makes the Forex market beneficial in comparison to other financial markets.

Forex unites four regional markets: Asian, European, American, Australian. Exchange transactions go on 24 hours per day 7 days a week.

Table 1

FOREX trading hours
Time zone: Moscow (standard time)

Region	City	Opening time	Closing time
ASIA	TOKYO	3:00 a.m.	11:00 a.m.–12:00 p.m.
	HONG KONG	4:00 a.m.	12:00 p.m.–1:00 p.m.
	SINGAPORE	4:00 a.m.	12:00 p.m.–1:00 p.m.
EUROPE	FRANKFURT	9:00 a.m.	5:00 p.m.–6:00 p.m.
	LONDON	10:00 a.m.	6 p.m.–8 p.m.
AMERICA	NEW YORK	4:00 p.m.	11:00 p.m.–12:00 a.m.
	CHICAGO	5:00 p.m.	12:00 a.m.–1:00 a.m.
PACIFIC	WELLINGTON	12:00 a.m.	8:00 a.m.–9:00 a.m.
	SYDNEY	1:00 a.m.	9:00 a.m.–10:00 a.m.

Currently FOREX currency market has a daily turnover of more than 3 billion US dollars which is several times the turnovers of other world markets. The enormous amount of transactions made at this market is what ensures its high liquidity.

Market participants use FOREX to achieve the following goals:

1. Ensuring trade and investments
2. Importing companies buy foreign currency to purchase goods abroad and sell them in their home countries.
3. Exporting companies receive proceedings in foreign currency. It needs to be exchanged for their home-land currency in order to cover defray costs.

Margin trading

Margin trading means transactions at currency market made through collateral (margin) from the client's funds and leverage (dealing lever).

The market maker establishes a credit line for its clients which allows the client to use amounts of money which meet requirements and significantly exceed its own investments. Expenses are written-off of the margin deposit, and revenue is accrued for the margin deposit.

Margin deposit (trading account) means **secured pledge** to secure repayment of target-specific credits in the amount of standard contract on purchase/sale of currency. However, no other transactions can be made using this money.

Dealing lever is determined by the market maker and it basically defines the ratio between the pledge amount and capital to cover it. (1: 100; 1:50; 1:33; 1:20;

Example: When the lever is 1:100, a target-specific credit in the amount of USD 100,000 requires a pledge (margin) of USD 1,000.

Margin trading uses lots, fixed standard amount of currency provided for currency purchase/sale transaction against a pledge amount (margin).

Lots are also referred to as the contract amount.

Currency exchange rates

To make a transaction one first of all needs **currency quote/quotation**, the fixed rate of a national monetary unit in foreign monetary units.

Exchange rate is normally represented in form of direct or indirect quote.

Direct quote means that foreign exchange rate is quoted as the domestic currency per unit of the foreign currency.

<u>Direct quote:</u> 1 unit of foreign currency = n units of domestic currency

Direct quote method is used at **Forex** for determination of exchange rate of the Swiss franc and Japanese yen:

1 USD = 112.65 JPY

1 USD = 1.2746 SFR

Indirect quote means that foreign exchange rate is quoted as certain amount of foreign currency per unit of the domestic currency.

<u>Indirect quote</u> 1 unit of domestic currency = n units of foreign currency
--

Indirect quote is used to determine exchange rate of Great Britain pound and euro:

1 GBP = 1.6600 USD

1 EUR = 0.8782 USD

At futures market direct quotes are not used, only indirect quotes are used.

At **Forex** US dollar is used as the base currency.

In trading practice cross rate is also used, it refers to ratio between two currencies which is determined by their rates in relation to a third currency. As a rule, currency cross rates are determined in relation to US dollar, while the US dollar is not a part of such pair but rather has indirect influence on the currency exchange rate. Basic cross rate pairs are as follows: EUR/JPY, EUR/GBP, EUR/CHF, GBP/JPY, GBP/CHF.

2. Quotes are estimated in points.

A point is the minimum possible change in currency price. A point is a conventional unit. One point of currency has its cost expressed in dollars.

The cost of 1 point for currencies with direct quotes is calculated using the following formula:

$$Price\ 1\ point = ((ER + 1\ point) - ER) \times lot\ rate / ER$$

where *ER* stands for exchange rate

The cost of 1 point for currencies quoted by indirect quote method is calculated using the following formula:

$$Price\ 1\ point = ((ER + 1\ point) - ER) \times lot\ rate$$

Calculation of profit/losses from transactions at currency market

For direct quotes:

$$Profit/loss = (P_{sell} - P_{buy}) \times lot\ rate \times number\ of\ lots / P_{closure}$$

For indirect quotes:

$$Profit/loss = (P_{sell} - P_{buy}) \times lot\ rate \times number\ of\ lots$$

where P_{sell} stands for the selling price
 P_{buy} is the purchase price

$P_{closure}$ is the price of item closure.

The complete formula with the consideration of fees and bank interests for using the credit when open item is transferred for the following day:

For direct quotes:

$$\text{Profit/loss} = (P_{\text{sell}} - P_{\text{buy}}) \times \text{lot rate} \times \text{number of lots} / P_{\text{closure}} - \text{number} \times \text{fee} - \% \times \text{number of credit days}$$

For indirect quotes:

$$\text{Profit/loss} = (P_{\text{sell}} - P_{\text{buy}}) \times \text{lot rate} \times \text{number of lots} - \text{number} \times \text{fee} - \% \times \text{number of credit days}$$

At futures no interest is charged.

Margin deposit structure:

1. **Balance**, the state of an account without open items.
2. We open n items and to do this we need to grant a pledge, **necessary margin** (for Spot operations margin depends on the contract amount and leverage).

$$\text{Necessary margin} = \text{leverage} \times \text{lot rate} = 1/100 \times 100,000 = \text{USD } 1,000$$

At futures **necessary margin = initial margin**

3. floating profit/loss

(calculation using formulas where $P_{closure}$ is current market price)

4. **Equity** is running balance on the account:

Balance \pm floating profit/loss

Effective margin means amount of spare money on the account

Effective margin = Equity – necessary margin (it can also be negative)

Forex market investment features

- Borrowed capital effect
 - investor can use borrowed capital as its own funds and thus control investments much higher in price;
 - 1.5% of the contract price is required as NM
- Cost of capital enhancement:
 - using increased rate of one currency in relation to another currency
- High liquidity:

- currency transaction is ready and effected at an individual market price suitable for investment;
- highly liquid currency exchange market;
- inflow of orders from investors which creates market value.
- Various investment time limits:
 - at Forex investments can be made both for long and short terms with time intervals anywhere between 1 day or week and 1 month;
 - investors can effectively use opportunities and conditions of round-the-clock market through opening and closing items.
- International diversification:
 - investment in Forex markets allows investors to diversify their investment interests in currencies.
- Low fees.

