TECHNICAL AND FUNDAMENTAL ANOMALIES. PARADOXES OF MODERN STOCK EXCHANGE MARKETS

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***Abstract**: This paper continues the series of researches about the paradoxes of modern stock exchange markets and their impact on the real economy, addressing this time the most important technical anomalies but also fundamental anomalies, which can be observed on the financial markets. As we mentioned in several previous articles, the paradoxes of stock exchanges are related to potential contradictions that arise in relation to a generally accepted truth. A lot of researches in the field of stock market investment focused on finding the answer to the question whether historical prices can be used to predict future prices for listed securities. Complex forecasting methods were created to clarify this aspect. Thus, technical analysis is a method of forecasting the price movements and trends of the market in the future, by studying the market graphs (including here both, the price of the listed instruments and the volume of transactions). The fundamental anomalies refer to the anomalies in trading financial instruments, and to the elements of fundamental analysis. The basic principle of fundamental analysis refers to the fact that the market price of any financial instrument is the result of supply and demand for that instrument. Both the supply and demand that finally determine the price of a financial instrument, are under the influence of various factors. Market's analysts monitor various economic indicators and examine the market reports, to detect changes that may occur in the economy. The fundamental analysis attempts to predict prices and the overall market development by analyzing some economic indicators, political or social factors which are likely to influence the stock exchange prices. Both technical and fundamental anomalies have a major impact on price formation for financial instruments which are traded on stock exchanges, and are able to offer to warned investors higher earnings.*

***Keywords**: stock market paradox; technical anomalies, fundamental anomalies, trend lines.*

***JEL classification**: G02; G12; G23;*

1. Technical anomalies

Technical analysis sets its beginnings in the work and theories of Charles Henry Dow, its fundamental principles referring to the fact that:

- Market actions update everything - the price of listed financial instruments seen as the intersection of the supply and demand for such securities reflects through its value the influence of various factors. The purpose for technical analysis is not to identify the factors that influence the price, but only the price movement and its analysis in time.

- The existing configurations - Technical analysis attempts to give models of the evolution of market prices based on historical data, so these configurations offer some probability that certain results can be expected.
- The history tends to repeat itself - graphics configurations proposed by technical analysis tend to repeat over time due to the characteristics of human psychology.

Technical analysis involves besides many advantages also many disadvantages demonstrated in time (Reuters, Introducere în studiul analizei tehnice, 2001, p. 22). From the most important positive aspects that technical analysis involves, we can include the followings:

- It can be used for a wide range of financial instruments listed on every market. Hence a very important feature of technical analysis, namely the flexibility. Technical analysis can easily be adapted to different products traded or different types of markets, the principle remains the same.
- Graphical representations of the evolution of equity prices can be realized for different periods: for hours to historical data for decades - this is because of the technology used (computers).
- In time, a development of the instruments that are used in technical analysis could be noticed. We could say that these instruments are innovations of research in this area.
- The data used by technical analysis are historical data, but recent years technology has allowed even the use of real time data to conduct technical analysis (or with a subtle delay).

Of course, the technical analysis involves a series of disadvantages, most important of them being related to:

- Due to the fact that technical analysis is realized by analysts, who are human beings, the subjective factor is not eliminated. In fact, this is the biggest disadvantage of technical analysis, meaning that forecasts based on the data analysis rely heavily on the subjective factor - the way the same data are differently interpreted by various analysts.
- The technical analysis is based on the extrapolation of events and the moving quotations in time. This is a subject of probability theory, the future and upcoming events being unknown to mankind. Technical analysis addresses an issue so long coveted by mankind: knowing the future.
- Regarding the probabilistic nature of the evolutions that technical analysis is studying, we can say that it is concerned with determining the probability of stock market quotations, and not concerned about the certainty that they will come true.
- Information used by technical analysis can be sometimes wrong, or less accurate, which distorts also the result (as forecast).

