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International Business – Central European Business Realities

Exchange Rate Predictions

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Declaration:

I hereby declare that I am the sole author of the thesis entitled “Exchange rate predictions“. I duly marked out all quotations. The used literature and sources are stated in the attached list of references.

In Prague on .... Signature

Karen Yablonskyy

Acknowledgement

I would like to thank my Mother, Tumasyan Karine for her love, support and for having done the best job she could in raising me, giving me a childhood and life so different from her own. Her support has always been my source of strength, inspiration and self-development.

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Thank you for believing in me!

‘ЖЗЛ – Жизнь Замечательных Любчиков!”

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INTRODUCTION

The aim of this thesis is to analyze the foreign exchange currency forecasting techniques. Moreover, the central idea behind the topic is to develop the strategy of forecasting by choosing indicators and techniques to make own forecast using fundamental and technical analysis in case EUR/USD currency pair.

This thesis work is a mixture of theory and practice analyses.

The goal during the work on this project was to study different types of forecasting techniques and make own forecast, practice forecasting and trading on Forex platform, based on acquired knowledge.

The topic of the thesis is viral and up-to-date because different currencies in the world depend on each other by exchange rate – relation between two currencies is the rate at which one currency will be exchanged for another, or value of one country's currency in terms of another currency. Monitoring and forecasting the exchange rate is important for businesses and governments. Over the last twenty years with the effect of globalization and appearance of new trade markets, forecasting of the exchange rates has become a popular issue for businesses to know.

The paper is divided into three main parts – the theoretical background, the modeling exchange rates, Fundamental and technical analysis in practice, case EUR/USD currency pair.

The first part - Theoretical Background - is focused on the importance of forecasting. It covers Forex market overview and factors influencing exchange rates. This part is based, in addition to other sources, on the knowledge gained by the author in the course «International Finance» during the study on International Business Program.

The second part of the thesis - The modeling exchange rates - is about different techniques and tools that can be used for forecasting. We have chosen Fundamental and Technical analysis. For Fundamental analysis we analyzed all indicators influencing the exchange and chosen 27 of them. We divided all indicators in 8 groups. These groups are: Economic indicators, Industrial sector indicators, Construction Indicator, Inflation Indicators, Merchandise Trade Balance, Employment Indicators, Consumer Spending Indicators, Leading Indicators. We determined the level of importance of the indicators.

In Technical analysis part we made general descriptions of Technical analysis: types of charts, lines of trends, lines of support and resistance. We described different models: Head and Shoulders, Rounding Tops and Bottoms, Triangles, Double Tops and Bottoms. We chose 20 different candlestick formations, described them and defined the reaction to their appearance.

Chapter 2 is the basement for forecasting the exchange rate introduced in Chapter 3.

The third part includes Fundamental and technical analysis in practice, case EUR/USD currency pair. This part is the outcome of the whole thesis. It is a practical application of all the information gained during the work on the project.

Chapter 3 contains of the Fundamental analysis overview during previous half of month and concentrates more on analyses from 4th to 7th March. We made our own technical analysis on Japanese candlestick formations. In conclusion we made our own prediction for EUR/USD currency pair till the end of March.

1. CHAPTER 1. THEORETICAL BACKGROUND

1.1. Why Forecasting the Exchange rate is important?

In nowadays world everything is connected to cash. Each time whether you are going to the shop, buying car or travelling abroad you use cash. Different currencies in the world depend on each other by exchange rate – relation between two currencies, is the rate at which one currency will be exchanged for another, or value of one country's currency in terms of another currency.

Monitoring and forecasting the exchange rate is important not only for businesses but for government too. Over the last 20 years with the effect of globalization and appearance of new trade markets in most countries of the world, exchange rate and forecasting has become a popular issue of businesses to know. It means that if your business connects with international trade, you depend on foreign and your domestic currency. For example, when you buy some goods in the USA and sell them in Spain, you definitely depend on exchange rate USD/EUR, because if there will be appreciation or depreciation in exchange rate, your business can be with negative profit or your goods will not be competitive on the market. One of the best examples from the point of the business is mobile trading or other export/import merchants. In mobile trading business, as we consulted with the top manager of company 2P Agency[1], based in Prague, and making 1% of GDP of Czech economy, exchange rate is very important, because each days there are a lot of contracts, and margin is around 1 - 3% and depends on the price of goods and exchange rate, therefore the manager has to decide on the market where he will buy goods to have more competitive price.

As for more clear understanding let us have a look at two most frequently used currencies, EUR/USD exchange rate in long period of time. We will analyze an describe what is happening when currency is strengthening and weakening.

Picture 1. Exchange rate EUR/USD from 13.02.2008 – 12.02.2013

Source: Currency site xe.com; < http://www.xe.com/currencycharts/?from=EUR&to=USD

[1] 2p Agency trader Shevchenko Arthur; <http://www.2pagency.com/> - Accessed on – 12.02.2013

If we will look at the chart of a five-year period of exchange rate USD/EUR, we can see that there are a lot of fluctuations in the ratio of two different currencies. Thus, I want to shortly describe what's happening in real international trade, so that will be more understandable, from the point of view of US companies.

Overall, it would appear from the chart that products of US companies, whose USD currency was strengthening in the time period, were less competitive abroad. Strong USD decreased the demand for made in U.S. products overseas. However, it can be seen that imported products from abroad were cheaper, and local producers will lost competitiveness in the domestic market to the foreign ones. This all boosted imports at the expense of exports.

The other way around is the result of a weak USD. A weak USD decreased the cost of and increased the demand for USA producers to export products overseas. Imported products will be more expensive because US importers will have to pay more for a unit of foreign currency. This will cause demand for overseas products to decrease. Imported products will lose competitiveness to locally made in USA products. This situation will cause exports to soar and imports to shrink.

From the point of view of the government, exchange rate of their currency reflects trust of the investors, developing of the economy, more foreign direct investments etc.

Let us have a look at the situation of two powerful economics of European zone and how exchange rate impacts on politics and economy, depends on sensitivities of economy.

Eurozone finance ministers putted the thorny question of the euro's value to the G20 meeting in Moscow. Finance ministers and central bankers from the world's biggest 20 economies met there on 15 – 16 of February[2]. The single currency has risen sharply since January and February 2013, and France and Germany disagree with their view on its solving. The French want the European Central Bank to consider setting a target for the euro, to control it down when it gets too high. Pierre Moscovici, finance minister of France, asked for strong action. He said that countries in European Union with EUR had to ensure curb stock price volatility or erratic movements that had a lasting negative effect on the economy if they carry on. Countries need a coordinated approach.

Germany is opposed to interference in exchange rate policy. "The exchange rate problems don't only exist in and with the euro but there are concerns with other big currencies," said German Finance Minister Wolfgang Schäuble[3].

[2] G20 information center; <http://www.g20.utoronto.ca/ministerials.html>. - Accessed on – 12.02.2013

[3] Euronews; <http://www.euronews.com/2013/02/12/french-call-for-action-over-euro-wins-little-support/> - Accessed on – 12.02.2013

A stronger euro hurts exports because it makes them more expensive abroad. France is particularly sensitive for export competitiveness. Moscovici has warned that if the euro continued to appreciate at the current rate, it would take 0.3 percentage points off the country's economic growth. This comes as the Eurozone is pinning its hopes on demand from Asia and America to drag it out of its second recession since 2009.

To have a comprehensible picture of the exchange rate market and to make our forecasting approaches, we need to understand the forces that cause these fluctuations and the mechanisms available to counter them.

1.2. FOREX Market

Increasing globalization makes high potential for international investments and trade in every country's asset and makes it necessary to exchange and convert different currencies into others.

Thus, globalization makes the volumes of currency trading higher each year.

Nowadays the trading volumes are high, the fluctuation of the values of one currency with another is becoming higher and it offers an opportunity to make profits by speculations. Here comes the other set of investors with other purpose than the basic purpose of international trade and international investments. That is currency or Forex trading for speculation to make profits.

The Forex market is an over the counter market as there is no physical place where the participant meet to execute the deals, as we see in the case of stock exchange.

The history of Forex started in 1971[4], because before 1970 the foreign exchange rates had used to be fixed. During 1970's there was a switch towards floating foreign exchange rates, which changed continuously. The Forex online market was established in 1971, though it was only possible through a combination of technological, communicational and political advances.

There have been many factors that have led to the current structure of the Forex market.

Since 1971 Forex[5] has grown in size, changed the way it operates, structure, transformation resulted from changes in the global financial systems.

Development of the Euro-Dollar market gave rise to foreign exchange trading, where US dollars were deposited into banks outside of the USA. The similar situation occurred in the countries within the European markets. Their assets were deposited outside Europe.

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[4] Forex History <http://www.finexo.com/forex-education/forex-history.html> - Accessed on - 20.02.2013
[5] Peter Rosenstreich, Forex Revolution: An Insider's Guide to the Real World of Foreign Exchange, Prentice Hall, ISBN 0-13-148690-X, p. 23- 37

An interesting history remark is that during the Cold War, all the money made by the Soviet Union from oil and gas sale, was converted into USD and deposited in the banks outside of the USA. The Soviets had fear that US Government would freeze their accounts. This brought a large amount of dollars that were not under in the control of the US authorities.

The Government of the United States tried to impose laws restricting the loaning of dollars internationally. But the Euro markets were very attractive because there were fewer regulations and offered yield was much higher than in the USA. Towards the end of the 1980's, US companies began borrowing offshore. Investors find the Euro markets more profitable and safer to put their excess liquidity. In turn, these deposits provide short - term loans and finance import and export activities. And also these deposits provide short – term credits for Export / Import.

London was and remains the principal offshore market. In the 1980s, London became the center of the Eurodollar market. At that time British banks began lending dollars as an alternative to pounds and this allowed them to maintain leading position in global finance.

Geographically extent of the Forex market spans the world with the prices moving and currency trading 24 hours basis.

Major World trade starts in Sydney and Japan then moves to Hong Kong and Singapore after to Bahrain and then to European market: Frankfurt, Zurich, London and ends in New York, Chicago and San Francisco. The market is the deepest or most liquid early in the EU afternoon, when the markets of both Europe and East USA are open. Many international banks and finance organizations operate foreign exchange rooms in each geographic area in order to serve accounts on a 24-hour a day basis. In most markets US dollar is the vehicle currency and the currency sued to dominate international transaction[6].

The Forex market is an over the counter market as there is no physical place where the participant meet to execute the deals, as we see in the case of stock exchange.

Forex market participants consist of two tiers interbank or wholesale market and the client or retail market.

Table 1. Forex market participants

Interbank Market	**Client Market**
• **direct trading** Reuters Dealing 3000 Direct, EBS Trader	• **single-bank systems** Chief Dealer (Citibank) NatWest Global Banking & Markets

[6] Luca C. Trading in the Global Currency Markets.- 2-nd Edition. New York Institute of Finance.-New York, 1999

• **electronic brokers** Reuters Dealing 3000 Spot EBS Spot	• **multi-bank systems** Fxall, Currenex, eSpeed, 360 Treasury System, Lava FX FX Connect
• **e-exchange** FX MarketSpace	• **e-exchange** HotSpotFX

Source: Lecture, PPP Foreign Exchange Markets, International Finance, Karel Bruna

Five broad categories of participants operate within these two tiers:

- Bank and non – Bank foreign exchange dealers

  They operate on both interbank and client market. These participants profit from buying at a bid price and reselling them at offer of ask price. Competition between bid and offer rate contributes to the market's efficiency. Dealers on behalf of large international banks often act as market makers, often willing to stand in and buy or sell those currencies which they specialized by maintaining inventory position. They trade among other banks and dealers in order to keep their inventory levels at manageable level.
- Individuals and firms conducting commercial or investment transactions

  This category is represented by importers, exporters, portfolio investors, MNEs. They use Forex market to facilitate execution of commercial or investment transactions. Some of them use it to hedge foreign exchange rate risk[7].
- Speculators and arbitrage

  Speculators and arbitrage seek the profit from trading in the market itself and from exchange rate changes. They operate for their own interest, without need or obligations to serve clients or ensure a continuous market.
- Central Banks and treasuries

  Central Banks and treasuries use the market to acquire or spend their country's currency reserves as well as to influence the price at which their own currency trades. They may act to support the value of their currency. Their motive is not to profit but rather influence the foreign exchange value of their currency in a manner that will benefit their interests.
- Foreign exchange brokers

[7] Льюис Борселино, "Учебник по трейдингу" – М.: ИК Аналитика, 2002.

Foreign exchange brokers are agents who facilitate trading between dealers without becoming themselves principals in the transaction. They are charging small commission. They maintain instant access to 100 of dealers worldwide via open lines and at times may maintain such lines with several banks, with separate lines for differing currencies, spot and forward rates.

Since the start of the Forex in 1971[8] has seen an inflow of financial institutes, such as banks, hedge funds, trading houses has been seen, and individual traders have entered the Forex arena. The free-floating system is ideal for today's Forex markets as international trade and commerce are abundant in the twenty first century. The growth of technology in the Forex market has broken down all barriers between nations, as well as time zone barriers. Through the impact and fast developing of the internet, the trading of Forex online has enabled an average investor to reach this vital and practical market.

1.3. Effects and factors influencing exchange rates

Exchange rates operate many of purpose in the international business and trade world. We can see that during recent times, banks and financial institutes helped with transactions and conversion home currency into foreign, exchange rate forced the global commerce, trade and flow of services and goods all over the world. (Truman, 2006)

Exchange rates also serve an important role as economic indicators (Mc Gregor, 1998) On the one hand, strong exchange rate shows political stability in the country, growing economy. On other hand, weak exchange rate may indicate economic recession[9].

Foreign exchange reserves are used by politicians to influence currency rates and manage their countries economy. (Kaplan, 2006) They use foreign exchange reserves and rebuy domestic currency and by this they strengthen the domestic currency value.

Exchange rates are influenced by different factors that some of them are hardly to manage and control (Lowery, 2008).

We can see that exchange rates are based on the relative price of two different currencies, they are set by the relative supplies and demands for these currencies (Frenkel & Johnson, 1978). Relative supplies and demands for currencies are determined by the plans of businesses and government policies[10]. Policies make a significant impact on the economy of a nation.

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[8] Peter Rosenstreich, Forex Revolution: An Insider's Guide to the Real World of Foreign Exchange, Prentice Hall, ISBN 0-13-148690-X.

[9] McGregor, L., Economic implications of foreign exchange rates. Money, markets and the economy. http://www.abc.net.au/money/currency/features/feat10.htm - Accessed on - 21.02.2013

[10] Jacob A. Frenkel, Exchange rates and international macroeconomics, The National Bureau of Economic Research.

Interest rate differentials, inflation, productivity, growth of domestic product, current account balances, equity flow, hedging activities, and trans-oceanic economic policies are other economic factors that are influencing the exchange rates.

An interest rate differential usually reflects exchange rate expectations (Khor & Rojas-Suarez, 1991).

Purchasing power parity is a theory used to determine the relative value of currencies, estimating the amount of adjustment needed on the exchange rate between countries in order for the exchange to be on a par with each currency's purchasing power. It links exchange rates to inflation. (Balassa, 1964; Juselius, 1995).

In the European Union there is a variable which measures GDP growth on an aggregate level, that are different from the rest of the world. This variable called the Economic Sentiment Indicator (ESI), is part of the EU program of business and consumer surveys[11] (European Commission DG ECFIN, 2009).

Eurostat defines the ESI as a composite indicator[12]. The number is composed of five confidence indicators connected to different sectors. Different weights of importance are attached to each sector. The five indicators are: Industrial Confidence Indicator; Services Confidence Indicator; Consumer Confidence Indicator; Construction Confidence Indicator and Retail Trade Confidence Indicator.

These business and consumer surveys provide important quantitative and qualitative information about the economic health, short term forecasts and economic research for the Euro zone area.

ESI, which is mostly of a qualitative nature, reflects the monthly judgments, anticipations, perceptions and expectations concerning diverse facets of economic activity in the different sectors of the economy.

Mehrotra and Rautava (2007) said that business mood indicators or business sentiment are helpful in forecasting developments in the Chinese economy. These indicators tend to transmit useful information about the current and juncture of economic activity.

Nilsson and Tapasanun (2009) had an idea that business mood or business sentiment indicators play a big role in the foreign exchange market. They claimed in their research that the EUR/USD exchange rate rose as euro zone economic sentiment indicator increased.

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[11] European Commission Economic and Financial Affairs in EU; <http://ec.europa.eu/economy_finance/index_en.htm> - Accessed on – 19.02.2013

[12] Eurostat, the statistical office of the European Union;<http://epp.eurostat .ec.europa.eu/portal/page/portal/eurostat/home/> - Accessed on – 19.02.2013

According to Rodriguez (2009) said that several business mood or business sentiment indicators play an important role in the USD/EUR exchange rate, financial relationships have been offered between sentiment indicators and foreign exchange markets.

