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The Principles of Alternative Investments Management

A Study of the Global Market

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Preface

"*A theory should be made as simple as possible, but not simpler.*"
Albert Einstein

The beginning of the twenty-first century was characterized by a rapid increase in the value of the assets being managed as alternative investments. The process of further development of the market continued, despite growing concerns regarding the lack of its transparency and despite a potentially negative impact of selected alternative investments on stability of the financial system.

The concept of alternative investments on contemporary international financial market emerged relatively recently, that is, at the beginning of the twenty-first century. Currently, the subject is attracting more attention due to the magnitude of the capital involved in this sector as well as due to the impact of those investments on functioning of the international financial market. Enrichment of selected social groups and growing involvement of institutional investors in this sector imply development of individual categories of alternative investments and affects the increase in the number of transactions.

This work is a comprehensive study on the subject of alternative investments on the financial market. The main purpose of this work is to collect, systematize, and develop the subject of alternative investments, which is still little known. The choice of the subject also has a practical implication. Enrichment of various social groups affects the increasing demand for financial innovations, which would offer more opportunities for investing funds to those willing to take risks.

Analysis of this sector of international financial market and indication of possible directions of its development seem to be extremely important, not only in terms of its attractiveness in the process of portfolio diversification but also in terms of the possibilities of achieving extraordinary return rates. The knowledge on the development dynamics of individual alternative investment categories is significant from the perspective of their purchasers who manage those investments as well as from the perspective of the entities whose task is to create an appropriate legal

framework for this market. It allows indication of the priorities in management of these investments and also measuring additional risks which these investments bear.

This book's purpose is also to verify the following research hypothesis: globalization and international integration of the financial market will cause the alternative investments on the securities market to penetrate into new areas, including the European Union. The dynamics of this penetration and its development depends on the pace of the citizens' enrichment and on their knowledge about finacial innovations. Diversification of the specificity of alternative investments around the world, resultant from cultural and historical predispositions as well as from differences in economic development, can be expected.

The statistical data collected allowed application of research tools involving econometric models. Mechanisms of different alternative investments, on a global scale, have been described using empirical econometric equations. As a result, it was possible to estimate forecast components of the global alternative investment market.

Alternative investments in the literature on the subject are defined in two ways. The first approach distinguishes particular categories within the definition of alternative investments. The second excludes those categories which do not belong to alternative investments. The sequence of subsequent chapters has been subordinated to a detailed analysis of particular classes of alternative investments. Despite many different definitions of alternative investments, it can be assumed that a classical definition includes hedge funds, funds of funds, managed accounts, managed futures, structured products, and private equity/venture capital. Despite the expansion of the catalogue of possible alternative investment categories, it can be considered that the above listed types of alternative investments constitute a classic set and conceptualized in this way will constitute the subject of the considerations in this work. Currently, the category of alternative investments also includes investing in real estate funds and in raw materials, as well as emotional investments, e.g., coins, artifacts, wine, or cars.

Chapter 1 introduces the concept of alternative investments as an innovative form of investing on the international financial market and will describe their possible classifications. Particular attention will be paid to additional types of the risk associated with this category of investment. Practical ways of identification, measurement, and management of this risk are proposed. Importance of alternative investments on the international financial market is brought to attention as well.

Chapter 2 presents hedge funds, which currently are the most well-known alternative investment institutions. Because of the hedge funds' significant impact on the financial market, much book space has been devoted to these institutions. Development of the hedge fund market was fostered by limitations in the manner of investing in traditional investment funds and pension funds as well as limitations in their functioning. Their development also was a consequence of an evolution of innovative financial instruments, such as derivatives. This chapter presents a characteristic, classification, and the structure of modern hedge funds. Legal forms of their creation, depending on the place of fund's registration and the

manner in which financial assets are invested, have been described. Hedge fund databases and indices, which are an important source of information about the activity of this sector, have been presented as well. Presentation of this issue was not possible without indication of the errors the databases bear. In this chapter, an attempt was made to indicate the impact of hedge funds on functioning of the financial market. Data about the current state of the global hedge fund market were presented as well. The chapter has been illustrated with numerous tables and figures.

Chapter 3 is a continuation of the fourth. It will present hedge fund investment strategies. Knowledge of applicable strategies is fundamental in order to create a long-term coherent investment plan. Improper application of investment strategies is associated with a possibility of incurring severe losses. It is the investment strategies used by alternative funds which have a decisive impact on the performance of the institutions of collective investing. The range of instruments and techniques designed for constructing strategies of various risk levels with a potential return rate goes beyond traditional instruments, such as stocks or bonds. This chapter presents main groups of investment strategies: relative values strategies, event-driven strategies, opportunistic strategies, as well as their sub-strategies.

Chapter 4 presents the concept of funds of funds. These institutions play an important role on the market of alternative forms of investment, thus creating an important demand side on the hedge fund market and on the PE market. It presents the types and forms of funds of funds, as well as the pros and cons of choosing this form of collective investing. One of the advantages are lower entrance levels, which allow wider accessibility to investors. This chapter also presents the estimated data illustrating the state of the hedge fund sector worldwide.

Chapter 5 presents Managed Futures transactions, which emerged on the market as an alternative form of investing as early as the 60s of the twentieth century. Currently, Managed Futures transactions are managed by professional investment advisors, called Commodities Trading Advisors (CTAs), who conclude transactions on the global derivatives market. Managed Futures investments belong to relatively liquid investments. They allow release of cash funds within three months. The funds, which engage their assets in transactions on the futures market, are called *commodity pool*. They are obliged to register with the CFTC. An advisor once defined as a CPO or a CTA is subjected to registration with the Commodity Futures Trading Commission (CFTC). This part of the work presents the concept of Managed Futures investments and their forms. Automatic transaction systems in the activities of Commodity Trading Advisors have been briefly characterized as well.

Chapter 6 characterized structured products, which are a blend of traditional investments in stocks and bonds with investments in derivatives. The market of structured products is much more developed in the EU countries than in the USA. Possible forms of structured products, according to their payout profile, are presented. As in previous chapters of this work, analysis of structured products has been illustrated by numerical data representing the state of development of this market worldwide.

Chapter 7 presents PE/VC (*private equity*/*venture capital*) investments, which belong to alternative forms of investment on the financial market. This approach indicates a possibility of achieving extraordinary return rates as a result of financial participation in the projects of high potential growth. Specificity of these investments entails operating in niche segments of the market, on one side associated with a possibility of achieving high income and on the other bearing high risk. This chapter also presents stock exchange and OTC (over the counter) markets of alternative investments, including the Alternative Investment Market in London.

Each chapter dealing with the analysis of individual investment categories contains an extensive empirical part, which presents my own research results regarding alternative investments worldwide. Rapid development of this sector on the international financial market and growing concerns about activities of individual funds raise questions about the future directions of development of individual alternative investment categories.

Application of quantitative methods in the form of single-equation econometric models, which were specified during the process of multiple testing of their suitability for the developing market, mainly served the objectives of this work and verification of the hypothesis. The prognoses constructed on their basis are meant to present possible scenarios of the market's further development. Evolution of the alternative investments segment leads to development of those categories, which fulfill the expectations of market participants and meet the requirement and expiration of the remaining investments, which do not attract investors and are no longer accepted by them.

Other research methods will be used in this work—beginning with the method of observation being the most basic method of scientific knowledge, through a comparative method, analytical method, monographic method, as well as expert method.

During the course of research, numerous contacts with representatives of foreign financial institutions, whose knowledge was an important means of feedback on the developmental perspectives of the alternative investment sector worldwide, were established.

The work ends with an attempt to summarize new elements. It is a result of investigations on these issues over many years. The need for further research on the matters associated with continuous development of innovative instruments and institutions on the financial market was indicated as well. Their development has important implications for all financial market participants.

Sopot, Poland
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Contents

Chapter 1
Alternative Investments on Contemporary Financial Market

1.1 The Concept and the Essence of Alternative Investments

Investing constitutes an essential factor in economic growth and development. Investments also function as the main manner of expanding capital. There are many definitions of the term 'investment'. One of most well-known definitions, considered as a classic one, is the concept proposed by Hirshleifer (1958). He claimed, that investing involves sacrificing the current goods in exchange for uncertain benefits in the future. In an economic sense, an investment is a purchase of goods that are not consumed today, but are used in the future to create wealth. This definition indicates few important characteristics of investments. Firstly, an investment denotes an investor's abandonment of current consumption, for which he/she expects a certain reward (a benefit). Secondly, an investment is realized during a certain period of time, which means that the investor can receive the reward in the future. Thirdly, future benefits constituting the reward are uncertain.

The concept of alternative investments on a contemporary international financial market has emerged relatively recently, that is, at the beginning of the twenty-first century. Currently, this matter is being described in literature more broadly, whereas enrichment of selected social groups implies development of particular categories of alternative investments as well as an increasing number of such transactions. In the literature on the subject, alternative investments are defined in two ways. The first approach consists in distinguishing specific categories within the definition of alternative investments. The second approach excludes those investment categories, which do not belong to alternative investments.

When analyzing the definitions excluding those investments that are not alternative in character, it can be noticed that they compose a wide variety of financial products and services. In a broad sense, they are defined as investment products, which fall outside the circle of traditional investments such as stocks, bonds, or other money market instruments (http://www.investorwords.com/6401/alternative_

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investments.html, Accessed 20 July 2009). Thereby, this term encompasses all assets outside the investment categories considered as traditional. As such, this group will include e.g.: hedge funds, funds of funds, managed futures investments, structured products and various investments in emotional assets.

Investments of an emotional character include e.g. art, wine or coins. This type of alternative investments generally is the domain of very wealthy people or enthusiasts and it includes collectible items (collectible coins, artifacts, antiques, vintage cars, private jets, as well as investment wine, especially from the Bordeaux region wineries classified in 1855, or single malt Scotch whiskey). Investor's emotional attachment to the items she/he owns, such as a yacht, jewelry or a valuable sculpture by a favorite artist, is a characteristic feature of investments in emotional assets. It is also possible to invest in people—in talented stage celebrities and film stars, athletes, scientists or managers.

Non-financial alternative investments generally involve high initial costs and necessary additional expenses, such as insurance on a liqueur or a painting, an expert opinion or commission for an agent e.g. an art gallery, an auction house, or firms specialized in numismatics. What is more, in case of investments realized independently, it is necessary to first gain some expertise in order to avoid losses resultant from inadequate market research.

An increasing share of alternative investments in the portfolios of wealthy investors during the past years can be noticed. Figure 1.1 presents the breakdown of HNWI alternative investments in 2006–2014. A percentage increase of alternative investments' share, especially during the years 2013–2014, can be notices. While in 2013 alternative investments in the portfolios constituted HNWI-10.1 %, in 2014 the share in this category of investments increased up to 13.5 %. This suggests an increasing interest in alternative investments used for diversification of the investments portfolio.

