

Financial and Banking Services Market

Oleksiy DZHUSOV

**INTERNATIONAL INVESTMENT:
CHOOSING A FAVOURABLE
ECONOMIC AREA AND FUND ASSETS,
AND TESTING TRADE SYSTEMS**

Abstract

The methods of protecting cash assets of national pension funds from financial risks are proposed in the article. A list of countries suitable for investing in with minimal risk is offered. An investment tool, such as depository notes of SPDR Trust stock fund, is analyzed, and test results regarding the different methods of technical analysis used when working with this instrument are presented. A scheme of investing in the US stock market adjusted to national conditions is proposed.

Key words:

Bonds, capital growth, competitiveness index, the SPDR Trust depository receipts, index of economic freedom, investment ratings, investment risk, methods of technical analysis, oscillators, pension fund assets, stocks, stock funds, trend, trade systems, US stock market.

© Oleksiy Dzhusov, 2003.

Dzhusov Oleksiy, Zaporizhzhya Humanitarian University, Ukraine.

Introduction

The notion of international investments is comparatively new for national financiers. Usually, when speaking about international investments, we assume imports of capital to finance production, social or other projects. This article is concerned with an inverse process of converting the funds of national institutional investors into the leading world currencies and investing them into foreign assets, that is, in other words, exports of capital.

The realization of the pension reform in our country will inevitably lead to many questions and problems, some of which can be predicted and solved. That is why this work is primarily oriented at pension funds.

The planned pension system has three levels. This means that in case the pension reform succeeds, our citizens will be granted an opportunity to receive pensions on the three levels: solidary, accumulated, and additional. The cornerstone of the reform is the introduction of a new component – an accumulation system – into the Ukrainian pension system. This system will be of two types: obligatory and voluntary. The citizens are supposed to transfer a certain percentage amount of their salary into special accounts, where it will be accumulated and allocated to different financial instruments in the form of investments until the owner reaches the retirement age. After that, these accumulated funds can be paid out to the owner of the account in full. However, in order to implement the pension system successfully, it is necessary to solve a number of problems, the most serious of which are:

- the lack of population's trust in financial institutions;
- the choice of investment instruments suitable for successful allocation of the population's funds.

In the author's view, the first problem is more comprehensive and difficult to solve. It demands the combined efforts of specialists in various spheres, and we will not risk suggesting solutions to it within the narrow frames of this article.

The second problem is less comprehensive and concerns the economists directly. At the foremost, investing into the pension funds requires that they be protected from possible depreciation of national currency. The easiest way is to transfer the funds into the currencies of leading countries, which have the best perspectives for development. Furthermore, the pension funds (or their parts) should also be invested into the most financially stable instruments, which, unfortunately, do not exist in Ukraine at the moment. Without doubt, there are many opponents to this decision, who believe that pension funds should be invested into the Ukrainian economy and circulate in the national financial market. Perhaps, this is true of some funds, but not the pension ones. The security of pension funds should be of the utmost importance to the government and above all laws, because this is a matter of life and welfare of the millions of aged citizens, who have devoted a larger part of their lives to economic consolidation of

the country, and are justly hoping for their native land to take care of them. That is why the pension funds should be allocated so that to primarily represent the investor interests. Only after these interests are secured, should the current economic interests of Ukraine be considered.

The possibility of investing the pension assets into the securities of foreign issuers is codified in the Law «About Non-State Pension Providing». Unfortunately, Article 49 limits such investments to 20% of the overall pension assets, though the existence of this possibility is comforting in itself. Notwithstanding, there is a hope that the 20% figure will be increased in the future.

In view of this, the top-managers of national non-governmental pension funds face a new task of choosing the countries suitable for allocating the pension assets at minimal risk, as well as certain investment instruments, which would ensure capital growth.

Choosing a Favorable Economic Area and Fund Assets

The simplest way to tackle the first part of the problem – the choice of the countries with the lowest investment risk – is to use the data of the world-known rating agencies, such as Moody's Investor Service, Standard & Poor's or Fitch, for selecting the countries with the highest investment ratings. Thus, if a selection criterion is assumed to be no lower than AAA, then the list of such countries would include the USA, Germany, Finland, Austria, France, Singapore, Switzerland, Great Britain, and others (total of 17 countries) on October 3, 2003. On the same date Ukraine was rated «B and stable» by Standard and Poor's and «B2 on review for upgrade» by Moody's Investors Service. Russia was rated «BB and stable» by Standard & Poor's and «Baa3» by Moody's Investor Service (the agency declared upgrade on October 8, 2003).

In addition, World competitiveness ratings published annually by the World Economic Forum [1] can be used. The ratings are available for 80 countries. Two indices are calculated for each country: the Growth Competitiveness Index (GCI) and the Microeconomic Competitiveness Index (MCI). Both indices are calculated on the basis of:

- statistical data;
- public information;
- survey of 4800 world business executives.