Deans (2010) and Lawrence (2011) believe that it is the traders' expectations in the foreign exchange market which cause the constant buying and selling of currencies (Koske and Stadtmann, 2009).

These expectations are in turn related to factors such as political (political stability of a country, political stability in the region, intervention and manipulation of the government, country's economic exposure) and psychological (risk avoidance, market anticipation, greed, speculative pressures and future expectations (Hill, 2004)).

Due to the great variety of external and internal force covering foreign exchange markets, possibility to make not write forecasting is very huge. Traders try to predict exchange rates with a high degree of reliability, but most of the times those forecasts are far from being true. A high-quality forecast would allow traders and market participants to make more-informed decisions.

2. CHAPTER 2. MODELING EXCHANGE RATES

2.1. Exchange rate Theories

Purchasing power parities (PPPs) are indicators of price level differences across countries. PPP is the oldest and most widely followed of the exchange rate theories.

Purchasing power parity theory had 2 versions: the absolute version and the relative version.

If the law of one price were true for all goods and services, the purchasing power parity exchange rate could be found from any individual set of prices. By comparing the prices of identical products denominated in different currencies we can determine the purchasing power parity exchange rate that should exist if markets were efficient. This is the absolute version of the theory of purchasing power parity. Absolute purchasing power parity states that the spot exchange rate is determined by the relative price of similar baskets of goods[13].

The absolute version does not included transportation costs and trade barriers. In fact, transport costs are usually quite significant and are not the same in different countries. Trade barriers are still countries safety and are sometimes obvious or hidden and significantly affect the cost and distribution of goods. Finally, if we look from sales and marketing view, this version is not considered the importance of brands.

Relative PPP holds that PPP[14] is not particularly helpful in determining what the spot rate is today, but that the relative change in prices between two countries over a period of time determines the change in the exchange rate over the period. More specifically, if the spot exchange rate between two countries follows the relative version of PPP, any change in the differential rate of inflation between them tends to be offset over the long run by an equal but opposite change in the spot exchange rate.

The main justification for purchasing power parity is that if a country experiences inflation rates higher than those of its main trading partners, and its exchange rate does not change, its exports of goods and services become less competitive with comparable products produced elsewhere. Imports from abroad become more price-competitive with higher priced domestic products. These price changes lead to a deficit on current account in the balance of payments unless offset by capital and financial flows.

Extensive testing of absolute and relative versions of purchasing power parity and the law of one price has been done[15]. Most of the tests have not proved PPP to be accurate in predicting future exchange rates. Two general conclusions can be made from these tests: Purchase Power

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[13] Paul R. Krugman. Maurice Obstfeld; International economics theory and policy, 8th edition, Addison-Wesley, 2009, p. 287 – 420, IBAN 9780321493040

[14] David K. Eiteman, Arthur I.Stonehill, Michael H. Moffett; Multinational Business Finance, 11th edition, p. 102 – 137, ISBN-10: 0321357965

[15] Barry K. Goodwin, Thomas Greenes, Michael K. Wohlgenant: Testing the Law of one price when trade takes time, Journal of international money and finance, March 1990, p. 21 - 40

Parity holds up well over the very long run but poorly for short-run period and the theory holds better for countries with relatively high rates of inflation and underdeveloped capital markets.

After purchasing power parity, the most frequently used theoretical approach to exchange rate determination is probably the balance of payments approach[16], involving supply and demand for currencies in the foreign exchange market. These exchange rate flows reflect current account and financial account transactions recorded in a nation's balance of payments. The basic balance of payments approach argues that the equilibrium exchange rate is found when the net inflow (outflow) of foreign exchange arising from current account activities matches the net outflow (inflow) of foreign exchange arising from financial account. The approach continues a wide degree of appeal as balance of payments transactions are one of the most frequently captured and reported of international economic activity. Criticism of the balance of payments approach arises from the theory's emphasis on flows of currency and capital rather than stocks of money or financial assets. Curiously, the balance of payments approach is largely dismissed by the academic community today, while the practitioner public – market participants, including currency traders still rely on different variations of the theory for their decision making.

The monetary approach in its simplest form states that the exchange rate is determined by supply and demand for national monetary stocks as well as the expected future levels and rates of growth of monetary stocks. Bonds are not considered relevant for exchange rate determination, as both domestic and foreign bonds are viewed as perfect substitutes, its all about money stocks. Changes in the supply and demand for money are the primary determinants of inflation. Changes in relative inflation rates in turn alter exchange rates through an assumed purchasing power parity affect. The monetary approach also assumes that prices are flexible in the short run as well as the long run, so that the transmission mechanism is immediate in impact. In monetary models of exchange rate determination, real economic activity is relegated to a role in which it influences only exchange rates through any alternations to the demand for money.

The monetary approach omits a number of factors, which are generally agreed by subject area experts as important to exchange rate determination including: the failure of PPP to hold in the short to medium term; the level of economic activity and the money supply appearing to be interdependent but not independent; money demand appearing to be relatively unstable over time.

The modern monetary theories on short-term exchange rate volatility take into consideration the short-term capital markets' role and the long-term impact of the commodity markets on foreign exchange. These theories hold that the divergence between the exchange rate

[16] David K. Eiteman, Arthur I.Stonehill, Michael H. Moffett; Multinational Business Finance, 11th edition, p. 102 – 137, ISBN-10: 0321357965

and the purchasing power parity is due to the supply and demand for financial assets and the international capability.

One of the modern financial theory states that exchange rate volatility is caused by a one-time increase in the supply of the domestic currency, because it implies the expectation of further growth in the money supply.

The purchasing power parity theory applies, therefore, to the capital markets. While some of the two countries, which the value of the currency changes. The demand for money is determined by the level of national income and the value of the discount rate. Then the increase in the income increase in the number of transactions, while at a high discount rate of the demand for money decreases.

According to the second version, the exchange rate adjusts instantaneously to maintain a constant currency parity prices, and the volatility is due to the fact that the commodity market adapts to this slower than financial. This version is known as the approach to a movement of Finance or the dynamic monetary approach.

Synthesis of traditional and modern monetarist theories[17]. To better accommodate the above theory to the realities of the market, it is possible to formulate more reasonable conditions for the synthesis of traditional and modern monetarist theories.

Short-term capital outflows caused by the financial turmoil, the balance of payments create violation, causing the need to adjust the exchange rate to restore the balance of payments. Speculative aspirations volatility of commodity markets and the availability of short-term capital movements cause volatility. The degree of exchange rate flexibility is a function of consumer demand. Because financial markets are more adaptable to changing market conditions than commodity, foreign exchange value of the currency is vulnerable to short-term changes in the capital markets and long-term changes in the commodity markets.

2.2. Fundamental analysis indicators

For fundamental analysis of the currency market, as well as any of the stock and commodity markets we are using published data for the purpose of special analytical reports and graphs, and tables of numerical indicators - indicators of fundamental analysis[18]. Any indicator for fundamental analysis is a pair of numbers. The first number is the index for the period. The second number - is an updated figure for the month preceding the accounting period. For example, in July, the economic indicators are published in June (the reporting period).

[17] Kennedy M., Maria John: Macroeconomic Theory, PHI Learning Private Limited, 2011, ISBN-978-81-203-4240-8

[18]Fundamental Analysis; <http://stockcharts.com/school/doku.php?id=chart_school:overview:fundamental_analysis >- Accessed on – 25.02.2013

Additionally, the release includes the value of the same indicator for May. This is for the reason that the agency responsible for the collection of economic statistics gets to the time of publication of the indicator for June more information in May, which is important for traders. If, for example, the importance of economic indicators over the past month is by 0.3%, better than expected and the previous month is adjusted by less than 0.3%, the trader can make informed choices about the shift in the state of the economy.

Indicators are published at different times. It is important to remember that most of the information about the foreign currency is available in 8:30 a.m. Therefore, the foreign exchange market in the United States opens at 8:20 in the morning to allow time for review of the latest data for fundamental analysis. Information about economic indicators we can found on the internet all newspapers such as the Wall Street Journal, Financial Times, New York Times, Business Week. Most of the traders actively use electronic sources, such as Bridge Information Systems, Reuters and Bloomberg - to provide information both from newspapers and scrap sources of current information[19].

Selected indicators of fundamental analysis in accordance with their common classification are represent below.

2.2.1 Economic indicators

Economic indicators are the main indicators for fundamental analysts. They are quantitative announcements released as data reflecting economical, financial and social atmosphere of the country. Government and independent private agencies usually release this information usually monthly. Many private groups speculate on the anticipated release and these expectations quickly become incorporated into the current market price. If economic indicator is released the difference between the actual release and the anticipated release is the key factor. A large change may have zero affect on the market if it was already anticipated weeks earlier[20]. These statistics are used by many to monitor the strength and health of an economy. There is usually an increase in volatility in and around announcement time, this increase in volatility will often create serious price movements in different direction.

For economic indicators we chose such indicators: The Gross National Product (GNP), The Gross Domestic Product (GDP), Consumption Spending, Investment Spending, Government Spending, Net Trade.

[19] Fundamental Analysis; <http://thismatter.com/money/forex/fundamental-analysis.htm> - Accessed – 25.02.2013

[20] Robert Rowan Foreign Currency Financial Reporting from Euro to Yen to Yuan: A Guide to Fundamental Concepts and Practical Applications, Wiley and SAS Business Series, 1 edition, April 5, 2011, ISBN-10: 1118024427

The Gross National Product (GNP) represents the perfection of the economy as a whole. This indicator is in the macro scale, the sum of consumer spending, investment, government spending and net trade. The Gross National Product is the total value added from domestic and foreign sources claimed by residents of a country. In other words it is GDP[21] (Gross Domestic Product, the value of goods and services produced within a country) plus net income received by residents from non-resident sources. GNP/capita is the total divided by the number of people in the country. It means, GNP/capita is a measure of national income per person.

Table 2. Gross National Product Indicator

Gross National Product	
Level of importance:	1
Published:	Bureau of Economic Analysis in Ministry of Trade in USA, Eurostat, the statistical office of the European Union
Dates:	20 – 30 in USA
Periodicity:	Each quarter
Volatility:	Average
Reaction of the market:	GNP increase – currency increase GNP decrease – currency decrease
Remark:	One of the most important indicators, because it shows fully the economic activity

Source: Bureau of Economic Analysis in Ministry of Trade in USA; <http://www.bea.gov/> – Accessed on – 25.02.2013

Eurostat, the statistical office of the EuropeanUnion;<http://epp.eurostat.ec.europa.eu/ portal/page/portal/eurostat/home/> – Accessed on – 25.02.2013

The Gross Domestic Product (GDP) generally is defined as the market value of the goods and services produced by a country or GDP[22] is the market value of all officially recognized final goods and services produced within a country in a given period of time. The difference between GNP and GDP in terms of the country's economy is nominal.

Table 3. Gross Domestic Product Indicator

Gross Domestic Product

[21] N. Gregory Mankiw: Macroeconomics, Worth Publishers, 7th Edition, 2010, ISBN-10: 1429218878

[22] N. Gregory Mankiw: Macroeconomics, Worth Publishers, 7th Edition, 2010, ISBN-10: 1429218878

Level of importance:	1
Published:	Bureau of Economic Analysis in Ministry of Trade in USA, Eurostat, the statistical office of the European Union
Dates:	20 – 30 in USA
Periodicity:	Each quarter
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Source: Bureau of Economic Analysis in Ministry of Trade in USA; <http://www.bea.gov/> – Accessed on – 25.02.2013

Eurostat, the statistical office of the EuropeanUnion;<http://epp.eurostat.ec.europa.eu/ portal/page/portal/eurostat/home/> – Accessed on – 25.02.2013

Consumption Spending or consumption as possible by the personal and the net income. Decisions of consumers to spend money or save it are psychological in nature. Consumer confidence is also an important indicator of propensity of consumers that have disposable income, and switch from savings to consumption[23]. Consumption is the largest part of aggregate demand or effective demand at the macroeconomic level. There are two variants of consumption in the aggregate demand model, including induced consumption and autonomous consumption:

- **Induced consumption** is consumption expenditure by households on goods and services that are different depends on income. Such consumption is considered induced by income when expenditure on these consumables varies as income changes. Induced consumption contrasts with autonomous consumption, which is expenditures that do not vary with income.
- **Autonomous consumption** (**exogenous consumption**) is consumption expenditure that occurs when there is no income. Such consumption is considered autonomous of income only when expenditure on these consumables does not vary with changes in income, it may be required to fund necessities, debt obligations. If income levels are actually zero, this consumption counts as dissaving, because it is financed by borrowing or using up savings. Autonomous consumption contrasts with induced consumption, in that it does not systematically fluctuate with income, whereas induced consumption does

[23] Consumption <http://www.bea.gov/national/pdf/NIPAch5consumerspending.pdf> - Accessed on – 25.02.2013

Investment Spending Index. Investment or gross private domestic[24] investments consist of fixed-investment and the cost of goods in warehouses. Investment spending in general refers to the creation and acquisition of the means of production in order to use them in an attempt to stimulate economic production. Capital goods are products that are needed to create other products. These items may include equipment, machinery, buildings and roads. Persons, companies and governments are trying to use the investment costs for certain types of expenses to their advantage, producing long-term benefits. Many economists believe the investment costs to be a vital part of the collective demand in the economy of the state and the primary indicator of the status of its economic development. The amount of investment spending is traditionally determined by the expected rate of return, which is based on current interest rates and projected state of the economy. This means that the overall mood of business at the time, could have a significant impact of investment amounts and the rate of economic growth. The investment cost for its most basic level, as a rule, is born with the individual or organization permission to postpone consumption and instead look for opportunities to create capital. This decision often leads to an increase in production capacity of the economy.

The index of Government Spending. The index of government expenditure is very important both in itself and in terms of its impact on other economic indicators. It includes all government consumption and investment but excludes transfer payments made by a state. Government acquisition of goods and services for current use to directly satisfy individual or collective needs of the members of the community is classed as government final consumption expenditure. Government acquisition of goods and services intended to create future benefits, such as infrastructure investment or research spending, is classed as government investment (gross fixed capital formation). Government expenditures that are not acquisition of goods and services, and instead just represent transfers of money, such as social security payments, are called transfer payments. The first two types of government spending, final consumption expenditure and gross capital formation, together constitute one of the major components of gross domestic product. In U.S. defense spending played an important role in the total employment in the U.S. until 1990. What happened after this reduction in military spending in a short time led to an increase in unemployment rates.

Index of net trading volume (Net Trade). Net trading volume is another important component of GDP. Global internationalization, as well as economic and political developments

[24] Fundamental Analysis <http://thismatter.com/money/forex/fundamental-analysis.htm> – Accessed on – 25.02.2013

since 1980 have had a strong impact on the different countries ability to compete with other countries. GNP can be approached in two ways: flow of product and flow of cost.

One of the few indicators that have not indirect or direct effects on the exchange rate, as it reflects the movement of funds between countries for goods and services. The paradox lies in the fact that the reaction of the exchange rate on the report is minimal because of technical and structural nature, namely, the report is too late and then, when there was a real movement of values, in addition, the movement of capital, due to trade relations, to a times less than the capital-work-related credit and capital markets, and the cycles of these two streams is usually not the same. With the growth of the trade deficit is a growing demand for foreign currency and the exchange rate of the local currency falls. The trade balance has indicators of domestic demand, as they determine the dynamics of imports, and also the exchange rate, which adjusts the nominal value of the revenue from imports in local currency.

2.2.2. Industrial Sector Indicators

For industrial sector we chose such indicators: Industrial Production, Capacity Utilization, Factory Orders, Durable Goods Orders, Business Inventories. Below presents selected indicators.

Index of Industrial Production characterizes the amount of the total production of the national industrial, utility and mining companies. From the standpoint of fundamental analysis, it is an important economic indicator that reflects the strength of the economy and indirectly - the power of the domestic currency. For this reason, foreign exchange traders use this indicator as a potential signal for trading decisions.

Index of production capacity (Capacity Utilization) characterizes[25] the overall industrial production, divided by the total available capacity. The latter refers to the maximum level of production at which the business can go under normal business conditions. In principle, the use of power to be an important indicator for the currency market does not apply. However, there are examples where the involvement of the indicator from the standpoint of the economy has been useful for fundamental analysis. Its "normal" value for a stable economy is 81.5%. If it is 85% or more, this is evidence of "overheating" of industrial production, is that the economy is close to achieving the maximum power. The high degree of capacity utilization perceives inflation, and the foreign exchange market is the expectation that the central bank will raise interest rates in order to prevent or reduce inflation.

