

• FIRST EDITION •

	LAST	CHANGE	
SPX INDEX	+ 2780.71	-26.12	-0.93%
AAPL	+ 203.70	-4.79	-2.35%
AMZN	+ 1709.00	-45.91	-2.62%
BABA	+ 144.88	-4.11	-2.76%
FB	+ 144.98	-2.89	-1.95%
GE	+ 8.52	-0.58	-6.37%
MSFT	+ 109.17	-2.58	-2.31%
NFLX	+ 301.00	-16.92	-5.32%
NVDA	+ 203.75	-2.24	-1.09%
SPY	+ 277.14	-3.36	-1.20%
TSX	+ 850.50	-0.90	-0.26%
EURO	+ 11335 <sup>2</sup>	-27 <sup>8</sup>	-0.24%
GBP/USD	+ 1.2974	-87 <sup>9</sup>	-0.67%
US	+ 125 <sup>3</sup>		-0.22%
CL ∞ Dec...	+ 59.87	-0.80	-1.32%

Fuad  
Akhundov

# REDUCTIVE INVESTMENT ANALYSIS

REDUCTIVE  
INVESTMENT  
ANALYSIS

ECONOMETRICS

**Fuad Akhundov**  
**Reductive-Investment Analysis**

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**Аннотация**

A Reductive-Investment Analysis is a system of logical and practical approaches, methods of analyzing financial tools of the stock market (securities, currencies, derivative contracts, etc.), for the investor, substantiating and evaluating the feasibility of making investments, and optimizing investment trading operations, to make an effective decision.

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# Reductive-Investment Analysis

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**Author's note:**

The Reductive-Investment Analysis is the latest method of calculation of the investments' effectiveness. It is a unique decision for the investment analysis of the exchange market. It guarantees a simplified understanding of the market prospects, gaining of profit and the continued success of the investor. It gives you opportunity to make a management decision on the feasibility of investment or the timely withdrawal from the market. It has an exceptional mechanism to model the dynamics of future prices. The present publication is recommended for trade floor analysts and financial experts.

# INTRODUCTION

A significant part of investments in financial tools of the stock market does not provide the expected and planned result for reasons beyond the control of investor. An absurd or poor-quality investment analysis causes most of the cases resulting in losses. Against the backdrop of globalization and a certain “mutation” of the financial market, the need for new and advanced methods for the theoretical description of the mass expectations of financial market participants has grown, with possible further modelling of quotes on this basis. This paper, titled “A Reductive-Investment Analysis”, describes the results of long-term, empirical studies of the financial and stock market. It represents a new, alternative approach to assessing, analyzing and modelling in financial markets using logical techniques and such statistical software tools as a regression channel, calculated based on the least squares method.

A Reductive-Investment Analysis is a system of logical and practical approaches, methods of analyzing financial tools of the stock market (securities, currencies, derivative contracts, etc.), for the investor, substantiating and evaluating the feasibility of making investments, and optimizing investment trading operations, to make an effective decision. It is a dynamic process occurring in two planes – time and price. In the time plane, the work is carried out to monitor market expectations. They provide

a steady understanding of the process of developing investment objectives. In the price plane, analysis and development of descriptive solutions in different substantive aspects are mainly carried out. These aspects include the econometric component, correctly stated objectives and tasks of investment, analysis of investment risk, and the general sensitivity to changes in certain significant factors.

The principle of the Reductive-Investment Analysis as a whole is a method to narrow the complexity one down to the simplicity, by means of logical-methodological procedures of presenting a complex process as a sequence of simple techniques. This method makes it available for analysis.

The process of Reductive-Investment Analysis comes laden with descriptive methods of converting data associated with a particular stock exchange tool in order to simplify it and present it by means of some more accurate language, as well as to model the investment objectives.

The subject matter of this analysis as a practical method is that for the solution of a complex task, the researcher narrows its structure down to a simpler version available for analysis or solution. For example, the solution of a matter in mathematics can be narrowed down to another matter, if the solution of the first one can be the solution of the second one. In logic and in the methodology of science, the reduction is usually refers to the explanation of the theory or a variety of experimental laws established in one research area, using the theory formulated for

another one.

Methods and techniques of Reductive-Investment Analysis are the means for an objective research of the processes in the investment area, as well as the formulation of conclusions and recommendations based on them. The procedure and the applied methods of this analysis are aimed to propose alternative options for modelling possible processes, identifying the scale of proposed events and their actual comparison according to various efficiency criteria.