The GCI is calculated on the basis of 3 variables: the technological level of a country, the quality of its public institutions, and the macroeconomic environment. These factors are considered to be a driving force of economic growth

in the middle- and long-term perspectives. Thus, the countries with high levels of economic competitiveness (the lower the position in the rating – the higher the competitive ability of the country) can renew steady growth sooner and faster than the less competitive countries (which have higher positions in the rating).

The MCI shows the ability of a country to use its current resources efficiently, which is determined by the intelligence of operations, the strategies of local companies, and the quality of national business environment.

Table 1 presents the data on certain countries for the 2001 and 2002, derived from the «Global Competitiveness Report 2002–2003» published on November 12, 2002, on the World Economic Forum website [1].

Table 1.

Economic Competitiveness Ratings

Country	GCI		MICI	
	2002	2001	2002	2001
USA	1	2	1	2
Finland	2	1	2	1
Taiwan	3	7	16	21
Singapore	4	4	9	9
Sweden	5	9	6	6
Switzerland	6	15	5	5
Austria	7	5	14	14
Canada	8	3	10	12
Norway	9	6	21	19
Denmark	10	14	8	8
Great Britain	11	12	3	7
...
Russia	64	63	58	56
...
Ukraine	77	69	69	59

At the end of December 2002, the Heritage Foundation research center and The Wall Street Journal newspaper presented very interesting data on the level of economic freedom in different countries [2]. They published «The Economic Freedom Index» for different countries of the world, which has been calculated on the basis of the following criteria: level of free trade, monetary policy, state influence upon the economy, state of the «black market», volume of in-

vestments, state of financial services market, price regulations, protection of property rights, etc.

The index includes analyzed information on 156 countries of the world. The lower the position of a country, the higher is its economic freedom. Along with that, the total of 156 items of the list is divided into 4 categories:

- the first 15 positions belong to countries with «free economies»;
- positions 16–71 – countries with «mainly free economies»;
- positions 72–145 – countries with «mainly not free economies»;
- positions 146–156 – countries with «repressive economies».

Thus, according to the December 2002 ratings, the first 11 countries with the highest level of economic freedom were: Hong-Kong, Singapore, New Zealand, Luxembourg, the USA, Estonia, Holland, Ireland, Australia, Great Britain, and Chili. Ukraine was rated 131st (Russia – 135th) [3].

In August 2003, the CATO Institute published the economic freedom ratings of the world countries. The first ten positions belong to Hong-Kong, the USA, Singapore, Great Britain, New Zealand, Canada, Switzerland, Ireland, Austria, and the Netherlands. Ukraine was the 117th in the list (Russia was the 112th) [4].

Having analyzed the abovementioned data, it becomes possible to construct a list of countries, where Ukrainian investment institutions, primarily pension funds, can allocate financial resources at minor risk. If the main criterion is assumed to be the listing of the country within 11 top positions in all of the above-mentioned ratings, then the list would include only 4 countries: the USA, Singapore, Australia, and Great Britain.

However, there is another no less important aspect, which should be taken into consideration when choosing investment targets – the availability of both fundamental and current information about the entity, its reliability and accessibility. The USA is the undoubted leader in this context today. There is a multitude of Internet publications that offer full and up-to-date information about the issuers, whose securities are traded on the American financial market, as well as the securities themselves. It is worth mentioning that this information is available not only about American issuers, but also about every company represented at the American stock market. Thus, it is easy to obtain full information about and invest funds into depository receipts of the Finnish manufacturer of mobile phones Nokia (NOK), the Canadian telecommunications giant Nortel Networks Corporation (NT), the Japanese Sony (SNE), and the German Deutsche Bank (DB), etc. The investments would not be executed in the currency of the indicated issuers, but in the US dollars and at the American stock market (in these examples – The New York Stock Exchange).

Thus, the American stock market is of great interest as a supplier of all possible investment instruments issued by the corporations and state organiza-

tions of the USA – the country with the most powerful economy today – on the one hand, and as a trading place for investing into the securities of any other country of the world, on the other hand.

Below, the three basic investment instruments are considered: bonds, stocks, and exchange traded funds (a relatively young instrument at the American financial markets).

Bond Investing. Bonds are a very interesting investment instrument, but not at the current stage. Now that refinancing interest rates reached their historic minimum (on October 7, 2003, the refinancing interest rate in the USA was 1% – the lowest rate since 1958, in the Eurozone countries it was 2% – the lowest rate since 1948, and in Great Britain it was 3.5% – the lowest rate since 1954), the return on investment into high-rated bonds is too small. Having invested into bonds today, the investor condemns himself to low yields (no more than 3–4% per year) for several years until the bond matures. There might be changes in the economic situation of the USA soon, which would result in lowering the ROI to the level that even the losses on inflation would not be compensated, not to mention capital growth. Therefore, at this time, it would be better not to consider the possibilities of investing into the corporate and federal bonds of the USA. This issue can be reconsidered no sooner than the US Federal Reserve System raises the interest rates, which is hardly possible before 2004.