Table 4. Industrial Production and Capacity Utilization Indicator

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[25] Fundamental Analysis <http://thismatter.com/money/forex/fundamental-analysis.htm> – Accessed on – 25.02.2013

Industrial Production and Capacity Utilization	
Level of importance:	2
Published:	Analytic Department in the Federal Reserve System(USA), European Commission Economic and Financial Affairs in EU
Dates:	9 – 16 work day of month in USA
Periodicity:	Monthly
Volatility:	Average
Reaction of the market:	Impact on the rate depends on the related economic situation
Remark:	Is an indicator of the inflation level

Source: Analytic Department in the Federal Reserve System of USA;<http://www. federalreserve .gov/econresdata/statisticsdata.htm> – Accessed on – 25.02.2013

European Commission Economic and Financial Affairs in EU;<http://ec. europa.eu/economy_ finance/index_en.htm> – Accessed on – 25.02.2013

The index of industrial new orders (Factory Orders). Characterizes the total orders for durable goods and non-durable goods. The latter includes food, clothing, light industry products, designed to cater to durable goods. For traders, the foreign exchange market in industrial orders index is of limited value.

Table 5. Factory Orders and Manufacturing Inventories Indicator

Factory Orders and Manufacturing Inventories	
Level of importance:	3
Published:	Bureau of Economic Analysis in Ministry of Trade in USA, Eurostat, the statistical office of the European Union
Dates:	Last day of the month in USA
Periodicity:	Monthly
Volatility:	Very high
Reaction of the market:	Low

Source: Bureau of Economic Analysis in Ministry of Trade in USA; <http://www.bea. gov/> – Accessed on – 25.02.2013

Eurostat, the statistical office of the EuropeanUnion;<http://epp.eurostat.ec. europa.eu/ portal/page/portal/eurostat/home/>– Accessed on – 25.02.2013

Index of orders for durable goods (Durable Goods Orders). The index of orders for durable goods represents the output of-life of three years[26]. Examples of such products are

[26] Michael C. Thomsett Getting Started in Fundamental Analysis, Wiley; 1 edition, April 21, 2006,ISBN-10: 0471754463

vehicles, stationary equipment, furniture, jewelry and toys. These products are divided into four main categories: product metallurgy, machinery, electrical and transport engineering. To eliminate the effect of the volatility inherent in the volume of military orders, in determining this indicator defense products are accounted for separately.

This indicator is important enough for the currency market, as it gives a good indication of consumer confidence. Since durable goods cost more than non-durable goods, high value of the indicator reflects the intention of consumers to spend money. Therefore, for the currency market the value of the indicator is bullish.

Table 6. Durable Goods Orders Indicator

Durable Goods Orders	
Level of importance:	3
Published:	Bureau of Labor Statistics U.S. Department of Labor, Eurostat, the statistical office of the European Union
Dates:	19 – 27 work day in USA
Periodicity:	Monthly
Volatility:	Very high
Reaction of the market:	Low

Source: The Bureau of Labor Statistics in USA; http:<//www.bls.gov/> – Accessed on – 25.02.2013
Eurostat, the statistical office of the European Union;<http://epp.eurostat.ec. europa.eu/ portal/page/portal/eurostat/home/> – Accessed on – 25.02.2013

Index of stocks (Business Inventories) is based on the cost of items produced and placed in the warehouse for the subsequent sale. To gather such information is not difficult, and it is not something that can hit the market. In addition, the current level of financial management and general computerization is in a high degree of control for the storage of goods. Therefore, the importance of this indicator for the currency market is limited.

2.2.3. Construction Indicators

These indicators are an important economic indicator, included in the calculation of the countries' GDP[27]. Above all, the construction is traditionally a motor withdrawal of the economy. This indicator is divided into three main categories:

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[27] Matt Krantz Fundamental Analysis For Dummies, For Dummies; 1 edition, November 2, 2009 ISBN-10: 0470506458

- The number of permits for new construction and the number of vanishing cycles
- The number of sales of new and existing single-family homes
- Construction spending.

Construction indicators are cyclical changes and are very sensitive to the level of net income. It should be noted here that in itself low discount rate is not able to lead a high demand for homes. As the situation in the early 90s and 2009, despite the traditionally low in U.S. mortgage rates, confidence in a weak economy, the construction of houses has increased slightly. However, despite the recession years 2000-2001, the value of houses, for example, in California, also hardly decreased.

Construction output in the range from a half to two million units reflects a strong economy, whereas the figure is equal to about one million units and is a testament to the economic downturn.

Table 7. Construction Spending Indicator

Construction Spending	
Level of importance:	3
Published:	Bureau of Economic Analysis in Ministry of Trade in USA, Eurostat, the statistical office of the European Union
Dates:	First work day of the month in USA
Periodicity:	Monthly
Volatility:	High
Reaction of the market:	Construction spending increase – currency increase Construction spending decrease – currency decrease
Remark:	Important that after the revision of this data, deviation can be significant

Source: Bureau of Economic Analysis in Ministry of Trade in USA; <http://www.bea.gov/> – Accessed on – 27.02.2013
Eurostat, the statistical office of the EuropeanUnion;<http://epp.eurostat.ec.europa.eu/ portal/page/portal/eurostat/home/> – Accessed on – 27.02.2013

2.4. Inflation Indicators

Traders are closely watching the development of inflation as the main method of combat in the increase in interest rates, and higher rates are aimed to support the local currency. To measure inflation traders use the following economic instruments.

The producer price index (PPI)

The Producer Price Index is a family of indexes that measures the average change over time in the selling prices received by domestic producers of goods and services. PPIs[28] measure price change from the perspective of the seller. This contrasts with other measures, such as the Consumer Price Index (CPI), that measure price change from the purchaser's perspective. Sellers' and purchasers' prices may differ due to government subsidies, sales and excise taxes, and distribution costs. Over 10,000 PPIs for individual products and groups of products are released each month. The PPI looks at three areas of production: industry-based, commodity-based, and stage-of-processing-based companies. PPIs are available for the output of all industries in the goods-producing sectors of the economy—mining, manufacturing, agriculture, fishing, and forestry—as well as natural gas, electricity, construction, and goods competitive with those made in the producing sectors, such as waste and scrap materials. The PPI program also covers more than three-quarters of the service sector's output and coverage is still expanding. Unlike the CPI, the PPI does not include imported goods, services or taxes.

Table 8. Producer Price Index Indicator

Producer Price Index (PPI)	
Level of importance:	2
Published:	The USA Bureau of Labor, Eurostat, the statistical office of the European Union
Dates:	9 – 16 work day of month in USA
Periodicity:	Monthly
Volatility:	Average
Reaction of the market:	Impact on the rate depends on the related economic situation
Remark:	Is an indicator of the level of inflation

Source: The Bureau of Labor Statistics in USA; <http://www.bls.gov/> – Accessed on – 27.02.2013

Eurostat, the statistical office of the European Union;<http://epp.eurostat.ec. europa.eu/ portal/page/portal/eurostat/home/> – Accessed on – 27.02.2013

Consumer price index (CPI) in the United States is defined by the Bureau of Labor Statistics as "a measure of the average change over time in the prices paid by urban consumers for a market basket of consumer goods and services. The consumer price index (CPI) reflects the average change in retail prices for a fixed basket of goods and services[29]. They classify all

[28] Jim Vickery M.B.A. The Investors Guide: Investing using Technical and Fundamental Analysis, Kindle edition
[29] N. Gregory Mankiw: Macroeconomics, Worth Publishers, 7th Edition, 2010, ISBN-10: 1429218878

expenditure items into more than 200 categories, arranged into eight major groups. Major groups and examples of categories in each are as follows:

- Beverages and food
- Housing (rent of primary residence, owners' equivalent rent, fuel oil, bedroom furniture)
- Apparel
- Transportation (gasoline, new vehicles, motor vehicle insurance, airline fares)
- Medical Care (prescription, medical supplies, physicians' services, hospital services)
- Recreation (televisions, pets and pet products, sports equipment);
- Education and Communication (college tuition, telephone services, computer software);
- Other Goods and Services (tobacco products, personal services).

Also included within these major groups are various government-charged user fees, such as water and sewerage charges, auto registration fees, and vehicle tolls. In addition, the CPI includes taxes (such as sales and excise taxes) that are directly associated with the prices of specific goods and services. However, the CPI excludes taxes (such as income and Social Security taxes) not directly associated with the purchase of consumer goods and services. The CPI does not include investment items, such as stocks, bonds, real estate, and life insurance

Both PPI and CPI index are used by traders as supporting the assessment of inflationary activity, according to the Federal Reserve by the indexes overestimate inflation.

Table 9. Consumer Price Index Indicator

Consumer Price index (CPI)	
Level of importance:	2
Published:	The USA Bureau of Labor, Eurostat, the statistical office of the European Union
Dates:	15 – 21 work day of month in USA
Periodicity:	Monthly
Volatility:	Moderate
Reaction of the market:	Impact on the rate depends on the related economic situation
Remark:	Is an indicator of the level of inflation

Source: The Bureau of Labor Statistics in USA; <http://www.bls.gov/> – Accessed on – 27.02.2013

Eurostat, the statistical office of the European Union;<http://epp.eurostat.ec. europa.eu/ portal/page/portal/eurostat/home/> – Accessed on – 27.02.2013

Gross national product implicit deflator[30] is calculated by dividing the current value of GDP for a constant value of GDP in U.S. dollars.

Gross domestic product implicit deflator provides a measure of the price level of all goods and services produced in an economy[31], and it is equal to 100 times the nominal GDP divided by real GDP. That is, the GDP deflator = (Nominal GDP ÷ Real GDP) × 100. If the nominal GDP rises with real GDP fixed, then the price level of all goods and services traded is rising.

Both deflators are published quarterly together with those of the GNP and GDP. Deflators are regarded as the most important measuring devices of inflation.

Commodity research bureau's futures index. The index that measures the overall direction of commodity sectors[32]. The CRB was designed to isolate and reveal the directional movement of prices in overall commodity trades. Research Bureau facilitates is monitoring the inflationary trends. Consists of 21 goods with the same specific gravity. The components are:

- Precious metals (gold, platinum)
- Industrial crude oil, heating oil, unleaded gasoline, lumber, copper and cotton
- Grains (wheat, soybeans)
- Livestock and meat
- Import (coffee, cocoa)
- Miscellaneous (orange juice)

Commodity prices move opposite to bond prices, because inflation causes commodities to increase in price while devaluating the price of bonds. This is one of the reasons why the CRB is so closely watched bonds by both bond, commodity traders and Forex traders. It is more sensitive than other indexes, as it was designed to generate the signal changes in the inflation process, ahead of other indices.

2.2.5 Merchandise trade balance

It is one of the very important economic indicators. An economic indicator consists of the net difference between the exports and imports of a certain economy and includes six categories: food, consumer goods, autos, raw materials and industrial supplies, capital goods, other merchandise.

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[30] N. Gregory Mankiw: Macroeconomics, Worth Publishers, 7th Edition, 2010, ISBN-10: 1429218878

[31] N. Gregory Mankiw: Macroeconomics, Worth Publishers, 7th Edition, 2010, ISBN-10: 1429218878

[32] Jim Vickery M.B.A. The Investors Guide: Investing using Technical and Fundamental Analysis, Kindle edition

One of the few indicators that does not have indirect but direct effects on the exchange rate, as it reflects the movement of funds between countries for goods and services[33]. The paradox lies in the fact that the reaction of the exchange rate on the report is minimal because of technical and structural nature, namely: the report is too delayed and then, when there was a real movement of values, in addition, the movement of capital, due to trade relations, to a times less than the capital-work-related credit and capital markets, and the cycles of these two streams is usually not the same. With the growth of the trade deficit is a growing demand for foreign currency and the exchange rate of the local currency depreciate. The trade balance[34] have indicators of domestic demand, as they determine the dynamics of imports, and also the exchange rate, which adjusts the nominal value of the revenue from imports in local currency.

For the foreign exchange markets overall balance is a key measure. Early analyzes of export as it has a direct impact on the value of growth in the economy. Imports reflect the demand for U.S. goods. Increase in imports reflects the formation of reserves, which may indicate the possibility of a subsequent slow growth in sales. There are a few special items of export and import, which can significantly affect the trade balance. For example, oil imports (especially when the price rise), and aircraft for export. Depending on the product categories of growing deficit, a small fall in exports could push the fixed income markets in either direction. Unlike other sectors of the economy, there is no consistent relationship between the trade balance and the phases of the business cycle. During the decline in net exports of other indicators can either improve or deteriorate. The main reason is different synchronization of business cycles in the U.S. and abroad, as well as the duration of the cycle of changes in the U.S. and abroad. Exports show a consistent increase in the expansion phase of the business cycle, but this ratio is disturbed again during recessions and recoveries.

Table 10. Trade Balance Indicator

Trade Balance	
Level of importance:	1
Published:	Bureau of Economic Analysis USA, Eurostat, the statistical office of the European Union
Dates:	Each month on 15 – 17 in USA
Periodicity:	Monthly

[33] Robert Rowan Foreign Currency Financial Reporting from Euro to Yen to Yuan: A Guide to Fundamental Concepts and Practical Applications, Wiley and SAS Business Series, 1 edition, April 5, 2011, ISBN-10: 1118024427

[34] N. Gregory Mankiw: Macroeconomics, Worth Publishers, 7th Edition, 2010, ISBN-10: 1429218878

Volatility:	Moderate
Reaction of the market:	Trade balance increase – currency increase Trade balance decrease – currency decrease

Source: Bureau of Economic Analysis in Ministry of Trade in USA; <http://www.bea. gov/> – Accessed on – 27.02.2013

Eurostat, the statistical office of the EuropeanUnion;<http://epp.eurostat.ec. europa.eu/ portal/page/portal/eurostat/home/> – Accessed on – 27.02.2013

2.2.6 Employment Indicators

The employment rate[35] is the economic factor that plays an important role in many ways. Naturally, the level of employment is judged on the state of the economy. Employment rate - is a fundamental indicator. About this important feature needs to remember, especially in times of economic recession. When the population thinks about the health and recovery of the labor sector, the employment index - the last thing that calms them. When the economic recession causing job losses, the time required to form the population of psychological confidence in economic recovery, as there was a new jobs. At the individual level, to improve understanding of the employment situation may be complicated by the fact that jobs are being created at first only in small companies and in small quantities, and this makes the expectations associated with the given index is not fully justified. Records of employment are important for financial markets in general and for the currency markets in particular. Employment data are particularly relevant in the transition of the economy from recession to a gradual recovery. The importance of this indicator in extreme economic situations due to the fact that it can create a general picture of the state of the economy and the duration of the business cycle[36]. Reducing the unemployment rate indicates the end of the cycle, while at the beginning the rate is the highest.

It should be noted that the most frequently used so-called digit unemployment (employment figure), which is not the unemployment rate for the month in percentage, and nonfirm payroll rate. This ratio is calculated by dividing the difference between the total number of working age and the number of employees in the total number of capable of working. This figure is more complex and carries more information. In the currency market, the standard indicator, followed by traders, is the unemployment rate, which reflects the industrial employment, nonfirm payroll rate, average earnings and average weekly hours. In principle, the most important characteristics of employment are employed in industry and nonfirm payroll rate, followed unemployment rate as a percentage.

[35] N. Gregory Mankiw: Macroeconomics, Worth Publishers, 7th Edition, 2010, ISBN-10: 1429218878

[36] Fundamental Analysis <http://thismatter.com/money/forex/fundamental-analysis.htm> - Accessed on – 25.02.2013

Table 11. Employment and Unemployment Indicator

Employment and Unemployment	
Level of importance:	1
Published:	The Bureau of Labor Statistics in USA, Eurostat, the statistical office of the European Union
Dates:	1 – 7 work day of month in USA
Periodicity:	Monthly
Volatility:	Average
Reaction of the market:	Payroll employment increase – currency increase Payroll employment decrease – currency decrease Unemployment rate increase – currency decrease Unemployment rate decrease – currency increase
Remark:	Indicator that helps to predict lots of others economic

Source: The Bureau of Labor Statistics in USA; <http://www.bls.gov/> – Accessed on – 27.02.2013

Eurostat, the statistical office of the European Union;<http://epp.eurostat.ec. europa.eu/ portal/page/portal/eurostat/home/> – Accessed on – 27.02.2013

The Employment Cost Index (ECI) is a quarterly measure of the change in the price of labor, defined as compensation per hour employee worked. Closely watched by many economists, the ECI is an indicator of cost pressures within companies that could lead to price inflation for finished goods and services[37]. The index measures change in the cost of compensation not only for wages and salaries, but also for an extensive list of benefits. As a fixed-weight, or Laspeyres, index, the ECI controls for changes occurring over time in the industrial-occupational composition of employment.