Figure 1.2 presents breakdown of HNWI Alternative Investments in (%). Analysis of Fig. 1.2 confirms that the share of alternative investments in the portfolios of wealthy individual investors has been increasing (excluding Latin America). The wealthy individual investors have increased the global share of hedge funds in the portfolios during the years 2013–2014 by 3.5 %. The growing interest in hedge funds was most visible in North America (a 7.6 % increase of those investments in the portfolios in 2013, and a 12.1 % increase in 2014) (Capgemini, RBC Wealth Management and Scorpio Partnership Global HNW Insight Survey). A much higher interest in hedge funds has been demonstrated by investors over 40 years of age. In 2013, investors in the HNWI sector were much more likely to invest abroad as well. This caused an increase in the share of foreign investments in the HNWI portfolios from 25 to 36.6 % in 2014.

The literature on the subject does not clearly define whether alternative investments should be regarded as a separate category of assets or as a subcategory of the assets already existing on the financial market (Anson 2006). While citing definitions by different authors, it can be noted that Swedroe and Kizer (2008) define alternative investments as various investments outside the area of well-known categories of financial investments, such as: stocks, bonds, other debt instruments

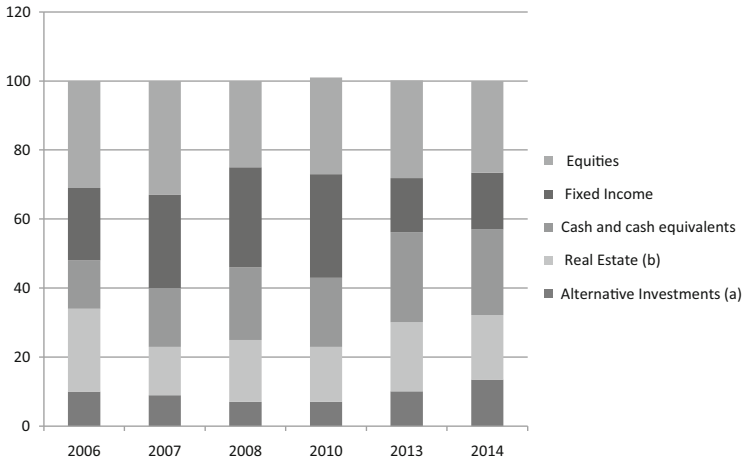

Fig. 1.1 Breakdown of HNWI financial assets (%) in 2006–2014 (Capgemini, RBC Wealth Management, and Scorpio Partnership Global HNW Insight Survey). (a) Includes structured products, hedge funds, derivatives, foreign currency, commodities, private equity. (b) Excludes primary residence

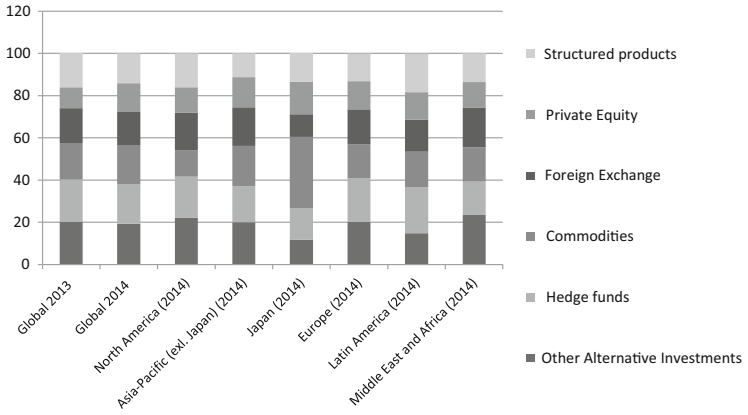

Fig. 1.2 Breakdown of HNWI Alternative Investments (%) in 2013–2014 (Capgemini, RBC Wealth Management, and Scorpio Partnership Global HNW Insight Survey)

or traditional instruments offered by banks, such as e.g. deposit certificates (Swedroe and Kizer 2008). Dębski (2006) takes a similar position on defining alternative investments and he describes this category as all investments that are not included within the scope of traditional forms of investing on the financial market.

In turn, Anson (2006) states that alternative investments are a sort of subset of the already existing category of investments. As such, he opposes the opinion that alternative investments constitute a separate category of assets. He also believes

that they bear a risk higher than traditional investments. The risk incurred is rewarded by a promise of attractive return rates, even during a financial crisis. He also points out to specific categories that can be assigned to alternative investments, which according to Anson (2006) are: hedge funds, commodity funds, managed futures, private equity, credit derivatives.

Commission of the European Communities in the Green Paper, in reference to improving the legal framework of investment funds, has defined alternative investments as hedge funds and private equity funds, which provide the asset management entities with new benefits resultant from diversification, which attract investors by promising higher returns, and which can increase the overall market liquidity. Alternative investment strategies have been described as more complicated and involving higher investment risk than mainstream UTCTS funds.

In the European Union Directive, which aims at establishing common requirements governing authorization and supervision of 'AIFs', the term is defined as (Directive 2011/61/EU):

(a) Collective investment undertakings, including investment compartments thereof, which:

  (i) Obtain capital from a number of investors, with a view to invest it in accordance with a defined investment policy, for the benefit of those investors; and
  (ii) Do not require authorization pursuant to Article 5 of Directive 2009/65/EC.

There is also the definition provided by 'EU AIF'. According to the Directive, European Union Alternative Investment Fund is:

(i) An AIF which is authorized or registered in a Member State under the applicable national law; or
(ii) An AIF which is not authorized or registered in a Member State, but has its registered office and/or head office in a Member State.

Dorsey (2008) includes the following in the alternative investments: hedge funds, private equity funds, currencies, real estate, commodities and raw materials. This definition, however, seems disputable, since commodities, currencies and raw materials can also be classified as traditional investments.

Chorafas (2003) believes that precise defining of the term 'alternative investments' causes many difficulties and that comparison of particular categories of alternative investments is not easy either, due to their variety and non-standard characteristics. He also attempts to define alternative investments in terms of the investment strategies used by them, among which he mentions the following (Chorafas 2003):

– US long/short strategies, that is, those which use long and short positions on the American market, enabling profiting during growth periods as well as during price declines;

- US equity short strategies based solely on the use of price declines on the US market, which enable profiting;
- European long/short strategies, that is, strategies using long and short positions on the European market, enabling profiting during the periods of increases as well as during price declines;
- European equity short strategies solely based on the use of price declines on the European market, which enable profiting;
- US emerging growth strategies, that is, investments into developing companies in the US;
- Macro strategies, that is, aggressive strategies based on analysis of macroeconomic indices;
- Event-driven strategies, that is, strategies using extraordinary events in order to achieve an income;
- Market-neutral strategies, that is, strategies that are neutral to the market, which are designed to reduce the market risk;
- Fixed income long strategies, which are based on taking long positions in the securities characterized by a fixed level of interest rates;
- Fixed income hedge strategies, where hedging activities are carried out using securities that are characterized by a fixed level of return rates;
- Capital-protected strategies, belonging to a category of strategies which ensure capital protection;
- Managed currencies strategies constituting a group of strategies using currency trading;
- Managed futures strategies, encompassing transactions on the futures markets by specialized CTA consultants;
- Credit derivatives strategies, aimed at trading credit derivatives;
- Risk arbitrage strategies, which are type of the strategies using arbitrage methods;
- Private placement strategies, encompassing transactions on private markets;
- Strategies of other instruments and cash, that is, the remaining strategies using other instruments and cash funds.

In the absence of a unified definition, characteristic features are listed, which at the same time are the conditions to qualify a given investment into a category of alternative investments. These characteristics include (Leitner et al., 2007):

- The potential to obtain higher return rates adjusted for the risk;
- A relatively low correlation with traditional instruments;
- Trading outside the traditional exchange-traded market on the OTC, which implies difficulties associated with their objective valuation and a lack of access to reliable historical prices;
- Infrequency of transactions and thus their lower liquidity;
- A long-term investment horizon and therefore a longer period of freezing the capital;
- Application of diverse investment strategies, including a financial leverage, short-selling and derivatives;

– The focus on achievement of absolute return rates, without referring to any particular fixed benchmark;
– Exposure to less financial regulations;
– Higher costs and limited availability of investments.

Due to a large number of definitions referring to alternative investments, it seems useful to specify the conditions which ought to be met, in order for a given type of investment to be qualified within this category. These conditions can be describes as follows (Sokołowska 2010):

– A generally higher investment risk, in comparison to traditional financial investments;
– A negative correlation of the return rates with profitability of traditional investing in stocks and bonds, or a lack of correlation with the market;
– Assumption of a maximum return rate/value, in the absolute sense and not based on a particular benchmark;
– An investment requiring specialized knowledge, often non-financial;
– A significantly lower liquidity compared to many other traditional investments of the financial market;
– Often a much longer investment horizon, in comparison to the average investment period on the capital market;
– Focusing the target group on wealthy investors;
– Occurrence of the so-called entry barriers, that is, the minimal amount of capital enabling initiation of a given alternative investment;
– Occurrence of the so-called entry limits, that is, limiting the number of potential investment buyers;
– Usually, the private nature of an investment;
– Functioning within a market segment of lowered informational requirements and of a lower transparency level.

Fulfillment of the above conditions authorizes qualification of a given investment within the category of alternative investments.

1.2 Classification of Alternative Investments

Most basic division of alternative investments classifies them into: physical investments and financial investments. Investments in physical assets are material in nature, whereas the profit expected by an investor is the difference between the future value of a given possession and its current value. Financial investments, on the other hand, are immaterial in nature, whereas the investor can expect an increase in the value of a given investment's subject as well as a profit from its ownership.

Alternative investments can be both, physical as well as financial in character. Alternative investments in physical assets include e.g.: investments in precious metals, in real estate, artifacts, liquor or in other collectible items. The items being

the subject of a physical investment also have a value in use and can satisfy the consumption needs. In financial investments, as opposed to physical investments, the subject of an investment, i.e. a given financial instrument, does not represent any use value in itself, but only a monetary value. Alternative financial investments involve asset allocation mainly in hedge funds, funds of funds, managed futures transactions or in structured products. Diverse classifications of alternative investments mainly result from the lack of their universal and uniform definition. Thus, different ways of dividing alternative investments, depending on the adopted classification criterion, will be presented.

Alternative Investment Services, an institution dedicated to the services on the alternative investments market, has defined six categories helping to understand the construction of individual products and to facilitate construction of modern, diversified investment portfolios (http://www.nwai.pl, Accessed 9 September 2009). The category of alternative investments includes:

- Hedge funds,
- Funds of funds,
- Structured/guaranteed products,
- Managed futures and investment programs,
- Private equity/venture capital funds,
- Investments in real estate (REIT).