Stock Investing. Due to the deep economic recession of 2001–2002 in the economy of the USA, the shares of the largest companies are traded at rather low levels. Many of these stocks may be of interest to private and institutional investors, as well as to domestic pension funds. However, despite the sharp fall in stock prices of the largest companies compared to 1999–2000, one should be careful when making a purchase. The American economy still experiences some negative tendencies, which create grounds for a fear that the list of the larger and smaller bankruptcies could grow (WorldCom Inc., Enron Corp., Consec Inc.).

Exchange Traded Funds. At present, there is no scheme for choosing shares capable of ensuring a 100% success. No one in the world, including the most authorized financial analysts, can accurately predict a share's behavior in the near or distant future. It is certainly more difficult for the Ukrainian portfolio managers to make the right choice and find the right share in the right time than it is for their transatlantic colleagues, who constantly work in the environment of infinite stock information flows, all possible gossips, and idea sharing with well-informed colleagues, etc. Since a pension fund's investment portfolio should have minimal risk, many national portfolio managers will tend to choose less risky investment instruments, such as the US treasury bills or high-quality corporate bonds, which generate an extremely low annual yield today. By including shares into the portfolio, a manager will inevitably run into the problem of money loss, as the 2000–2002 period has clearly shown. Several companies, such as Mounlinex SA (France), Ishikawa Bank (Japan), Sabena (Belgium), Swiss Air (Switzerland), Grundig AG (Germany), and Air Canada (Canada), as well as

American corporations Enron Corp., Excite AtHome, Exodus Communications, Pacific Gas & Electricity, Kmart, PSINet Inc., WorldCom Inc., Consec Inc., UALCorp., and US Airways Group Inc., which have been the leaders recently, lost their share value after they have been announced bankrupt.

In view of this, such young US stock market instruments as exchange traded funds, also called index investment funds, are of great interest. Exchange traded funds combine the best qualities of open mutual fund's stocks and common shares. Index investing ensures an average market return on investment. Thus, speaking of the Standard and Poor's 500 Index, the fund that invested in it would ensure an 11.3% average annual yield for the time period from 1926 until January 2002 [5] (according to other estimates, it would be 13.6% since 1950 [6]). Not one well-recognized mutual fund has had such stable results. According to final reports, some mutual funds manage to outperform the Standard & Poor's 500 Index, but the winner list is constantly changing, and at the moment, there is no criterion for determining the fund, which will outperform the market in the future.

Advantages of investing into exchange traded funds. Speaking of the advantages of investing into the securities of exchange traded funds compared to securities of open mutual funds or common shares, the following statements should be true:

1. Purchase of an exchange traded fund's securities means acquisition of a diversified securities portfolio, which reduces the risk of loss and ensures some protection in case one of the portfolio's components falls in value. Along with that, such an exchange traded fund can be chosen, which would reflect the dynamics of the whole American market or a certain industry or sector.
2. The exchange traded fund's securities can be bought and sold during the entire trading session just as common shares. The price of the exchange traded funds is determined not at the end of the day, as in the case of open mutual funds, but calculated and changed in the course of the day. This is especially convenient for investors and portfolio managers oriented at active trading.
3. The exchange traded fund's securities can be bought on margin and sold short, which is borrowing a certain amount of securities from a broker so that to buy them cheaper later and return to the broker.
4. The purchase and sales fees, typical of mutual funds, are absent. The management charge is usually set within 0.12 – 0.25% of the value of the fund's assets.
5. The investor, who buys an exchange traded fund, usually knows what shares are in his portfolio since the majority of exchange traded funds are based on well-known and authoritative indices, the structure of which can easily be discovered. Mutual funds' managers, on the other

hand, reveal the structure of their investment portfolios twice a year, which makes information received by investors outdated.

6. There is no need in following the recommendations of financial analysts since the work with index investment funds requires only some knowledge of tendencies and situation on the financial markets, as well as principles of technical analysis.

The sixth advantage deserves special attention since the multitude of forecasts by various analysts who specialize in the USA stock market does not give a chance to investors to think independently. In a number of our works [7, 8, etc.], my colleagues and I offered some rational – from our point of view – approaches to the problem of choosing fund assets for successful investing. Along with that, in all these works, when considering recommendations of professional analysts, we advised to pay attention not as much to forecasts and estimates as to the number of analysts tracking the shares of certain companies – as a measure of popularity.

If an investor is guided exclusively by the recommendations of professional analysts, he exposes the funds under his control to a large risk. Analysts can easily change an opinion expressed previously and substantiate new forecasts with changing conditions or some other unexpected circumstances. In consequence, the investor, who relied upon the «deep and comprehensive analysis» conducted by the analyst, can suffer great financial losses.

To illustrate the aforementioned, the data gathered on the basis of periodically published materials [9] regarding the forecasts of different financial analysts – the representatives of the largest US financial institutions – as well as the real index values of the Standard & Poor's 500 for the period of 2000–2003 is presented below.

In our opinion, the data in the table confirm the hypothesis that the recommendations of the stock market analysts should not be relied upon, but only considered. As seen in the Table 2, the misalignment of forecasts and reality, which equaled nearly 20% in 2000, increased to as much as 40–43% in 2001, and even reached 78% in 2002.