The objects of the Reductive-Investment Analysis are financial and stock tools, which are traded within online international stock exchanges.

The subjects of this analysis are users of analytical information directly or indirectly interested in the results and achievements of investment activities, owners, management, personnel of financial organizations, suppliers, buyers, creditors, the state represented by statistical and other bodies analysing information in terms of their interests to make investment decisions.

# **Section 1. The main characteristics, typology and principles of the Reductive-Investment Analysis**

The Reductive-Investment Analysis, as a descriptive method, combines a set of theoretical techniques and models based on econometric theory, using mathematical and statistical tools (linear regression channel), providing quantitative expressions with visual perception with the further possibility of visual modelling of goals and prospects for further development of the ongoing process.

In economic researches the problems of identifying the factors that determine the dynamics of the economic process are often solved. Also, in order to reliably reflect the processes existing in the economy objectively, it is necessary to identify significant relationships and give them a quantitative assessment. This approach requires the disclosure of causal dependencies. The causal dependence means such a relationship between processes, when a change in one of them is a consequence of a change in another. The solutions of such matters most often use methods of correlation and regression analysis.

Economic data is usually presented in tabular form. The numerical data contained in the tables usually have explicit (known) or implicit (hidden) connections between them. The

indicators that are obtained by direct counting methods, i.e., are calculated according to previously known formulas, are clearly connected. For example, percentages of plan fulfilment, levels, specific gravity, deviations in the sum, deviations in percentages, growth rates, accession rates, indices, etc. Connections of the second type (implicit) are not known in advance. However, it is necessary to be able to explain and predict complex phenomena to control them. For this reason, with the help of observations, specialists seek to reveal hidden dependencies and express them in the form of formulas, mathematically simulate phenomena or processes. One of such opportunities is provided by the correlation and regression analysis. Mathematical models are built and used for three generalized purposes: explanation, prediction and control. The presentation of economic and other data in spreadsheets or through the tools of trading platforms has become ordinary and widespread these days. Equipping electronic trading platforms with the means of correlation and regression analysis gives specialists in the financial field opportunity to transform well-founded probability-theoretic methods into everyday effective analytical tools. Using the tools of correlation and regression analysis, analysts measure the linear statistical dependence of the indicators by means of the correlation coefficient. This reveals the connection, different in strength and direction. Regression analysis is one of the main methods to identify implicit and covert connections between observational data in modern mathematical statistics.

Mastering the technique of using tools based on regression analysis, you can apply it as needed, gaining knowledge about hidden connections, improving analytical decision-making support and increasing their validity. Thus, the methodology of the Reductive-Investment Analysis is a research method closely related to the tools of correlation and regression analysis, which is based on the use of the Linear Regression Channel tool (Fig. 1) available in modern electronic trading platforms. The Linear Regression Channel is built based on the Linear Regression Trendline, an ordinary trend line built between two points on the price chart using the least squares method. This method calculates the  $Y=a+b*X$  trend line, minimizing the sum of squares of vertical deviations between the closing price value and the trend line value during a given time interval. The trading platform software calculates the values (a, b) and builds a Linear Regression line for any time interval. As a result, this line turns out to be the exact median line of the changing price.

The Linear Regression Channel, developed by Gilbert Raff in 1991, consists of two parallel lines equidistant up and down from the linear regression trend line. As a result, the Linear Regression Channel consists of three parts: the median line is the trend line; the upper and lower lines are the borders of the Linear Regression Channel. The distance between the borders of the channel and the median trend line is equal to the maximum closing price deviation from the median line of the Channel (Fig. 1).

A Reductive-Investment Analysis is a multidimensional method applied for the visualization of the interrelation between the values of quantitative variables. The basic idea of the concerned analysis lies in the fact that available dependencies among large number of initial observable variables give us opportunity to analyze the development of phenomena in time. The methods of the Reductive-Investment Analysis make possible not only to explore the data, but also to choose a method for their further in-depth analysis for examination of the statistical hypotheses and modelling of the further dynamics. In the current analysis, the price information about the examined phenomenon is shown in aggregated form by means of graphic tools. The main objective of the Reductive-Investment Analysis is the modelling of both the future development of the further financial market dynamics by means of descriptive tools, and the corresponding actions of the market participants meant to simplify the analysis procedures.