Hedge funds are currently most well-known alternative investment institutions. Emergence of hedge funds is a consequence of development of other innovative financial instruments, such as e.g. derivatives. The definitions of hedge funds provided in the literature on the subject are not very consistent. Generally, descriptions of hedge funds underline the fact, that they are subjected to less restrictive regulations. In addition, they invest investors' assets both on the spot market and on the futures market, as well as use financial leveraging in order to attain benefits for their shareholders. For this reason they are very risky. However, it is exactly this risk that attracts many sophisticated investors who believe higher risk leads to higher return. Hedge fund investment strategies are rarely defined by accurate distribution of their assets among particular classes of assets. Managers have great flexibility in shaping their investment policies, depending on the current situation on the markets. Their main target is to outperform the market. In contrast to mutual funds, which are owned by public corporations, hedge funds are not standardized. The term hedge fund, thus, is not adequate from the perspective of the law according to which they are formed. Their legal form is determined by the type of investors and by the place of their registration. Most common legal forms include: limited partnership and limited liability company; therefore in this context, the term 'hedge fund' is applied improperly.

Most countries lack any formal definition of funds of funds (FOF). The term 'fund of funds' usually is understood as a type of a fund investing in other funds, using various investment strategies. Managers of funds of funds select those funds for their portfolio, which invest on the most prospective markets and which achieve the highest return rates. FOF clients do not need to follow the market situation nor

make decisions regarding the changes in asset allocation. It is the managers who are responsible for an appropriate choice of the units. Funds of funds also have a big advantage—the allow less wealthy individual investors to access investment values, which directly can only be bought by the wealthiest clients using wealth management services. Additionally, the units bought 'wholesale' enable achievement of preferential conditions and often are cheaper than if purchased directly by an individual investor.

The term 'managed futures', often is translated as managed accounts and investment programs. In fact, this term refers to the entire industry based on advisory of specialized consultants. In their strategies they use derivatives, while automated trading systems serve as tools for making a profit. The term 'managed futures' also signifies the manner of operating on the market through authorizing the advisors to manage the client's money on the futures market. The term Commodity Trading Advisor literally refers to an advisor on the commodity market, so it can be somewhat misleading.

Commodities, that is, goods and products, are associated with e.g. agriculture products, precious metals, petroleum, and other physical assets which can constitute the basis for transactions on the futures market. As far as financial terminology is concerned, the term Commodity Trading Advisor (CTA) refers to professionals, called the licensed advisors on the futures market, whose activities are also related to currency exchange markets, financial instruments, as well as to stock indices. Managers are supervised by an American institution regulating the futures markets (National Futures Association—NFA). A CTA license is issued by the Commodities Futures Trading Commission (CFTC).

Structured products are financial instruments whose price is dependent on the value of a particular market index. Structured products combine traditional investments e.g. in stocks or bonds with derivatives. Exemplary market bases, which can constitute the basis for calculating the amount of interest, include: stock exchange indices, stock prices, raw materials, agricultural products, baskets of shares, baskets of commodities or stock indices, as well as currency exchange rates or e.g. interest rates. Combining traditional instruments with innovative ones is meant to generate higher return rates. The purpose of applying a traditional instrument into an investment is to protect the capital. A derivative is meant to enable multiplication of an income, through asymmetrical risk profile. Creating asymmetrical payout profiles is possible due to application of options. Thus, such structured products formed in response to the demand for investments that are adapted to the decreasing conditions on the financial market.

Definitions of the concepts 'private equity' and 'venture capital' as well as their further interpretations differ significantly, depending on the place of their application. According to the definition published by the European Venture Capital Association (EVCA) in 1995, private equity funds encompass investments in companies at various stages of their development, from the moment of their foundation and a start-up of their activity, throughout the stages of their expansion, until they are sold. While defining the term 'private equity' in a general sense, it can be stated that it refers to all investments conducted on the private capital market,

in order to obtain medium-term and long-term profits from increases in the value of the capital. The term 'venture capital' also refers to private investments, which are at early stages of their development. It can therefore be concluded that venture capital is a type of private equity. The term 'venture capital' most commonly is interpreted as an investment in brand new projects, while private equity is an investment in an entity that already exists and whose financing is oriented at its further, more dynamic development. The concept of private equity, although often used interchangeably with the term venture capital, is a much broader term.

Real Estate Investment Trust are investment companies which invest exclusively in real estate and in mortgages. In general, real estate are assets of high value and low liquidity. Therefore, for most investors, it is difficult to invest in them directly. There are, however, ways to invest on the real estate market, without buying apartments or land directly, and so avoiding any related problems. As such, the following can be mentioned here: purchasing of real estate funds or acquisition of the shares of the companies directly involved in buying real estate and profiting from renting them or from an increase of their value. Regardless the form, investments in real estate are characterized by a relatively long time horizon. Investing of an average of 80 % of the assets directly or indirectly into real estate is a characteristic feature of REIT. Generally, REIT should have at least 10 properties in its portfolio, while the investor can own a maximum of 10 % of REIT's net assets. Apparently, attractiveness of these funds results from tax advantages which the investor can receive by investing in this type of funds.

Alternative investments can also include various kinds of raw materials. However, it does not entail direct purchasing of tons of copper or a few barrels of petroleum. Yet, each investor can make all or part of the value of his portfolio dependable on the price changes of those assets, through acquisition of appropriate derivatives, structured products or investment units. Raw materials that are most popular among the investors include: precious metals (gold, silver, platinum), energy resources (petroleum, natural gas), industrial metals (mostly aluminum, copper), as well as agricultural products (wheat, corn, soybean, and cotton, sugar, coffee, cocoa, and many others).

Emotional investments are tools which in addition to achieving high return rates have hobbyist significance for the investors. These investments mainly include collectible items such as: artifacts, liquors, vintage cars, numismatics. Most popular investments in this group are investments in artifacts, which in addition to profit prospects offer functional qualities. Emotional investments bear the highest risk, but at the same time they have a potential for vary high returns. Figure 1.3 presents an exemplary classification of alternative investments.

Stefanini (2006) divides alternative investments into the so-called traditional alternative investments and hedge funds, private equity and venture capital funds, securitization and physical assets. In the category of traditional alternative investments the author included: junk bonds, emerging markets and real estate funds. In the physical assets the author included: land, real estate, as well as commodities, precious metals and petroleum. According to a classification by Schneeweis and Pescatore (1999), alternative investments have been divided into four basic groups:

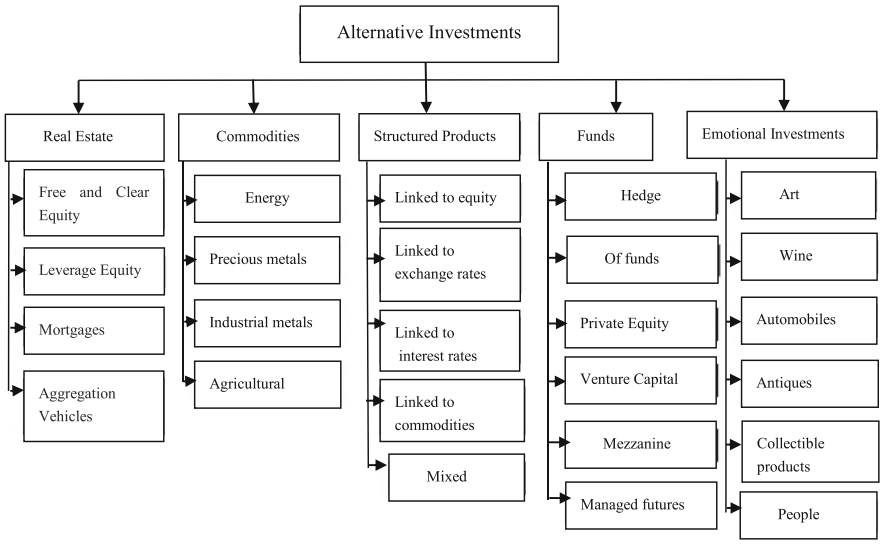

Fig. 1.3 Classification of alternative investments

hedge funds, *managed futures* investments, commodities and the so-called traditional alternative investments. This classification also indicates that the goods which often are the subject of alternative investments include: agricultural goods, precious metals and energy. The following have been included in traditional alternative investments: private equity funds, venture capital funds and real estate.

An innovative and at the same time controversial division has been made by Swedroe and Kizer (2008). They have divided alternative investments into: good investments, vitiated investments, bad investments and the worst ones. Classification of each investment into one of the above categories has been done on the basis of the following criteria:

- The expected return rate of an investment;
- Volatility of an investment, measured by the size of a standard deviation;
- Distribution of the return rate.

According to this classification, the category of good investments includes: real estate funds, inflation-protected securities, commodities, international equity issues, or stable value funds. Alternative vitiated investments, according to the authors, include: high-yield junk bonds, private equity and venture capital, covered calls, socially responsible mutual funds, precious metals equities, preferred stocks, convertible bonds and emerging markets bonds. The category of bad investments includes: hedge funds and leveraged buyouts. The worst alternative investments, according to the authors, include: structured investment products and leveraged funds. This classification shows a completely different perception on alternative investment categories.

Anson (2006), while classifying alternative investments, listed the following:

- Hedge funds,
- Commodities and managed accounts,
- Private equity,
- Credit derivatives,
- Corporate governance.

Alternative investments are often interpreted through the prism of applicable investment strategies, which provide ample opportunities to shape the risk profile and the return rate. Considering the payout profiles of those instruments, the following combinations can be distinguished:

- Combination of the traditional financial instruments with derivatives (most often the structured products);
- Application of complex investment strategies using short-selling, leverage and other previously unavailable combinations of investment techniques and styles.

Alternative investments can also be classified according to the degree of their liquidity. The least liquid alternative investments include investments of venture capital or the leveraged buyout funds. Investments in hedge funds are relatively liquid. Their investment horizon generally lasts from 3 months to 1 year. Managed Futures are considered as investments with high liquidity. Table 1.1 summarizes the characteristics, which allow comparison of traditional and alternative investments.

1.3 The Risk Associated with Alternative Investments

Risk is feature inherent in any investment. The term 'risk' derives from Old Italian 'risicare' which means 'to have the courage'. In this sense, risk can be associated with free choice. The first concept of an 'economic risk theory' was introduced by Willett in 1901. He assumed, that risk is a term of various meanings that are commonly used in everyday life. While associating the concept of risk with uncertainty, and using philosophical determinism, he decided that this concept should refer only to an impression or an illusion of randomness, which results from insufficient knowledge about the laws governing the reality. Willett recognized risk as a state of the environment and he believed that risk should refer to the degree of uncertainty whether a given result will actually occur, and not to a probability of that result occurring. The risk understood as the state of the environment is objectively correlated with subjective uncertainty.

The second concept of measurable or immeasurable uncertainty can be considered a theory proposed by Knight in 1921. The main aim of his work was to specify the features characterizing uncertainty, which ought to be rather associated with risk, in comparison with uncertainty in its strict sense. According to Knight's concept, risk is an immeasurable uncertainty. Uncertainty which cannot be measured is considered as uncertainty in its strict sense (immeasurable).

