JOURNAL
OF EUROPEAN ECONOMY
Vol. 5 (№ 3). September 2006
Publication of Ternopil State Economic University

Financial and Banking Services Market

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PRACTICAL ASPECTS OF TECHNICAL ANALYSIS AT THE FOREX MARKET

Abstract

This article is devoted to investigation of actual problems of using technical analysis at the Forex market. Basic attention is paid to practical aspects of the analysis. This problem is not fully studied; therefore, the existing methods require systematization, while new opportunities for instrument combinations must be researched. The author offers a new classification of technical methods, which includes a synergetic approach as one of the forecasting instruments, selects the most effective methods for every pair, and suggests a way of using the synergetic approach together with classical methods.

Key words:

Chaos theory, classical patterns, Forex market, fractal dimension, fractals, graphical methods of technical analysis, outright, pairs of currencies, spot, structure of the Forex market, swap, synergetic approach, technical indicators, volatility.

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The expansionary trends on financial markets and the Forex in particular during the recent years call for an investigation of new methods to forecast future prices of market instruments. While fundamental analysis is a set of systematic mutual methods, the practical aspects of technical analysis are less investigated.

Among the authors who study the problems of using technical analysis at financial markets, we would like to acknowledge R. Mumchits, V. Lichovidov, A. Matviychuk, Y. Zvakolyuk, O. Sochatska, D. Korobkov. The practical aspects of technical analysis, however, are studied only in the works of R. Mumchits, who delineated and tried to solve this problem.

The main objective of this article is to make an attempt to systematize the methods of technical analysis, to research its practical aspects and to elaborate a strategy of combining the traditional methods and the synergetic approach.

Financial markets make it possible to increase the probability of a gain. In recent years, the Forex has become one of the most popular markets, where counteragents buy and sell foreign currencies on certain terms.

Main world currencies fluctuate freely. Such fluctuation creates perfect conditions for development of the Forex. But this also causes volatility, which, on the one hand, attracts professional traders, while on the other, repels financial managers.

The advantages of the Forex are high liquidity, 24 hr/day and 5 d/week accessibility, comfortable trading conditions, and flexible system of payments and leverage.

All these advantages attract many market participants, such as commercial and central banks, corporations, investment funds, broker firms, and individuals.

The Forex is huge. Its daily trading volume reaches 2 trillion dollars, whereas the volume of operations increases by 5–7 percent every year.

The market's non-stop functioning, its development and growth are signs of the Forex' popularity among investors. This group of participants solves many problems and manages activity every day. Not a single problem can be solved without knowledge of the situation on the currency market and technical or fundamental analysis.

The type of the analysis and the methods to use depends on the type of the deal, number of participants, traders' investment horizon, and the currency. In our opinion, the market structure should correspond to all these conditions.

The traditional segments of the Forex are spot transactions, outright forwards and foreign exchange swaps. Daily trading volume demonstrates the scope of the market. Table 1 shows average daily trading volume from 1989 to 2004.

Table 1.

Global Foreign Exchange Trading Volume * (in billions of US dollars)

	1989	1992	1995	1998	2001	2004
Spot transactions	317	394	494	568	387	621
Outright forwards	27	58	97	128	131	208
Foreign exchange swaps	190	324	546	734	656	944
Other	56	44	53	60	26	107
Total trading volume	590	820	1.190	1.490	1.2	1.88

* Calculations based on BIS Annual Report [4].

Spot transactions – foreign exchange during 2 business days. Such transactions are the simplest operations popular on the liquid markets. The total value of transactions on the spot market grew (1989–1998) from $317 bln. to $567 bln. In 2001, with the fall of the global Forex market, the value of such deals decreased to $387 bln. In 2004, the rising trend reappeared. In percentage terms, the spot market exhibits a tendency to decreased number of such transactions in the market structure, from 54% in 1989 to 32% in 2001 and only 32% in 2004.

Outright forwards stipulate for foreign currency exchange during more than 2 business days. On this market, we can see that both the absolute and the relative indicators rose very quickly (volume – from $27 bln. in 1989 to $208 bln. in 2004; share of the market – from 5% to 11% in the respective years).

On the global forwards market, 85% of all transactions are swaps. Swap means selling currency on spot and buying currency at future price. If before 1995 swaps had only 2nd place among other operations, accounting for 1/3 of total turnover on the Forex, starting with 1998 they have occupied the 1st place (more than 1/2 in 2001).

As for the global trading volume, the overall trend to growth is clear, except for 2001, when the daily trading volume dropped by $0.21 trillion.