Features of some exchange traded funds. Investors specifically distinguish 3 funds among the most authoritative and popular ones:

- the Diamond Trust (in the investor's slang – «diamonds»);
- the SPDR Trust («spiders»);
- the NASDAQ 100 Trust («cubes»).

Main features of these and the other two large exchange traded funds are presented in Table 3 [10].

Table 2.

Analytic Forecasts and Actual Standard & Poor's 500 Index Values

Financial institution and the name of analyst	2000		2001		2002		2003
	Fore- cast	Actual value	Fore- cast	Actual value	Fore- cast	Actual value	Forecast
UBS Wartburg Ed Kershner	1600		1715		1570		975– 1025
Goldman Sachs Ebby Joseff Koen	1525		1650		1300– 1425		1150
Salomon Smith Barney Tobias Levk- ovych					1300– 1350		1075
Lehman Brothers Jeffrey Applegate					1350		
Morgan Stanley Steve Gelbrate					1250		1000
Bank of America Securities Thomas Mac Manus	1600	1320	1200	1148	1200	880	1000
JP Morgan Douglas Kliggott			1000		950– 1100		800– 900
Merrill Lynch Richard Bernstein					1200		860
Prudential Securities Ed Jardeny					1300		1025
Bear Stearns François Traan							950– 1050
Deutsche Bank							830

The SPDR Trust is the largest fund. According to Table 3, the fund's market capitalization on October 7, 2003, was \$37,39 bln. It is also the oldest exchange traded fund, established on January 29, 1993. The fund's portfolio components and structure reflect the structure of a stock portfolio used to compute the most popular Standard & Poor's 500 stock index. The fund issues depository receipts in the form of non-documentary securities. The rights of depository receipts' owners are certified with records made in the respective securities' accounts opened by market participants at broker-dealer depositories of the banks, which hold the securities. The right to vote on the securities which constitute the SPDR Trust portfolio belongs only to a company that manages the portfolio, the State Street Bank & Trust Company. The depository receipts' owners do not have this right [11].

The depository receipts of the SPDR Trust are listed and circulate on the American Stock Exchange (AMEX). Settlement and payments regarding the operations with depository receipts are executed according to the same rules set for stocks and other securities traded at the stock market.

Table 3.

Main Features of the Most Popular US Index Investment Funds

Name of Fund	Symbol	Basic Index	Launch Date	Market Capitalization 07.10.2003, USD bln.	Shares in Circulation, mln.	Expenses, %per year	Price per share, 07.10.2003, USD
Diamond Trust	DIA	Dow Jones Industrial Average	20.01.1998	6,19	64,31	0,18	96,20
Nasdaq-Trust	QQQ	Nasdaq-100 Index	10.03.1999	21,08	612,05	0,18	34,44
MidCap SPDR Trust	MDY	S&P – 400 Index	04.05.1995	5,53	56,46	0,25	97,88
SPDR Trust	SPY	S&P – 500 Index	29.01.1993	37,39	360,05	0,12	103,86
Vanguard Total Stock Market Index	VTI	Wilshire 5000 Total Market	31.05.2001	2,13	21,44	0,13	99,35

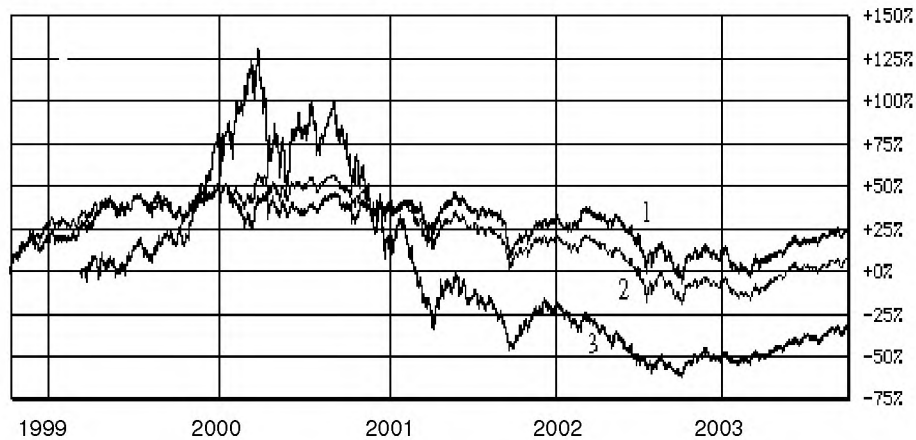
Thus, a depository receipt is a share of an investment portfolio that includes 500 stocks of the most financially stable and perspective American corporations, which constitute a basis for calculating the Standard and Poor's 500 index. In view of many stock market analysts, this index reflects the state of the US economy most adequately today, that is more accurately than does a well-known Dow Jones index, which includes only 30 of the most financially stable and powerful American corporations, and than does the NASDAQ index, which is mostly comprised of young and rapidly growing companies.