The main elements technical analysis is based on are: the prices of financial securities, the repeatability of price trends in the market, and the fact the prices tend to enroll in some trends.

The opponents of the results' accuracy obtained using technical analysis bring as an explanation the random walk theory and the theory of confirmed projection. *The random walk theory* was first discussed in the research filed by Jules Regnault, a French broker in 1863. Later, in 1900, the theory has gained new dimensions in terms of the interpretation by Louis Bachelier in his doctoral thesis, then the subject

is approached by Cootner Paul (1964), Burton Malkiel (1973) and Francis Eugene Fama (1965). According to the random walk theory, the future prices of listed financial securities can not be determined or predicted, because they have a random evolution to their intrinsic value. The theory of confirmed projection highlights the subjective interpretation of graphs.
Technical analysis tries, using historical prices and statistics with this regard, to forecast future prices of the listed financial securities. The simplest techniques and trading strategies are based on a classical graphical analysis, which includes the interpretation of straight trend of building configurations or reversibility, the lines of support, the lines of resistance, moving averages or gaps. More complex techniques include in the analysis indicators like: RSI (Relative Strength Index), stochastic oscillators, moving average convergence-divergence or elements of Elliott wave theory, Fibonacci numbers and Gann graphics.

1.1. Elements of simple graphical analysis

The simple graphical analysis involves the analyst interpretation of the trend lines (straight trend), of building configurations or reversibility, the support lines or resistance lines, moving averages or gaps that can be seen or built on financial securities price trends. Their purpose is very clear: to determine the most appropriate moments to sell or to buy securities in the market, at the best price.
The trend line is given by consecutive points, the minimum or maximum price of financial securities or the value of a stock index, its purpose being to identify the direction of market trends or the trend for the price of listed securities. The trend lines are used to identify market direction or the moment of its reversal. If the trend line is supported by a large number of intermediate points, the trend is stronger, and if it entails some interruptions, the signal refers to a possible change of the trend.
Building configurations are regular shapes identified in the graphic evolution of securities prices or of the market prices as a whole, in form of triangles, quadrilaterals or flags. These forms are quite difficult to identify and once prices evolve out of the parameters of these forms they give investors entrance and exits signals from the market.
Configurations of reversibility indicates the minimum and maximum levels of prices, correlated with the possibility of trend reversal. They are easy to identify if they are based on a strong trend, because at least visually, their identification is easier. The most important reversible formations are: head and shoulders, top and bottoms (maximum and minimum), wedges.
The support lines and resistance lines are perhaps the most important technical elements used by technical analysis. The support line of a graph is given by the minimum levels of prices in the market. This can be interpreted as the minimum price where the interest of buyers is strong enough to face selling pressure. Support line has this name due to the fact that the market doesn't fall below it. The support line is adjusted whenever the price falls to a lower level compared to the last value.
The resistance line can be seen in opposition with the support line, it is given by the maximum level prices in the market could reach. Resistance line can be interpreted as the level where selling interest is strong enough to face the pressure of buyers.
Moving averages - using moving averages is a method of smoothing the historical data, the purpose of their use being to confirm the price trends. Moving average may take into consideration the price variations for different periods of time as follows: if

the aim is a short-term analysis the data used will be for 9 or 10 days, 18 to 20 days, and if the aim is a long term analysis, it will be taken into account prices on 50,100 or 200 days. The most common used moving averages are simple moving averages (SMA - Simple Moving Average), weighted moving average (WMA - weighted moving average) or exponential moving averages (EMA - exponential moving average). Besides the fact that moving averages confirm the trend, they help investors identify the buying signals and the selling signals in the market.
Gaps are graphical configurations which are used to determine and confirm price movements. For example, a gap is formed when the minimum price of a financial instrument in a given period is higher than the highest price of the previous period, or vice versa (Reuters, Introducere în studiul analizei tehnice, 2001, p. 116).