2.2.7. Consumer Spending Indicators

The amount of money spent by households in an economy. The spending includes durables and nondurables. Consumer Spending Indicator known as consumption is measured monthly. John Maynard Keynes considered consumer spending to be the most important determinant of short-term demand in an economy. Based on the data on the volume of retail trade, that is important for the currency market, because it shows the strength of consumer demand and consumer confidence, which is the original data in the calculation of other economic indicators, such as GNP and GDP.

[37] Jim Vickery M.B.A. The Investors Guide: Investing using Technical and Fundamental Analysis, Kindle edition

Retail Sales. Data on the volume of retail trade show traders as a force in consumer demand and the level of consumer confidence[38]. Particularly important is the indicator in the U.S., where the economy is the subject of an individual consumer. Consumer behavior is a major stimulator of the American economy. The most important month for traders in forex, in terms of the retail trade are December (month of preparation for the Christmas and New Year holidays) and September (month renewal study). Gradually becomes more and more important in this respect, and in November, as the recently passed a sales network in the post-Christmas and Christmas sales.

Table 12. Retail Sales Indicator

Retail Sales	
Level of importance:	2
Published:	Analytic Department in the Department of Trade (USA), Eurostat, the statistical office of the European Union
Dates:	9 – 16 work day of month in USA
Periodicity:	Monthly
Volatility:	Average
Reaction of the market:	Impact on the rate depends on the related economic situation
Remark:	Is an indicator of the inflation level

Source: Bureau of Economic Analysis in Ministry of Trade in USA; <http://www.bea.gov/> – Accessed on – 27.02.2013

European Commission Economic and Financial Affairs in EU;<http://ec.europa.eu/ economy_finance/index_en.htm> – Accessed on – 27.02.2013

Consumer Sentiment. Consumer confidence directly reflects consumers' willingness to increase or maintain the same level all the costs associated with the current needs of the family, and, by implication - the situation in the labor market[39].

Car sales. Despite the importance of the automotive industry, in terms of both production and sales, the level of car sales is not one of the economic indicators that are relevant for currency traders. U.S. automotive market is experiencing a long and steady step reduce its market share, which was less painful only in the early nineteenth. The automobile market has undergone recent significant internationalization. As example, when American cars were being

[38] Fundamental Analysis <http://thismatter.com/money/forex/fundamental-analysis.htm> - Accessed on – 25.02.2013

[39] В. Якимкин “Рынок Форекс Ваш путь к успеху”. Москва, “Светоч Л” 1999.

assembled outside the U.S. and Japanese, German - in the United States. Due to its mixed nature, using an index car sales in the foreign exchange market is difficult.

2.2.8. Leading Indicators

Leading indicators include:

- The average work week in mechanical engineering;
- The average number of visits per week for unemployment benefits;
- The volume of new orders for consumer goods and materials (adjusted for inflation);
- Trade claims (companies experiencing supply disruptions from suppliers);
- The volume of contracts and orders for stationary plant equipment (adjusted for inflation);
- The number of building permits issued;
- Changes in the number of outstanding orders durable goods manufacturers;
- Changes in perishable goods.

Leading indicators are macroeconomic indicators, which received its name from the fact the trends to display its full expression in the economic situation of the country.

It allows traders on the market to react on time or timely by buying or selling different assets. Overall, the leading indicators of the economy are a reflection of the mood of a particular group of persons (consumers, managers, etc.), which appears by it appears that by the survey (written or telephone). The survey data is analyzed and processed, after which the data is made public - well known and available. For example, in the USA such indicators are PMI (Purchasing Manager's Index, PMI), CB (Conference Board).

PMI is a measure of optimism of middle and senior managers. The purpose of the index - to study the processes of pricing, as they are affected by the economy, which are the trends in the business. PMI Report is published at 18.00 GMT, by the National Association of Purchasing Manager's Index (NAMP). Assessment of the dynamics of the index can predict the dynamics of U.S. GDP for the next 6 months.

Conference Board (CB)[40] is a global non-profit organization working in 60 countries, which analyses and makes the results of their activities in the form of 3 benchmarks: CB Leading Index (leading macroeconomic indicators), CB Employment Trends Index (labor demand), CB Consumer Confidence Index . CB Leading Index shows the expectations of the economic situation in the U.S. for the next 3-6 months. CB Employment Trends Index has little effect on

[40] Coference Board; < http://www.conference-board.org/> -Accessed on – 28.02.2013

the value of the national currency, showing employment in the private sector. CB Consumer Confidence Index has a moderate influence on the movements of the dollar, because it is a reflection of the subjective feelings of consumers to buy things and pay for services.

Other leading indicators in the USA include the U.S. Leading Economic Indicator - a weighted average of 11 indicators[41]. The report is released by the National Association of Industry 1 per month (at the end), time - at 14.00 GMT.

Eurozone important leading indicators are:

- Consumer Confidence Indicator is calculated from a survey of the general population. It is used to evaluate the condition of the economy of the respondents, the overall economic situation (past and future) and how acceptable respondents make a large purchase at this time[42]. The indicator has a small impact on the markets.
- Economic Sentiment Indicator shows the prospects for economic growth. This index is influenced by the indices of industrial and consumer confidence, and the calculation of the index of economic sentiment indicators are used in the construction sector confidence and stock prices. Making a serious impact on the financial markets, it is the main index of the questionnaire.
- IFO business climate index (the index of business confidence or climate) is an indicator of German that influences the prognosis of the EU because of the large share of German GDP in the euro area GDP (about 25%). It is calculated by the German Research Institute of Economics, the frequency of publication is monthly (last week of the month), at 8.00 in GMT. Range - 80 (recession) to 120 (maximum). Fairly important indicator for the market.
- PMI (index of business optimism Managers National Association) - Questionnaire (diffuse) index. The index has a significant impact on the financial markets. In the analysis, there is not only the dynamics of the index itself, but its basic components.
- PMI services are the same as the PMI, but they study business optimism service sphere. Since the economies of developed countries, around 70% of GDP is created in the service industry. This index can influence markets more than industrial PMI. Significant impact on the market.

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[41] Robert Rowan Foreign Currency Financial Reporting from Euro to Yen to Yuan: A Guide to Fundamental Concepts and Practical Applications, Wiley and SAS Business Series, 1 edition, April 5, 2011, ISBN-10: 1118024427

[42] Consumer confidence indicator; <https://www.ciret.org/conferences/newyork_2010/papers/upload/p_94-560090.pdf> - Accessed on - 28.02.2013

- ZEW Indicator of Economic Sentiment[43] (indicator of economic sentiment in the German institute ZEW) is calculated by the difference of optimistic and pessimistic economists. It shows the total economic development expectations in Germany for the next six months. Time of publication - 13.00 on 21-24 day of the month.

UK leading indicators are:

- Chartered Institute of Purchasing and Supply, CIPS[44] is similar to the European PMI. Published one time per month. Important for the markets.
- CBI industrial trends and the CBI distributive trades (Economic Review of the British Confederation of Industrialists) - both indicators show business optimism about the state of the production sector (first) and trade (the second). Medium importance for the markets. Reviews are published one time per month.
- Retail Price Index, RPI is an indicator of inflation. It is important for the market, especially at a time when interest rates rise.

Leading indicators of Asia are:

- Tankan (business climate index in Japan)[45] - is used to assess the industrial sector, namely, large-scale production. The growth rate shows a strengthening economy. Published quarterly. Has a significant impact on the market.
- PMI (described above)
- ISM Institute for Supply Management is similar to the Tankan, but less important for the market and has a different algorithm.

As you can see, plenty of leading indicators for the countries / regions that will make the forecast for any currency and will determine the trends in the economy of your country.

2.2.9. Personal Income Index

Reflects the level of income of individuals[46], non-profit organizations and private trusts. The components of this indicator include wages and salaries, income from rental housing, dividends, interest on deposits and transfer payments (social security benefits, unemployment benefits, veterans' pensions). Salaries and wages reflect the real economic situation. This

[43] ZEW Indicator; < http://www.zew.de/en/> - Accessed 28.02.2013

[44] Chartered Institute of Purchasing and Supply;< http://www.cips.org/> - Accessed 27.02.2013

[45] Indicators of business climate in Japan; <http://the-books.biz/forex/tankan-the-index-the-business-climate-24432.html> - Accessed 27.02.2013

[46] Matt Krantz Fundamental Analysis For Dummies, For Dummies; 1 edition, November 2, 2009 ISBN-10: 0470506458

indicator is important for the foreign exchange market. In the absence of appropriate personal income and propensity to acquisitions volume purchased consumer durable goods and nondurable are limited. For traders in the Forex market the index of personal income is not significant[47].

2.2.10. Financial and Sociopolitical factors

The role of financial factors. Financial factors are highly relevant to fundamental analysis. Changes in the financial or fiscal policy of a government give rise to changes in the economy, which is reflected in international currency exchange rates. Financial factors usually appear after the economic. When governments begin to interfere with various aspects of the economic life or make additional international responsibilities, financial factors may take precedence over economic ones. Just such a painful situation was, in the early 90's the new European financial system (ESF). The realities of a market economy immediately drew largely artificial nature of the event.

The role of interest rates. The use of interest rates without the real economic situation results in the implementation of costly strategy. Since currency trading is, by definition, consists of a simultaneous exchange of the two currencies, it follows that the market should also consider the two corresponding interest rates. The difference in interest rates is a key market factors. Traders react to changes in the difference, not just to change the interest rate itself. For example, if all the countries of the Big Five (US, France, Britain, Russia, China) at the same time decide to lower their interest rates by 0.5%, the foreign exchange market will be indifferent to it, because the difference rates will remain unchanged. In practice, most of the rates change unilaterally, leading to changes in their differences, and the exchange rate. For the discount rate traders are like all the other factors, trading "on rumors and facts» ("Buy on the rumor, sell on the fact ..."). For example, if the rumor has it that the accounting term rates will be reduced, the relevant currency will be sold before this fact come to pass. It is true that after the rate cut will take place, it is possible that the currency will buy back or buy another, similar to her. Unexpected change in interest rates likely will cause a dramatic change of course (a sharp currency move).

Other financial factors that influence the trading decisions are the length of time "between the hearing and the fact that" the reasons for changes in interest rates and the importance attached to these changes. Normally, the market sets the price, tracking the slow

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[47] Thomas N. Bulkowski Fundamental Analysis and Position Trading: Evolution of a Trader, Wiley; 1 edition, December 26, 2012, ISBN-10: 1118464206

change in the discount rate. If this change is an accomplished fact, the latter is indifferent to the market. If the rate change occurred for political rather than economic reasons, which is a common occurrence for the ESF, the markets are likely to go against the central banks, based more on the real situation, not political considerations. This happened in September of 1992 and the summer of 1993, when the European central banks have suffered unprecedented losses, trying to prop up their currencies, without lowering the high interest rates. Markets are perceived as such rates artificially high and implemented aggressive sales of the currencies.

The impact of political crises. The political crisis threatens the currency trade, being the cause of a sharp decline in trading volumes[48]. Prices in crisis swiftly followed by "racing", and spreads between the bid and offer jump from 5 to 100 points. In contrast to the expected political events (the parliamentary elections, the conclusion of international treaties, etc.) taking place in a certain time and give the market an opportunity to plan for it, crises occur suddenly and break out instantly. Currency traders must be prompt in responding to crises. Slow response is fraught with heavy losses for the trader.

2.2.11. Conclusion of the Fundamental Analysis Part

As the conclusion of the Fundamental analysis part we made Table 8 that shows the importance of each indicator that we chose and its influence on currency exchange fluctuations.

Table 13. The influence of economic development indicators for changes in the national currency

Indicator	**Level of importance (from 1 to 3, 1 is most important)**	**Changing of the indicator**	**Changes in the national currency**
Trade Deficit	1	Increase	Decrease
Payment Deficit	1	Increase	Decrease
Inflation Level	1	Increase	Decrease
Interest Rate	1	Increase	Increase
GNP	1	Increase	Increase
GDP	1	Increase	Increase
Unemployment	1	Increase	Decrease
Data on money supply	1	Increase	Decrease
Elections of President or	1	Depends on the forecast change in the	

[48] В. Якимкин "Рынок Форекс Ваш путь к успеху". Москва, "Светоч Л" 1999.

Parliament		political course of the country	
Retail Sales	2	Increase	Increase
Consumer Price Index	2	Increase	Decrease
Housing Constructions	2	Increase	Increase
Level of Orders	2	Increase	Increase
Producer Price Index	2	Increase	Decrease
Industrial Production Index	2	Increase	Increase
Productivity of Economy	2	Increase	Increase
Stock Index (DJI, NIKKEY, DAX, FTSE)	3	Increase	Increase
Prices of government bonds	3	Increase	Increase

Source: Made by author based on : N. Gregory Mankiw: Macroeconomics, Worth Publishers, 7th Edition, 2010, ISBN-10: 1429218878
Michael C. Thomsett Getting Started in Fundamental Analysis, Wiley; 1 edition, April 21, 2006,ISBN-10: 0471754463
Thomas N. Bulkowski Fundamental Analysis and Position Trading: Evolution of a Trader, Wiley; 1 edition, December 26, 2012, ISBN-10: 1118464206

2.3. Technical analysis

2.3.1 General descriptions of Technical analysis

Not yet is invented a method that will help trader to invest accurately. The results of the trader are determined not only by the ability to correctly analyze the market correctly. We have to take into account many external factors that are beyond the simple analysis. In particular, the most important element of a successful trade is skillful money management, including methods of preservation and strict self-discipline.

Few analytics are able to consistently and accurately predict prices. Even if you fail to accurately predict currency exchange rates, with the help of technical analysis, you will be able to steadily reduce risk and increase profits. Today, technical analysis is very popular.

Technical analysis is a study of price action (charts) in order to forecast future price action. That is, the economic components are not simply taken into consideration, which greatly simplifies the life of the analyst. The followers of technical analysis believe that the price is a reflection of the economy. And looking at the prices in the past, we can predict future prices. The results given by the technical analysis is often quite accurate.

Technical analysis is used to predict the movement of the market (price changes in currency, transaction volume and open interest) and get trading signals based on the information received in the previous time[49]. The basic tools of technical analysis are graphics (charts) of changes in currency prices for certain periods of time, prior to bargain, and technical indicators derived from mathematical analysis and other characteristics of average price movement. Technical analysis tools are universal and applicable to any type of Forex, any currency and any periods of time. Technical analysis with equal success is available to all members regardless of their Forex trading plans, the strategies and duration of transactions. In modern conditions, technical analysis is performed with the help of computers, which is important if we bear in mind that the technical service tools are becoming more sophisticated[50].

The first record of the opportunity to forecast future movement of prices on the basis of past trade results appeared at the end of the nineteenth century in Wall Street Journal. It was a note, already famous as Charles Dow – the founder of Dow John index. The theory, made by Dow exists to nowadays and is called Dow Theory. Method was developed and improved until the 70's of the XX century[51].

Coming directly and indirectly from the Dow Theory, technical analysis incorporates the principles and concepts of this theory as: Directional Price movements, Prices taken into account all known information, support and resistance, volume as a mirror of changes in price.

Price forecasting in technical analysis is based on observations of previous trades. Two of these trading indicators have the greatest interest:

- The first - the price of the assets. Prices are understood, their values are easy to find for traders. This makes the price of the most important indicator for the analysis.
- The second - trading volume, ie the total amount of made transactions for an interest time period, expressed in any currency. These values are harder to find, but not impossible. Price and Trading volume are the basics of technical analysis theory.

The fundamental principles of technical analysis are based on the following main theses[52]:

1. Movement of price of asset takes into account all factors ("The market knows everything").The price is a reflection of all the resulting information occurring at the

[49] Роберт В.Колби и Томас А.Мейерс; Энциклопедия технических индикаторов рынка, Издательский дом "Альпина", 1998.

[50] John Wiley & Sons: An Introduction to Technical Analysis, The Reuters Financial Training Series, 1999, ISBN-10: 0471831271

[51] Achelis S.B.: Technical Analysis from A to Z, 2-nd Edition, McGraw-Hill, 2000, ISBN-10: 0071363483

[52] John Wiley & Sons: An Introduction to Technical Analysis, The *Reuters* Financial Training Series, 1999, ISBN-10: 0471831271

moment in the world of events, under the influence of which the ratio between supply and demand changes on the market. According to Dow Theory, any factor that may affect the supply or demand always will be reflected in the index (price). Of course, earthquakes and tsunamis are unpredictable, but they are instantly recorded and reflected in the market price movements.