Figure 1 [12] represents the dynamics of changes in the relative prices of the securities of the three most popular index investment funds for the last five years.

The graph shows that the Nasdaq-100 index is the most volatile, while the securities of the Diamond Trust, which represent mostly the companies of the «old economy», is much more stable. The SPDR Trust, in this case, occupies an intermediate position between the two.

Figure 1.

Changes in Relative Prices of the Investment Funds' Securities



1 – Diamond Trust; 2 – SPDR Trust; 3 – Nasdaq-100 Trust.

Due to the above-mentioned reasons, the exchange traded fund SPDR Trust is interesting more than others so as to conduct investment operations at minimal risk; and thus, it can be recommended to pension funds.

Testing Trade Systems. A set of technical studies was conducted to research and define possible patterns in the price movement dynamics of the SPDR Trust securities.

The goal of the research was to determine the expedience of applying technical analysis to price charts in order to forecast the direction of the SPDR Trust depository receipts' price movement and to estimate the probability of gaining additional return on the capital invested.

The work was based on the statistical data on depository receipts market prices at the AMEX located at www.bigcharts.com [12] for the time period from the first day of depository receipts trading on January 29, 1993, to October 7, 2003. The initial \$100 000 for execution of the intended trade was chosen arbitrarily. The only criterion for choosing this amount was an attempt to neglect broker commissions in the estimates. If the number of securities is small, the broker commissions of \$20–30 per operation (discount brokers assumed) can impact the research outcomes seriously. On the contrary, if the number of securities is 500 and more, this factor's influence on the outcomes is insignificant and, thus, can be disregarded.

To increase the experiment's purity, the initial position was opened for the total sum of \$100 000; the closing and all further trades were executed by selling the whole package simultaneously (when opening a position, the package for

the whole sum was purchased). Partly closed positions were not allowed; though used extensively by market participants, this method was not applied to this experiment. Short selling was not allowed as well, primarily in order to preserve the experiment's purity, and secondly, because this method is riskier than traditional investing through opening long positions, and we would not recommend it for managing the portfolios of pension funds.

The experiment was conducted on the basis of daily and weekly price charts.

While determining the prices of opening a position, the average value of price fluctuations for the day (week) following the day (week), in which the trade signal was generated, was considered. This method ensured maximum approximation of the research to practical reality. Obviously, throughout the day the price of an asset is constantly changing, and so do the charts of the traced indicators. Thus, typical is a situation when early in the trade day an asset's price falls temporarily, yet an indicator chart significantly changes signaling about a continuing growth trend. In fact, an investor can react on the trade signal only the day after it was observed.

The results of the research are presented in Tables 4 and 5.

The column «System/Indicator Used» shows the names of trade systems or technical analysis indicators used. The main result regarding the system's effectiveness is shown in the «Capital growth, %» column.

As seen from the table, the work with daily price charts generated quite good results as long as systems, which followed the trend, were applied. The best trading results were shown by: the system of triple moving average 4–9–18 by R. K. Allan (Table 4, row 4), trading based on convergence-divergence signals of MACD moving average with the 18dMA trade filter (Table 4, row 7), and trading based on the signals of 200-day moving average (Table 4, row 1).

Trade filter allowed to determine the direction of trend and, thus, to receive signals from the MACD indicator only within the current trend direction ignoring the signals out of its range.

The experiments on the weekly basis generated similar results (Table 5). The largest growth in capital was obtained when the systems, which followed the trend, were used: the convergence-divergence of MACD moving averages with the 18wMA filter (Table 5, row 6); the triple moving averages 4–9–18 Allan system with the 40wMA filter (Table 5, row 4); and the double moving averages 5/20 Richard Donchiano system with the 40wMA filter (Table 5, row 2).

The use of oscillators did not perform well. This can be explained by the fact that during the observed period, the depository receipts market has been either rapidly growing (since January 1995 until September 2000), or falling (since October 2000 until September 2002). Apparently, the oscillators work well only in the non-trend markets. In the period of strong tendencies, however, the oscillators generate a number of false signals, which often result in losses.

Table 4.

**Daily Results Shown by Various Technical Systems
and Indicators Applied to Trading in SPDR Trust Depository Receipts**

No	System/Indicator Used	Number of Trades	Cash available on 07.10.2003, \$	Growth in Capital, %
1.	200-day simple moving average (200dMA)	5	224541	124.5
2.	System 5/20 by R. Donchiano	64	199778	99.8
3.	System 5/20 by R. Donchiano with 200dMA filter	4	199603	99.6
4.	System 4-9-18 by R. K. Allan	49	271014	171.0
5.	System 4-9-18 by R. K. Allan with 200dMA filter	4	202754	102.8
6.	Trade Method MACD (12,26)	73	197778	97.8
7.	Trade Method MACD (12,26) with 18d MA filter	19	237710	137.7
8.	%R by L. Williams	31	152924	52.9
9.	%R by L. Williams with 50d MA filter	4	187026	87.0
10.	RSI Trade Method by U. Wilder	11	174767	74.8
11.	Slow stochastic oscillator application	55	132146	32.1
12.	Slow stochastic oscillator application with 18d MA filter	13	136247	36.2
13.	Momentum indicator	12	184176	84.2
14.	Passive investments	1	236290	136.3

The 14th row in Table 4 – «Passive investments» – indicates that during the whole period observed, only one full trade, that is, a purchase and a consequent sale was executed (no technical analysis was applied). On the first day of depository receipts trading, a position was opened at an average daily price of \$43.8 in January 1993. Thus, 2,283 shares were bought for \$100,000. The complete package was sold at an average price of \$103.5 on October 7, 2003. The contract value equaled \$236,290 whereas the growth in capital made up 136.5%. According to Table 4, only two trade systems out of the described ones outperformed the result of passive investing.