Unit 3: Fundamental Analysis of Currency Market

One of the most important conditions for success of a currency trader is capability to analyse changes at the market and foresee what factors and how might influence exchange rates.

The two types of market analyses are as follows:

Fundamental analysis involves assessment of a situation from the point of view of political, economic, financial and credit policies.

Technical analysis considers assessment of a situation based on methods of graphical research and analysis based on mathematical principles.

Fundamental analysis establishes relation between exchange rates and economic situation and competitive position of the trading countries, explains purposes and instruments of financial policy of central banks, shows correlations between various financial markets, causes of their rises and falls.

An essential part of the trader's work is correct forecasting of the market movement, assessment of global events and manipulation with rumours and expectations.

Fundamental analysis focuses on the following groups of factors which have influence on the market:

- Economic;
- Political;
- Rumours/expectations and force majeure.

Economic factors

Economic group of factors can be broken down to the following components:

- Data on economic development of the country
- Meetings of the central banks
- Any changes to monetary policy
- Meetings of the Group of Seven, economic or trading unions

- Speeches of governmental executives, heads of the Central Banks, prominent economists regarding situation at the currency market, changes to economic policy, economic situation or their forecasts
- Interventions
- Allied markets

The most important factors are data on economic development of the country. The principle of their cooperation is based on assumption that the cost of any currency is derivative of economy development and determines interest of foreign investors to currency investment and, accordingly, demand for a certain currency.

Exchange rate represents correlation between two currencies, and, since currencies are quoted through the US dollar, data on USA economy tends to be of more importance for forecasting exchange rate movement.

Next we consider principle economic factors which characterize the state of economy

1. **Gross National Product (GNP)** is the most volumetric factor of economy functioning results. It is recognized to be the best estimate of the total cost of national production of goods and services. It is published on a quarterly basis by the US Department of Commerce.
2. **Industrial Production (IP)** demonstrates changes to actual production capacity of the American works, mines, electric and gas-filling stations. It is recognized to be a reliable indicator of entrepreneurial climate during the period between publications of the new GNP factors. It is published on a monthly basis by the Board of Directors of the Federal Reserve System.
3. **Leading Economic Indicators (LEI).** Each indicator in one number represents dynamics of a dozen of statistic factors which allow forecasting changes to GNP value. Index includes data on reduction of work places, new orders placed by manufacturers, change to money supply and prices on feedstock materials. It is published on a monthly basis by the US Department of Commerce.
4. **Personal Income (PI)** is a factor which includes household income before taxes in form of salary, accrued interest and dividends, rent, social security and retirement benefits, unemployment benefits. Data on personal income allows for understanding of tendencies in behavior of consumers whose expenses make the major part of GNP. It is published on a monthly basis by the US Department of Commerce.
5. **Retail Sales (RS)** is a monthly estimate of the total volume of sales in the retail trade system. It is published by the US Department of Commerce.
6. **Consumer Price Index (CPI)** is the factor which demonstrates changes in prices for permanent set of consumer goods and services (market basket) purchased at the market. It is published on a monthly basis by the US Department of Commerce.

7. **Producer Price Index (PPI)** represents change in prices for goods at various stages of production cycle, from feedstock materials to finished products. Abrupt jump of this factor value may indicate the coming advance in consumer prices.
8. **Employment factor** can be viewed as one of the two values: either **unemployment** level, or **employment** indicator. There is an inverse correlation between changes in unemployment level and exchange rate: as unemployment rises, the exchange rate drops. Changes to employment level (in particular, in the USA) are characterized by **NFP (Non-Farm Payrolls)** factor which refers to the number of people employed in non-agricultural sectors of economy. Cumulative gain of the factor represents employment growth and leads to the US dollar exchange rate growth.
9. **Housing Starts or New Home Sales.** This factor serves as indicator of economic situation improvement, since residential construction growth normally follows facilitation of terms of credit (in terms of affordability and cost).

10. Money Supply

Money supply is the total amount of monetary assets available in an economy at a specific time. Both at international arena and at domestic market the more currency is in circulation, the lower it is in value. Demand for money depends on the level of the produced GNP. Demand for a certain foreign currency must be proportionate to GNP of the respective country regardless of where this demand comes from.

Exchange rate grows by 1% in the following cases:

1. money supply M USD (domestic) grows by 1%
2. money supply M GBR (foreign) drops by 1%
3. actual GNP in the particular country drops by 1%
4. actual GNP in the foreign country grows by 1%
5. interest rate in the foreign country increases
6. domestic interest rate drops
7. expected inflation in the particular country grows
8. expected inflation in the particular country drops

11. Interest rates

This factor determines total profitability of investments into economy of the country (interest rate on bank deposits, profitability of bond investments, level of average profit rate, etc.)

Types of discount rates:

1. Federal Funds Rate (USA) or Discount Rate is refinancing interest rate used by FED (the Central Bank) for lending balances to authorized banks;
2. Bill Rate is the rate used by the Central Bank for accounting of treasury bills or crediting banks;
3. Lombard Rate means rate for Lombard credits; credit against securities; secured credits of central bank for clients;

4. Repo rate means short-term discount rate used by banks upon crediting other banks for a period of time less than one day;
5. Mortgage Rate is used in credits for individuals.

12. Meetings of the central banks

One of the purposes of the central banks is regulation of domestic and foreign currency value. One of the main means of economy stimulation or growth rate reduction, attraction of foreign capital and, subsequently, the currency value is regulation of interest rates.

Names of central banks and working committees

Table 2

Country	Names of the central banks	Names of working committees
the United States of America	Federal Reserve System	Working Committee FOMC (Federal Open Market Committee)
Germany	Bundesbank (BUBA)	Working Committee BUBA meeting
Japan	Bank of Japan (BOJ)	Working Committee BOJ meeting
Switzerland	Swiss National Bank (SNB)	Working Committee – SNB meeting
England	Bank of England (BOE)	Working Committee Clark governor meeting

13. Balance of payments

Balance of payments is defined as the record of all economic transactions between the residents of a country and the rest of the world in a particular period. It reflects condition of international economic relations of this country with its foreign partners.

Elements of the balance of payments

12. Current account
13. Capital account
14. Balancing item

Current account includes

- a. Export of goods and services (+)
- b. Import of goods and services (-)
- c. Net revenue from investments mean factor income from abroad, from loans
- d. Net transfer payments mean transfers of private and state assets to other countries.
- e. Net foreign Assets (NFA) is the difference between the value of foreign assets owned by domestic residents and the value of domestic assets owned by foreigners.

Capital account includes

- All international transactions with assets: money from sale of shares, bonds, real estate, etc. to foreigners;
- Expenses incurred as a result of purchase of assets abroad.