1.2. Complex elements of technical analysis

In addition to simple constructions of graphs highlighting the evolution of prices over time, correlated in many cases with trading volumes, technical analysis uses a number of indicators to confirm trading strategies based on graphs. The two main categories of indicators, which refer the technical analysis, are:

- Confirmation indicators or divergence indicators - with their help, the trends can be confirmed, the divergent evolution of the indicator to the price evolution is considered as warning signal. Parts of this type of indicators are the trading volume and moving averages.
- Momentum indicators or oscillators - they measure the frequency of price movements to the price level and are used to establish different trading strategies. Part of this category is the relative strength indicator (RSI), the stochastic oscillator or moving average convergence-divergence (MACD-Moving Average Convergence Divergence)

Without insisting on the method of calculation of these indicators and on the ways this results are use and interpreted, we can say that in time it has been shown that some price evolutions tend to recur. Of course, no graphic format looks exactly the same like another and the accuracy of prediction lies in the eyes of someone who interprets the results and sees that essential required to issue a forecast. Using information from the past (historical prices) method on which the technical analysis is based, is widely used in many other areas. In other words, the future behaviour of a market is also given by its history.

2. Fundamental anomalies

Fundamental anomalies refer to anomalies in trading financial instruments, to elements of fundamental analysis. The basic principle of the fundamental analysis refers to the fact that the market price of any financial instrument is the result of supply and demand for that instrument.

2.1. The value

Seen as a factor of influence in trading financial instruments, their value seems to be the most important anomaly which is commonly used in setting the investment strategy of market actors. Essentially, this anomaly consists on the fact that investors tend to wrongly overestimate the growth prospects for the companies and to underestimate the value of companies. In a work of reference for this anomaly, Lakonishok concluded that "trading strategies that are based on value, offer a high

yield because they take advantage of ordinary investor mistakes, and not because they were fundamentally speaking, more risky" (Lakonishok, Shleifer, & Vishny, 1994).
The issue of value in determining the investment strategy has been addressed by many researchers over time. Thus, (Chan & Lakonishook, 2002) reviewed the literature with respect to performance value due to the growth strategies. The conclusion they arrived to, was that the size of risk is not the result of the fact that differentiated yields are due to higher risk assumed, but rather is due behaviour reasons or transaction costs incurred. We believe therefore that the subjective factor as emotions, temperament or attitude, in this case has an important role in determining the investment strategy.
Supporters of investment strategies based on growth, analyse how the value and its growth are influenced by some factors. Their findings show that growth fund managers have been more successful than managers managing value-based financial instruments.

2.2. Low price to book

Eugene F. Fama and French Henneth conducted in 1992 a study on the performance of the financial instruments with low price on the market (Eugene & French, 1992). Their study has focused on the period between 1963 and 1990 and took into account almost all securities listed on NYSE, AMEX and NASDAQ. At the initial stage, securities were divided into 10 groups, which were to be rerouted every year. Yields obtained by the cheapest titles far exceeded the yields obtained by more expensive securities, namely 21.4% in the first case and 8% for the last. The same study reflects the fact that authors divided financial instruments into groups based on beta coefficient, reaching the conclusion that securities with greater value were associated with lower risk compared to the growth ones. Seen from this perspective, the value receive connotations of risk, thus the value is a risk factor for which the investors will be rewarded with an additional return if they will assume it.
Therefore, we can say that paradoxically, securities with lower prices in the market offers the possibility of obtaining higher annual returns than securities more valuable.

2.3. Other fundamental anomalies

Patel, Yao and Barefoot showed in 2006 that financial securities that offer high dividend yields have given better performance (from the perspective of market price) than financial securities offering lower dividends yields (Patel, Yao, & Barefoot 2006).
There are investors who use as an investment strategy the technique "against the market". This means that they will select for their portfolios, securities most neglected on the market (the less traded). The technique was demonstrated in 1970 by Werner DeBondt and Richard Thaler that through a study concluded that the highest performance is achieved by the neglected securities of the market, their yields are higher than the overall average of the market .