Table 5.

**Weekly Results Shown by Various Technical Systems
and Indicators Applied to Trade in SPDR Trust Depository Receipts**

No	System/Indicator Used	Number of Trades	Cash Available on 07.10.2003, \$	Growth in Capital, %
2.	5/20 system by R. Donchiano	13	166940	66.9
3.	5/20 system by R. Donchiano with 40wMA filter	1	262265	162.4
4.	4-9-18 system by R. K. Allan	13	194024	94.0
5.	4-9-18 system by R. K. Allan with 40wMA filter	1	266666	166.7
6.	Trade method MACD (12,26)	13	163667	63.7
7.	Trade method MACD (12,26) with 18wMA filter	1	268817	168.8
8.	%R by L. Williams	6	139977	40.0
9.	Slow stochastic oscillator application	7	107018	7.0

In view of the above, it is worth noting that a simple mechanic application of trade signals of certain indicators and systems of technical analysis does not ensure any significant advantages over ordinary passive investing (also mentioned in literature as the «buy and keep» method) and performs even worse in a number of cases. The results received are similar to the analogous studies of Robert Colby and Thomas Majors [13]. While testing the R.William's %R indicators and a slow stochastic oscillator, they also pointed to low trading performance.

We would like underscore one more time that the results of the work presented are primarily theoretical in nature and can not be considered only as certain tendencies or general regularities, which determine the expediency of one or another technical system application. The reason for this is that the trade signals of only one instrument were considered in the test. This situation would not be true in real trades. The investors usually use several instruments at the same time and try to consider all signals. The divergence signals, which were neglected in order to maintain the experiment's purity while determining the impact of separate indicators on total trades, are very important. Due to simultaneous use of various technical analysis instruments, an investor obtains a possibility to derive profit from both high price movements (when signals generated by systems following the trend, are received) and a non-trend range (when oscillators work well and the system's signals can be used for the decision-making based on them).

The problem of simultaneous use of technical analysis instruments is in choosing the one, a signal of which would be preferred in trade decision-making. Sometimes two opposite signals can be simultaneously observed on the charts of prices and indicators of various fund assets. For example, an intersection of slow stochastic oscillator lines in the 15–25% zone indicates an opportunity to open a long position, while, at the same time, the divergence in the MACD bar-chart and the price graph suggests the opportunity to open a short position. It might be very difficult to make a decision in this or similar situations, even for the most experienced traders.

The SPDR Trust Depository Receipts Trading System. In order to facilitate the work of portfolio managers and somehow regulate an investment decision-making process when working with the SPDR Trust depository receipts, a scheme [14] was constructed and proposed below. A similar scheme was published earlier. Here, its renovated and improved version is offered. This scheme can be recommended to the Ukrainian portfolio managers, primarily to the portfolio managers of pension funds.

Since periodic cash inflows are typical of the financial institutions, especially pension funds and insurance companies (as opposed to bulk transfers to closed investment funds, for example), the scheme below presumes the positions to be added periodically when necessary.

A position should be opened and added each time the daily price chart satisfies four conditions at once:

- 1) the price curve is located above its 200-day simple moving average;
- 2) the %R line of slow stochastic oscillator intersects the %D line from bottom up;
- 3) the indicated intersection is located below 50%;
- 4) the MACD bar-chart is positive in value.

Along with that, one should be cautious and watch that on the weekly chart this tangency or intersection is not preceded by visible double or triple «A» class divergence of the price graph and the MACD lines (12–26–9) or the MACD bar-chart.