2. Prices move directionally. This means that price movements are not random, but follow a certain direction. The direction is called a trend. (“Trend is your friend”); trends are classified in three types: up trends (bullish), downtrends (bearish) and flat (sideways).

Picture 2: Bullish and Bearish Trends on exchange rate GBP/USD

Source: Authors Forex Account on the Platform FX Pro – Accessed on – 25.02.2013

3. Price movements are historically repetitive ("History repeats itself"), periodically resulting in the same figures in the price chart.

4. The market has three trends:

- the longest in 1 year time period is major, or primary,
- less enduring in time period of 1 month and more is intermediate, or secondary
- rather short in time period of several days or weeks is minor.

The primary trend has three phases: accumulation, run-up/run-down, and distribution.

The main trend is characterized by three stages (phases) - accumulation, run-up/run-down, and distribution. In the accumulation phase of a bullish market the shrewdest traders enter new positions. In the run-up/run-down phase, the majority of the market finally "sees" the move and is in a hurry to use it. In the distribution phase, the keenest traders take their profits and close their positions while the general trading interest slows down in an overshooting market. The secondary trend is a correction to the primary trend and may retrace one-third, one-half or two-thirds from the primary trend. Any amount of secondary or minor trends may be in the frame of a major trend.

5. Trends exist until they are not broken and their reversals are confirmed
6. Volume must confirm the trend. Volume consists of the total amount of currency traded within a period of time large trading volume indicates the presence of interest in the currency and liquidity in the market, and the small volume is a signal for the trader on whether the position should be closed. An open interest is the total number of proposals or certain currency in commerce. Volume and open interest figures are available from different sources like Bridge Information Systems, Reuters[53], Bloomberg[54], Wall Street Journal[55].

2.3.2 Types of the charts

There are 3 different types of charts: Line chart, Bar Chart and Candle Chart.

Line chart is constructed by connecting the value price of one of the above species, which have occurred during the selected time. To construct a line chart, you can choose any of the types of prices, but in most cases it is built to closing prices. The main disadvantage of this graph is the inability to see it in the movement of the price for one unit (each day, each hour, each minute, etc.). Another downside is the lack of being able to see its "window" - a price gap at the joint trading periods (gaps). Moreover, the line chart is much better than other approaches for the detection and analysis of graphical shapes, and they generate trading signals.

Picture 3: Line Chart

[53] Reuteurs; <http://www.reuters.com/finance/economy> – Accessed on – 03.03.2013

[54] Bloomberg; <http://www.bloomberg.com/markets/currencies> – Accessed on – 03.03.2013

[55] Wall Street Journal; <http://europe.wsj.com> – Accessed on – 03.03.2013

Source: Authors Forex Account on the Platform FX Pro – Accessed on – 27.02.2013

The Bar Chart is a little more complex, it consists of separate histograms. To plot a histogram in the coordinate's price – time the points responding to high, low, open and close prices for a time period analyzed should be marked on the one vertical bar[56]. Open is a price at the beginning of a trade period which trader will choose. It can be a year, month, day, week, hour, minute. Close is a price at the end of a trade period. High is the highest of the prices observed during a trade period. Low is the lowest of the prices observed during a trade period. The opening price is usually marked with a little horizontal line to the left of the bar; and the closing price is marked with a little horizontal line to the right of the bar. Bar charts have the obvious advantage of displaying the currency range for the selected period. The advantage of this chart is that, unlike line charts, the bar chart is able to plot price gaps. Hence, it is impossible to see absolutely all price movements during the period on a bar chart.

Picture 4. Bar Chart

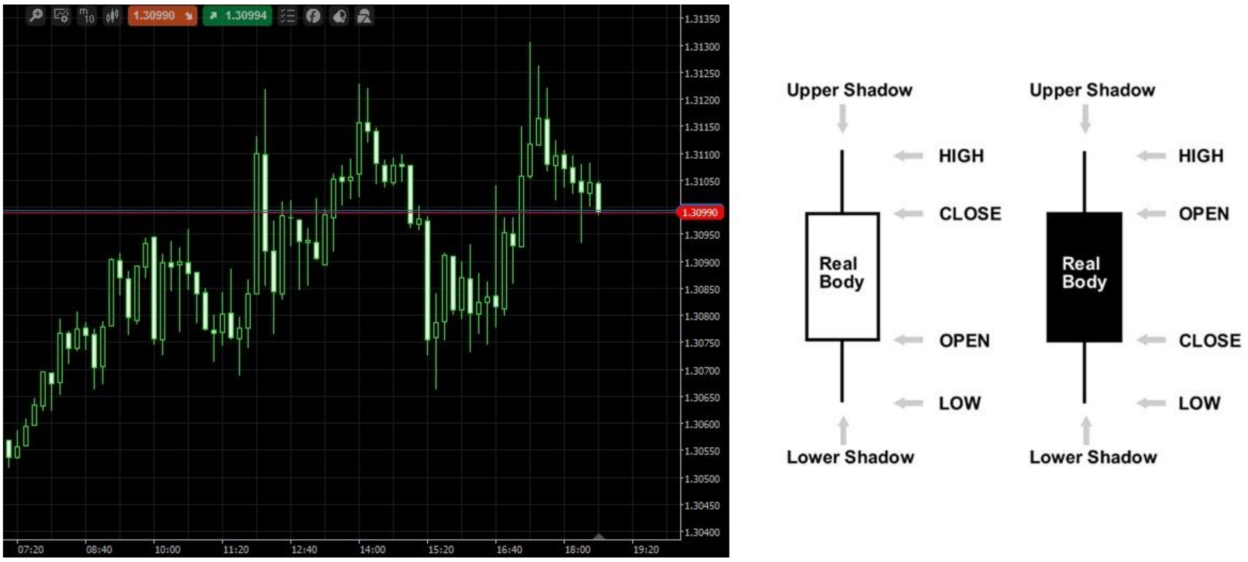
Source: Authors Forex Account on the Platform FX Pro – Accessed on – 27.02.2013

[56] Type of charts; <http://www.babypips.com/school/types-of-charts.html> - Accessed on - 24.02.2013

Japanese candles (Candles). Candlesticks have a close resemblance to the histograms. They also have four major prices: high, low, open and close. The source of this information is the schedule consisting of candlesticks amenable to a variety of specific interpretations. This is possible due to facilitate visual observation candles[57]. Candlesticks on the open and close position form the body of a candle (jittai). To show that the opening price was higher than the closing price, the candle body is left blank (white). Electronic graphic tools allow today to leave a candle or empty, or paint in any color to the choice of the developer program. If the closing price is below the opening price, the body is filled with candles. These candles were originally black, but with electronic exposure, they can be filled with any color or shaded by the developer's choice. Price movement during the day (or week) on the Japanese candlestick shown in the form of the upper shadow (uwakage) and the lower shadow (shitakage), is a vertical segment connecting the body of the candle, respectively, with low and high prices.

Just as in the histogram, on the Japanese candle can not show all of the price movement, up and down during the trading period (minutes, hours, days, etc.)

Picture 5. Japanese candle chart



Source: Authors Forex Account on the Platform FX Pro – Accessed on – 27.02.2013

2.3.3 Lines of trends

The trend line is the most common for technical analysis[58]. While the market moves in any direction (zigzag moves), the mutual placement of upper and bottom points of zigzags permits to build the line connecting the highest peaks or the lowest troughs of an appropriate zigzag. To draw a trend line, it is enough to have two points through which it is conducted, and

[57] Type of charts; <http://www.babypips.com/school/types-of-charts.html> - Accessed on - 24.02.2013
[58] Russel R.Wasendorf: Technical Analysis, Wasendorf and Associates, 2007, ISBN-10 1-93434-01-5

one more point "to confirm" the trend[59]. The trend line on a bullish trend chart should be drawn using troughs. The trend line on a bearish trend chart should be drawn using peaks. The trend line an approximately parallel to it a line drawn through the most prominent in relation to other points of the opposite side of the graph, form the trade channel and are the boundaries of the channel.

2.3.4. Lines of support and resistance

The bottom and upper borders of the trade channels are called the lines of resistance and support. The peaks of the graph represent the price level at which the pressure from the sellers on the currency market exceeds the pressure from the buyer, that is why the price cannot grow, in other words to create a level of resistance higher prices. Similarly, the low points of the graph represent the level at which the pressure from the vendors behind buying pressure, and the price cannot go down, that is create a level of price support. The longer the price chart is within a trading channel, touching the border, the more reliable these lines are. An important role is also played by the trade volume, especially when it comes to the events taking place near the lines of support and resistance[60]. If the price of the "bounce" of the lines is even at high volume, the reliability of the trend increases. A real breakthrough is checked by the rule of price change after the break of 3% from the previous closing price. With a convincing break of lines of support and resistance to their roles frequently change. Solid line of support for its breakthrough in the background to a large degree of probability turn into a strong resistance line. Conversely, a strong resistance line being torn becomes a strong support line[61].

In general, estimates of reliability (possibility of a breakthrough) of the trade channels borders, which are necessary to make a trade decision on closing or abandonment of an existing position, should be guided by the following rules:

1. Channel is the more reliable the longer it exists. However, the strength of very "old" channels (over 1 year old) decreases sharply.
2. Channel is the stronger, the more its width is («It takes time to break resistance»).
3. The resistance can be broken, if it is bounced on the background of an increased volume («It takes volume to break resistance»).
4. Steep channel is less secure in comparison with a gentle one.

[59] Томас Р. Демарк, Технический анализ – новая наука, “Инфра – М”,1996.

[60] Томас Р. Демарк, Технический анализ – новая наука, “Инфра – М”,1996.

[61] Support and Resistant lines <http://stockcharts.com/help/doku.php?id=chart_school:chart_analysis:support _and_resistan> - Accessed on - 26.02.2013

5. Support line can be broken regardless of the volume ("under its own weight of currency").

2.3.5 Head and Shoulders

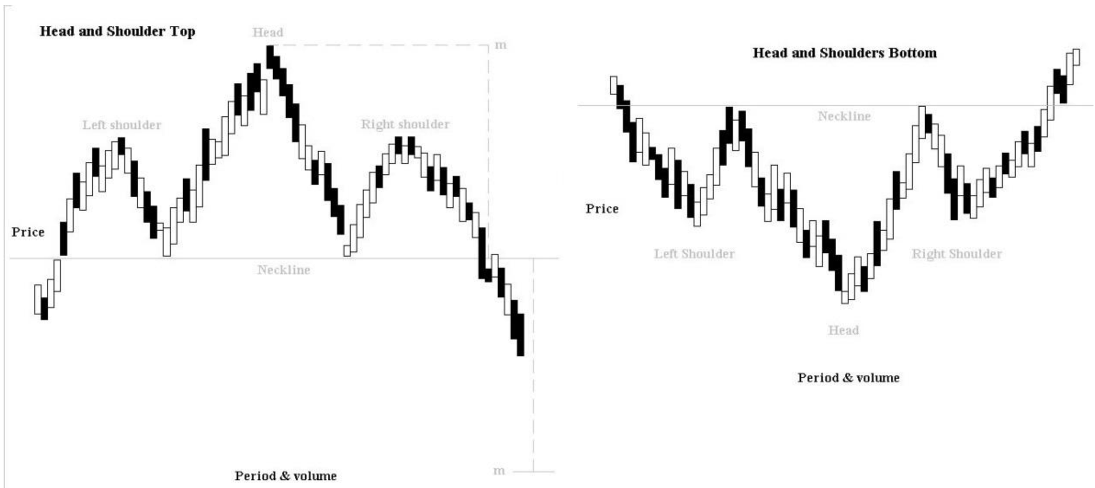
The pricing model "head and shoulders" – is one of the most trusted and well-known. It has received its name because of the resemblance to the head and located on either side of it shoulders. The cause of the prevalence of this reversal pattern is found in repetitive aspects of the behavior of prices during a market turn[62].

The rising trend has a number of successively increasing the stairs like peaks and valleys. Turnaround happens when it stops forward motion upwards. As the following figure shows, the "left shoulder" and "head" are two of the latter increases forming peaks. The "right arm" is formed by the next, but an unsuccessful attempt to raise prices above by the bulls. It is a sign of the end of the uptrend. Confirmation of the start of a new downward trend is a breakthrough in the "neckline."

In case of a stable uptrend every rise should be followed by an increase in volume of trade[63]. If the volume decreases, while there is a regular rise, it serves as an indicator of an indulgence of trend. The typical model “head and shoulders” is generally characterized by decrease in volume at the middle peak (“head”) and by its drastic drop at the “right shoulder”.

After the breakthrough in the “neckline”, prices usually come back to it, devoting last efforts in order to support upward trend (as it is shown in the previous picture). If prices cannot manage to reach a higher level than the “neckline”, they usually start to fall down promptly as the volume increases.

Picture 6. Head and Shoulder pattern



[62] Robert D. Edwards and John Magee: Technical Analysis of Stock Trends, CRC Press, 8 edition, June 8, 2001, ISBN-10: 0814408648

[63] Head and Shoulder pattern; <http://stockcharts.com/school/doku.php?id=chart_school:chart_analysis:chart_patterns:head_and_shoulders_t> - Accessed – 25.02.2013

Source: Made by author; Picture Head and shoulder TOP;<http://en.wikipedia.org /wiki/File:H_and_s_top_new.jpg> - Accessed on – 01.03.2013
Picture Head and shoulder BOTTOM <http://en.wikipedia.org /wiki/File:H_and_s_bottom_new.jpg> - Accessed on – 01.03.2013

2.3.6. Rounding Tops and Bottoms

Rounding Tops occur when expectations of market participants gradually change their behavior from "bull's" one to "bear's". This gradual, but consistent change of frames of minds leads to round turn of the trend. Rounding Bottoms are formed, when expectations of market participants gradually change back from "bear's" to "bull's"[64].

The dynamics of volume under the formation of Rounding Tops and Bottoms frequently repeat the saucer's shape of its pricing curve that is specific for Rounding Bottom. The volume, that was significant during the last phase of the previous trend, decreases gradually as expectations of market participants change and their determination declines. After that, when the new trend starts to gain strength, volume increases again[65].

2.3.7 Triangles

Triangles form when the range between peaks and dips contracts. It is usually connected to prices' encounter to the levels of support or resistance, which constrain fluctuations.

"Symmetric Triangle" is formed when prices' peaks gradually go down, while dips go up.

"Ascending Triangle" is formed if dips tend to get higher every time (as in case of Symmetric Triangle), and peaks stay on the same level, which serves as resistance. For the Ascending Triangle a breakthrough of prices up is most likely to occur. "Descending Triangle" forms, when peaks gradually go down (as in case of Symmetric Triangle), and dips stay on the same level, which serves as support. For the Descending Triangle breakthrough of prices down is most likely to occur[66].

Like pressure grows when water is being pumped through a narrow hole, the "pressure" of prices grows as triangle forms. That is why triangles are usually solved by a sharp prices' breakthrough. The increase of trade volume should work as the confirmation of such a breakthrough.

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[64] Томас Р. Демарк, Технический анализ – новая наука, "Инфра – М",1996.

[65] Colby R.W.: The encyclopedia of technical market indicators, McGraw Hill, 1988, ISBN-10: 0070120579

[66] Michael R. Rosenberg Currency Forecasting: A Guide to Fundamental and Technical Models of Exchange Rate Determination, Irwin Professional Publishing, August 1, 1996, ISBN-10: 1557389187

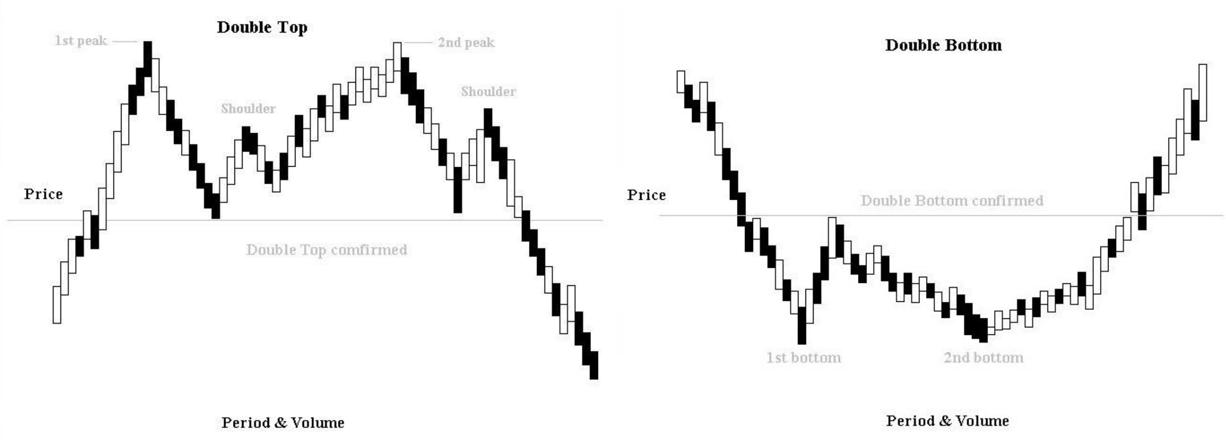
The most trustful are breakthroughs that occur approximately between half and three fourths of the distance from the beginning of a triangle to its end (top). In case of Symmetric triangle there are usually just bit of signs that show the direction of the breakthrough. And if prices go all the way to the top inside the triangle, then breakthrough can even not happen.