To sum it up, we must say that the structure of the Forex has changed during the last 15 years. Trading volume rose as did the market's popularity. Spot transactions were the largest group during 1989-1992 and the second largest group from 1995 on. Hence, the overwhelming majority of investors are short-term traders. Exactly this group of participants is a potential customer of technical analysis-based indicators.

Table 2 shows the structure of the Forex by market participant.

Table 2.

Structure of the Foreign Exchange Market Volume by Type of Participant* (%)

	1995	1998	2001	2004
Currency Dealers	64	64	59	53
Financial Institutions	20	20	28	33
Non-Financial Institutions	16	17	13	14

* Based on the data of the BIS annual report [4].

During the last 10 years, we can observe a clear trend to increasing role of currency dealers in the structure of the market's trading volume. Dealers account for more than a half of all operations in the market. This is one of the most flexible groups which prefers technical analysis.

Financial institutions occupy the second position in terms of the market share, but transactions with this group rise from year to year. Non-financial institutions have the last position in the structure, and their number decreases (1995–2001). The second group – financial institutions – prefers fundamental analysis.

For the last years the market is characterised as a stable system. The US dollar continues to be the most attractive currency for trade (Table 3) [4]. From 1992 to 2001 we can see the growth of the dollar's share in global turnover. In 2004 an insignificant decrease of the dollar had place, but it still was one of the most popular currencies. The Euro comes second in terms of its global trading volume, while the yen comes third (its market share decreased by 2.4%). The pound sterling occupies the fourth place (turnover rose by 3.7%). The turnover of the Australian dollar increased as well – from 4.2 to 5.5% – due partially to its increased significance as an investment currency. In general, the leaders in the market have not changed (Figure 1).

Spot transactions dominated in global turnover in different years, which testifies to a large number of short-term investors. The most popular type of analysis used by this group is technical analysis. One of the most numerous groups is dealers. These participants are flexible traders. It is much easier to adapt technical analysis to specific market conditions by choosing or developing the necessary instrument. That is why this analysis is popular among dealers.

As for the type of the pair of currencies, the choice between technical or fundamental analysis does not depend on the currency. It is more feasible to speak of the selection of the method within technical analysis, since each instrument can give positive results for one pair of currencies and be absolutely useless for another.

Table 3.

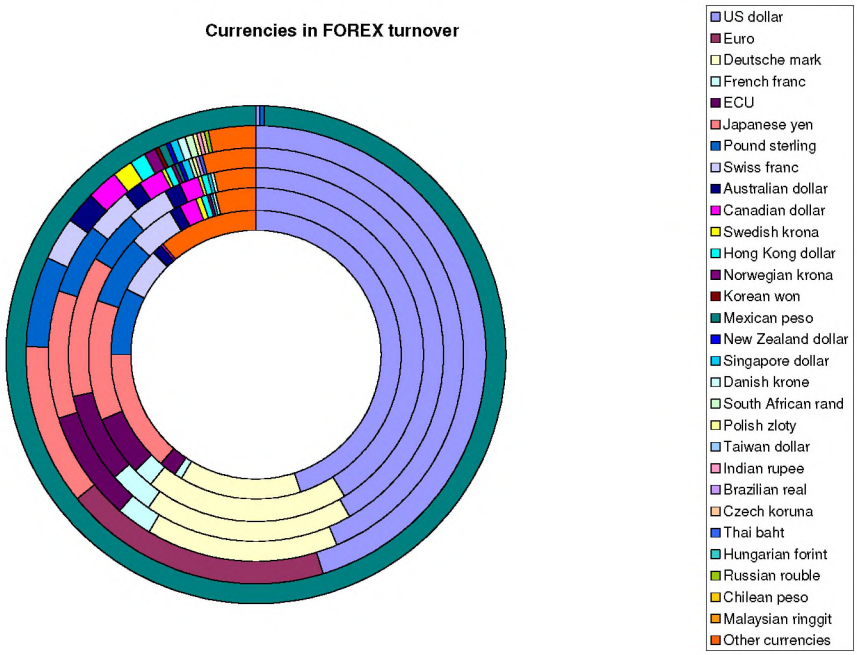
Currency Distribution of Reported Foreign Exchange Market Turnover* (%)