Table 1.1 Comparison of traditional and alternative investments

	Traditional investments	Alternative investments
Correlation	1	Medium to low
Legal structure	Investment policy and instruments are limited by legislation	Head office in offshore centers allows a flexible investment strategy
Market	Regulated, subject to public supervision, very liquid	Low regulation, access is often limited, illiquid
Strategies	Only long positions	Long/short strategies, borrowing is permitted, derivatives can be used
Return	Positive returns can be earned in bull markets	Positive returns can be earned in both bull and bear markets
Benchmark	Strategy is successful if the return beats the reference portfolio, even if the absolute performance is negative	Focus on absolute growth in value
Management investment	None	Manager often invests substantial sums
Performance-related fee	To a limited extent; not always	Management remuneration system that aligns manager's and investors' interests

Another remarkable concept was developed by the Commission for Insurance Terminology in USA in 1996. The work of the committee resulted in two definitions of risk. The first one defines risk as an uncertainty referring to a specific event in terms of two or more options. In this sense, it is a measurable uncertainty as to whether the intended aim will be achieved. The second definition focuses on the issues associated with insurance practice, stating that risk refers to an insured person or entity.

Lange (1943) treats risk as an immeasurable uncertainty, to which statistical measures cannot be applied. As such, risk is a broad term, therefore, it can be classified in various ways. From a practical perspective, risk classifications are useful, since they help answer the question how and when risk discloses itself. The types of risk also emerge from different sources and can be classified according to various criteria. Assuming the origin of the risk as a criterion, the following can be distinguished:

– Market risk (systematic),
– Specific risk.

Market risk, also called systematic risk, refers to the factors which affect entities, but cannot be controlled. This type of risk is related to the forces of nature as well as to the economic conditions on a given market and on the global market. The sources of systematic risk may include: changes of the interest rate, inflation changes, tax law changes, changes in political and economic situation.

Specific risk, also called an individual risk, is related to the future events, which partially can be controlled or predicted. The following can be mentioned as the sources of specific risk: business management, market competition, availability of raw materials, the company's liquidity and its profitability, or the level of a financial leverage. According to possible alternatives, the following risk types can be distinguished:

– Clear risk,
– Speculative risk.

Clear risk occurs when the only alternative to the present state of the things is occurrence of a damage. In contrast, speculative risk is characterized by the fact that unknown future events can cause both, losses as well as profits. The division of risk into speculative and clear risks is essential in the insurance sector, since speculative risk can be the subject of an insurance; therefore, clear risk and speculative risk should be considered separately. Given the time criterion, the following can be distinguished:

– Operational risk,
– Strategic risk.

Operational risk is short-term in nature and is associated with the activity of a given entity, while strategic risk is long-term and is related to the long-term decisions made. Taking into account measurability of the risk effect, it can be divided into:

– Financial risk,
– Non-financial risk.

Measurability and the ability to directly capture its impact on the financial market are characteristic features of financial risk. Non-financial risk is characterized by difficulties with direct measurement of its impact on the profit realized by an entity.

Alternative investments are connected with all types of risk specified in the New Basel Capital Accord, that is, with: credit risk, market risk and operational risk.[1] Development of alternative investment market should, thus, lead to analysis of the role of supervising institutions, which also play an important role in the process of ensuring the security of functioning of entities as well as the security of the transactions involving innovative institutions and instruments. Supervising institutions, thus, should actively participate in transformations of the financial market, while adapting the regulations to the changing conditions. There are four broad categories of the risk the investors in alternative assets can face: investment risk, liquidity risk, operational risk and organizational risk. Investment risk can be further sub-divided into three broad categories: primary risk, secondary risk and idiosyncratic risk.

Alternative investments are more complex than traditional financial instruments. Analysis of the risk factors associated with this sector of the market is much more difficult. The risk of alternative investments involves additional risk factors, which should be considered while planning their inclusion in an investment portfolio. In connection with functioning on an unregulated, disorganized market, we can speak of the transaction transparency risk, which is associated with the lack of comprehensive information on these investments. Both, the managers and the investors, in their activity, should account for the risk of a lack of transparency. Another important type of risk, in case of alternative investments, indirectly associated with transparency risk, is the risk involved with the transaction partner. It involves the counterparty not meeting the transaction conditions specified in the agreement. The history of financial disasters confirms the possibility of changing the investment policy on the part of the partner and his withdrawal of the financial assets, which can lead to gigantic losses for the other party. The market of alternative investments belongs to the sectors characterized by lowered informational requirements. Since settlement of these transactions is carried out in the conditions of a low degree of control, we can speak of the control risk and of inability to assess the real risks. Lack of transparency and a low level of control, both belong to the basic sources of risk in the sector of alternative investments. Another important type of risk is management risk. It refers to the risk associated with badly conducted management by the persons who undertake this responsibility to the companies and their owners, to the clients and to other entities, on behalf of which they make the decisions. The return rate from alternative investments is highly dependent on

[1] Capital Requirement Directive Basel II (New Capital Agreement), published by Basel Bank Supervision Committee collection of most efficient market practices used within the scope of financial market in the banking as well as banking practices of keeping a safe capital level.

the professionalism and abilities of those making investment decisions. An additional risk factor refers to a limited access to information. The data risk is associated with a possibility of making wrong investment decisions, based on information characterized by errors. The institutions operating in the alternative investment sector are exempt from an obligation to report on their activity and on their results. This means, that reporting on the results achieved by a fund can be carried out selectively, based on selected time series.

In case of alternative investments, we are dealing with application of very sophisticated investment strategies, which use short-selling, financial leverage, as well as derivatives whose payout profiles often are asymmetrical. The use of a short sale allows development of a profit during the price drops on the market. The risk of short-selling, therefore, theoretically means a possibility of unlimited losses incurred due to price increases of the securities. One way to avoid this risk is using the hedging long positions which are more secure.

Using a short sale as an investment strategy, not as a securing strategy, can result in severe losses. Another important source of risk on the alternative investment market is a leverage risk. It means a possibility of severe losses incurred from operating with a multiplied invested capital. Application of a financial leverage, thus, brings in additional elements of risk into functioning of market entities.

Leverages are used in order to multiply the profits, in case of a transaction failure, the investor, however, incurs multiplied losses. While underlining leverage risk, many examples of spectacular loses which occurred due to leverage overuse, can be indicated. The most well-known case of the consequences related to negative aspects of leverage, is the case of Long Term Management Capital, which in September 1998, shortly before its bankruptcy announcement, had a position of 125 billion UDS generated on the basis of a value of 4 billion USD. This meant operating with nearly 30 times the actual capital. In case of the investments using a financial leverage, it is also important to consider the risk of insolvency as well as the risk of the so-called herd behavior. It is connected with concentration of the risk in particular segments of the market and with a forced deleveraging.

Alternative investment managers usually have their management centers localized offshore, in the countries with liberal tax and business registration laws. Often, such places also lack any restrictive requirements regarding submission of obligatory financial reports and preparing financial statements. The managers also are not subjected to institutional verification and authorization of their activity.

These additional risk factors ought to be considered while making investment decisions as well as during construction of an investment portfolio. According to contemporary portfolio theory, the portfolio risk depends on the level of the risk of the values making up that portfolio and on its structure as well as on the relations between the values in the portfolio. The segment of alternative investments is connected with a low liquidity level, since such investments usually are long-term. This means, that the investors must account for a risk of a lack of a possibility of a fast change of the financial assets allocated in a given cash investment.

Other types of risk on the alternative investment market are: the risk of a mismatch between the assets and the liabilities, the risk of a lack of adequate

capacity, or the risk of fraud. The risk of a mismatch of the assets and the liabilities involves a lack of a match between the maturities of the assets and the liabilities.

The risk of adequate capacity is associated with a limited number of investors who can participate in a given investment. It may happen, that the circle of investors is limited for certain investments, due to 'capacity constraints'.

The risk of fraud means a probability of abuses, which lead to loses or even to insolvency on the part of a given economic entity. Most alternative investments are concluded on the borderline of a regulated market, which means generating a significantly higher risk of abuse than in case of transactions on a regulated market. Thus, it is necessary to incorporate appropriate control mechanisms, which will enable minimization of this type of risk. The strive to achieve a positive return rate, in the absolute sense, is a characteristic feature of alternative investments. In traditional investments, investment performance measurement is based on a comparison to a certain pattern called a benchmark. In the absence of a particular pattern on the market of alternative investments, this sector is connected with a risk of performance measurement. Alternative investments often constitute one of the component of an investment portfolio.

The risk associated with alternative investments, therefore, can be analyzed from the perspective of the investors. Most important types of risk, which investors must consider, are:

- The risk of unfavorable investment results,
- The risk of incorrect investment strategy,
- The risk of incurring high loses,
- The risk of fraud.

Emergence and development of financial innovations, including alternative investments, has highlighted new sources of risk on the international financial market. In the era of globalization, reputational risk, for instance, is growing rapidly. Consequently, there is an increase of personal responsibility of the managers as well. Despite numerous positive aspects of globalization, attention should be paid to new threats. Globalization brings some new challenges, such as (Chorafas 2003):

- The need of dealing with cultural differences, as well as with the discrepancies between the rules and regulations,
- Greater complexities associated with appropriate application of those rules and regulations.

The issue of excessive application of a leverage by alternative funds has been widely discussed. Accurate measurement of the effects of leveraging requires employment of competent managers, the use of advanced technologies, as well as a proper use of available data.

Application of derivatives into investment strategies causes a necessity of continuous monitoring and control of the risks associated with the changes of the investor's positions on the futures markets. While analyzing the types of risk associated with alternative investments, appropriate management of the risk, by

Table 1.2 Examples of risk identification, measurement and its management

Identified risk category examples	The asset concerned	Description of the measures/control	Quantitative/ qualitative approach	Approach to risks constraints	Measurement frequency	Reporting / escalation	Owner/ controller
Market risk							
Credit risk							
Liquidity risk							
Transaction risk							
Valuation risk							
Operational risk							
Other risk							
(. . .)							

determining the methods of its measurement and by designation of an adequate risk level for each alternative investment portfolio, seem crucial.

The procedure of risk management ought to determine appropriate tools, which would be adequate for identification of the risk and for establishment of quantitative and qualitative constraints for each category of risk. A practical template which can be used to provide to an overview, as to whether each relevant risk is properly addressed, is provided in Table 1.2.

One of the basic requirements for smooth functioning of economies in individual countries is stable and efficient operation of the financial market. It enables transferring of the capital between financial market participants, from the entities holding excess capital to those characterized by its scarcity. Such actions should allow increased efficiency of capital allocation in the economy. This role is very important, due to the impact that the level of financial market's development has on economic growth of a given country. This dependency has been noticed by numerous economists, including one of the pioneers of this theory—J. Schumpeter, who first pointed to it in 1955. The strive for financial market development, therefore, is assumed to foster economic development of individual countries.

Alternative investments are contemporary financial innovations, which have emerged as a response to increasing expectations of the investors, in the face of rapidly changing market conditions. Increasing integration of the international financial market has caused a decreased attractiveness of traditional forms of investing. Lowering of the interest rated by central banks worldwide, in order to stimulate the economy, has caused a decrease in the interest rates on the deposits. This situation prevents the investors from generating attractive return rates while using traditional forms of allocating their cash assets. At the same time, it has influenced the search for new directions for investing the surplus cash assets by the investors seeking possibilities of generating extraordinary return rates from the invested capital. The years between 2000 and 2002 were particularly important from the perspective of alternative investments and their development. That period was characterized by a noticeable tendency for price declines on financial markets. The cheap money policy incorporated in the United States since the year 2000, has caused a decrease of the interest rates to the lowest level during the past 40 years. A decrease in the interest rates of short-term treasury securities to the level of 1 %, in the US in 2003, as well as a decrease in the interest rates of treasury bonds below 4.2 % in the year 2005, have decisively led to seeking other forms of investment, which hopefully would achieve higher incomes.