2.3.8. Double Tops and Bottoms

Double Top forms when prices go up to the level of resistance while there is a significant volume, and then retreat and again go back to the level of resistance, but when there is a decreased volume[67].

This is usually followed by a decline in prices, which means the beginning of new downward trend. Double Bottom is a specular display of Double Top.

Picture 7: Double Top and Double bottom



Source: Made by author; Picture Double Top and Double bottom; < http://en.wikipedia.org/wiki/Double_top_and_double_bottom> - Accessed on – 03.03.2013

2.3.9. Japanese Candlestick

Candlestick analysis was developed in the 16th century. Japanese developed a method of technical analysis to analyze the price of rice contracts. This technique is called candlestick charting. Steven Nison is credited with popularizing candlestick charting and has become recognized as the leading expert on their interpretation. In this section we will show the most often ones[68]. They are divided in four groups: bearish, bullish, neutral and reversal candlestick

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[67] Джек Швагер: Технический анализ. Полный курс, Альпина Паблишер, 2001, ISBN 5-89684-024-1

[68] Steve Nison: Japanese candlesticks charting techniques, New York Institute of Finance, Simon & Schuster, USA, 1991, ISBN 0-13-931650-7.

formations. There are dozens of different candlestick patterns but we have elected to narrow the field by selecting the most popular for explanations.

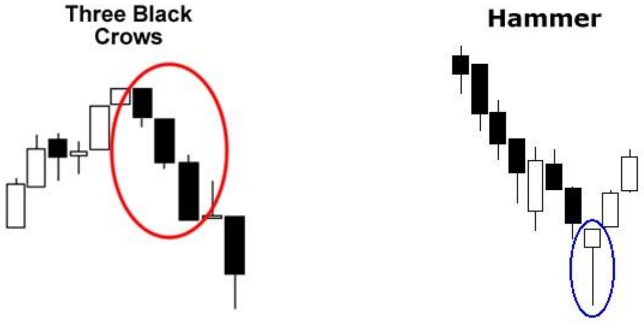
Hammer is one of the most important figures, signaling a reversal trend (Picture 8). Has a long wick and small body, mostly in the upper part. These figures are divided into bearish and bullish figures. Accordingly, on the rising market there is a hung hammer - a small body, located at the top and has a long lower wick[69]. The color of the figure is usually white. On a downward market - an inverted hammer, signaling a reversal in the trend basis. However, it should be noted that this figure requires confirming signals for decision.

These figures have the following characteristics by which they can be identified[70]:

- The body is at the top of the price range. A white body of the hammer shows that the per session price moves down, but in the end there was a revival, and the closing price went up to the maximum price for the period. This point must be taken into account, and wait for confirming signals of a reversal in the trend.
- The lower shadow is usually twice longer than the upper one. In this case, the longer the shadow, the more potential to reverse the shadow is. The color of bodies can be both white and black.
- The upper shadow is absent or very short. When deciding on the transaction, you must wait for confirming signals of a reversal, since it can only be a correction.

In interpreting the figures should be guided by the following. On the market there is an upward movement, then a hammer. Bidding opened at the maximum price for the period, followed by a sharp decline, then rise and closed near to the maximum. But on such price movements it is too early to conclude the deal. The motion data speak only of the premises and a change in the trend change in the market dynamics. If the next trading period opens with a substantial price break down, there is a more strong possibility that this figure will form the top of the hammer.

Picture 8: Three Black Crows and Hammer



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[69] Стив Нисон: Японские свечи: графический анализ финансовых рынков, Москва, Диаграмма, 1998, ISBN 5-900082-01-6

[70] Japanese Candelsticks; <http://www.candlesticker.com/> - Accessed – 04.03.2013

Source: Made by author; Three Black Crows and Hammer; <http://instaforex.co.id/belajar-forex-gratis/category/sekolah-forex/3-sekolah-dasar/3-2-kelas-2/> - Accessed – 3.03.2013 <http://stockcharts.com/school/doku.php?id=chart_school:chart_analysis:introduction_to_candlesticks> - Accessed – 3.03.2013

Three black crows are three long black candles, which form a descending sequence. (Picture 8). Signals are a strong downtrend and falling prices. The classical interpretation of this model is as follows: after an uptrend formed three black candles, the opening price of each candle is the closing price of the previous day candle. However, in practice it is very difficult to find the classic look of this model, so it is assumed certain derogations from the rules[71].

As you can guess the shape of candles, it indicates the beginning of the formation of panic selling in the market. The graph shows that a good uptrend is followed by a trend reversal and start selling. This may occur after the good news.

Piercing Line -This is a bullish pattern. The first candle is a long bear candle followed by a long bull candle. The bull candle opens lower than the bear's low but closes more than halfway above the middle of the bear candle's body.

Recognition Criteria:

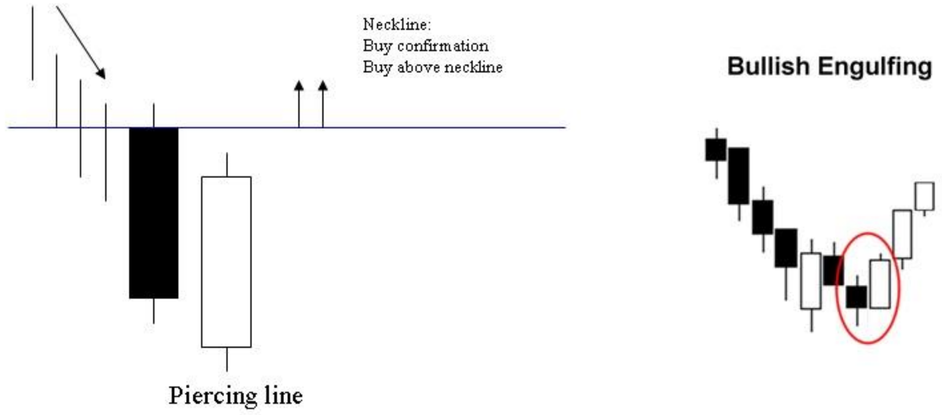
- Downtrend market.
- Long black candlestick.
- Then trader will see a long white candlestick whose opening price is below previous day's low on the second day.
- The second day's close is contained within the first day body and it is also above the midpoint of the first day's body.
- The second day, however, fails to close above the body of the first day.

The market is moving in a downward trend. The first black real body reinforces this view. The next day the market opens below a space. Everything is going as bears want. But suddenly at the end of races, leading prices is closed sharply higher than the previous day closing. Now the bears are losing confidence and re-evaluate their short positions. Potential buyers are beginning to think that the new lows may not hold, and perhaps it is time to take a long position. In bullish Piercing pattern, the greater the degree of penetration into the black real body, the more it will lower the spread. The ideal model will have a real piercing white body, which pushes more than half way to the black real body before the session.

[71] Steve Nison: Japanese candlesticks charting techniques, New York Institute of Finance, Simon & Schuster, USA, 1991, ISBN 0-13-931650-7

Bullish Engulfing Lines -This pattern is strongly bullish if it occurs after a significant downtrend (it may serve as a reversal pattern). It occurs when a small bearish (filled-in) candle is engulfed by a large bullish (empty) candle.

Picture 9: Piercing line and Bullish Engulfing



Source: Made by author; Piercing line and Bullish Engulfing; http://instaforex.co.id /belajar-forex-gratis/category/sekolah-forex/3-sekolah-dasar/3-2-kelas-2/> - Accessed on – 3.03.2013 <http://www.tradeforextrading.com/index.php/piercingline-darkcloudcover-candlesticks> - Accessed on – 3.03.2013>

Morning Star -This is a bullish pattern signifying a potential bottom. The star indicates a possible reversal and the bullish (empty) candle confirms this. The star can be a bullish (empty) or a bearish (filled-in) candle.

This is a three candle formation, which signals a major bottom. It consists of a long black body first, and second, a small real body, white or black, gapping lower to form a star. These two candlesticks define a base template star pattern. The third candle indicates that the market has been bullish today[72].

Recognition Criteria:

- Downtrend market.
- First day: long black candlestick.
- On the second day a small body gapping in the direction of the previous downtrend.
- Third day: White candlestick.

We see a black body in a falling market which suggests that there are bears in the team. Then there is a small body means sellers' inability to drive the market lower. Strong white body

[72] Japanese Candelsticks; <http://www.candlesticker.com/> - Accessed on – 04.03.2013

of the third day proves that the bulls have taken over. The ideal bullish morning star is a preferably break before and after the middle candle. The second gap is rare, but its absence does not take away from the power of this formation.The stars may be more than one, two and the color of the star and its gaps are not important. The reliability of this pattern is very high.

Bullish Doji Star -This star indicates a reversal and a doji indicates indecision. Thus, this pattern usually indicates a reversal following an indecisive period. You should wait for a confirmation before trading a doji star[73]. It consists of a long black candlestick followed by doji, which should be characterized by gaps down to form a doji star. Then we have a third white candle which closed is well in the black real body of the first session. This is a significant bottom pattern.

Recognition Criteria:

- Downtrend market.
- On the first day - long black candlestick
- Second day – Doji that gaps in the direction of the previous downtrend.
- Third Day - The white candlestick confirms the reversal.

Black real body while the market is falling down, you can assume that the bears are in command. Then Doji appears showing the decrease in power sales to drive the market lower. Confirmation of bull power is strong, white real body of the third day. Ideal Bullish doji star Pattern must have a break before and after the middle of the line of the real body.

The Doji may be more than one, two or even three. Doji's gaps are not important. The reliability of this pattern is very high, but still a confirmation in the form of a white candlestick with a higher close or a gap-up is suggested.

Long Bearish Candle -A long bearish candle occurs when prices open near the high and close lower near the low.

Hanging Man - This pattern is bearish if it occurs after a significant uptrend (Picture 10). If this pattern occurs after a significant downtrend, it is called a hammer. A hanging man is identified by small candle bodies and a long wick below the bodies (can be either clear or filled in).

Recognition Criteria:

- Uptrend Market.

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[73] Steve Nison: Japanese candlesticks charting techniques, New York Institute of Finance, Simon & Schuster, USA, 1991, ISBN 0-13-931650-7

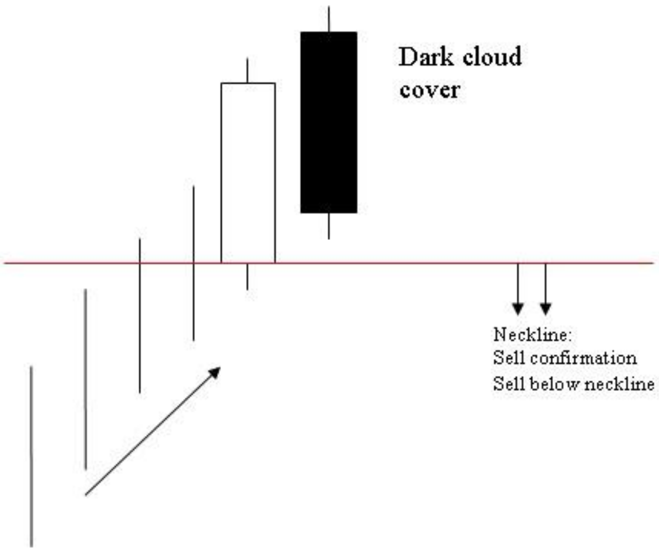
- It is characterized by its small real body at the upper end of the trading range, located above the trend and the color of the body is unimportant.
- Lower shadow, twice the height of the real body.
- No or short upper shadow.

Hanging Man is a bearish reversal pattern[74]. It signals a market top or resistance level. Bearish Hanging Man Pattern signals that selling pressure begins to increase. The low of long lower shadow indicates that sellers pushed prices lower during the session. Although the bulls regained their footing and drove prices higher at the finish, the appearance of this selling pressure after the rally is a serious warning signal.

Ideally, the lower shadow bearish Hanging Man Pattern should be two or three times the height of the real body. However, the long lower shadow should not be double the real body in the real world in order to signal a reversal. The pattern is more perfect if the lower shadow is longer.

Bearish Dragonfly Doji Pattern is a bearish signal rather than bearish Hanging Man Pattern, and it is also more reliable than a bearish Hanging Man Pattern[75]. If bearish Hanging Man Pattern features a black real body, it shows that closing price is being able to get back to the level of the opening price, which are potential bearish implications. We need confirmation of the reversal the next day for more definitive evidence of a reversal of the upward trend. This confirmation may be in the form of a black candlestick, a large gap down or a lower close on the next trading day.

Picture 10: Dark cloud cover and Hanging man



[74] Trading with candles <http://www.tradingsimulatorsoftware.com/infodocs/TradingWithCandles/TradingWithCandles.htm> - Accessed on – 04.03.2013
[75] Стив Нисон: За гранью японских свечей, Москва, Диаграмма, 2001, ISBN 5-901706-02-1

Source: Made by author; Dark cloud cover and Hanging man; <http://stockcharts.com /school/doku.php?id=chart_school:chart_analysis:introduction_to_candlesticks> - Accessed on - 03.03.2013
<http://www.tradeforextrading.com/index.php/piercingline-darkcloudcover-candlesticks> - Accessed on - 03.03.2013

Dark Cloud Cover -This is a bearish pattern (Picture 10). The pattern is more significant if the second candle's body is below the center of the previous candle's body. On the first day we see a strong white real body. The second day opens strongly above the previous day high (it is above the top of the upper shadow)[76]. However, market closes near the low of the day and well within the prior day's white body at the end of the day.

Recognition Criteria:

- Uptrend market
- On the first day we see a long white candlestick.
- On the second day we see a black body characterized by an open above the high of the previous day[77].
- The second black candlestick closes within and below the midpoint of the previous white body.

The market is coming up with an uptrend. Then we see a strong white candle that should break suggest that the bulls continue to control. However, the meeting doesn't go on. Market suddenly closes at or near the lows of the day, so the second body day is moving in a real body of the previous day. Longs shaken somehow and short sellers now have a reference point to place the stop, which is on the second day at a new high.

Important factors are that if you close the black real body, which penetrates deeper into the white real body, the chance of the top increases. There are several Japanese technicians who require more than 50% penetration of close rainy day in a white real body. If the black candle closes below the white candle in the middle, it is best to wait for confirmation after the dark cloud cover, and even if it does, the confirmation may still be necessary. This confirmation may be in the form of a black candlestick, a large gap down or a lower close on the next trading day.

[76] Steve Nison: Japanese candlesticks charting techniques, New York Institute of Finance, Simon & Schuster, USA, 1991, ISBN 0-13-931650-7
[77] Trading with candles <http://www.tradingsimulatorsoftware.com/infodocs/TradingWithCandles/TradingWithCandles.htm> - Accessed on – 04.03.2013

Bearish Engulfing Lines -This pattern is strongly bearish if it occurs after a significant uptrend (it may serve as a reversal pattern). It occurs when a small bullish (empty) candle is engulfed by a large bearish(filled-in) candle. Bearish Engulfing Pattern is a large black real body, which engulfs a small white real body in an uptrend[78].

Recognition Criteria:

- Uptrend Market.
- First day: white candlestick.
- Then we see a black candlestick that completely engulfs the real body of the first day.

The market is in a bullish mood. Then we see a reflection of reduced buying in a short, white real body. This should be of strong sales, which lead to near or below the previous day's open. Apparently, the uptrend has lost its strength and bears may be gaining power.

Important factors are that the relative sizes of the first and second days are important. If the first day is a bearish engulfing small body (it can even be almost a doji or a doji), but on the second day it has a long real body, it shows power dissipation to the upward trend and an increase in the bear force[79].

Prolonged or very rapid movement increases the likelihood that there are a lot of potential buyers and that there may be less supply of new long positions in order to keep the market moving up. Fast move over the top makes the market vulnerable to profit taking. Bearish Engulfing Pattern appearing after this step is likely to be an important indicator of a bearish reversal.