*Capital balance account = assets sales proceeds –
– expenses on purchase of assets abroad*

14. Interventions

Interventions of the central banks remain one of the most effective means of influence on the situation at the market. Interventions can be made in one particular currency by one particular central bank with the purpose to support its domestic currency, or they can be jointly made by several central banks for the purpose of fundamental changes at the market upon the whole.

Information on interventions is not published in advance, and therefore the unexpectedness effect of interventions often leads to significant changes at the market.

15. Condition of allied markets

The category of allied markets refers to securities market, namely shares and state bonds, indices, precious metals, oil, etc., which may significantly influence the currency market. Signals of stock market are becoming more important.

Below are the most important stock indexes, information on which is regularly published in the news.

The most significant stock indexes

Table 3

Group 1	Dow Jones Index	A simple average index of movement of share rates of 30 major industrial companies. To calculate it the sum of the prices of all 30 stocks is divided by a certain divisor. It is quoted in points.
	S&P-500	Index structure: 76% are shares of industrial companies, 2% refer to transport, 14% represent shares of financial structures, 8% are shares of service rendering enterprises. $S\&P = \frac{P_i \times Q_i}{n}$ <i>where P_i is current price of a share</i> Q_i is the trading volume n is the number of shares ($n = 500$)
Group 2 Special industry indexes	NASDAQ-100 Production index	Index of the system of automatic quotation of National Association of Securities Dealers. Includes stocks of 100 largest companies. Recalculated on an annual basis. Weighted according to profitability. The contract price: 100 USD× Index
	MMI Market Index	Created by the American Stock Exchange in 1983. Approved as quantitative index of blue-chip stocks. The contract price: 500 USD× Index
	GSCI Commodity index	Represents the following commodity groups: energy products, livestock products, grain crops, oil-bearing products, food, textile, metals. Weighted according to capitalization. Based on 22 liquid marketable futures. The contract price: 250 USD× Index
	CRB	Based on 26 liquid marketable futures. The contract price: 500 USD× Index
Group 3 National indexes	Nikkei	225 stocks included in the first rate of Tokyo Stock Exchange listing. Weighted according to price. Formed from stocks of the companies from various sectors of economy to ensure complete coverage of the whole market.
	DAX-40	Germany
	FTSE-100	Great Britain

Political factors

Among political factors the following can be named:

- wars, conflicts, troubled situations and any statements made by political leaders regarding escalation of situation. Currency of the country involved in the conflict immediately loses its value, and importance of safe haven currency increases.
- Resignation or change of government, elections. Any change of government inevitably leads to possibility of change of both political and economic policies of the country and attractiveness of investments into its economy.

Force majeure factors

- **Force majeure** refers to typhoons, earthquakes, tsunami, etc.
- **Rumours and expectations** mean forecasts regarding meetings of the Group of Eight, central banks, economic data or possible changes to economic policy.

BUY ON RUMOURS SELL ON FACTS

The task of a trader therefore is to collect maximum information on fundamental factors, estimate importance of their influence on exchange rate and formulate possible course of events at the market in the nearest future. For final conclusion on exchange rate movement a trader needs to take into consideration results of the technical analysis.

Unit 4: Technical analysis of currency market

Technical analysis – is a studying of market dynamic changes mostly by charts in order to predict how prices and exchange rate will change in the future. There are graphic and computer technical analysis. Here are the basic terms of graphic technical analysis.

Graphic technical analysis

1. Trend.

The main concept of technical analysis is price **trend**, which is the total price behavior. The specific feature of currency market is that it never moves in one direction straight, the price range can be represented as zigzag or wave movement, which consist of peaks and drops.

There is three types of trend:

- Up trend- every new peak and drop is higher than previous.
- Down trend – every new peak and drop is lower than previous.
- Range trend – peaks and drops are relatively on the same level.

Three types of trend (tendencies) can be distinguished by duration:

- Long-term (basic) – trend period from 6 months to several years.
- Medium-term (intermediate) – trend period from 2 weeks to 6 months.
- Short-term (small) – trend period up to 2 weeks.

Trend can be indentified on a chart, which is the main analysis instrument for trader. The following types of charts can be pointed out:

1.1. Bar charts – this chart is made up of maximum price (the highest point of vertical line), minimum price (the lowest point of vertical line), open price (small stroke from the left of the vertical line) and close price (small stroke from the right of the vertical line). Bar charts are recommended for the time periods of 5 minutes or more.

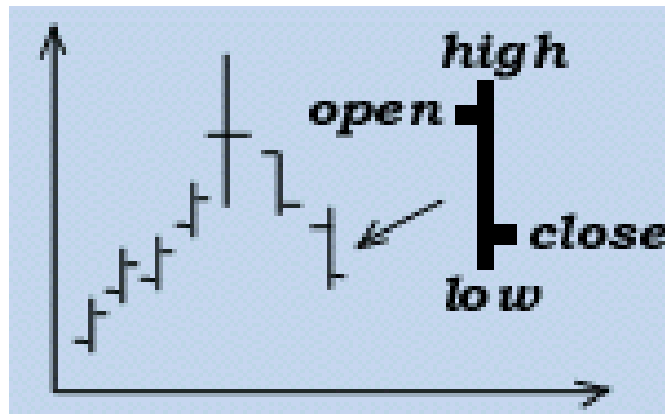


Figure 1

1.2. Candlesticks.

The frame of the graph is the figure, which is called “candle”, it consist of “body” and “shadow”. The block between open price and close price is called “body” of the candle, and the small strokes from the body of the candle to highest and lowest price value on the given time period are called “shadow”. The candle, where $high > low$ is called “ox-like” candle and colored white or green. The candle where $high < low$ is called “bear-like” and it is colored black or red. The candle where open and close prices are approximately the same, but high and low prices are completely different (the body of the candle is smaller compare to the shadow) is called “rain”.

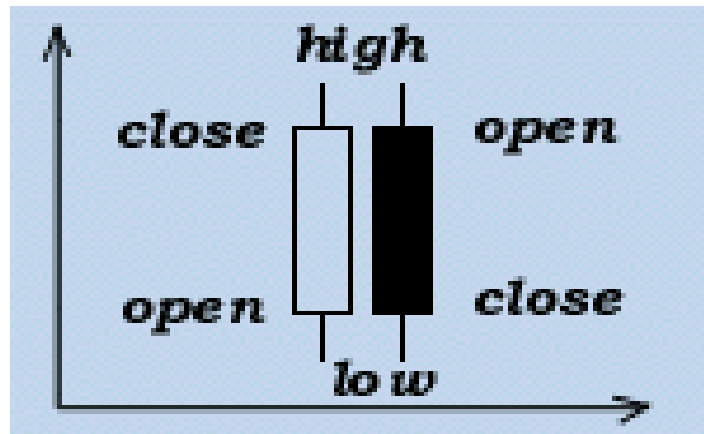


Figure 2

1.3. Points & figures.

This chart does not have the time axis and the new price column will be drawn after another dynamic direction appears. Point will be drawn if prices fall till the given level (reverse criteria) and if prices rise, figure will be drawn.