	1989	1992	1995	1998	2001	2004
US dollar	90.0	82.0	83.3	87.3	90.3	88.7
Euro					37.6	37.2
Deutsche mark	27.0	39.6	36.1	30.1		
French franc	2.0	3.8	7.9	5.1		
ECU	4.0	11.8	15.7	17.3		
Japanese yen	27.0	23.4	24.1	20.2	22.7	20.3
Pound sterling	15.0	13.6	9.4	11.0	13.2	16.9
Swiss franc	10.0	8.4	7.3	7.1	6.1	6.1
Australian dollar	2.0	2.5	2.7	3.1	4.2	5.5
Canadian dollar	1.0	3.3	3.4	3.6	4.5	4.2
Swedish krona		1.3	0.6	0.4	2.6	2.3
Hong Kong dollar		1.1	0.9	1.3	2.3	1.9
Norwegian krona		0.3	0.2	0.4	1.5	1.4
Korean won				0.2	0.8	1.2
Mexican peso				0.6	0.9	1.1
New Zealand dollar		0.2	0.2	0.3	0.6	1.0
Singapore dollar		0.3	0.3	1.2	1.1	1.0
Danish krone		0.5	0.6	0.4	1.2	0.9
South African rand		0.3	0.2	0.5	1.0	0.8
Polish zloty				0.1	0.5	0.4
Taiwan dollar				0.1	0.3	0.4
Indian rupee				0.1	0.2	0.3
Brazilian real				0.4	0.4	0.2
Czech koruna				0.3	0.2	0.2
Thai baht				0.2	0.2	0.2
Hungarian forint				0	0	0.2
Russian rouble				0.3	0.4	0.7
Chilean peso				0.1	0.2	0.1
Malaysian ringgit				0	0.1	0.1
Other currencies	22	7.7	7.1	8.2	6.5	6.1
All currencies	200.0	200.0	200.0	200.0	200.0	200.0

* Based on annual reports of the BIS [4].

Figure 1.

Currencies in the FOREX Turnover*



* Based on annual reports of the Bank for International Settlements [4].

The contemporary Forex traders use both technical and fundamental analyses. There are many methods and instruments today. Market growth attracts many participants, and as a result, the search for new forecasting methods continues. Though fundamental methods have not gone through shattering changes, technical methods are expanded, renovated and supplemented every day. The use of the mathematical component has developed from the simplest to the most sophisticated methods. Technical methods vary, which, on the one hand, increases the forecasting ability, while on the other, complicates the selection of the method (since the use of all methods at one time is impossible). Usually this urges analysts to choose their «favourite» methods and use only those chosen.

Systematisation of methods and instruments is a very difficult but necessary work. It will help traders to choose the methods of analysis.

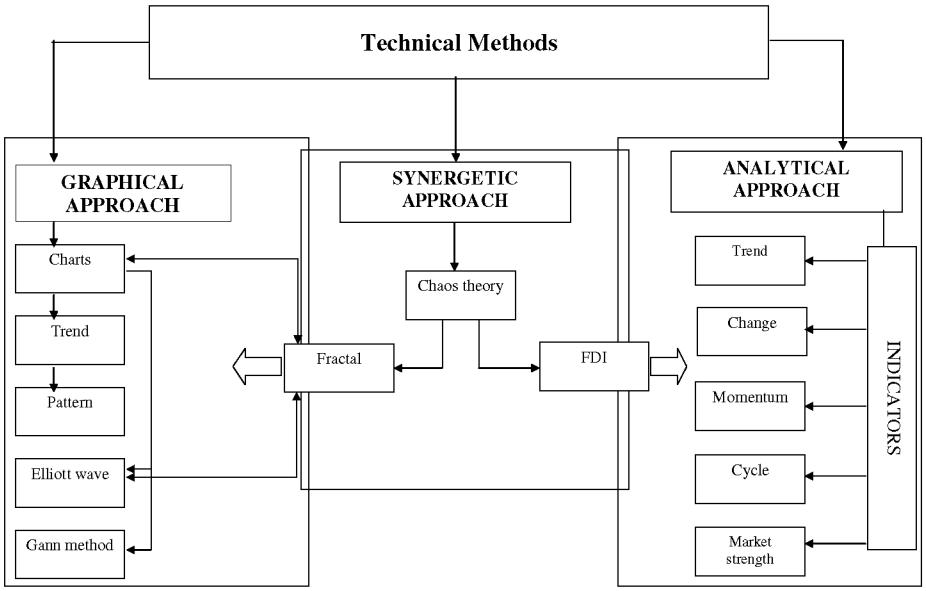
It is feasible to view technical methods as separate groups: graphical, analytical and – a modern approach – synergetic methods. There is no clear division among all of these methods, since graphical methods have long become

part of the analytical methods, and vice versa. The synergetic approach is not a separate group within technical analysis. Fractal analysis implies a search for fractal figures on price charts and estimation of the index of fractal dimension. Fractal analysis thus intersects with graphical and analytical methods. But this is a new approach, and it may be investigated as a separate method.

