

WHITE PAPER

Introduction. Research. Strategy.
Technical Solutions. Risks.

1. Introduction

Nest Securities Team have made a research on the security market development and its main trends during the recent fifty years and have identified a regular trend of growing of certain types of securities based on an enterprise capability to generate profit as well as on external economical parameters. The results of the research stimulated our team to develop an automatic trading system which allows monitoring the security market online, identifying its trends and based on the data received conducting transactions in accordance with the developed mathematic model. We started from a private mode of work. During these five years the system had been proving its efficiency and we had been investing our strength and efforts into its logic improvement and its testing. All that resulted in the stable financial growth of at least ten per cent a year. The concept of the trading system is based on the intrinsic theory of value and a minimal risk of making a long-term investment.

Welcome aboard.

2. Research

The initial data (see chapter *Strategy* for more detailed description of the mathematic model) included the following:

$P / E \leq 10.51$ (this specification was slightly better than 10.00)

$(\text{Total assets} - \text{Total debts}) / \text{Total assets} \geq 5$

The research does not cover companies from *Utilities* or *Financials* sectors

nor does it cover any ADR, CEF, REITs or TRUSTs

Range of groups (% of maximal market capitalization):

Small-cap = 20% - 50%

Mid-cap = 50% - 80%

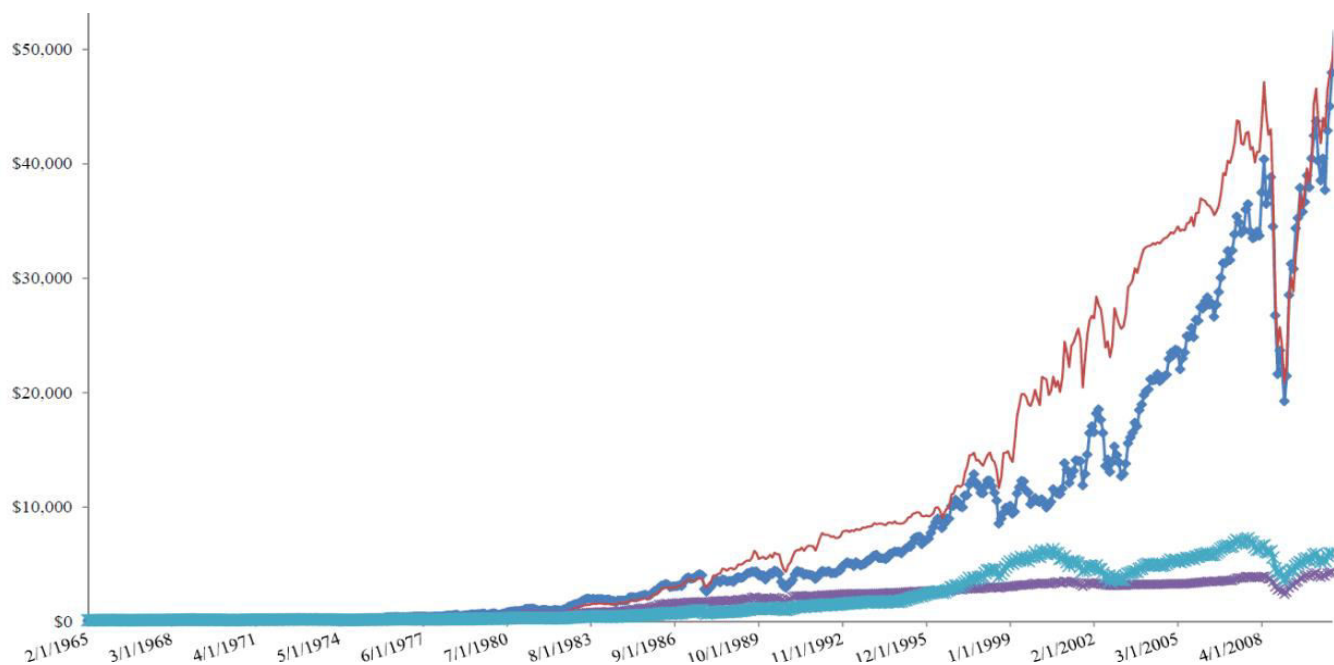
Large-cap = 80%+

Data resources = CRSP/Compustat/Thompson Reuters Data

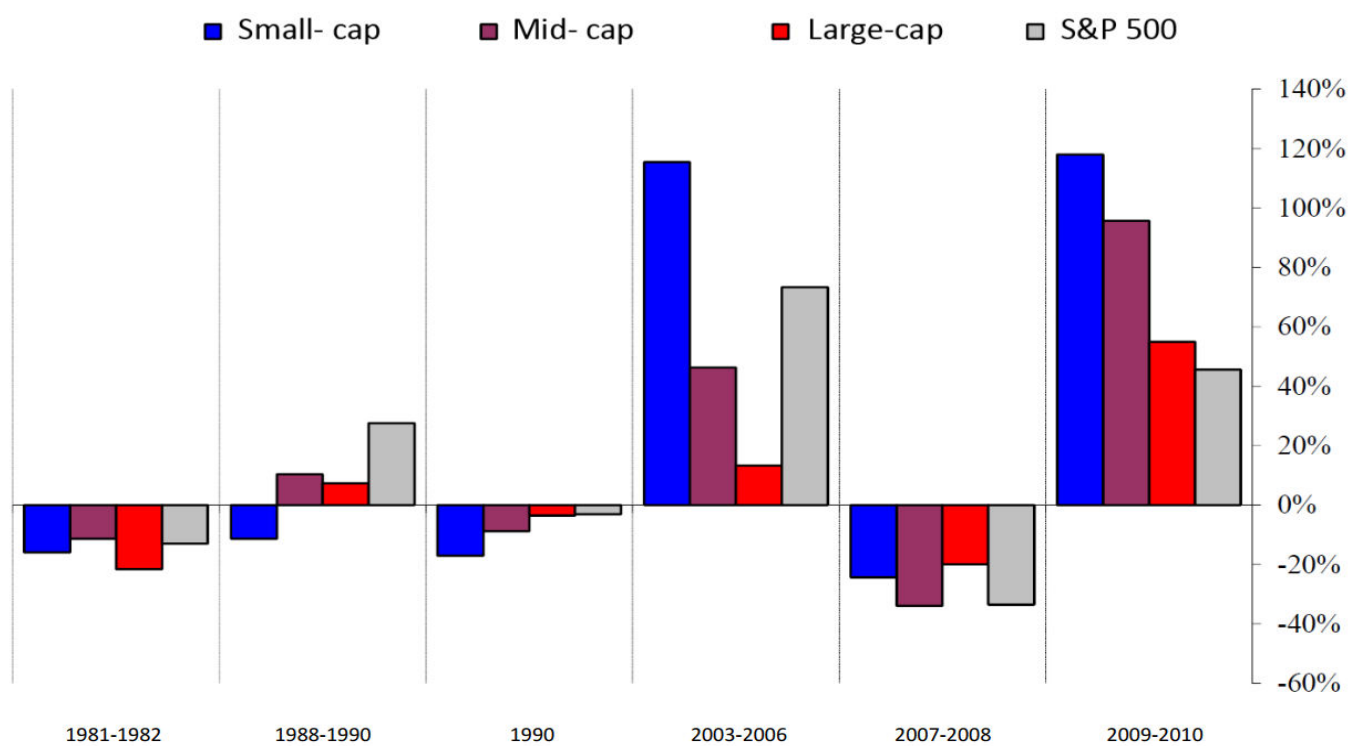
VW_CRSP = Value-weight index of all NYSE/AMEX/NASDAQ stocks