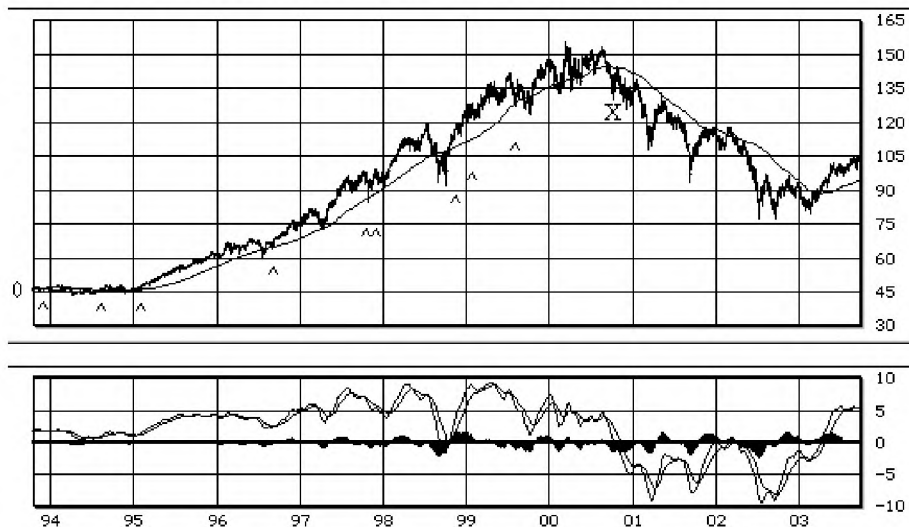
The position should be closed when the «A» class crest divergence between the weekly price graph and the MACD lines (12–26–9) is formed. The stronger the signal is (for example, triple divergence (Figure 2) or simultaneous divergence of other indicators and oscillators), the more convincing should be the motive to close the position for a portfolio manager. In this case, after the triple divergence in the MACD lines (12–26–9) and the price graph was formed on the weekly graph, the signals to close the position could be the intersection and further price movement of more than 3% below its 200dMA (October 7–9, 2000; position's closing price – nearly \$140.6) or the return of price to its 200dMA (November 3–7, 2000; position's closing price – nearly \$143).

A new purchase (or a new set of purchases) is possible only after the price is at least 10–15% adjusted, so that the divergence is considered to be «recovered». Meanwhile, a «bottom divergence» should be created between the weekly price graph and the MACD lines (12–26–9). After these conditions are satisfied, the possibility of opening long positions can be examined, which requires that the four conditions mentioned above should also be simultaneously satisfied.

Perhaps, such a simplified scheme can surprise some specialists of technical analysis that are used to working with shares. In contrast to certain stocks, the SPDR Trust fund carries practically no risk of bankruptcy. The worst that can happen, should a signal to sell not appear on the graph, the position remain open, and the price suddenly fall or even continue to fall, is the unrealized gain. Whereas certain stocks can fall and never recover, the SPDR Trust, being a resemblance of the Standard & Poor's 500 Index, will renew its growth anyway sooner or later.

Figure 2.

**Weekly Price Graph of the SPDR Trust Depository Receipts
for the Period from October 1993 till October 7, 2003.**



In the bottom of the figure, the MACD lines (12–26–9), the MACD bar-chart, and the triple «crest divergence» developed in 1999- early 2000 are presented.

The light curve on the price graph is the 200-day moving average;

0 – the moment of initial position opening;

^ – the moment of adding a position;

X – the moment of closing a position.

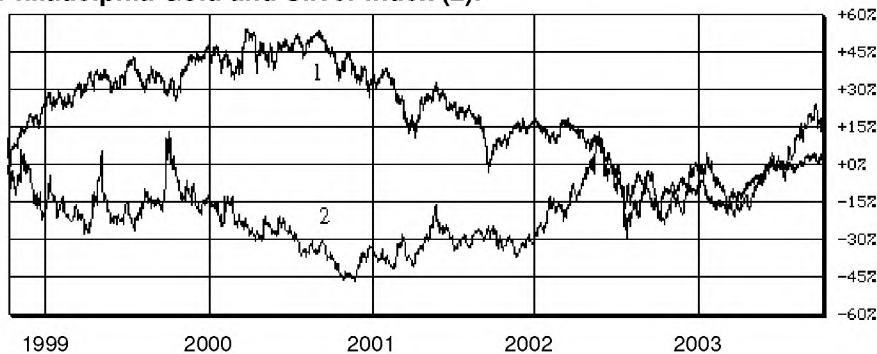
When trading the SPDR Trust depository receipts according to the proposed scheme, a position would have been opened in the mid-August 1993 (August 17–18) at the price of \$25.75 (Figure 2); after that, positions should be added 9 times, each time the above-mentioned condition to purchase was satisfied (December 1993, August 1994, January 1995, August 1996, September 1997, December 1997, October 1998, January 1999, June 1999); finally, the package would be sold in October–January 2000 at the average price of \$141.8. By this time, a classic triple crest divergence of the weekly price graph, the MACD lines (12–26–9), and a number of other indicators such as the Wilder's RCI, ROC, and slow stochastic oscillator, has developed. From this time and until August 2003 not a single signal to opening a position was generated (meeting 4 conditions simultaneously).

Had the position been opened at that time for \$100,000 and each additional position equaled \$10,000, then the total seven-year investment of \$190,000 (from August 1993 until October 2000) would have acquired 3,438 shares of the SPDR Trust, which, actually, could have been sold for \$487,508 (a theoretically possible amount is \$536,328) in October–November 2000. This would correspond to 157% overall growth in capital for 7 years or nearly 14.5% annual growth, outperforming by 3.2% the historical annual growth of the American stock market of 11.3%.