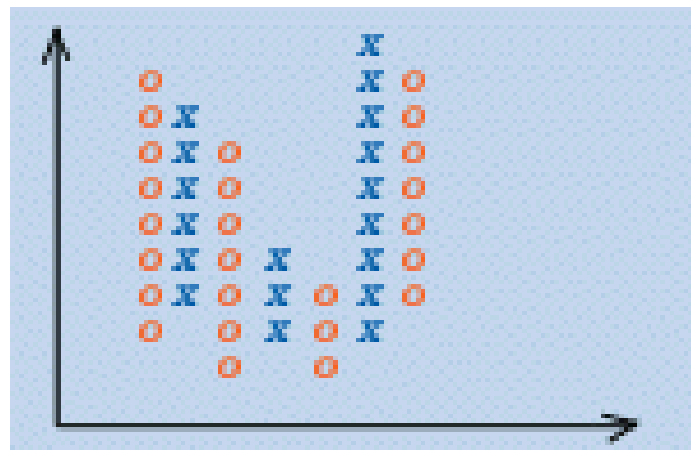


Figure 3

2. Resistant and support level.

Price movements represent interchange of peaks and drops, which make resistance and support level. Resistant lines connect the important maximum of market and support lines connect the important minimum of market.

Resistant and support lines can be drawn:

- By the highest and lowest points (three points minimum), limiting min and max prices. The line is considered to be strong if it is confirmed by project. Up-going trend line is in two drops, down-going is in two peaks.
- By areas – levels with max amounts of tap points. (by the localization)

Resistance and support determine price levels and areas, where they join to the movement of market self-regulatory mechanism. If prices in up-going trend do not

achieve resistance level, it can be a signal that the movement is run itself out and a new down-going trend can occur.

The stronger line the more expectations about it and its punch is greater.

Level punching occurs when close price settles lower than support level, then it is needed to play down, if it is higher resistance level - it is needed to play up. Support line should be drawn under the price of the whole day or given period, when resistant line is over the price level. A line which is drawn from the bottom can be identified as the main is case of going up, and vice verce, a line which is drawn from the top will be the main in case of going down.

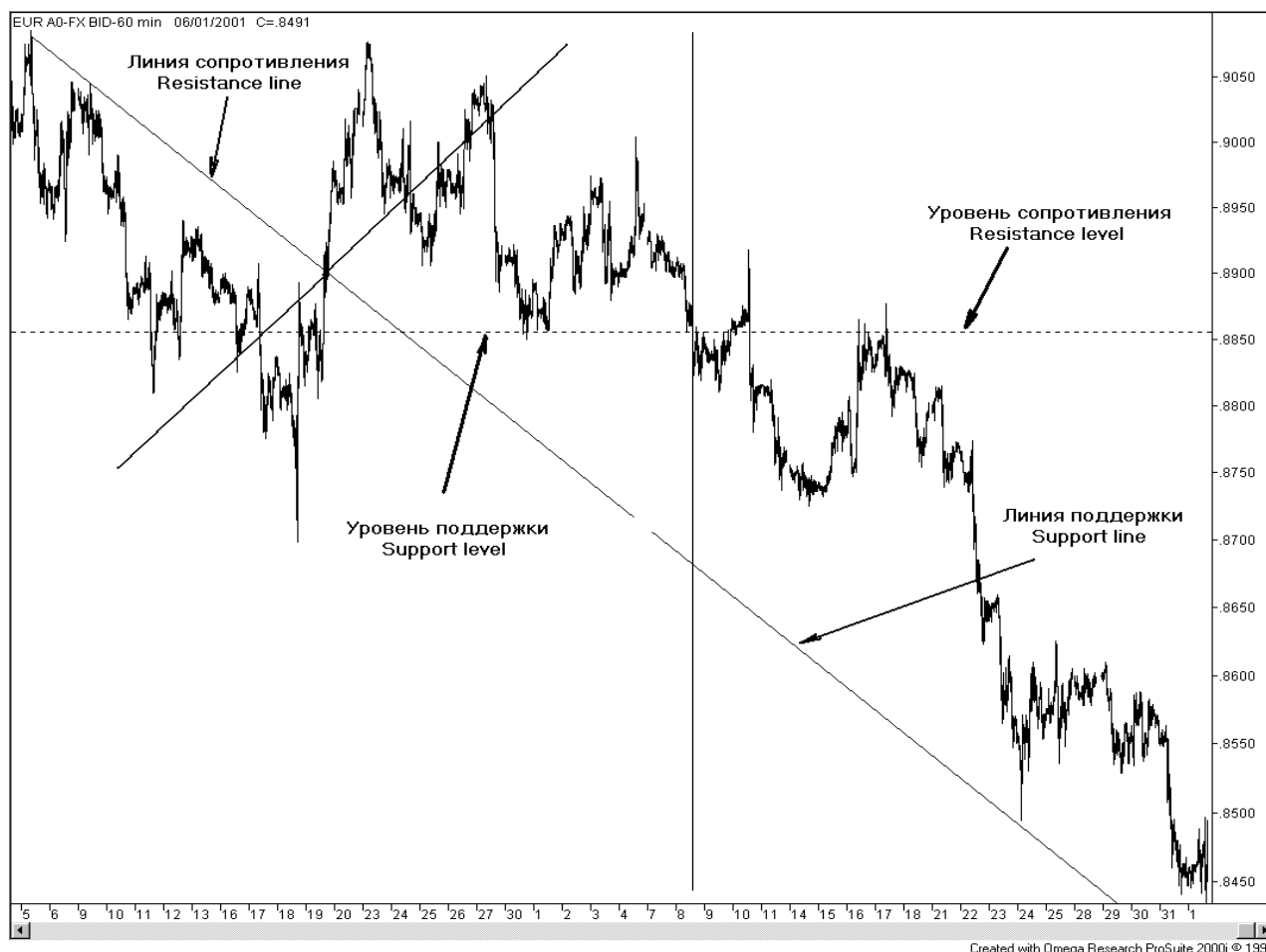


Figure 4

3. Figures in the technical analysis.

Technical analysis points out some particular principles of price movements, which are not connected to external factors. Pointing out the particular repeating and configurations of price movements it is possible to predict the future, considering the previous experience.