EW_CRSP = Equal-weight index of all NYSE/AMEX/NASDAQ stocks

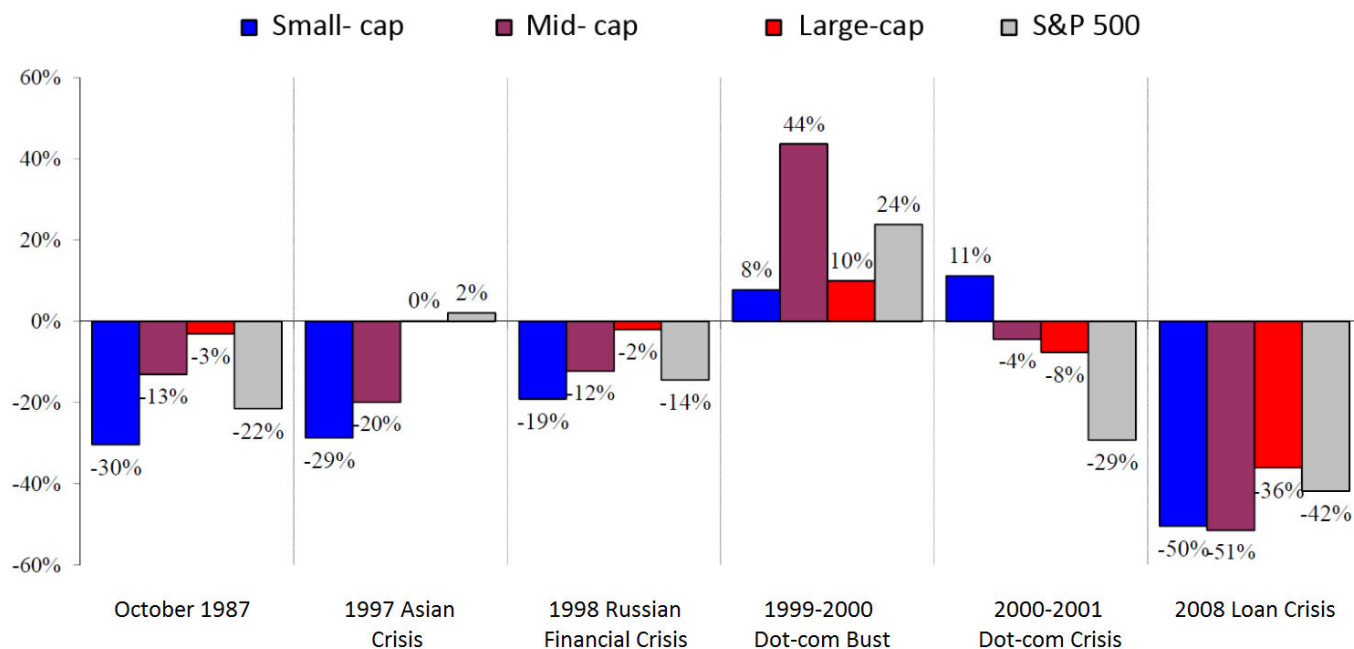
The regressed method is used to forecast the profit. See the results of the trading system operation below.