There also has been interest in the investments which allow effective portfolio diversification, while helping to broaden the spectrum of available products and services.[2] Due to the investors' growing interest in allocating their assets on the

[2] The research on diversification possibilities of a portfolio composed of traditional instruments using alternative investments, was done by Thomas Schneeweis, Richard Spurgin, A comparison of return patterns in traditional and alternative investments in Sohail Jaffer ed., Alternative Investment Strategies, Euromoney, 1998.

international financial market, interest in alternative investment strategies has emerged. Going back to historical beginnings, which initiated the development of the alternative investments market, it must be mentioned that the first subject of alternative investments described in literature was created in 1949 by a sociologist Alfred Winslow Jones. He used a method of short-selling, which enabled the investors to make a profit even during price drops on the market. In fact, short selling is a sale of hypothetical assets, for their later buyout at a lower price. In practice, it involves borrowing the assets that are priced too high, the price of which is most likely to go down. The difference between the sale price and the purchase price is the profit. The cost of renting the assets is subtracted from the profit. Alfred Jones, in his investment fund management combined both, long and short positions. He assumed, that proper selection of the securities being bought allows a profit above the average return rate, while application of a leverage multiplies the profit. Short positions in the portfolio decrease the potential profit from that portfolio during price increases on the market. On the other hand, they are meant to protect the portfolio against incurring losses during a market reverse.

The financial crisis in 2007 also contributed to a growing interest in alternative investments on the part of the investors. The crisis provoked the market participants to analyze its causes. It would be unjustified to say that it was invoked by financial innovations, since they are and will be an integral part of the international financial market. Supervising institutions and market regulators must adjust the regulatory and organizational architecture to the changing conditions. The years 2007–2009 were the turning point in integration of the EU financial market. The global financial crisis, which begun in 2007 on the mortgage market in the US, had significant impact on functioning of the financial market in the EU. It turned out, that despite the years of EU's efforts to build a stable financial market, existing regulations did not meet the expectations of the participants, while stability of the financial market in the EU was significantly disturbed. Work on introducing changes to the financial market in the EU was intensified. In 2009 European Commission published a document "Driving European Recovery" and another in 2010 "Regulating Financial Services" for "Sustainable Growth". These documents outlined the direction of EU financial market's development. An important change introduced by the EU starting January 1st, 2011 was formation of the European System of Financial Supervisors, ESFS as well as European System of Risk Board, ESRB. These institutions supervise the financial market in the EU.

Despite a continuously expanding spectrum of possible investment methods and techniques and the financial instruments offered, the principles applied by Jones are still versatile. Achievement of a high return rate is highly dependent on proper selection of the securities for the portfolio. Application of alternative investment methods is also meant to enable the investors to achieve a positive return rate, regardless the price changes on the markets. Another characteristic trait of alternative investments is based on an assumption, that achieving favorable results is highly dependent on the manager's professionalism. He/she should possess specific skills needed for selection of adequate tools and for application of short and long positions, which allow risk reduction and development of a positive return rate.

Clearly, alternative investments belong to complex transactions that are concluded on the markets with reduced informational requirements and low transparency. Therefore, the potential dangers associated with a very dynamic development of this market segment should be indicated, while the investors should be made aware of the risk associated with concluding transactions on the alternative investments market. Undoubtedly, it is more difficult to determine the dangers associated with application of alternative investments, compared with the risk of traditional investments. Moreover, application of complex investment strategies using a leverage, which involve significant amounts of capital, can pose a security challenge for the entire financial system.

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Chapter 2
Hedge Funds

2.1 Specificity of Hedge Funds

Currently, hedge funds are the most well-known alternative investment institutions. They emerged on the capital markets in the 70s and 80s. They evolved as a consequence of development of new financial instruments, such as e.g. derivatives. Also, limitations in functioning and in investing methods of traditional investment funds and pension funds have contributed to development of hedge funds.

Problematic aspects of hedge funds raise a lot of controversy. The term 'hedge fund' has not been universally defined. Analysis of legal acts concerning the sector of alternative investments proves that there is no precise definition of hedge fund. The term has not been specified by any of the US legislative acts such as: Securities Exchange Act of 1934, Investment Advisor Act of 1940 or the Commodity Exchange Act. This term neither has been defined by the Securities Exchange Commission, which has not presented any official definition.[1] What is more, there is no comprehensive definition of hedge fund by the European Union Directives.

According to the definition by Schneeweis et al. (2001), the term hedge fund can refer to an investment fund that is subjected to unrestrictive regulations, which invests the investors' funds both on the spot market as well as on the futures market, and which uses a financial leverage for the benefit of its shareholders. Another definition describes a hedge fund as an aggressive investment portfolio using all available speculative deals in order to generate income. Ineichen (2000) in his definition of hedge funds indicates the importance of managers' participation in the funds and calls it a private company, in which a manager or a general partner financially participate in the fund. Functioning of such a company is not subjected to restrictive regulations, which allows the fund to use various investment strategies, including short-selling and leveraging. The author stresses the fact, that hedge

[1] Securities and Exchange Commission, Registration under the Advisor Act of Certain Hedge Fund Advisers, 17 CFR parts 275, 69 Federal Register 72054, December 10, 2004.

E. Sokołowska, *The Principles of Alternative Investments Management*,
DOI 10.1007/978-3-319-13215-0_2

funds usually are created as limited partnerships or as civil law partnerships, located in offshore areas, which makes their actions unrestricted by any tax or legal regulations.

While citing various definitions of hedge funds, it is worth noting the controversies related to the lack of a universal model and its precise description. For instance, the *American Heritage Dictionary*, 3rd Edition, defines a hedge fund as "an investment company that uses high-risk techniques, such as borrowing money, selling short, in an effort to make extraordinary capital gains". Classifying hedge funds as investment companies would allow regulation of their activities under the Investment Company Act of 1940. Hedge funds, however, are not subject to regulations of that Act.

Jaeger (2002), on the other hand, states that the term 'hedge fund' is misleading, because hedge funds often use risky leveraged strategies, rather than hedging methods. Due to improper, as far as logic is concerned, use of this term, attempts are being made to substitute it with the term 'arbitrage fund'. Moreover, the term 'hedge fund' is not appropriate from the perspective of legal regulations under which those funds are formed. Most common legal forms include: a limited partnership or a civil law partnership, and as such, also in this context, the term 'fund' is used improperly. Following this logic, another definition can be quoted, which describes hedge funds as entities that are not a bank, an insurance company or any other regulated financial institution characterized by a very broad and diverse spectrum of investment strategies used by it.

While presenting the concept of 'hedge fund' that is used in business practice, a definition provided by a prestigious financial institution Moneycentral Investor http://moneycentral.msn.com/investor/home.asp can be quoted. It describes a hedge fund as a risky investment fund open to wealthy investors, which is devoted to finding investment opportunities characterized by a high return rate, but by a high risk. Goldman Sachs & Co., in turn, describes hedge funds as entities using various investment strategies, characterized by a high level of risk, yet providing a possibility of a high return rate at the same time http://www2.goldmansachs.com, Accessed December 13, 2009. Hedge funds are investment instruments, which, in comparison with traditional investments such as stocks or bonds, provide distinct profit and risk profiles (Stefanini 2010). Clarification of this definition requires an indication, that hedge funds use alternative investment strategies and styles, and they are not subject to any regulatory restrictions that could hamper fulfillment of the undertaken investment goals. Development of a positive return rate regardless the direction of price changes on the market is a common goal of hedge fund investments. Achievement of satisfactory investment results is highly related to the unique characteristics and abilities of fund managers (Connor and Woo 2004). Jobman (2002) also confirms the lack of a universal definition of a hedge fund. Summing up all the widely accepted definitions, some characteristic features of hedge funds can be distinguished, which include:

– Focus on achievement of a definite profit that is not based on a known reference standard called a benchmark;

- Allowing the managers to use both, growths and declines on the market, including long and short positions;
- Rewarding the managers for their results;
- High flexibility in the choice of investment styles and the use of short-selling strategies, leverages and derivatives;
- Ability to use various financial instruments in order to diversify the portfolio and to reduce the risk, as well as to generate extraordinary profits.

The above presented definitions do not uniformly specify the term 'hedge funds'. However, they allow isolation of some characteristic features, which distinguish these forms from other forms of collective investment.

2.2 Functioning of Contemporary Hedge Funds

The market of investment funds is very diversified. Nevertheless, the definitions of hedge funds presented by different authors have some elements that are characteristic of the hedge fund sector. Hedge funds most commonly belong to private investment companies, which are directed at wealthy individuals or single entities (natural person and legal persons). They are not, therefore, widely available. High amount of a deposit is its primary barrier, which only allows a selected group of wealthy investors to have access to those funds. Investors of those funds have direct access to hedge funds' data through investment advisors of these funds.

Some hedge funds, mostly American ones, do not use third party persons as trustees of its assets nor administrators (who calculate the net value of the fund's assets). This can lead to a conflict of interest, and in extreme cases even to misappropriation of assets. For instance, Kirk Wright International Management was accused of fraud and a breach exposing their clients to losses in the amount of $180 million. In December 2008, Bernard Madoff was arrested for a fraud of $50 million in a Ponzi scheme.

Despite significant differences in functioning of hedge funds, there is one characteristic feature common for all such funds—the assumption of achieving a positive return rate, in the absolute sense, that is, without using benchmarks as a target reference standard.

One important element impacting functioning of hedge funds and influencing their specific results is the relationship between the managers and a hedge fund, involving their financial participation in a given funds well as their investing abilities which generate the so-called additional alpha.

A two-stage system of compensating the managers, which is characteristic for alternative investments, is a significant feature of hedge funds. The management fee is deducted from the returns prior to their publishing. Commission from a generated income enables establishment of a strong relation between those managing the fund's assets and the fund itself.

Investing own funds by the managers is a good protective measure against occurrence of some mechanisms characteristic of a given agency's theory,[2] according to which the investors and the investing have different goals. Compensation for the results is usually paid out after reaching the assumed break-even point or after making up the losses incurred by the fund during preceding periods. Hedge fund managers usually receive both, the fund management fees and commission for the fund's performance, which is also called a commission incentive. A typical hedge fund manager charges a fee of "2 and 20". This term refers to a management fee of 2 % of the fund's net asset value, and to a commission incentive of 20 % of the profit earned by the fund. Generally, management fees range from 1 to 4 % annually (standard 2 %), but are calculated and paid out monthly or quarterly. Business models of most fund managers assume the management fees to cover the manager's operation expenses, leaving the fees for performance as employee bonuses. In large hedge funds, management fees can constitute a significant part of the manager's profit.