Configuration classification:

1. By external features (5 figures)
 - Gap
 - Head and shoulders
 - Triangles

- Flag and wedge
2. By prediction of price movements :
- Ongoing models show that market will move in the same direction and it has stopped only for getting strength for the next jerk, so it consolidates.
 - Critical models warn that the movement direction is run itself out and the market will hardly move in the same direction.

The more configuration the more it's potential, so the more price movement will follow completing it's forming.

Basic models:

Gap – is the area on the line charts where there is no any trade. It is more common for the daily charts.

Gaps can be:

- *Common* – shows disinterest in dealing, usually ignored.
- *Escaping* - indicates that the price movement will gather its speed and points out that the market in the middle of its speeding up, it is recommended to take long positions.
- *Exhaustion gap* appears in the end of the great price movement, when the trend is already used up and all the benefit goals are achieved, it is recommended to take short positions.

Head and shoulders represent a set of interchangeable peaks and drops in explicit trend. When the trend is running itself out it reminds a head and shoulders. It represents three peaks: the first and the last are 2/3 from the central and a line (neckline) can be drawn between the lowest values of these three peaks, which breaking up will confirm that figure forming is complete.

Model value:

-predict if price will fall or rise;

- proportion of price movement (considered that after the neckline is broken up the price should change for the same interval as the size of the head.)

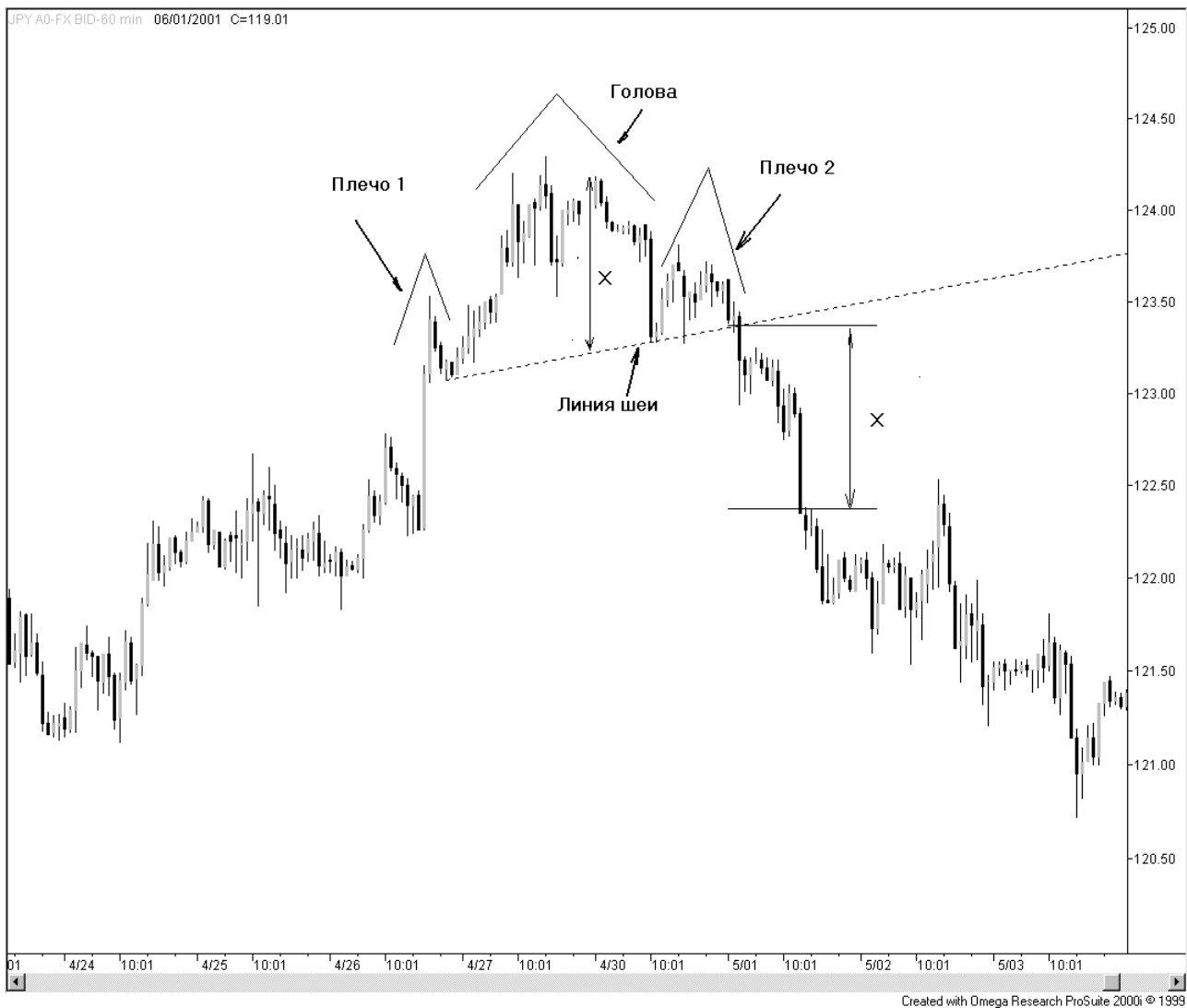


Figure 5

Triangles belong to ongoing models and shows that movements are paused in order to gather strength for the next jerk. Four points are needed to indicate triangle in any of its variations: two for the resistance lines and two for the support lines. Movement price from this kind of resistance line to support line will be called “step”. Three steps minimum are needed.

Triangles types:

- ***Symmetrical*** – resistance and support lines are angle wised.
- ***Up-going*** – is typical for up-going trend, the figure of ox-like market and resistance lines are more or less parallel to horizontal axis.
- ***Down-going*** – is typical for down-going bear-like trend, gives evidence that the market consolidates for going down. Support line is comparatively horizontal, resistance line is angled.

General rules for triangle analysis:

- if the price enters from the top, positions are stronger for price moving down,
- if the price enters from the bottom, positions are stronger for the price moving up.

-the more lines in the triangle and the more exit closer to the top, the more stronger and greater the price behavior will be on exit. But if exit occurs in the last quarter, then the next movement likely to be slow.

Flag and wedge – two figures are similar and wide used. These models are ongoing and used in the middle of market movements. Usually sharp and powerful price movement forms these figures. They do not change trend.



Figure 6

Filters which confirm reality of chosen lines:

- Principle of close price filter: prices are being closed out of resistance and support lines. It gives the evidence of their arrival.
- Temporary filter is for the actual lines disorder, close prices should be out of their range during two days.

Unit 5: Computer analysis of currency market

In the base of this analysis there is the principle of market close price averaging in the particular period of time. There are two types of indicators:

- Trend index
- Leading indicators-oscillators

Else indicators are divided into:

- Going in advance of the market(are used in Rangel)
- Following the market (are used in direct market) – help to understand when it is needed to change positions, used in the trend market.