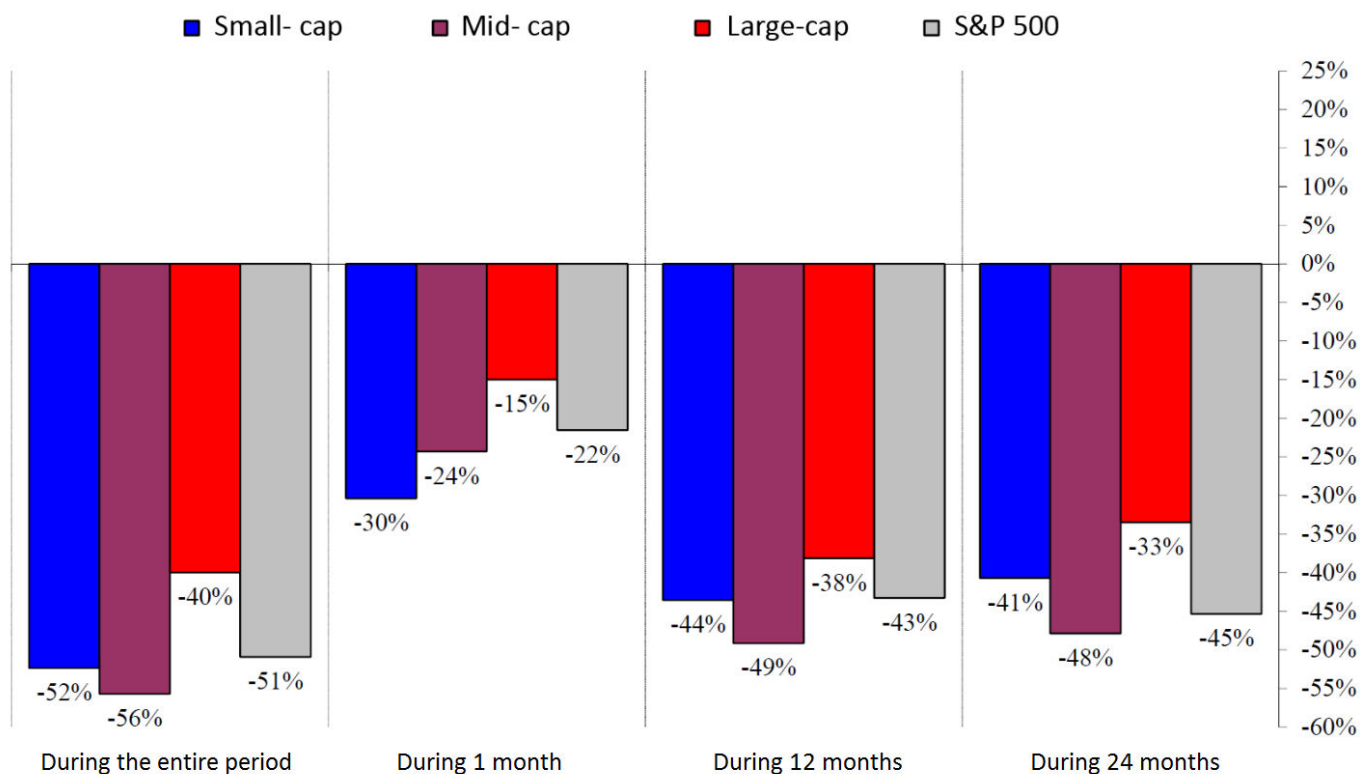
Comparative analysis of 100 USD investment. Historic data has been used.



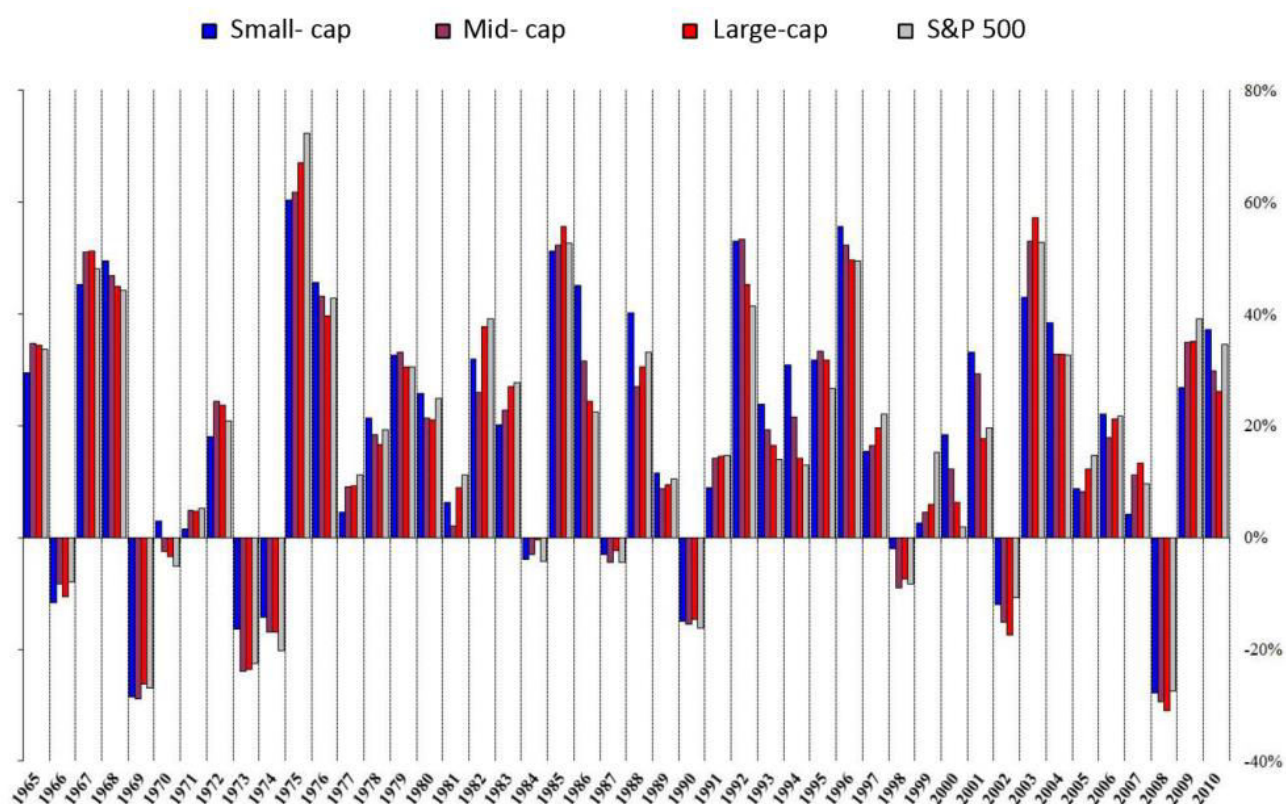
Performance throughout market cycles.