After converting the SPDR Trust securities into cash, it would be reasonable to transfer the latter into the markets that work in an anti-phase to the stock market. A classical example of such an allocation are gold and silver markets, which have always been the «rescue harbor» for investors during unfavorable conditions at the stock market. In Figure 3, a tendency to growth has been obvious at XAU (Philadelphia Gold & Silver Index) from the late 2000 and until now. By contrast, in the same period, the US stock market has been experiencing the worst times (especially from October 2000 until September 2002).

Figure 3.

Dynamics of Changes in Indices of the Stock Market – the Standard & Poor's 500 (1) and the Bullion Market – Philadelphia Gold and Silver Index (2).



In view of the above, the timely withdrawal of funds from the stock market and their allocation on the market working in an anti-phase (for example, a bullion market) can not only protect the investment from losses, but also essentially increase it.

Unfortunately, we cannot consider this question in more detail since it is not the subject of our current research, and it would be too risky to present any specific results at the moment.

Conclusions

The assets of national pension funds can be maximally protected from financial risks if invested into the economies with the highest investment ratings (this list included 17 countries on October 03, 2003). Specifically, the highest degree of security is achieved by investing in the economies of the USA, Singapore, Australia, and Great Britain. Investing in the US market is the most convenient due to availability and accessibility of information about all fund assets (including those of the other countries) traded on the stock market.

At the present, investing in the stocks and mutual funds that follow the most popular fund indices is preferred (this article prefers such new instruments as the exchange traded funds).

Investing in stocks, on the one hand, is attractive because many of them, including those of the largest corporations, are traded at the levels equal to their long-term minimums (General Motors Corporation, General Electric Company, AT&T Corp., The Walt Disney Company, Eastman Kodak Co., SBC Communication Inc., and many others), which means they have a considerable growth potential. On the other hand, current negative trends in the economy of the USA and other countries increase the risk of investing into individual companies.

The securities of the SPDR Trust index investment fund are the instrument capable of ensuring practically 100% security and while allowing to achieve a substantial growth of the invested capital. The results of the research presented in this article and the proposed scheme of investing in the securities of the fund can be interesting and useful to the managers of national mutual investment institutes and, primarily, to pension funds managers.

Bibliography

1. <http://www.weforum.org/> Growth Competitiveness Index Rankings. Адрес статьи: <http://www.weforum.org/site/homepublic.nsf/Content/Global+Competitiveness+Programme%5CReports%5CGlobal+Competitiveness+Report+2002-2003>
2. <http://www.washprofile.org/> Экономические успехи зависят от экономической свободы. Адрес статьи: <http://www.washprofile.org/SUBJECTS-3/ecofreedom.html>
3. <http://www.washprofile.org/> В государствах бывшего СССР стало больше экономической свободы. <http://www.washprofile.org/SUBJECTS-%204/parttimejob.html>
4. <http://www.usb.com.ua/> Индекс экономической свободы: Украина заняла 117-ое место. Адрес статьи: <http://www.usb.com.ua/ru/finances/news/macro/2003/08/2/>
5. <http://www.fundmanager.bip.ru/> Индексное инвестирование как долгосрочная инвестиционная стратегия. Адрес статьи: <http://www.fundmanager.bip.ru/etfunds/7.htm>
6. <http://www.k2kapital.com/> Индексный фонд S&P 500// Адрес статьи: http://www.k2kapital.com/education/educ19991020_2.html
7. Джусов А. А. Метод формирования инвестиционного портфеля пенсионных фондов и страховых компаний с целью защиты средств от финансовых рисков// Экономические проблемы и перспективы стабилизации экономики Украины: Сб. научн. трудов / НАН Украины. Ин-т экономики промышленности. – Донецк, 2001. – Т. 2. – С. 177–184.
8. Сазонец И. Л., Джусов А. А. Увеличение капиталов предпринимательских и финансовых структур путем инвестирования в акции транснациональных корпораций // Економіка: проблеми теорії та практики. Збірник наукових праць. – Випуск 122. – Дніпропетровськ: ДНУ, 2002. – С. 169–173.
9. <http://www.k2kapital.com/news/>
10. <http://www.cbsmarketwatch.com/>, текущая информация страницы: <http://cbs.marketwatch.com/tools/quotes/quotes.asp?symb=>
11. Абрамов А. Е. Индексные Инвестиционные Фонды – новые возможности схем коллективных инвестиций и биржевых технологий// <http://www.ndc.ru/etf/etf-abroad.shtml>
12. <http://www.bigcharts.com/>, статистические данные страниц <http://bigcharts.marketwatch.com/intchart/frames/frames.asp?symb=NASDAQ&time=&freq=>

13. Колби Р. В., Мейерс Т. А. Энциклопедия Технических индикаторов рынка. – М.: Издательский дом «Альпина», 2000. – 581 с.
14. Сазонец И. Л., Джусов А. А. Депозитарные расписки Standard & Poors как составная часть инвестиционного портфеля пенсионных фондов и страховых компаний // Економіка промисловості. – 2002. – № 1. – С. 86–89.

The article was received on October 2, 2003.