Trend indicators

1. Moving average (MA)

It shows average moves of the exchange rate. It supposes averaging of the indicator for some particular period of time. The main goal of moving average is trend monitoring.

Recommended average order:

Price chart	Average order
5-days long	8, 13, 21
1-day-long	8, 13, 21, 55, 89
3-hours long	8, 34, 55, 89, 144
1-hour long	5,13, 34, 55, 89, 144
15 minutes or less.	34, 55, 144

There are the following types of moving average:

Simple MA:

$$SMA = (P1 + P2 + \dots + Pn) / n,$$

n- moving average order

Weighted MA:

$$WMA = (W1P1 + \dots + Wn Pn) / n \sum Wi,$$

Wi- the weight of i - component

Exponential MA: - monitors price movements as fast as the usual MA, but gives higher priority to data, includes all the prices of previous period and not only the given one

$$EMAn = EMA n - 1 + K (Pn - EMA n - 1),$$

$$K = 2 / n + 1$$

The main disadvantage is lagged effect, which depend on averaging period – the bigger it is, the stronger lagged effect. So MA gives the information about trend a little later than it will be on the chart of currency market.

General rules of analysis:

- Find the intersection points of average and price chart.
- Find the points which are following max or min of average
- Find the most divergent points of average and chart.
- Monitor the direction of average.

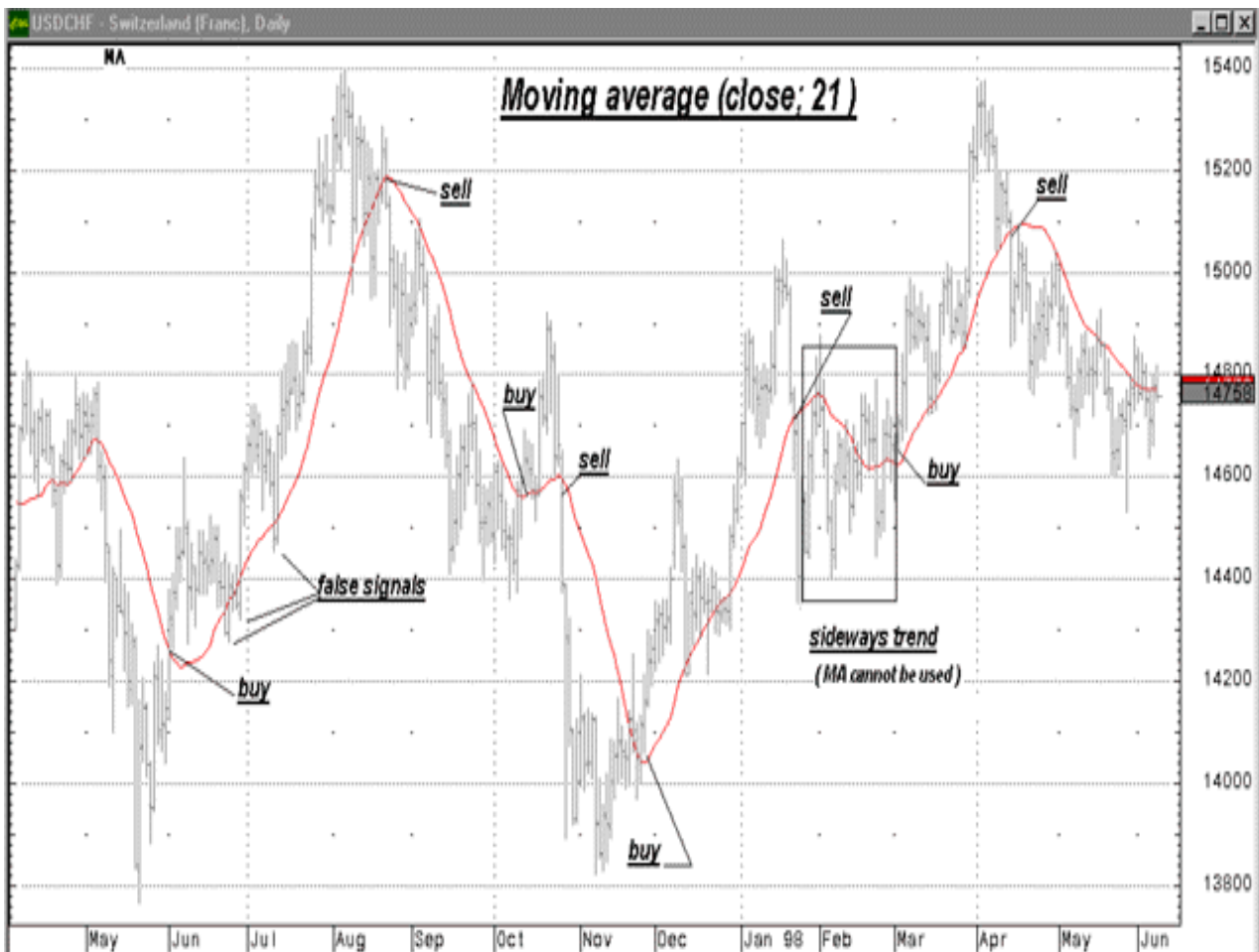


Figure 7

Moving average is a good instrument on the trend market and a worse one in the trendless market because lagged effect will lead to false signals.

2. Directional movement system by W.Wilder.

This system consist of 3 lines: +D /-D, ADX

+DM - is the line of up-going trend,

+DM = $(\text{High} - \text{High1}) / (\text{High} - \text{Low})$,

High > High1

- DM - is the line of down-going trend

-DM= $(\text{Low1} - \text{Low}) / (\text{High} - \text{Low})$

Low < Low1

ADX – shows trend strength

ADX = SMA([+D - -D])

This indicator perform two tasks:

- It indentified long-term tendency of the market
- It shows orientation level of given market.

Mutual bracing of lines is the key to understanding this indicator. One of these lines is ADX.

If ADX is situated under +DM and - DM, then the market is tranquil without explicit trend. If ADX turns up, it means the new trend starts. If +DM goes up together with ADX, then a new up-going trend starts. If - DM turns up together with ADX – down-going trend starts. The line moving down is a signal for trend is starting to run itself out. Turning of +DM down for up-going trend and – DM for down-going trend is a signal of trend cancelling.



Figure 8

Rules for ADX indicator using

Indicator behaviour	Market tendency	Trading
Rise	increase	In the tendency direction
Fall	doubtfull	After all the signals are given, oscillator signals are specially important.