Commission from achieved results is a characteristic feature of hedge funds. The amount of commission is calculated as percentage of the profit obtained by the fund. Typically, hedge funds charge a commission of 20 % of the overall profits. The scope of these fees, however, is diversified; well-known managers charge higher fees. For instance, in the fund SAC Capital Partners an incentive fee is as high as 35–50 %, while Jim Simmons from the Medalion Fund charges a fee of 45 % of the overall profit. The model of incentive commission has been much criticized as being the cause of excessive risk-taking on the part of managers, undertaken in order to attain short-term profits. Managers should be focused on implementation of long-term investment strategies. Goetzmann et al. (1998) have attempted an analysis of potential costs and benefits of a *High-Water Mark* system from the investor's perspective. There are many various commission models, however, the most known systems include:

- *High-Water Mark,*
- *Hurdle rate.*

High-Water Mark literally means the mark of high water that is above the highest level a given water reservoir has reached during a certain time interval. This term is often used in figurative sense to describe the highest value level of a given variable. In reference to the hedge fund sector, this term is used in conjunction with the managers' fees (Stracca 2006). This means, that the managers receive an incentive commission (*positive performance fees*), if the market value of the fund exceeds a certain assumed level. Thus, when calculating commission, the net asset value of the fund in a current year and the net asset value of the fund in a

[2] In the 60s and 70s of the twentieth century, Arrow and Wilson attempted to describe the problem of risk distribution, which arises when partners have different approach to risk. The agency's theory, besides the risk distribution, has developed the problem of agencies, which arises when the entities cooperating with each other have different goals.

Table 2.1 The mechanism of the high water mark commission system (Sokołowska 2014)

Year	Net asset value (millions USD)	Change in net asset value (millions USD)	The value of commission (millions USD)
2010	100	–	–
2011	120	+20	$0.2 \times 20 = 4$
2012	110	−10	0
2013	130	+20	$0.2 \times 10 = 2$

preceding year are compared. Commission is paid out, if the current net asset value of a fund (NAV) is higher than the historical maximum value of those assets.

High-Water Mark contracts are important from the perspective of the investors' interests, since incentive commissions are paid out only at the time of fulfillment of specific conditions. On the other hand, however, this mechanism can lead to higher risk-taking on the part of the managers and to higher variations in return rates of such funds.

Table 2.1 shows the mechanism of a *High-Water Mark* commission system. This simplified diagram shows, that in 2013, despite an increase in the net asset value, from $110 to $130 million, the incentive commission was paid out in the amount of $2 million, because the value of $130 million is by $10 million higher than the highest net asset value of $120 million, which was earned by the fund during previous periods. Such construction of a commission mechanism is meant to focus the managers on attainment of long-term investment objectives. This mechanism, however, is not devoid of drawbacks. It may happen, that the manager, who suffered significant losses, can withdraw from managing a given fund without suffering severe consequences.

Another known mechanism of an incentive commission payout is a *hurdle rate*. *Hurdle rate* generally describes the minimum return rate of an investment. In the system of compensating hedge fund managers, this term is going to describe a return rate level, which should be reached by a hedge fund in order for its managers to receive additional commission. This mechanism, therefore, allows the fund managers to collect commission that is based solely on achievement of a performance above the pre-established reference standard (the so-called benchmark). Thus, the commission fee is collected after the reference rate is exceeded, such as a LIBOR rate or another predetermined benchmark. In case of the so-called *soft hurdle* mechanism, commission fee is calculated based on the total annual return rate. In case of a more restrictive mechanism, called a *hard hurdle*, the commission level is calculated based on a return rate exceeding the benchmark.

Immediate withdrawal of the cash invested in a given fund is not possible. Most funds often predetermine the so-called fund entrance and exit barriers. Each hedge fund uses different rules regarding exiting an investment. Therefore, it may be a month period or even 3–5 years. The clauses preventing fast withdrawal form an investment are called *lock-ups*. Some hedge funds collect fees for cancellation of shares (fees for a withdrawal from the market), if the investor intends to withdraw the assets from the fund earlier. The fee for cancellation of the shares in a given

Table 2.2 Primary features of hedge funds

Investment goal	Achievement of a positive return rate, regardless the market conditions; lack of reference to the so-called benchmarks
Investment strategies	Broad spectrum of investment strategies using various investment techniques (short-selling, leveraging), with application of complex instruments (including derivatives); investing on various markets
Transaction costs	A fee for managing the fund (management fee), usually around 1–2 %; a charge based on the achieved result (performance fee)—variable, ranging from 10 to 40 %
Headquarters	Mostly offshore centers characterized by liberal legal and tax regulations
Legal form	Most common legal form is a limited partnership, limited liability company, business trusts
Management	Investment company—a managing entity or a natural person, often a support of independent investment advisors
The investors	Wealthy individual investors; institutional investors, who making a capital contribution and create a capital pool; moreover, selecting qualified investors, who are aware of the risk and know the strategies used by the fund
Restrictions	Most hedge funds are characterized by a minimal capital input and by restrictions regarding the number of investors
Regulations	Usually, there are no regulations, or the scope of regulations is small
Publicness of the fund's data	A voluntary or limited obligation to disclose data, as compared with other institutions of collective investment

fund often is collected within a particular time from the date of investment (usually 1 year period). The cancellation of shares fee is meant to discourage investors from short-term investments as well as to prevent withdrawal of the assets following a period of unfavorable investment results. In contrast to fund management fees and to an incentive commission, the fees for cancellation of shares are hoarded by the fund and they multiply the capital of other investors; thus, they do not constitute additional commission paid out to the managers.

Hedge funds use complex marketing strategies, which are analyzed in detail in Chap. 3. As a rule, these entities undertake application of a specific investment strategy determining its character and the level of the risk taken by the fund. Characteristic features of hedge funds are summarized in Table 2.2.

2.3 Classification of Hedge Funds

The sector of investment funds, which operates on the developed financial markets, distinguishes between two basic groups of funds (Wiśniewska 2007a, b):

– Traditional funds, such as equity funds, fixed income funds, hybrid funds and money market funds;
– Alternative funds, specified as: *private equity* funds, *venture capital* funds, *real estate* funds, or hedge funds.

Hedge funds also can be divided according to a geographical criterion. Such classification of hedge funds according to their location differentiates between two types of funds:

- *Onshore* hedge funds,
- *Offshore* hedge funds.

Offshore hedge funds are entities located in places characterized by liberal legal and tax laws. Estimates indicate that about 70 % of all *offshore* hedge funds are registered in the Cayman Islands http://www.hedgefundsreview.com. An attractive place of registration for those funds oriented at operating within the European Union is Dublin (Ireland). In turn, Hong Cong or Singapore are the best places of registration for the funds oriented at activities in the Far East.

Another criterion of hedge funds' classification is the investment strategies used by them. There is no single common division listing the strategies used by these entities. Each major research center, such as CSFB/Tremont, TASS, HFR or Van Hedge, use different rules of division. Analysis of different divisions of the particular investment strategies used by hedge funds enables their classification according to two separate criteria:

- The similarity criterion of the instruments used and of the direction of price changes occurring between them,
- The method of evaluating the market risk and the tools used for it.

Hedge funds can also be classified according to their availability. Under this classification, we can distinguish the following hedge funds:

- Private hedge funds—this category includes vast majority of the hedge funds operating on the market;
- Public hedge funds, available to a wider group of investors—including the funds, whose share units are issued e.g. in the form of certificates on selected stock exchanges.

Yet another criterion of hedge fund division takes into account investment policies, which are closely linked with the investment strategies that are used by a fund. Within the scope of the strategies, we can distinguish the following hedge funds:

- Balanced hedge funds,
- Aggressive hedge funds.

Depending on the manner of fund's management, we can distinguish the following types of funds:

- Discretionary hedge funds, that is, those using automated trading systems designed to exclude the errors related to the human factor;
- Qualitative hedge funds, which are managed using the managers' knowledge and experience.

2.4 Legal Forms of Creating Hedge Funds

A hedge fund's legal form depends on the fund's registration place and on the manner in which the financial assets are invested. Since hedge funds have originated in the United States, the legal forms of creating hedge funds in this country will be the object of analysis. These forms can serve as a reference point for the hedge funds created elsewhere.

Business entities operating in the United States can conduct their activities in various legal forms. These entities are subject to the American law, therefore they often differ from legal entities in other countries. A synthetic approach to certain American legal forms, presented below, does not mean that these forms function the same in other places in the world.

Basic legal forms of business entities in the United States are:

- Operating on the basis of an entry in the business activity register (*sole proprietorship*),
- Non-commercial/civil partnership (*general partnership*),
- Limited partnership,
- Limited liability company,
- Corporate/joint-stock company (*corporation*).

It is also possible to organize entities as[3]:

- A professional partnership (*limited liability partnership*),
- A limited liability limited partnership.

Most of the above listed legal forms do not bear the characteristics adequate to create a hedge fund. Vast majority of the companies in the US operate in the form of a natural person conducting activity based on an entry in the business activity register. This form of activity is suitable for individuals or for married couples, however, it does not offer the right conditions for enterprises run by a larger number of people. Basic problems associated with this activity are related to difficulties in raising the capital, difficulties in distributing the profits or losses, as well as problems associated with the scope of responsibility borne by each individual.

General partnership is a basic form of conducting any business activity on a small scale. The creditors of a general partnership may, however, execute their claims not only from the company's assets, but also from each partner's private assets.

There are two basic legal forms used to create hedge funds: a limited partnership and a limited liability company. The legal form of a limited partnership does not belong to popular modes of conducting business activity in the US; it is generally reserved for the companies investing in real estate or in extraction of natural resources (http://newyork.trade.gov.pl, Accessed June 1, 2014).

[3] The forms presented here belong to less common ones.

A hedge fund established in the form of a limited partnership consists of at least one general partner and one limited partner. A general partner is responsible for running the fund and is personally responsible for the liabilities incurred. A limited partner is responsible for the company's obligations up to the amount of his/her declared contribution (limited liability amount).

In practice, in the US, general partners of limited partnerships are legal persons. They are entitled to represent the company. Limited partners can only act as proxies. If general partner is a legal person, the company is managed on his/her behalf by the Board or by the persons appointed by him/her. Investors (limited partners) do not bear any responsibility for the decisions made by general partners, nor for the fund's liabilities. The profits earned by the company are divided between the partners, where the division criterion is based solely on the actual contributions. Organizational structure of the fund operating in the form of a limited partnership is illustrated by Diagram 2.1.

Another possible legal form of a fund is a limited liability company. Organizational structure of a fund operating as a limited liability company is presented in Diagram 2.2.