A bearish reversal is possible if there is a large amount of the second real body, or if the second day of bearish engulfing covers more than one real body. Confirmation of the third day have to ensure that the upward trend has reversed. The conformation can be a black candlestick, a large gap down or a lower close on the third day.

Evening Star -This is a bearish pattern signifying a potential top (Picture 11). The star indicates a possible reversal and the bearish (filled-in) candle confirms this. The star can be a bullish (empty) candle or a bearish (filled-in) candle.

This is a major top reversal pattern formed by three candlesticks. The first candle is a long white body, the second is a small real body, which may be white. This is a marked characteristic of the gap in the higher direction, forming stars. In fact, the first two candles form

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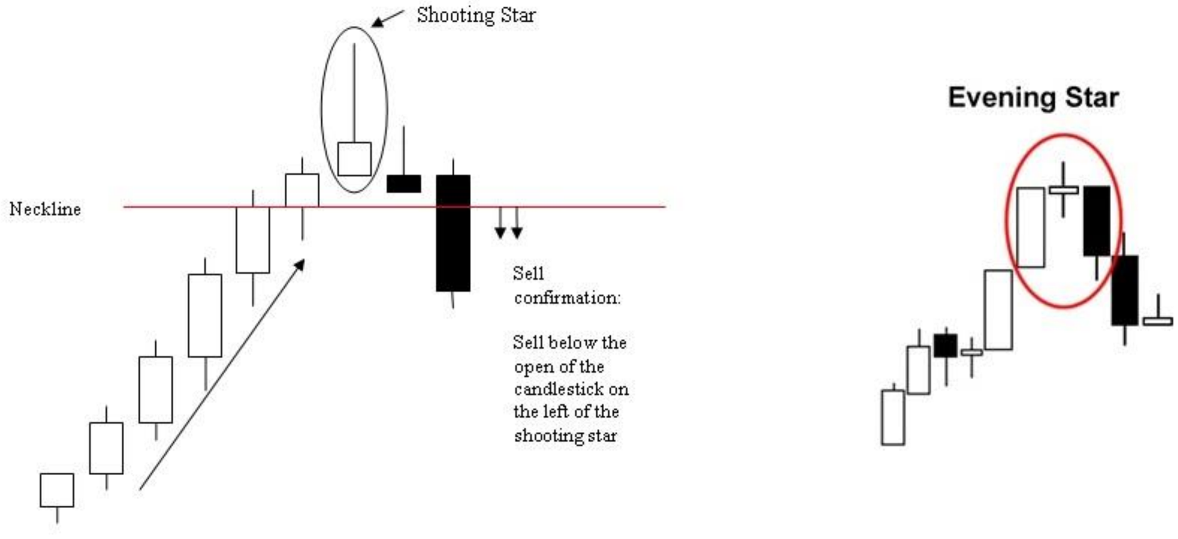
[78] Trading with candles <http://www.tradingsimulatorsoftware.com/infodocs/TradingWithCandles/TradingWithCandles.htm> - Accessed – 04.03.2013
[79] Japanese Candelsticks; <http://www.candlesticker.com/> - Accessed on – 04.03.2013

a star pattern. Finally we see a black candlestick with the closing price within the white real body of the first session. This model demonstrates that the market now has turned bearish[80].

Picture 11: Shooting and Evening Star



Source: Made by author; Shooting and Evening Star; <http://instaforex.co.id/belajar-forex-gratis/category/sekolah-forex/3-sekolah-dasar/3-2-kelas-2/> - Accessed on - 04.03.2013
<http://www.tradeforextrading.com/index.php/invertedhammer-shootingstar-candlesticks> - Accessed on - 04.03.2013

Recognition Criteria:

- Uptrend market.
- First day: long white candlestick.
- Second day: small candlestick with a gap in the direction of the previous uptrend.
- Third day: black candlestick.

The market is already in an uptrend, when the white body appears, that suggests further bullish market nature. Then a small body appears showing the diminishing capacity of the longs. The strong black real body of the third day proves that the bears have taken over. Bearish Evening Star has a gap before and after the middle of a real body. The second gap is rare, but its absence does not take away from the power of formation. Important factors that star may be more than one, two or even three. Color of the star and its shortcomings are not important. The reliability of this model is very high.

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[80] The Evening Star Candlestick Formation; <http://rapidforex.com/technical-analysis/japanese-candlesticks/the-evening-star-candlestick-formation/> - Accessed on – 02.03.2013

Doji Star -This star indicates a reversal and a doji indicates indecision. Thus, this pattern usually indicates a reversal following an indecisive period. One should wait for a confirmation (like an evening star) before trading a doji star.

This is a major top reversal pattern formed by three candlesticks. The first candle is a long white body, and the second is a Doji that has a higher gap, forming a doji star. The third one is a black candle with the closing price, which is located within the white real body of the first day. This is a significant top pattern.

Recognition Criteria:

- Uptrend Market.
- First day: white candlestick.
- Second day: Doji that gaps in the direction of the previous uptrend.
- Third day: black candlestick.

The first white body, while the market is in an uptrend, shows a continued bullish market. Then Doji appears to show a the decrease in power of the longs . The strong black real body on the third day proves that the bears have taken over. Ideal Bearish Evening Doji Star Pattern has a gap before and after the middle of a real body. The second gap is rare, but its absence does not take away from the power of this formation. Important factors are that Doji may be more than one, two or even three. Doji gaps are not important. The reliability of this model is very high, but still a confirmation is necessary in the form of a black candlestick with a lower close or break down of the offer[81].

Shooting Star -This pattern suggests a minor reversal when it appears after a rally (Picture 11). The star's body must appear near the low price, and the candle should have a long upper wick[82].

Recognition Criteria:

- Uptrend Market
- First day: white candlestick.
- Second day: Prices then open with a gap creating a small real body at the lower end of the trading range. Upper shadow of the pattern is usually at least twice as long as the real body. However, the pattern has no lower shadow.

[81] Steve Nison: Japanese candlesticks charting techniques, New York Institute of Finance, Simon & Schuster, USA, 1991, ISBN 0-13-931650-7

[82]Shooting Star; <http://www.onlinetradingconcepts.com/TechnicalAnalysis/Candlesticks/ShootingStar.html> - Accessed on – 02.03.2013

A bearish shooting star, as a rule, is not a major reversal signal as the evening star. The color of the real body is not important. The perfect shooting star has a real body that gaps of up to a real body. However, this gap is not always necessary. Confirmation on the third day ensures that the uptrend has reversed. The conformation can be a black candlestick, a large gap down or a lower close on the next trading day.

Spinning Tops -This is a neutral pattern that occurs when the distance between the high and low, and the distance between the open and close, are relatively small.

Doji - This candle implies indecision (Picture 11). The open and close are the same. Open and close should be equal in a perfect doji. However, in real life it is not simple. Doji with equal opening and closing can be considered more reliable, but it is also rare in real life. Thus, it is more important to capture and understand the essence of this candlestick. Doji is a signal that shows indecision about the direction of the market and a tug-of-war between buyers and sellers. Doji just shows that prices rise above and below the opening price for the day, but then close either immediately before or very close to the opening price[83]. The result is a standoff. This shows that neither the bulls nor bears are able to gain control over the day and it is possible that a tipping point may occur in the near future.

A doji candle is important. It provides information on its their own. It also features in other formations as an important element. Doji is relatively easy to detect by a very small body with the appearance of a thin horizontal line. Doji should be interpreted in terms of the preceding trend or preceding candlesticks. The appearance of a doji after an advanced or long white candlestick signals that the buying pressure is becoming weaker. The appearance of a doji after a decline or long black candlestick signals that selling pressure is waning[84]. Essentially a doji displays a message that the forces of supply and demand are becoming more unequal, and therefore a change in trend may be near. However, Doji is not enough in itself to identify a reversal and further confirmation after the signals can be justified. Doji importance as a signal depends on the characteristics of the market. This is really important only in the markets where you do not see a lot of Doji. If there are many Dojis at a certain chart, the emergence of a new Doji in that particular market is not very significant and the signal is low.

Double Doji -This candle (two adjacent doji candles) implies that a forceful move will follow a break out from the current indecision.

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[83] Steve Nison: Japanese candlesticks charting techniques, New York Institute of Finance, Simon & Schuster, USA, 1991, ISBN 0-13-931650-7

[84] Doji; <http://www.onlinetradingconcepts.com/TechnicalAnalysis/Candlesticks/Doji.html> - Accessed on – 04.03.2013

Harami -This pattern indicates a decrease in momentum. It occurs when a candle with a small body falls within the area of a larger body. This example of a bullish (empty) candle with a large body is followed by a small bearish (filled-in) candle. This implies a decrease in the bullish momentum[85].

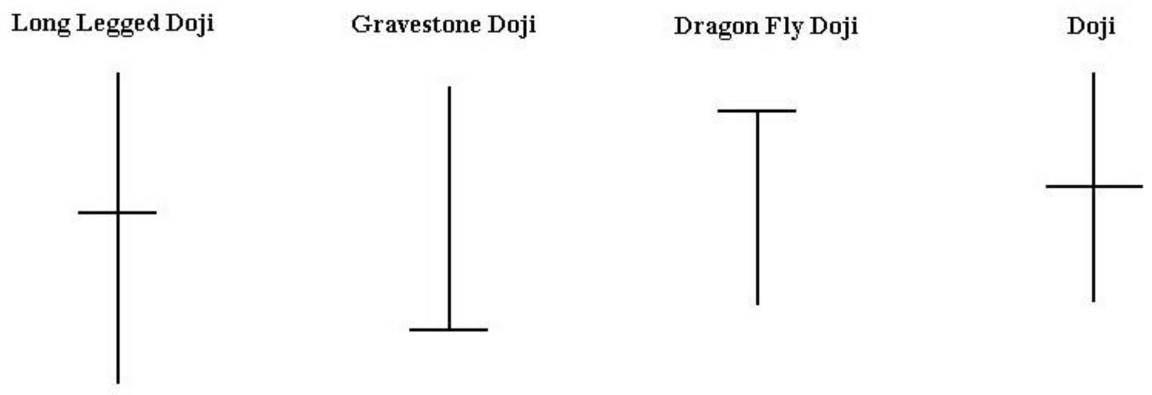
Long-legged Doji -This candle often signifies a turning point or reversal (Picture 12). It occurs when the open and close are the same, and the range between the high and the low is relatively large.

Dragonfly Doji -This candle also signifies a turning point or reversal (Picture 12). It occurs when the open and close are the same, and the low is significantly lower than the open, high and closing prices.

Gravestone Doji -This candle also signifies a turning point or reversal (Picture 12). It occurs when the open, close and low prices are the same, and the high is significantly higher than the open, close and low prices[86].

Stars - Stars indicate reversals. A star is a candle with a small real body that occurs after a candle with a much larger real body, where the real bodies do not overlap (the wicks may overlap).

Picture 12: Long Legge Doji, Gravestone Doji, Dragon Fly Doji, Doji



Source: Shooting and Evening Star; Doji; <http://www.recordpricebreakout.com /japanese-candlestick-pattern-screen-doji/> - Accessed – 03.03.2013

[85] Harami; <http://harami.ru/candles/index.html> - Accessed on – 04.03.2013
[86] Japanese Candelsticks; <http://www.candlesticker.com/> - Accessed on – 04.03.2013

3. CHAPTER 3. FUNDAMENTAL AND TECHNICAL ANALISIS IN PRACTICE – CASE EUR/USD CURRENCY PAIR

In this Chapter we will use all the theoretical parts of the previous chapters to make our own forecast on currency pair of EUR/USD. We will start with the fundamental analysis and will analyze what was happening in the first part of March.

3.1. Fundamental analysis of EUR/USD

Picture 13: Fundamental analysis, EUR/USD

Source: Authors Forex Account on the Platform FX Pro – Accessed on – 07.02.2013

From the Picture you can see that EUR were in bearish trend from the 13th of February. We put our thoughts about which fundamental indicator influence the bearish trend. On 14th of February Eurostat announced that Euro area GDP down by 0.6% and EU27 down by 0.5%, -0.9% and -0.6%[87] respectively compared with the fourth quarter of 2011.

That made fast reaction on the currency as you can see. Next reaction on depreciation of EURO and appreciation of the USD were FOMC Minutes[88].

Most participants said that there had been reduction in risks facing the US economy:

- U.S. fiscal policymakers had come to a partial resolution of the so-called fiscal cliff.
- Supported by a highly accommodative stance of monetary policy helped the housing sector to strengthen

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[87] Eurostat press office; <http://epp.eurostat.ec.europa.eu/cache/ITY_PUBLIC/2-14022013-AP/EN/2-14022013-AP-EN.PDF> - Accessed on – 03.03.2013

[88] Federal Open Market Committee; <http://www.federalreserve.gov/monetarypolicy/fomccalendars.htm> - Accessed on – 04.03.2013

- Unemployment rate declining
- All participants anticipated that inflation over the medium-term would run at or below the Committee's 2% objective.

On 25th of February, Italia's elections made height reaction on the depreciation of Euro[89], we will talked about it more in this chapter. The main thing that chosed indicator for fundamental analyze of currency made it's influence. Investors concern of the direction of the 3rd biggest economy of Euro zone.

On 26th of February Federal Reserve head Bernard Bernanke testifies before the US Senate Banking Subcommittee in Washington. And also were released – Core Durable Goods Orders and Pending Home Sales, that increased.

On 28th US automatic spending cuts deadline: Automatic spending cuts worth USD 85bn will came into effect on Friday the 1st, and US Congress didn't decides to temporarily delay them. President Obama's attempts to reach out to fellow Congressmen to consensus doesn't worked out.

On 5th of March, Eurostat[90] published growth of European Retail sales of 1.2%, but this indicator has declined steady from the previous month.

On 6th of March PMI figures actually came our above market expectations. It still showed an overall contraction of 47.9. The Spanish reading was much worse than expected and the Italian figures showed a deep industry contraction[91]. The German figures were better than expected which point to a recovery for the European powerhouse.

On 7th of March realized The ADP. The ADP National Employment Report[92] is published monthly by the ADP Research Institute. It provides a monthly snapshot of U.S. nonfarm private sector employment based on actual transactional payroll data. ADP Change in Nonfarm Payrolls is at a current level of 198 000, down from 215 000 last month and down from 294 000 one year ago. This is a change of -7.91% from last month and -32.65% from one year ago.

We can see that the bear trend took a pause starting from the 4th of march.

[89] Reuters; Euro sags to near 7-week low vs. dollar after messy Italy vote; http://www.reuters.com/article/2013/ 02/26/ markets-forex-idUSL4N0BQ1JD20130226> - Accessed on – 27.02.2013

[90] Eurostat, the statistical office of the European Union;<http://epp.eurostat.ec.europa.eu/portal/page/portal /eurostat/home/> - Accessed on - 05.03.2013

[91] Latest eurozone PMI figures; http://www.telegraph.co.uk/finance/economics/9697082/Latest-eurozone-PMI-figures-suggest-downturn-deepening.html> - Accessed on – 07.02.2013

[92] ADP; http://www.adpemploymentreport.com/> - Accessed on – 07.02.2013

3.1.1. Short fundamental overview of 4th-5th march

From Monday the 4th of March, EUR/USD continues to correct. On one hand, spending reduction in the USA will likely end by GDP decrease already during first quarter. And this alerts a lot. However, current events within Eurozone bear much higher risks for the region, and this may give an impulse for further decline of currency pair. The epicenter of developments, of course, is now placed in Italy, where after the parliament elections politicians cannot agree on creation of a new government.

Moreover, last Greek and Italian voting's show one extremely dangerous social trend. Considerable parts of population are tired of heavy burden of expense reduction programs and, almost on word, believe various populists. French were lucky on the one hand, when all votes of those who are dissatisfied were gathered by the socialist Fransua Olland. If we than remember Greek elections, radicals at that case lacked just a bit to form a majority at the parliament. With these situations, upcoming autumn elections at Bundestag are causing more and more fears. As for now, all anti-crisis politics of Eurozone is carried based on support for problematic states from Berlin - Germany still remains the only one stable European economy. Although discontent now starts to take its place among Germans, who get seriously tired of infinite number of financial aid. It is really seen if one communicates with ordinary people - today's level of enmity to South European states is extremely high.

Recently, statistics on labor market was published in Madrid. Attempts show in a positive way the decline in unemployment growth rate look at least strange. Moreover, the Spanish government itself meets difficulties in naming the accurate number of unemployed. According to the data prepared by the Ministry of Labor, this indicator has reached and overcome the amount of 5 million people. But, at the same time, the National Statistics Office published the number of almost 6 million people. In a relative numbers, the unemployment is around 26 percent of whole population - the absolute record for EU countries. Consequently, goals to shorten the deficit may be once again fouled-up.