Short-term stress test.



Long-term stress test. The worst-case scenarios.



Average annual cost effectiveness.

3. Strategy

General principle of the system:

1. Analysis of the information on the past.
2. Analysis of the information on the present state of things.
3. Creation and analysis of the forecast on future.

The trading system allows gaining:

1. Correct description of a company's operation during quite a representative period of time (at least 10 years).
2. Evaluate the company's ability to generate profit at present.
3. To forecast future profitability and growth rate. The model implies profit return to its average meaning during a cycle at the end of the market cycle.
4. To evaluate the forecast reliability.
5. To make a more reliable average estimation of a security cost compared to the market one based on the entire analysis of the company's data.

List of the analysis fundamental principles. Breaking securities into categories:

1. Forecasting of the world economy growing. Forecasting of the local economy growing. Forecasting of economy sectors growing.

2. Financial data of certain emission of stocks including factors of dividend payments and market capitalization.
3. Belonging to the economic sector. Apart from the financial sector.
4. Dynamics of aggregate stock yield: medium-growing, growing faster than medium-growing, cyclic ones and rapidly growing stocks.
5. Stock data including growth, recurrence and stability of profit.

The list of stock parameters considering by the system includes the following:

Market sectors. Industrial sectors. Separate companies. Growth of GDP in the USA and abroad in constant and current prices. Level of unemployment. Current volume of the population's savings. Volume of the population's debt. Level of consumer's trust factor and purchase plans. Factor of changing the amount of durable goods expenses trend. Influence of taxes changes on the consumer demand. Interest rate and availability of consumer loan. Degree of the industrial sector compliance with GDP growing rate. Import and export restrictions. Availability of associated goods and their prices. Ratio of goods prices growing to the general level of inflation. Average age of the used goods and the cycle of the goods renewal. Trends of prices for associated goods, materials and labor. Assortment of goods and geographical spread of production facilities. Mastering of new products and dynamics of the company's market share. Dynamics of profitability. Equipment renewal and depreciation expenses. Nonmanufacturing sources of income. Company's financial statement: level of accounts payable, repurchase of own stocks, placement of new stocks. An opportunity of changing taxation rates. Changing in the management system or changing of managerial focus. Programs of expenses decrease. Operating profit. Profitability indicators including capital turnover, profits margin, rate of return, average profitability of capital, average profitability of stock capital. Level of confidence. Level of capitalization. Determination of the capital structure. Policy of payment dividends and business expansion. Constitutional provisions. K-10 form. Mergers and acquisitions. Changes of the products assortment. Geographical market expansion. Changes in the market share. Toughness of foreign competitiveness. Evaluation of inmost value-evaluation of a stock cost without market influence. Evaluation of the relative cost-the level of income capitalization and dividends vs the selected group of stocks. The level of normal earning power. Dividends payment. Reliability of evaluation- factor of capability of constant earning profit + factor of stability of capability of earning profit during different time periods (stability of growing). Level and volume of savings by pension funds and individuals. Demand on the saved funds generated with consumer, business and government needs. Inflation rate and expected inflation pressure. Corporative profit. Factor of security analysis and general economic analysis. Factor of difference between the company's market evaluation and the domestic price.