Rules for sharing use of indicators +/-DM and ADX\

ADX	Тренд	+DM . . . - DM	Заклучение сделки
In minimum meanings zone	Weak		-
Falls	Goes down		-

Rises	Goes up	Higher Lower	Purchase Sale
Formed local minimum	Appears a new one	Higher Lower	Purchase Sale
In minimum meanings zone	Direction change is possible		Take the benefit at least from the part of sales
Formed local maximum	Market is overheated		-

Oscillators

This group of indicators possess outrun effect (shows the market potential earlier than prices do) and can be effectively used in sideways trend.

1. Momentum and Rate of change

They measure the speed of trend – if it is increasing or decreasing. Usually these two peaks achieve peak and decrease (in the case of up-going trend) before prices do it. If prices continue to rise, when the moment or ROC forms the peak, which is lower than previous. It gives a signal that the movement is already is running itself out. Periods of 7-20 days are used for these indicators.

$$M = P - P_n$$

where P - close price,

P_n –close price n bars ago

$$ROC = P / P_n \quad (ROC = 100P / P_n)$$



Figure 9

2. Relative strength index (RSI)

It was represented by J. Willer in 1978, nowadays it is one of the most popular oscillator.

$$RSI = 100 - [100 / (1 + RS)],$$

where

$$RS = AU_x / AD_x,$$

x –amount of days in the analysis period (RSI order) 8 is recommended,,

AU_x –sum of positive price changes during the period,

AD_x –sum of negative price changes during the period..

Recommended order is 8. But the author used the order of 14, because he saw the main use in the daily charts.

This indicator shows actual market state, measure the trend strength. it should be drawn between two vertical scaleswith critical meanings 0 and 100



Figure 10

3. Stochastic lines – is indicator, represented by George C. Lane which predict trend change with a pin-point accuracy in advance.

The basic goal of stochastic is to identify price tendencies by monitoring close prices inside of last series of peaks and drops.

There is the following fact in the base of this method: when the prices increase, there daily levels have the tendency to be closer to maximum meaning. If the prices still increasing, and daily close prices start to decrease, it signalize that tendency is ready to turn. When the prices are falling, it is the same but for minimum.

There are two stochastic lines, which are %K and %D. They reflect the actual close price location relatively to chosen time period.

$$\%K = 100 [(C1 - L5) / (H5 - L5)],$$

where

C1 – actual close price,

L5 и H5 – the lowest and the highest levels during the last 5 days.

$$\%D = 100 CL3 / HL3,$$

where

CL3 – three days sum (C1 - L5),

HL3 – three days sum (H5 - L5).

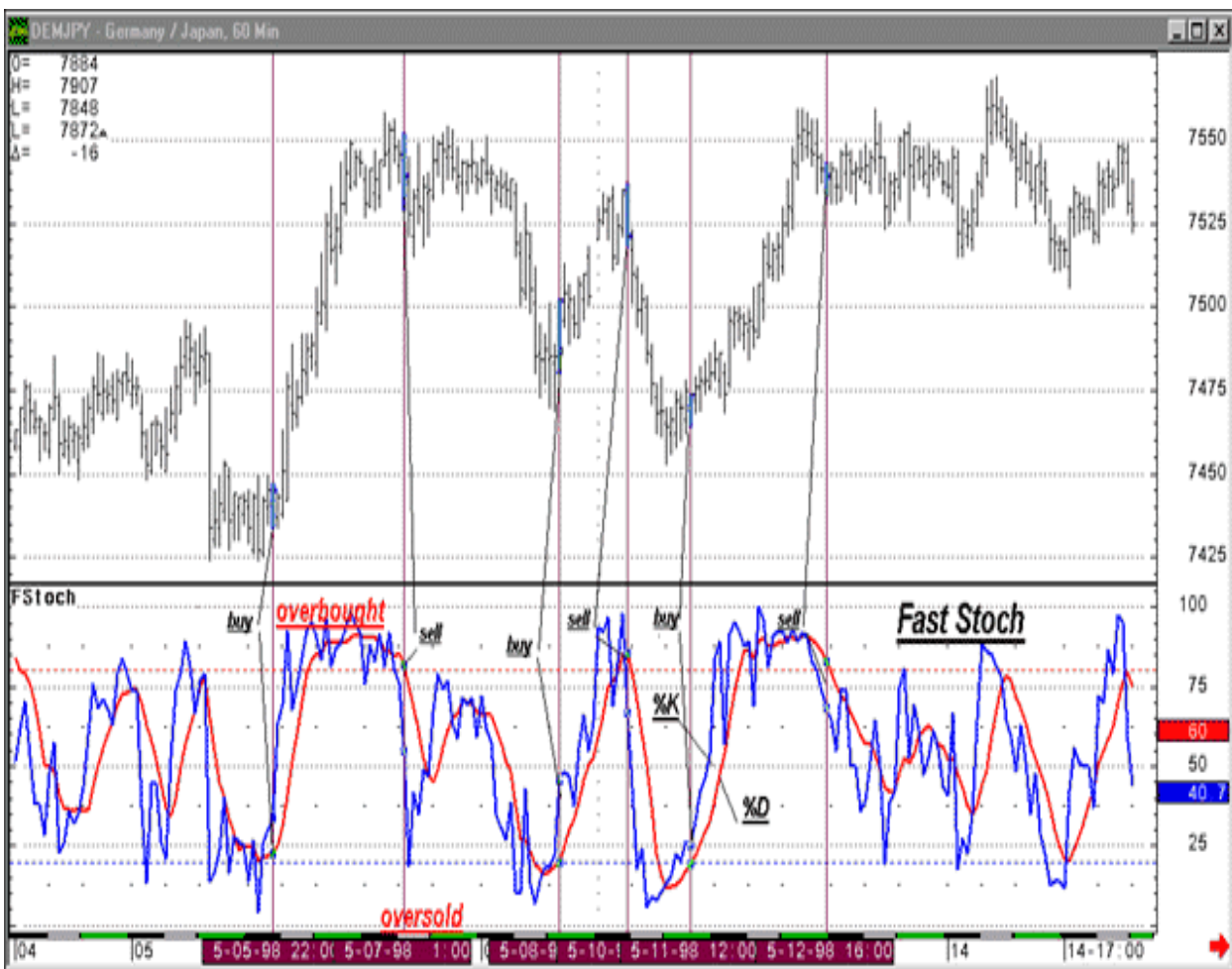


Figure 11

Special feature of stochastic analysis:

- %K and %D intersection can be a good signal for the dealing.
- Signals from the zones of repurchase (resale) for %K and %D 70-80 and (30-20) for %R – 90(10)
- When fast line (%K) intersect slow (%D) from the bottom to the top purchase occurs.
- When fast line intersect the slow one from the top to the bottom sale occurs.
- If the direction of both lines are the same, they give the direction for the trend dynamics.
- If both lines have different direction, then the situation is doubtful.