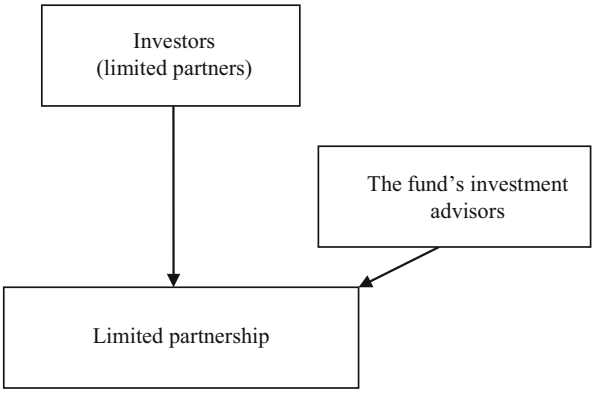


Diagram 2.1 Organization of a fund operating in the form of a limited partnership (Lhabitant 2011)

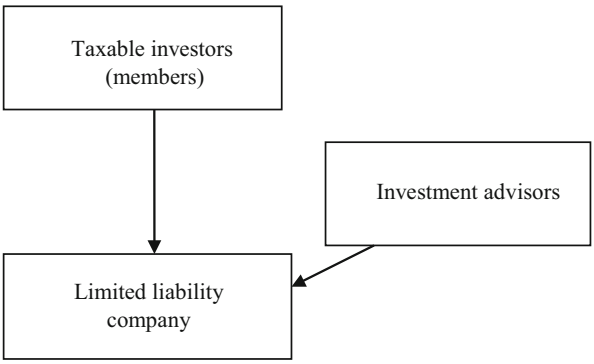


Diagram 2.2 Organization of a fund operating as a limited liability company

Since hedge funds are not registered investment firms, they are not required to disclose any information. However, they publish memorandums for their investors, which contain basic information on a given hedge fund's activity an on the strategies used by it. Moreover, the investors receive information on the fund's results, about risk analysis, and on the composition of its investment portfolio. Despite a lack of such requirement, most hedge funds employ an auditor, who makes an independent annual audit of the fund's activity and provides a report on it.

2.5 The Structure of Hedge Funds

The structure of a hedge funds is determined by its legal and organizational form. To a high degree, it depends on the laws in force in a given country. If the fund is formed in accordance with the US law, it usually is determined as a *domestic hedge fund*; if it is formed in accordance with the law of another country, it is called an *offshore hedge fund*.

Another common variant of a fund's organizational form is using the *Master-Feeder* structure. It involves joining the fund with a separate offshore fund, in accordance with the US law, in order to benefit from numerous advantages. There also is a possibility of creating a structure composed of a primary fund and at least two feeder funds. The primary fund sells its shares to feeder funds, which are the only entities authorized to acquire them. These funds offer their shares to investors. *Master-Feeder* funds often are created in the form of a corporation, under the laws different than those in the US (Lins 2002). Primary funds can also be arranged in the form of a limited partnership. Organizational structure of a *master-feeder* fund is presented in Diagram 2.3.

Another organizational structure of hedge funds' activity is a structure called *side-by-side*. In the *side-by-side* structure, investors, usually American, invest in a limited partnership formed within the US, while offshore investors invest in a fund

Diagram 2.3
Organizational structure of a *master-feeder* fund

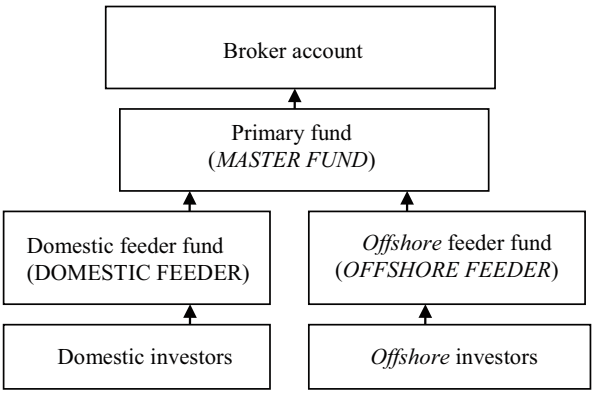
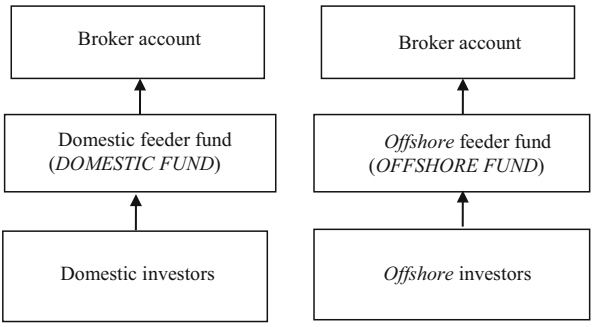


Diagram 2.4
Organizational structure of a *side-by-side* fund



formed in tax heaven. These funds, though, have the same investment goals and the same managing entity (Diagram 2.4).

Hedge funds registered in the so-called *offshore* financial centers offer many advantages associated with their functioning. Offshore locations allow conduction of business activity free of income tax, or with a low-rate flat tax or a lump-sum tax. Offshore regulations and conducting offshore activity are characterized by the possibility of using all the advantages the tax heavens provide, without locating there the Board, the personnel or the investors themselves. Tax regulations existing at those locations have some characteristic features: limited availability of alternative funds for unskilled retail investors, protection of client confidentiality, and the fund's requirements independent of its management. This reduces the costs associated with the fund's operational activity. The headquarters located on an *offshore* territory are formal in character. Physical control and management are conducted from the entity's domestic headquarters or from another suitable place.

As opposed to hedge funds' places of registration, their managers are based primarily in the *onshore* countries. Most of hedge funds' managers come from the US (mainly from New York and Connecticut). It is estimated, that in 2008, about 7000 investment funds' managers were based in the US http://sec.gov/rules/final/ia-2333.htm#IA. A dominant European place of hedge funds' management is London.

Offshore hedge funds usually are organized as corporations in countries like: the Cayman Islands, British Virgin Islands, the Bahamas, Panama, Netherlands Antilles or Bermuda. Commonly, these attract tax-exempt entities, such as pension funds, charity foundations, as well as the investors outside the United States. US tax-exempt investors prefer investments in the *onshore* funds, because they could be subjected to a tax, if they invest in a domestic hedge fund set up in the form of a limited partnership.[4]

[4] According to the US tax law, income tax exempt organizations, such as ERISA or charities which take up investment strategies requiring debt, loose that privilege. In such cases, entities are subjects to an income tax on unrelated business taxable income (UBTI). It is possible to avoid this tax by investing in *offshore* funds. More on: http://www.greencompany.com/HedgeFunds/OffDocOffshore.shtml [accessed: October 20, 2014].

Offshore hedge funds can be organized by foreign financial institutions or by US institutions and their branches. Hedge funds operating in the so-called tax heavens, usually enter into an agreement with an investment advisor, who can be employed by an entity located in the US. Often these funds have an independent administrator of a fund located *offshore*, who can assist in the tasks related to valuation of the securities and in calculating the fund's net value. The sponsor of a fund located on an *offshore* territory usually is assigned by the Board, which controls this entity's activity.

Domestic hedge funds can employ brokers, accountants, attorneys, or administrators. In general, however, these entities do not hire employees and are not engaged in management of any other assets / cash other than those, which constitute the fund's investment portfolio. These entities often use outsourcing, that is, they distribute (outsource) the responsibilities associated with the fund to external entities. This reduces employment within the fund. The fund incurs some fees for the services provided to it according with concluded contracts. The use of external specialist advisory services is, on one hand, meant to limit the costs and on the other, to supply specialized high quality service.

Moreover, distribution of the responsibility to a larger number of entities is supposed to reduce the likelihood of embezzlement and of using dishonest practices. Such approach, however, is dangerous due to a possible lack of effective coordination of individual activities within the fund. Involvement of the managers' own financial assets, though, results in their much greater responsibility for the decisions made as well as for the results performed. Entities, which are usually involved in the fund's activities are going to be characterized in Diagram 2.5.

A so-called sponsor is an initiator of a hedge fund. The sponsors, also called the general partners of hedge funds, are former businessmen, investment advisors or financial analysts. Often they are the people, who have successfully served managerial functions in the financial sector. A sponsor, generally, deposits some assets during the phase of setting up a fund. He/she usually possesses non-transferable shares in the fund, with voting rights and the right to participate in majority of decision-making of the company's Board. If the fund is created in the form of a limited partnership, the fund's sponsor becomes its limited partner. If a different

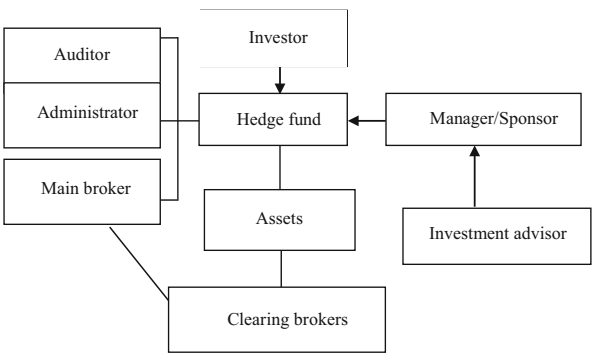


Diagram 2.5 Classic structure of a hedge fund (http://www.harcourt.ch 2014)

legal form is chosen, e.g. a limited liability company, the sponsor is an entity controlling the fund's management. As such, he/she receives an income depending on performance of the fund controlled by him/her. Frequently, the sponsor contributes his/her own capital (owner's equity) to the hedge fund. The remaining shareholders of hedge funds, that is all other entities, which bring in the capital, are the investors. They receive shares proportionally to the capital contributed in the fund. Issuance of the shares occurs as a private placement. Majority of hedge funds is supervised by the Boards designated for that purpose. Actions taken up by the management are intended to supervise compliance of the undertaken activities with the fund's investment policy. Members of the Board are independent persons, who are not related to and not involved in the fund's activity. Frequently, the entities engaged in the fund's activity are the investment advisor's assistants. Independent members, on the other hand, cannot have any relations with the fund's advisor, who is supposed to guarantee objectivity of the decisions made. Generally, these persons are recruited from among prominent individuals with extensive experience in management.

Hedge fund's advisor is one of the most important entities influencing performance of a fund. He/she can influence the alpha index—additional return rate achieved by the hedge fund. Its development depends on the advisor's competence and professionalism. The fund's advisor is expected to closely cooperate with its sponsor. Usually, the advisor also manages all marketing activities and distribution of the fund shares, as well as supplies the investors with periodical reports on the fund's performance. An advisor can also act as the fund's partner. The scope of the investment advisor's activities varies depending on the fund's organizational structure.

The funds' managers are professionals hired to manage the money in accordance with the funds' investment goals. Main tasks for the person managing the securities, from an organizational perspective, involve managing the fund's portfolio and compliance with recommendations of the investment advisor. Expenses of the person managing the securities usually are covered by the management fee. In case of the hedge funds operating *offshore*, an investment manager usually operates in the form of a company which is affiliated with the fund's sponsor. This form limits the responsibility and is more beneficial in terms of taxation. In case of an *offshore* fund, the manager can act as the fund's sponsor and its manager at the same time.