The methods of technical analysis are presented in Figure 2.

Figure 2.

Methods of Technical Analysis



Analysts' experience allows asserting that not all technical indicators can be used to analyze all financial instruments. However, it is obvious that systematization of indicators by their applicability to certain markets and time intervals is needed; however, such an attempt has not been made so far. In some publications, authors stress the impossibility of using all indicators for high-quality analysis and demonstrate major characteristics of currency pairs. In the article «Applying Technical Indicators to Financial Instruments on the Forex Market», the author, R. Mumchits analyzed the use of the indicators for most popular pairs. This article was made basis for our attempt to systematize the methods of technical analysis.

The classical patterns of technical analysis are seen on the 4-hour charts of USD/JPY and USD/CHF, as well as daily charts of USD/JPY and USD/CHF. These patterns are not suitable for daily GBP/USD and hourly USD/CHF charts.

Japanese candlesticks are most suitable for 4-hour and shorter charts of USD/JPY and USD/CHF. For the daily charts of GBP/USD and USD/JPY candlestick is not suitable.

MACD can be used for non-trend markets. In particular, the USD/JPY pair is characterized by low level of volatility. On the daily USD/JPY chart we can see the trend only when it ends. Therefore, this indicator is useful on this market.

Bollinger bands give good results on the daily and hourly GBP/USD.

Parabolic system is most suitable for 4-hour USD/CHF, but not for shorter charts.

Chaikin's volatility oscillator gives good results for intraday sterling charts.

Combinations of moving averages are useful for 4-hour and 60-minutes USD/JPY and daily USD/CHF.

Fibonacci levels work perfect on 4-hour USD/CHF, but are not recommended for USD/JPY.

Commodity channel index is used for intraday USD/JPY and EUR/USD, but not for daily USD/JPY charts.

As for stochastic oscillator, it is perfect for non-trend markets: short-term USD/JPY charts and daily GBP/USD, EUR/USD charts.

All these facts are shown in Table 4.

Summing up, we must say that choosing an instrument does not depend on the period, but on pair of currency. In his article, R. Mumchits says that every pair has its own specification. On some charts, the trend is absent, while on the other, it is present. Some currencies are considered unpredictable in the long period, others have high or low volatility. All this must be taken into account. The feasibility of using one or another method can be proven only experimentally by every analyst.

In our opinion, time factors are very important too. Market is a dynamic system, and the situation on the market is changing every time. Yesterday's instruments can be not used today.

The modern approach – fractal analysis – does not give answer as to future changes on the market, but helps to choose the needed instrument correctly. Fractal dimension index shows how strongly a chart approximates the one-dimensional space (the line) or the two-dimensional space (the flatness). That is why the index is called the «fractal dimension» index. The approximation of its value to 2 is a sign that the next movement will be in the reverse direction. If index approximates 1, it is the evidence of a trend [1; 3]. When we know market characteristics, we can choose an appropriate instrument.

Table 4

Using Methods of Technical Analysis at Separate Markets*

Period	USD/JPY		GBP/USD		EUR/USD		USD/CHF	
	+	–	+	–	+	–	+	–
Daily	– MACD – ADX – De Marker – Pattern	– CCI – Stochastic – Japanese candlesticks	– Bollinger bands – Stochastic	– Pattern – Japanese candlesticks		– Oscillator	– Moving average – Pattern	
4-hour	– Pattern – Japanese candlesticks – Moving average – Oscillator – CCI	– Fibonacci levels	– Oscillator Chaikin – Standard deviation – Bollinger bands		– Oscillator – CCI		– Pattern Japanese candlesticks – Fibonacci levels – Parabolic	
Hour	– Stochastic – Moving average – Japanese candlesticks	– CCI – RSI					– Japanese candlesticks	– Pattern – Parabolic
30-minutes	– Stochastic							

* Based on the article by R. Mumchits and own research.

Synergetic methods can be combined with traditional methods, which can be concurrently used to determine the nature of the market. The appropriate instrument is chosen on the basis of the received results (Figure 3).