Trading system uses processing of forecasting cycles:

Short and long forecasting cycles. System of evaluation of evaluation efficient factors during different time periods, identification of the most efficient time period for making analysis of the range of a company securities including quarter, half-a-year, annual, two-year, three-, five-, ten-year models of evaluation.

Evaluation of securities by the trading system:

Stock markets behavior. Dynamics of prices and yield in the past. Long-term dynamics of stock prices. Stock prices motion cycles. Fair return forecast (multiplier). Dividends flow forecast (discounting rate). Potential growth of yield. Forecast of future payment on dividends. Factor of stability and predictability of quantitative and qualitative forecasts of an enterprise's future economic stability. Changeability of expected yield in relation to the trend yield. Level of constant debts, enterprise's borrowing power, nonfinancial elements. Forecast of growth potential (new products manufacturing, new markets expansion, international business or social conditions). Demand forecast in short and long cycles. Forecast on the governmental economic policy. Fiscal and monetary policies. Inflation likelihood forecast.

Forecast concept:

Normative forecast (based on the data of the past) – generated report on analysis. Dynamic indicator (based on the currently processed data) generated report on analysis of the current evaluation of an enterprise. Constant analysis of the current evaluation of an enterprise. Trends of the population's expenses in the current market segment during recent five to ten years. Factor of demand growing and increase in population's income in the current market segment. Thin segments. Identification of weighed average factor for financial evaluation of the future cycle.

Evaluation of efficiency:

Price / profit – factor of multiplier during a dynamic period of time. Data correction based on analysis of data on different data scales to identify weighed average evaluation of the initial data of an enterprise. Factor of dependence between national production capacity, current and expected in future levels of economic activity. Informational events, influence on the market. News. Speed of news publishing on stock prices. Pension funds passing-through to investments to the current market economy. Loans, new technologies and projects.

Evaluation of investment to securities efficiency is made as follows:

Four weighed average periods is the forecasted period. For instance, in case of five cycles evaluation was made based on the four previous years where weighed average indicators determine factors of indicators in the next cycle of the first year. Mean indicators of GDP structure, level of prices, growing rate of manpower, growth of workforce productivity, level of unemployment, real GDP growing rate, inflation rate and nominal GDP rate. Current and past motion of private and corporate savings, changing forecast during the forecast period. Motion of the savings level. Forecast of the savings level rate. The level of demand on loanable funds. Forecast of demand on loanable funds. Inflation rate in the past and inflation rate forecast. Capitalization rate. Dividend yield (dividend per share/share price). Expected speed of dividends value growing. Depth of the industry analysis. Identification of average yield of the total assets during a period of time. Interconnection of stocks and bonds. Factor of connection between the stock and bond market interest rate.

Criteria of stocks and bonds security:

Ratio of profit in the past to the amount of payment on fixed obligations (and dividends on privileged stocks). Statistics on dividends payment. Ratio of consolidated debt to shareholders' equity. Current assets conditions. Volume of business.

The software application makes all the required corrections to financial reports to receive the true values from the data analysis point of view as well as to provide compatibility of reports by different companies. Also, it determines the true values of net profit and the revenue including depreciations funds during the analyzed period. It also produces analysis of the balance statement, calculation of the assets structure and the value of the invested capital per share. Calculation of a company's general efficiency factors, assets backing of the previous emission of securities and attractiveness of an investor common equities.

List of the main formulas of the trading system calculations includes:

1. Earning per share = earnings available for common stocks / weigh-average number of placed common stocks.
2. Dividend per share = annual sum of dividends per common stocks / weigh-average number of placed common stocks.
3. Volume of sales per share = volume of sales / weigh-average number of placed common stocks.
4. Money flow per share = after tax income / weigh-average number of placed common stocks.