3. Another anomalies on financial instruments trading

3.1. Size effect

The size effect was studied for the first time by Banz in 1981, studies he conducted for New York market showed that the profitability achieved by small capitalization

companies is on average higher than the return obtained by large capitalization companies, (Simon, 1997, p 425). Banz divided all the listed shares on the NYSE into five classes according to the market capitalization of the companies and analyzed the evolution of their returns for the period from 1926 to 1980. The conclusion he reached is the fact that yields obtained by the smallest companies (with the smallest market capitalization) were superior to other classes of companies with high market capitalization. Yields obtained by them were even higher than the market average (than the index performance) (Banz, 1981).
The phenomenon has been studied by other researchers: Ibbotson in 1984, Reinganum in 1981 or Lamoureux and Sanger in 1989, these studies refer to securities listed on the American Stock Exchange.
In a 1997 article in Forbes magazine, Mark Hulbert contradicts the so-called myth of small capitalization (small cap mith) considering that there is no advantage for those who choose to invest in the securities of small capitalization companies (Forbes, 2012). Hulbert specifies that the study undertaken by Banz in 1981 did not take into account the transaction costs, which in the case of securities of small capitalization companies can be significant. Also Hulbert believes that the size effect proposed by Banz can not be extended to all world stock markets because the study was conducted exclusively using data from the U.S. stock markets, where small capitalization companies have actually a much higher capitalization than large capitalization companies whose securities are listed on other stock exchanges of the world.

3.2. The effect of announcements on the price

The announcements effects on prices in the market show that price changes tend to persist even after the initial announcements. Securities for which the announcements made are positive, tend to move upward, and securities for which the announcements are negative, tend to move downward. The essence of this effect is that securities with a consistent growth will grow even more, despite the fact that initial increases were above market expectations. Conversely, if the securities price encounter a steady fall, it will fall further, even if the initial decreases were higher than investors' expectations. The effect of announcements on the price is known as the paradox of high-higher or low-lower.

3.3. IPO's effect on the price

Numerous studies have concluded that initial public offerings have as an effect a drop in prices on the market, thus achieving poor performance for the companies concerned. The phenomenon is seen as an evidence of market inefficiency by Dharan and Ikenberry. They showed in a study that companies listed on the NYSE and AMEX for the first time (via an initial public offering) obtain lower performance than companies already listed (Dharan & Ikenberry, 1995).

3.4. Insider trading effect

Transactions made by insiders refer to deals based on inside information. This information has a distinct nature, has not been made public and regards an issuer (company) or certain financial instruments. If this information would be conveyed to the public, it could significantly affect the market value of securities. Trading on such information is an abuse on the market and is sanctioned by supervisors.

On this subject, there are numerous studies referring to the link between transactions carried out by staff of listed companies (company directors, managers or anyone who has access to inside information) and the performance of those securities.
In terms of trading on inside information it is considered that if much more such insiders will buy lots of company's shares where they are employed, it is an important signal to all other market participants. In such cases, insiders believe that there is a significant probability that the price of these securities to increase in the future.

2. Conclusion

Anomalies in trading financial instruments are associated with the moments when securities prices deviates from their normal behaviour, creating opportunities for those who identify them. These can be viewed from the perspective of time, in which case we can talk about calendar anomalies. From the perspective of interpretations that technical analysis involves, we can talk about technical anomalies, and from the perspective of the interpretations given by the fundamental analysis, we talk about fundamental anomalies.
Technical analysis through which there can be identified technical anomalies, involves interpretation of graphic configurations and price movements and the combining of these formations with the interpretation of some indicators like stochastic oscillator, moving averages, Elliot wave and Fibonacci numbers.
Fundamental anomalies are based on the interpretation of fundamental analysis. Analysts monitor various economic indicators and speculate possible market reversals trends that occur due to changes in the economy.

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