4. MACD – is the indicator of convergence/divergence of average movement rate indexes.

It consist of histogram, which is drawn around zero line and two lines. It works both as trend index and as oscillator on any time periods.

Histogram is in use in the practice of trade.

We minus exponential average with a big period (26) from the exponential average with the smaller period and results are flatterer one more time by EMA.

MACD ==EMA(12) - EMA(26)

SIGNAL = EMA(MACD, 9)

MACD *forest* = MACD - SIGNAL

The histogram works on the principle of convergence and divergence of indexes average currency rate movements:

- If they goes closer to each other, then the histogram turns smaller;
- If they go divergence, then the histogram turns bigger.

The histogram shows best results on the time periods of one day and more.

MACD-histograms signals:

- Meanings, which following maximum or minimum MACD are too early signals. At least two or more additional signals are needed
- MACD intersection with the given border – is the best time to make the decision.
- MACD intersect the middle – it might be late. Two more additional signals are needed.
- Ox-like/bear-like divergence are the strongest signals.

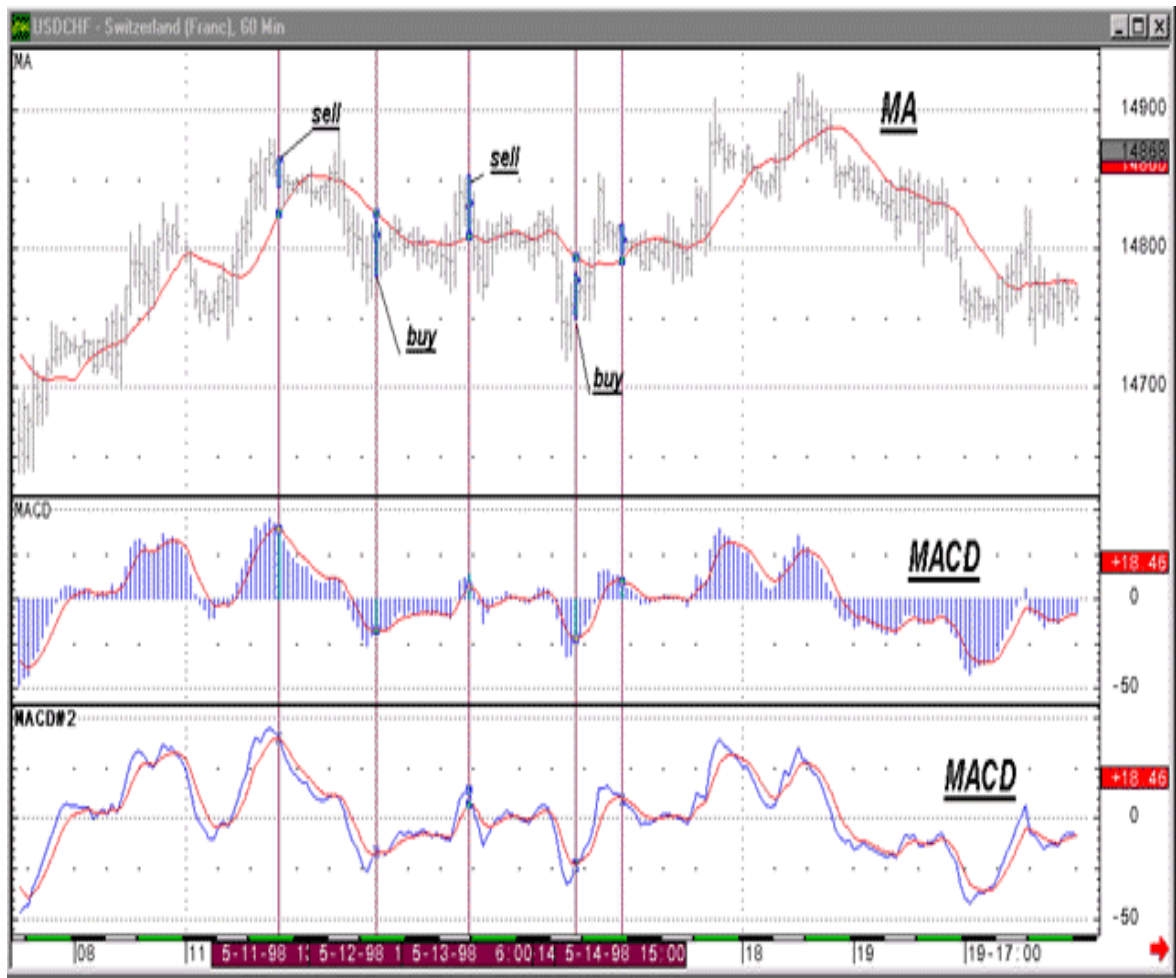
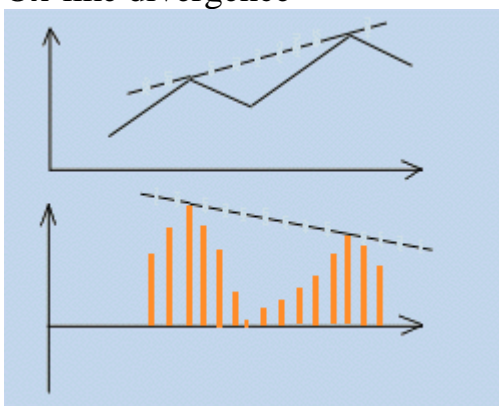


Figure 12

MACD –histogram (convergence-divergence method)

Ox-like divergence



Bear-like convergence

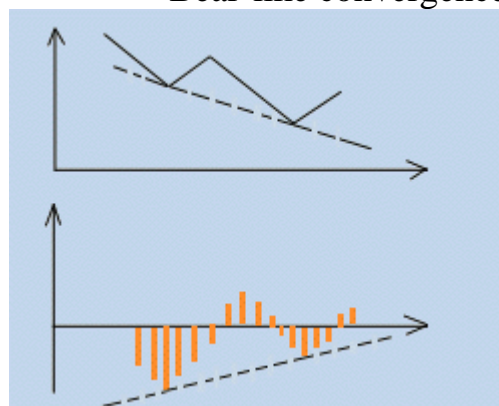


Figure 13

A signal about ox-like trend turning or its temporary fading.

a signal about bear-like trend temporary fading.

The basic rules of oscillator analysis can be brought to the following table:

Signal	Trader actions	Conformation
Meanings which are following max oscillator min oscillator	Dealing notifications Down Up	At least two or more
Intersection with the given meanings border.	The best time for the dealing	At least one
Intersection in the middle	It can be late	At least two or more

To conclude the represented information about the trade on the currency market it is needed to notice:

- type of the trend(up-going/down-going, sideways);
- every trader choose his own set of indicators, and to make a decision it is needed that most of the indicators give the same signals.

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www.miga.org	The Multilateral Investment Guarantee Agency

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