5. Book value of net assets per share = book value of net assets - reputation – rest of intangible assets / number of placed shares per date of closing the balance sheet.
6. Current assets per share = current assets – all the requirements preceding common stocks / number of placed shares per date of closing the balance sheet.
7. Quick assets per share = financial assets + receivables - the requirements preceding common stocks / number of placed shares per date of closing the balance sheet.
8. Financial assets per share = financial assets - the requirements preceding common stocks.
9. Share profit backing = price of share / profit per share.
10. Share profit = profit per share / price of share.
11. Dividends per share to price of share = dividends per share / price of share.
12. Sales per 1 USD of common stocks = volume of sales / weigh-average number of placed common stocks X weigh-average share price.
13. Share coverage with assets = share price / assets per share.
14. ROE = net profit + other operation income + corrected based on the taxation rate income yield / tangible assets - collected short-term payables.
15. Capital turnover = sales volume / assets - collected short-term payables.
16. Ratio of net profitability = net profit of other operation income + corrected based on the taxation rate income yield / volume of sales.
17. ROE before depreciation allowances = net profit of other operation income + corrected based on the taxation rate income yield + depreciation allowances / assets - collected short-term payables.
18. Own capital ROE = net profit – privileged stocks liabilities / own capital – cost of reputation + deferred tax liabilities.
19. Sales growth = sales volume at the end period / sales volume at the basic period.
20. Aggregate profit = net profit per capital at the end period / net profit per capital at the basic period.
21. Growing of profit per share = profit per share at the end period profit per share at the end period / profit per share at the basic period.
22. Maximal decrease of degree of coverage of older claims = in the worst year / average coverage during three previous years.
23. Percentage of ROE decrease = in the worst year / average coverage during three previous years.
24. Share of dividends in profit = dividend on common stock / net profit.
25. Share of dividends in cash flow = dividend on common stock / after tax profit + depreciation funds.
26. Liquidity rate = current assets / current liabilities.
27. Quick liquidity ratio = current assets - stock / current liabilities.
28. Cash liquidity rate = cash assets / current liabilities.
29. Providing of common stocks book value with assets = common stocks according to book value/ assets - collected short-term payables.
30. Providing of common stocks book market value with assets = common stocks according to market value / assets - collected short-term payables.
31. Coverage of older liabilities with pretax profit = pretax income / liabilities on older securities.
32. Coverage of older liabilities with full after-tax profit = after-tax profit + depreciation allocations + older liabilities / older liabilities.
33. Full income per net assets = after-tax income + depreciation allocations + corrected based on the taxation rate income yield / assets - collected short-term payables.
34. Coverage of expenses of the entire debt service = after-tax income + depreciation allocations + rent income + corrected based on the taxation rate income yield.

- 35. Guarded interval (days) = (cash + accounts receivable) X 365 / total operational expenses - depreciation allocations – other nonfinancial liabilities.
- 36. Depreciation to the volume of sales = depreciation allocations / sales volume.
- 37. Depreciation to the prime cost of buildings, facilities and equipment = depreciation allocations / prime cost of buildings, facilities and equipment.
- 38. Stock turnover = prime cost of the sold products / cost of stocks including LIFO reserves.
- 39. Account receivables turnover = sales volume / account receivables.

Sources of data:

- 1. Information addressed by companies to their stockholders and to the media, reports for the supervising authorities (Securities and Exchange Commission (SEC)).
- 2. Financial Services.
- 3. Digital databases of structured information on the security markets, companies and international and domestic business data (Value Line, Bloomberg).
- 4. Main registration forms, annual reports including 10-K form and interim reports of 10-Q and 8-K forms.

4. Technical Solutions

Our team has made a pool of thirty high-speed servers allowing us online monitoring the equity markets development along with complete processing all the data required for making correct decisions by the trading system.

The software solution is connected to NYSE, AMEX, NASDAQ stocks.

The software solution is connected to the databases storing securities historic data including CRSP (The Center for Research in Security Prices), Compustat (Merged Database), Thompson Reuters Data (DataScope Data & Analytics Platform), Bloomberg terminal.

5. Risks

Securities trade bears a great deal of risks. However, our trading system reduces the risks of decrease in capital to minimum. On the other hand, there are world economic cycles and world crises which cause damage to all without exception world economies and the security along with financial markets go down. Our team retain the right to suspend making capital payments from the users' accounts due to the world crises to protect our customers' capital from potential losses.

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