# Section 2. Methodology of a Reductive-Investment Analysis

## Module 1

The algorithm of the Reductive-Investment Analysis consists of a sequence of clearly aligned Linear Regression Channels, their modelling relative to the current trend. The modelling process starts with the identification of price extremes. For a bearish trend the counting is started from the high price to the low price, from **A** to **B** (Fig. 2), while the bullish trend, on the contrary – from the minimum to maximum. Price extremes are the starting points to fix vertical baselines. Vertical baselines are the stationary levels to which the connection points of the Linear Regression Channel are attached (Fig. 3). First of all, the stationary Linear Regression Channel is fixed to the baselines, the minimum of the median line of which (**D** point, Fig. 4) possesses the function of the point relative to which the breakout line is drawn. Further constructions of the regression channels happen in the process of price consolidation of the asset in question. According to the market laws, after a significant price movement from extreme to extreme, temporary consolidation is sure to occur. This is

a state where the prices of stock assets do not have a clearly defined trend and move in a narrow price range due to the fact that the supply and demand for a particular stock asset in the market are approximately equal. In the process of such price consolidation, the next Linear Regression Channel is used, sliding with the price and is intended for visual monitoring and identification of possible regression deviations (Fig. 4). With the usual price dynamics, the median line of the Linear Regression Channel moves evenly with the price, simultaneously updating current extremes with it. But it sometimes happens that during consolidation periods, after significant unidirectional price movements from extremum to extremum, the lateral correction, with the oscillation dynamics different from most cases, separates the price direction and the median line of the Linear Regression Channel (Fig. 4). In such cases, a financial tool is taken for development, designed to identify a suitable investment environment by visual modelling and tracking the general view of price movements. Further, when during prolonged consolidation the median connection point of the sliding Linear Regression Channel reaches the right baseline, it is fixed in this position for further analysis of the current situation. If, with such a fixation, the pole of the median regression line “L” of the sliding LRC (Fig. 4), deviating from the price directivity, breaks through the Breakout Line and the Extremum Line, then a fact occurs signalling a certain deviation from the ordinary norm. Such a deviation is a consequence of the fact

that unidirectional trading in the financial tool under research has reached a certain standard where market saturation occurred, or some uncertainty appeared among market participants, which may turn prices in the opposite direction. Due to the fact, that the Breakout Line and the Extremum Line are broken through by the “L” pole of the median line of the sliding LRC (Fig. 4), the “L” level becomes a historical reminder with a further corresponding conjuncture of the monitored object necessary for subjection. After identifying a non-standard situation and fixing a sliding LRC with a clear price divergence from the regression model, further monitoring of the current prices relative to the next sliding-indication LRC is continued (Fig. 5). The need for the next sliding LRC is a clear demonstration of the current situation on the road to achieving an investment-friendly event. This event is favourable for investments when the prices of the Orienting line (Fig. 6, 7) correspond to the range of 75%-85% of the backward level relative to the trend under research, with a corresponding regression model (Fig. 8). This Orienting line is drawn relative to the stationary LRC, the “W” point of the Orienting point, which is determined by the crossing of the Channel Border by the stationary LRC and the Baseline (Fig. 6, 7). The importance of this backward distance lies in the fact that it is at such amplitude that the properties of the regression models are revealed that clearly indicate any changes in the general trend of the observed financial tool. This is necessary to minimize the risks, as well as for a timely and adequate response to force

majeure. The following regression construction carries with it the purpose of a visual indication of the above circumstances and changes (Fig.9). For this, the calculated Linear Regression Channel is fixed, the connection points of it are attached to the vertical baselines from right to left – first the “**R**” point, then the median connection point “**N**” (Fig. 9). This model of LRC is necessary to draw the **Reference Line** (Fig. 9), which is determined relative to the connection point “**R**” of the calculated Linear Regression Channel and carries with it the role of an indication level. With the non-standard angular directivity of the calculated LRC, in the direction opposite to the trend direction, the Reference line is fixed relative to the “**T**” point (Fig. 10). The Reference line clearly shows the area of location of the “**K**” pole of the trend line of the indication LRC (Fig. 5), when the prices of the Orienting line and 75% -85%, favourable for investments, reach the range level. If the “**K**” pole is located in the same area as the “**L**” market checklist (Fig. 4) and with the same vectorial orientation, then this is one of the confirmations of the favourableness of the event for investment actions (Fig. 5). Such a state visually reveals a discrepancy in the current trend, relative to regression models in comparison with previous models at the same prices. This discrepancy indicates changes in the interests of the market participants, according to the traded financial tool, thereby signalling the maturing of a favourable environment for investment. Also, the connection point “**S**”

# Конец ознакомительного фрагмента.

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