There are also influential rumors about ending of the third round of Quantity Ease (QE3) from Fed. Last days, the informational background was filled by various statements concerning future QE3, including many scenarios with quit of regulator from the program. Considering the fact that after all previous QE endings US dollar appreciated, one can expect the same to happen now. In general, the situation tends to turn in favor of bears.

The only positive for the euro has been the growth in retail sales of 1.2%. However, given that in the previous month, this indicator has declined steadily, the current growth does not look more than a correction. In addition, the Spanish PMI for services went out again in the "red zone" (ie, the recession continues) that almost graded the effect of statistics on retail[93].

3.1.2 Short fundamental overview of 6th march

From 6th of March according to many different graphs, there is no sequestration in the USA that recently started. However, for many months general expectations were that automatic reduction of expenses would lead to deplorable consequences. And so, when the situation started, the first cut was made on USD 85 billion. But it seems like no one on the market admitted this. Many expected the crush of Dow, but recently the index reached historical maximum. And this perplexed almost everyone. The Fitch even decided not to lower the USA rating, despite the negative forecast about it[94].

Definitely, even small decline in growth rate of American deficit is much better, than none decline. And the results of auto-sequestrations are least likely to affect recovery of the USA economy. On the other hand, if one looks on the structure of growth of budget expenses, that it would be understood that even tougher cuttings are required in order to beat the deficit. If current mechanisms will allow cutting of USD 1.2 trillion in next ten years for improvement of the situation, than increase in sequester would be needed[95].

That is why Barack Obama offers to choose path of increasing of tax rates for rich and more strict control over the biggest corporations, which often use quite legal schemes to optimize tax payments. Because of failed negotiations on conditions of reductions in expenses, Republicans and Democrats are now forced to agree on budget for next financial year[96]. The deadline is the end of March.

As well, the interest towards future decisions of ECB on interest rate is very high on the markets. Almost all late statistics shows the worsening of the recession through Eurozone. In such circumstances, growth of general European retail sales looks weird at first sight. However, if one goes into details, than it becomes evident that the reason is a boom in consumption in Germany. Business activity still remains inside "red zone", and several data from PMI on services shows further squeeze of the economy.

In connection with this, the pressure on Mario Draghi grows. The decrease of interest rate from 0,75 percent to 0,5 percent remains kind of "joker in a sleeve". And when it will be used is absolutely unclear. Moreover, focus should be also placed on further comments of the Head of

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93 Latest Eurozone PMI figures; http://www.telegraph.co.uk/finance/economics/9697082/Latest-eurozone-PMI-figures-suggest-downturn-deepening.html> - Accessed on – 07.02.2013

94 Currency news; <http://www.youtube.com/watch?v=YLwweYmbb8A> - Accessed on - 6.03.2013

95 Bloomberg Currency news; <http://www.bloomberg.com/news/currencies/> - Accessed on – 6.03.2013

96 News; <http://bangordailynews.com/2013/03/05/opinion/wednesday-march-6-2013-medicaid-money-aroostook-reporters-and-cosmetics-in-gun-debate/> Accessed on - 6.03.2013

ECB regarding Italy. Situation moves toward repeated elections in the country, and this may become an trigger for increase in yield on the debt market.

The upcoming detailed data on GDP of Eurozone from fourth quarter is also important. Evidently, there will be no significant change in numbers and the indicator will remain on - 0,6 percent level. But what is more interesting, the data on American industrial orders and the report by ADP on labor market. There are no positive trends, and further decline in EUR/USD will be likely to occur based on negative attitudes from Europe and on rumors about early closing of the third round of QE3 by Fed.

3.1.3. Short fundamental overview of 7th march

Bears are back on the market. As results of ECB's meeting are about to come, Euro has already updated its local minimum. Likely, the correction of key interest rate will not follow and it will stay on the level of 0,75 percent. However, not many now doubt, that sooner or later ECB will be forced to lower interest rate to 0,5 percent, despite great discontent from German officials. On the other hand, almost all late statistics shows the worsening of recession and something is needed to be done, not to leave it on a drift[97].

The greatest interest is in press conference of Mario Draghi, where for sure will be discussed questions about the program of buying of Eurobonds. Conditions of start of this program were in details presented last year. The official request is needed to be sent from certain country to Brussels. It than would serve as an basis for creation of an agreement on the whole range of economic reforms aimed in improving of finance. For such negotiations, of course, the competent national government is required.

In case with Italy, more precisely - in case of risk of protracted political crisis - such crisis becomes main irritant on the debt market. The new government may be formed not soon. Consequently, if investors will lose their patience and the yield of Italian government bonds will start to go up, than ECB would just "wash its hands". Another point is that the regulator may change its own rules any time and may start to buy Eurobonds without any specific conditions, as it has happened before.

Next year, inflation within Eurozone can decrease to 1,4 percent (the goal of ECB for this indicator is 2 percent). Consequently, low inflation gives the regulator necessary space to maneuver regarding programs of quantity ease. If take into consideration that recently more and more conversations start about possible closing QE3 by American Fed already in the middle of

[97] European Reccession deepens; <http://money.cnn.com/2013/03/07/news/economy/europe-ecb-rates/index.html> - Accessed on - 07.03.2013

the year, than something similar by ECB[98] would be able to considerably lower EUR/USD rate, and the EU exporters will be really happy.

In the meantime, recent messages from Rome cannot leave of calm. Lefts, who has total control over House of Representatives, but do not form the majority at the Senate, are trying to form the government of minority, hoping to get support from certain colleagues from Berlusconi's block and Grillo's communistic - populist party. It is expected, that it will result in full phase out of all current reforms aimed in reduction of expenses. However it is seemed as no one remembers, that actually these reforms kept Italy from duplicating Greek scenario, as the possibility of this was very high yet two years ago.

Although in the US current macroeconomics seems to support US dollar[99]. Recent report prepared by ADP on labor market revealed to be rarely positive, and the decrease in industrial orders was 2 percent instead of expected 2,2%. It is planned to conduct an auction to sell ten years Spanish bonds. The result will show the investors' mood - today's uncertainty in Italy risks to turn into decrease in demand for risky bonds. That is why it is reasonable to stay in sells and to move foots following decline in price.

3.2. Technical analysis

Picture 15: Technical analysis, EUR/USD

Source: Authors Forex Account on the Platform FX Pro – Accessed on – 07.02.2013

[98] Currency news;<http://www.currencynewstrading.com/62933/eu-ecb-interest-rate-march-7-2013-currency-news/> - Accessed on - 07.03.2013
[99] Currency news; <http://www.youtube.com/watch?v=VVR7AODhb8c> - Accessed on - 7.03.2013

As we can see EUR / USD pair right now in bearish pattern that started from the 30th of January. We put lines of resistance and support of trade channel. The peaks of the graph represent the price level at which the pressure from the sellers on the currency market exceeds the pressure from buyer, which is why the price cannot grow, in other words to create a level of resistance higher prices. Similarly, the low points of the graph represents the level at which the pressure from the vendors behind buying pressure, and the price cannot go down, that is, create a level of price support. The longer the price chart is within a trading channel, touching the border, the more reliable are these lines. For our point of view the channel is pretty much width, so it will take time to break resistance. This bearish channel exist already long time period, 35 days, it's mean that it more reliable. Our prediction is that the bearish trend will ends and it will move to Sideway trend.

3.2.1 Japanese candlestick charting

Picture 14: Japanese candlestick analyze, EUR/USD

Source: Authors Forex Account on the Platform FX Pro – Accessed on – 06.02.2013

Euro started it's bearish trend with the Evening Star candlestick on the 13th of February. Evening Star is a major top reversal pattern formed by three candlesticks. The first candle is a long white body and the second is a small real body, which may be white. This is a marked characteristic of the gap in the higher direction, forming stars. In fact, the first two candles form a star pattern. Finally we see a black candlestick with the closing price within the white real body of the first session. The star can be a bullish (empty) candle or a bearish (filled-in) candle. This model demonstrates that the market from 13th turned bearish.

On 19th of February we can see tower top candlesticks that then forming three black crows. The tower top, a top candlestick reversal pattern formation, is comprised of one or more tall white candles followed by congestion and then one or more long black candlesticks.Three black crows is a sequence of dropping three black candles - recognition of three black crows are three long black candle, form a descending sequence, the opening price of each candle is the closing price on the previous candle. Signals are of a strong downtrend and falling prices. This indicates the beginning of the formation of panic selling that began in the market. Shoppers lose their positions and movement, getting wavy character, goes down.

Then we can see hammers on 21th February, 1st of March and inverted hammer on 26th of February. Hammer is one of the most important figures, signaling a reversal trend (Picture 8). Has a long wick and small body, mostly in the upper part. These figures are divided into bearish and bullish figures. Accordingly, on the rising market there hung a hammer - a small body, located at the top and has a long lower wick. The color of the figure usually white. On a downward market - the inverted hammer, signaling a reversal in the trend basis. And as you can see hammers have made its reversal trend on the EUR USD pair in this period.

3.4. Overall prediction

European fundamental indicators:

- On 14th of February Eurostat announced that Euro area GDP down by 0.6% and EU27 down by 0.5%, -0.9% and -0.6%respectively compared with the fourth quarter of 2011.
- Italia's elections made height reaction on the depreciation of Euro, Investors concern of the direction of the 3rd biggest economy of Euro zone.
- Eurostat published growth of European Retail sales of 1.2%, but this indicator has declined steady from the previous month.
- On 6th of March PMI figures actually came our above market expectations, the Spanish reading was much worse than expected (red zone) , Italian figures showed a deep industry contraction, German figures were better than expected
- Greek and Italian voting's show one extremely dangerous social trend. Considerable part of population is tired of heavy burden of expense reduction programs and, almost on word, believes various populists.
- The Spanish Ministry of Labor, this indicator of unemployment has reached and overcome the amount of 5 million people. But, at the same time, the National Statistics Office published the number of almost 6 million people. (26 % of population)
- ECB interest rate will not follow and it will stay on the level of 0,75 percent.

- E.U. Business activity still remains inside "red zone", and several data from PMI on services shows further squeeze of the economy.

U.S.A. Fundamental indicators:

- U.S. fiscal policymakers had come to a partial resolution of the so-called fiscal cliff.
- U.S. supported by a highly accommodative stance of monetary policy helped the housing sector to strengthen.
- U.S. Unemployment rate declining.
- U.S. inflation over the medium-term would run at or below the Committee’s 2% objective.
- February Federal Reserve released – increasing of Core Durable Goods Orders and Pending Home Sales.
- U.S. automatic spending cuts. The Fitch even decided not to lower the USA rating, despite the negative forecast about it.
- U.S. ADP Change in Nonfarm Payrolls is at a current level of 198 000, down from 215 000 last month and down from 294 000 one year ago. This is a change of -7.91% from last month and -32.65% from one year ago.
- US current macroeconomics seems to support US dollar[100]. Recent report prepared by ADP on labor market revealed to be rarely positive, and the decrease in industrial orders was 2 percent instead of expected 2,2%.

The bearish channel exist already long time period, 35 days, it’s mean that it more reliable. Our prediction is that the bearish trend will ends.Then we can see Hammers 1st of March signaling a reversal in the trend basis. And as you can see Hammer made its reversal trend on the EUR USD pair in this period. Using all the indicators that we chose for our fundamental analysis, Japanese candlesticks and technical analysis our predictions that EUR / USD will be in interval of 1,296 – 1,31 in sideway tend till the end of March. Still there will be a lot of indicators in the mid of March that can influence the exchange rate of this pair, but we don’t think that they will change the currency rate in our predict interval. Also we put forecasting of different analysts for comparison.(Table 14)

Table 14. Forecast made by different research teams

EURUSD	1 Month	1 Quarter	1 Month	1 Quarter
	Levels		Trend	

[100] Currency news; <http://www.youtube.com/watch?v=VVR7AODhb8c> - Accessed on - 7.03.2013

EURUSD	1 Month	1 Quarter	1 Month	1 Quarter
	Levels		Trend	
BBVA Bancomer Team	-	1.2800	-	Bearish
BNP Paribas Team	-	1.3800	-	Bullish
BoA FX, Rates and Commodities Team	1.3000	1.2800	Sideways	Bearish
BTMU Global Markets Research	-	1.3400	-	Bullish
DBS Group Research	1.3200	1.3300	Bullish	Bullish
Deutche Bank Analyst Team	1.3500	1.3000	Bullish	Sideways
Goldman Sachs Global Investment Research	-	1.4000	-	Bullish
HSBC Global Research Team	1.3300	1.3400	Bullish	Bullish
ICN.com analysis team	1.2660	1.2560	Bearish	Bearish
ING Global Economics Team	1.3000	1.2800	Sideways	Bearish
J.P. Morgan Global FX Strategy	1.3200	1.3200	Bullish	Bullish
NAB Global Markets Research	1.3200	1.3300	Bullish	Bullish
Rabobank Financial Markets Research Team	1.3100	1.3000	Bullish	Sideways
RBC Economic Research Team	1.3500	1.3000	Bullish	Sideways
RBS Team	1.3000	1.2600	Sideways	Bearish
Scotiabank FX Strategy Team	1.3000	1.2900	Sideways	Sideways
Standard Bank Research Team	-	1.2900	-	Sideways
TD Securities Research Team	1.3000	1.3500	Sideways	Bullish
UBS FX Research Team	1.3700	1.3000	Bullish	Sideways
Uni Credit Research	1.3600	1.3700	Bullish	Bullish
Wells Fargo Research Team	-	1.3300	-	Bullish

Source: Experts Forecast by FX street; <http://www.fxstreet.com/technical/currencies-forecast/> – Accessed on – 07.03.2013

CONCLUSION

In this part we would like to sum up this thesis work and conclude all the results we have got during the work on this project.

The aim of this thesis is to analyze the foreign exchange currency forecasting predictions. And the practical meaning of the thesis stated in the beginning was to develop the strategy of forecasting by choosing indicators and techniques to make own forecast on currency pair EUR/USD, based on the acquired knowledge. In the end, we can say that a lot of work has been done in order to achieve the thesis goal. The outcome of the work we can divide into three main parts.

The first part of the thesis is focused on the importance of forecasting predictions. It covers foreign exchange market overview and factors influencing exchange rates. This part covers theoretical and practical influence on different countries' economies, business and trade. The idea was to show the importance of the topic that was chosen by the author.

The second part of the thesis is theoretical, it is a base of all work, as in this part we have collected and analyzed the information from different sources regarding the forecasting techniques and tools for the development of our own strategy. The idea behind was to detect and the appropriate information for the topic, analyze the application of different tools for the forecasting predictions that we have chosen and apply it to our thesis work. During the work on this part we have analyzed a huge amount of various financial sources in different languages (English and Russian). We have found out the more applicable forecasting techniques and indicators that were helpful for the strategy development of forecasting. We chose Fundamental and Technical analysis. For Fundamental analysis we analyzed all indicators influencing the exchange and chose 27 of them. We divided all indicators in 8 groups. These groups are: Economic indicators, Industrial sector indicators, Construction Indicator, Inflation Indicators, Merchandise Trade Balance, Employment Indicators, Consumer Spending Indicators, and Leading Indicators. We determine level of importance of the indicators and also the influence of the indicators on currency value fluctuations.

In Technical analysis part we made general descriptions of Technical analysis: types of charts, lines of trends, lines of support and resistance. We described different models: Head and Shoulders, Rounding Tops and Bottoms, Triangles, Double Tops and Bottoms. We chose 20 different candlesticks formation, described them and define the reaction when they appearing.

The outcome of this analysis has given us the opportunity to predict the various fluctuations of different currencies. The possibility to work with different sources and analytical skills was important for efficient outcome of this part.

Both first and second part of the project was created in order to develop the right currency forecasting technique. Based on the analyzed information from the first part, supported by the theoretical background from the second part, we have developed the forecast in the third part.

The third part - forecasting the exchange rate of EUR/USD currency pair - this part is the outcome of the whole thesis, it is practical application of all the information gained during the work on the project.

The third part of the thesis is absolutely practical in term of implementation of the fundamental and technical analysis, shown on the example of the EUR/USD exchange rate. Our forecast is based on the real numbers and up to dated facts. All the analyses were done by the author of the project. Based on the Fundamental indicators analysis, Technical and Japanese candlestick analysis we made forecast till the end of March. Also in Appendix 2 we put our history of authors trading on FX Pro platform.

We can say that the goal of the thesis work was achieved. The theoretical information was collected and carefully analyzed, and then applied to the real situation. In the end we have got the practical outcome – Exchange rate management.

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