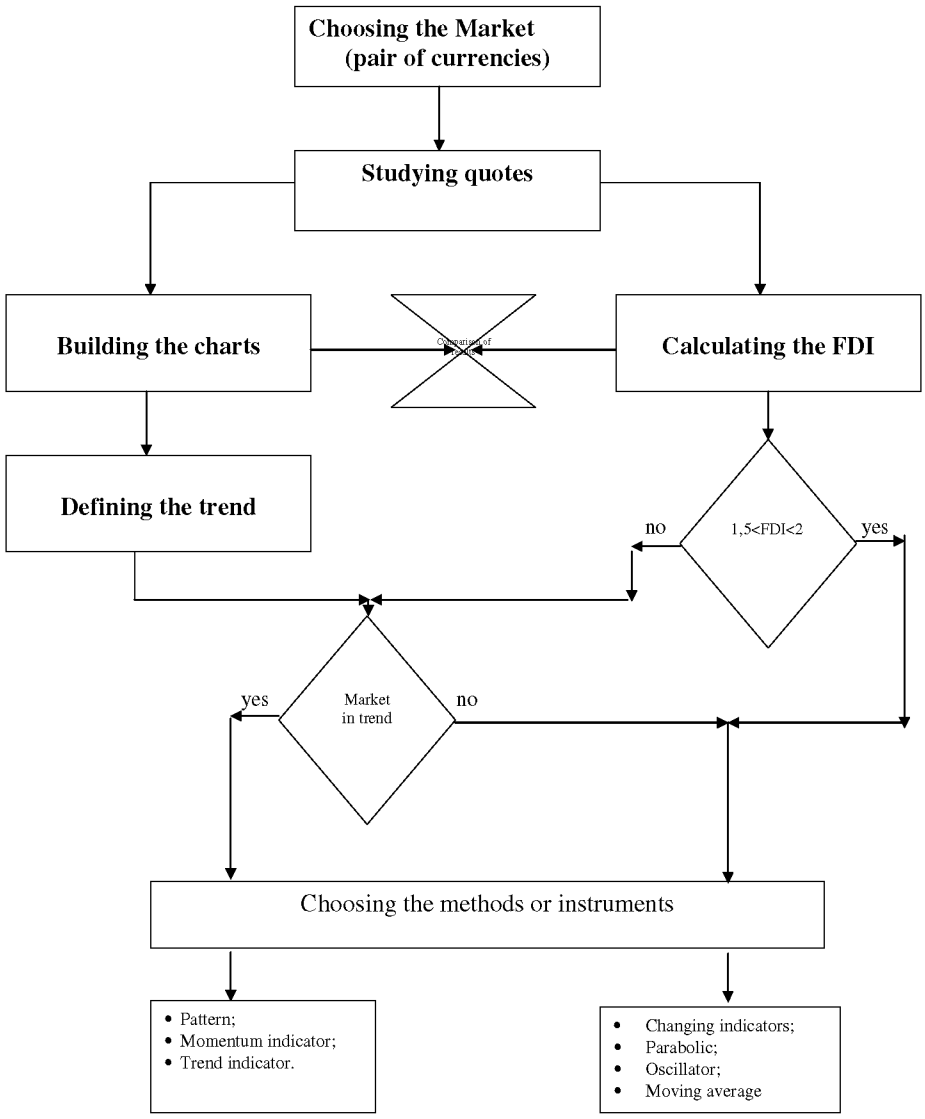
Thus, the study of the Forex market allows asserting the following:

- The structure of the market is such that a sufficient number of market participants can be considered potential adherents of technical analysis;
- Market expansion favours the search for new methods of effective analysis;

- Attraction of new currencies shows the peculiarities and uniqueness of every market, which promotes the search for new forecasting methods and instruments;

Figure 3.

The Algorithm of Choosing the Methods and Instruments of Technical Analysis



- Every pair has is own specifics regarding price behaviour;
- The choice of instruments depends not only on the currency, but also on the time period;
- There are new approaches (chaos theory, fractal geometry) which widen the analysts' forecasting abilities;
- The division of technical analysis methods into graphical and analytical is conditional, since all methods supplement one another;
- Synergetic approach can hardly be considered graphical or analytical method; on the one hand, it is both methods at one time, on the other hand, it is an independent method;
- The new market paradigm allows to look at the market situation differently;
- The Fractal Dimension Index is one of the technical instruments, which helps to determine the market character, but not forecast future fluctuations;
- For best results, the synergetic and traditional methods of the Forex market analysis should be combined;
- The choice of the methods depends on the market's nature.

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The article was received on June 21, 2006.