Usually, hedge fund brokers are large investment banks. Hedge funds typically use services of numerous brokers, in order to guarantee themselves access to most favorable buying and selling offers. The so-called main broker, also called a *prime broker*, has a different function; he/she provides comprehensive services connected with carrying out the operations and their settlement. Main responsibilities of a fund's broker are:

- Transaction settlement,
- Acting as the fund's depositary,
- Settlement of the profit margin,
- Lending the securities for the purpose of short-selling,

Table 2.3 The largest hedge funds administrators in 2012

Administrator's name	Administered assets (%)
State Street	12.8
CITCO	12.8
SS&C GlobeOp	7.6
HSBC	6.8
Citibank	6.1
Others	53.9

– Reporting on the risks,
– Conducting market research,
– Management of security deposits,
– Valuation of securities.

The prime broker often becomes a guarantor during taking up risky positions on the market, which involves additional charges for him/her.

The main role of the fund's administrator is to provide support by taking the responsibility for valuation of the assets as well as for all operational, administrative and accounting services. The level and the scope of the fund administrator's work varies depending on the level of the administered fund's complexity as well as on the activities performed by the *prime* broker. Hedge fund's administrator deals with problem description, calculates the net value of the fund's assets and performs all administrative activities related to that. In some hedge funds, especially in the US, some of these functions are performed by the hedge fund's manager. The largest entity administering hedge funds was Citco Fund Services, and State Street. Each of them managed 12.8 % funds. Table 2.3 lists the largest entities administering hedge funds in 2012, according to the percentage of the net assets administered by those funds.

Hedge funds also use legal advisors, who deal with tax law and ensure the fund's functioning in compliance with the laws in force. The role of an auditor is to ensure compliance of the fund's activities with applicable accounting standards, as well as to control the fund's financial statements. In general, an audit takes place once a year, and it results in a report that is sent out to the investors. In addition to the audit, periodical reports on the valuation of the fund's assets and on the fund's performance are prepared. They are held periodically, that is weekly, monthly or quarterly.

A transfer agent is an entity managing the records of the fund's participants. Within the scope of activities associated with such registry, a transfer agent performs current updates of the registry's balance, accepts and executes dispositions of the fund's participants (e.g. data conversion, acceptance of powers of attorney), organizes and conducts circulation of documents and cash, as well as provides accounting services. Keeping registry of the hedge fund's share-holders is also the transfer agent's task. The recorder undertakes the actions associated with subscription and withdrawal of the fund's shares from the market. The fund's other activities include allocation and distribution of the profit. If the fund does not have its own transfer agent, this function is performed by its administrator.

The entity entitled by the fund to carry out instructions and orders made by the fund's participants is the distributor. As a rule, it is a brokerage office or selected bank branches. Some hedge funds distribute their shares internally, that is without participation of a distributor. The fund's investors buy its shares directly from the fund, through a registrar or a transfer agent. Sometimes, however, distribution of the shares within the fund is done by a distributor, who can affiliated with the fund or operates autonomously. A distributor can be, for instance, an independent brokerage firm, an insurance agent or a bank representative. Such entity is engaged in contacting the fund's potential clients directly in their jurisdictions (where it is legal, in accordance with the law). In both cases, the investor pays 25 % of the invested amount for distribution of the fund's shares. Often, a distributor is also the entity responsible for delivering the offer to potential investors.

Many institutional investors are also prohibited from investing in the stocks or shares which are not listed or recognized on a regulated stock market. Issuance on a well-known and regulated stock market is therefore an important marketing power for the promoters of hedge funds and/or funds of funds. What is more, several stock exchanges dedicated to hedge funds were founded, such as: the Irish Stock Exchange, the Channel Island Stock Exchange or the Bermuda Stock Exchange. Although these stock exchanges do not offer attractive conditions associated with a high levels of liquidity and trade, they facilitate marketing activities of the stocks/shares directed to selected groups of investors. Each fund which intends to make issuance on a stock market, usually is obliged to obtain approval and permission of a traded sponsor listed on a given stock exchange.

2.6 Hedge Fund Databases

Hedge funds belong to private investments, therefore it is difficult to obtain precise information regarding their functioning and investment performance.

Some hedge funds, however, practice monthly reporting on their results and share information about their business with specialized databases. These databases collect information on functioning of funds and sell such information to those interested in the results achieved by the funds. Information about such results is bought by investors, banks, funds of funds as well as by scientific institutions conducting research on a given sector.

There is no single complete database containing information about activities of all hedge funds. The databases being created are not representative of the entire sector either. There are various reasons for this. The first is related to the aforementioned lack of obligation to provide information on funds' activity. Due to a novelty nature of this sector, it is should be noted, that the earliest historical data comes the 90s of the twentieth century. Each of the databases already created contains different criteria for classification of funds, as well as uses different data collection and processing methods. There are two organizations which have attempted clearing their database of errors: Hedge Fund Research (HFR) and CSFB/Tremont (CT) (Table 2.4).

Table 2.4 Characterization of the largest hedge fund databases and of Commodity Trading Advisors (CTAs) (Lhabitant 2007, 2011)

Database name	Characterization of the database	Number reporting of hedge funds/CTA
Altvest/Investor Force	Founded by Altvest, taken over by Investor Force. This database provides information about alternative investments, as well as prepares analyses and reports.	Around 2600
Barclays Hedge Fund and CTA Database	The Barclays database belongs to most modern and extremely precise ones, with a high growth potential.	Around 2200
CISDM/Zurich/MAR	Databases created by Manager Account Report (MAR), sold in March 2001 to Zurich Capital Market, then donated to University of Massachusetts Center for International Securities and Derivatives Markets (CISDM) in August 2002.	Around 2500
Daniel B. Stark&Co.	Daniel B. Stark&Co.'s CTA& Futures Fund Manager Database contains information on CTAs and on future funds from the last 16 years.	Around 420 CTAs, around 200 future funds
Eureka Hedge	EurekaHedge is an advisory institution registered by Securities and Futures Commission of Hong Kong.	Over 330 in Asia Over 500 in Europe 734 of funds of funds
Investhedge AsiaHedge	Database managed by HedgeFund Intelligence—an independent institution cooperating with the Bank of Bermuda, collecting information about the results of European funds and on funds of funds.	Over 650 in Europe 700 of funds of funds
Financial Risk Management (FRM)	Database owned by FRM, an independent management group. Information in the database is subject to research in academic centers.	Around 8000
Hedge Fund Research	HFR is an advisory group registered by SEC, specialized in constructing and managing funds of funds and various portfolios. It is one of leading databases of information on hedge funds.	Over 2500
Hennessee	Hennessee is an advisory institution registered by SEC, which provides advisory services solely connected with the alternative investments sector.	Around 3000
Morgan Stanley Capital Indices (MSCI)	Founded in 2002, offers indexes of hedge funds.	Over 1300
Tass/Tremont	Tass/Tremont was founded in London in 1990, one of leading providers of data and information about the hedge funds sector. It is also one of the oldest organizations researching the market.	Over 3000
Tuna/Hedgefund.net	Hedgefund.net is a free database of information on alternative investments, used by over 35,000 accredited investors worldwide.	Around 4000

(continued)

Table 2.4 (continued)

Database name	Characterization of the database	Number reporting of hedge funds/CTA
US Offshore Funds Directory	US Offshore Funds Directory publishes information about the hedge funds sector annually	Around 1000
Van Hedge Fund Advisors	An institution providing advisory services and researching the alternative investments sector.	Over 5000

2.7 Database Errors

Any measurements comes with possible errors, which can be divided into two categories: random errors, that is coincidental ones, and systematic errors (biased errors) (Wiśniewski 2009, 2013). Random errors mainly result from imperfections of measuring devices and due to imperfections of the person conducting the measurement. This kind of errors is unavoidable during any measuring process. Random errors are characterized by a normal distribution with a zero mathematical expectation.

The so-called systematic errors are different in nature. This type of errors occurs when a test conductor deliberately tries to get a different result than the actual one (that is, higher or lower). It can therefore be assumed, that this type of errors could be eliminated through reliable measurements.

These types of errors should be considered when using databases, since they also contain random and systematic errors. Moreover, one should be aware, that even the data collected by the most prestigious databases is not representative for the entire sector of alternative investments. Random errors originate during the process of gathering information. Databases also bear errors that are systematic in nature. While analyzing the hedge funds' results available in databases, occurrence of the following errors should be taken into consideration (Fung and Hsieh 2004)

- Survivorship bias,
- Self-selection bias,
- Instant history bias,
- Database/sample selection bias.

Short time series presenting performance of hedge funds can indicate a process of continuous formation of new funds and liquidation of the funds which have not reached satisfactory results. This creates a type of errors called *survivorship* bias. Performance analysis of those hedge funds which have survived on the market until the present, can also cause some errors associated with overestimation of those funds' historical results. Many of the least profitable funds become decommissioned during the course of achieving unsatisfactory results. These funds obviously stop reporting to databases. Analysis of the relation between the number of new funds and their results can suggest that this type of errors is of significance. Most hedge funds are closed before the end of 6 years.

The funds which begin to generate losses, very often stop reporting on their results.[5] For instance, Long-Term Capital Management, during the period from October 1997 to October 1998, had lost up to 92 % of its capital. None of the negative results achieved by the fund had been reported to the databases.

The motives related to liquidation of a fund or to its discontinuation of reporting to a given database can be various. Among the most important causes, we can list the following:

- Liquidation of a fund after a period of severe losses,
- Liquidation of a fund after a long period of achieving results below expectations, which decrease the net value of its assets, below the *high-water mark*,
- Fusion of a fund with another hedge fund. Such situation most frequently occurs when small hedge funds, achieving least satisfactory investment results, are absorbed by larger hedge funds,
- Cessation of reporting by a hedge fund, despite continuing its activity. Such funds are called *defunct funds*, while the term *dead fund* is used for the hedge funds which disappear from databases and at the same time cease their activity.

It is also possible that funds achieve such satisfactory results, that they stop using the services of institutions creating databases (Ackermann et al., 1999). Those hedge funds which achieve very good investment results, have reached their targeted volume and do not seek to expand their investment group, do not report to databases.

The estimates relating to the magnitude of those errors vary, depending on the measurement method. Fung and Hsieh have estimated their error magnitude at the level of 3 %, while Park, Brown and Goetzman have estimated their error level at the rate of 2.6 %.[6]

Self-selection bias mainly results from the nature of the hedge funds reporting to databases. Due to the private nature of those investments, reporting is selective in character. As such, it can be concluded, that those funds will be more likely to share information, which achieve favorable investment results, while hedge funds incurring losses are omitted.

Database/sample selection bias is the main source of errors related to hedge funds' performance. They result from the lack of complete databases as well as from some specific criteria the hedge funds must meet in order to be included in a given database (Lhabitant 2011). Such criteria, for instance, can be: a minimal value of the fund's assets, the fund's measurable performance, minimal time of the fund's operation. Although, they can seem rational, they do influence selection of a given fund from a particular segment of the market.

[5] The studies on dependencies between cessation of reporting by the funds and their results was conducted by Posthuma and Van der Sluis 2003, A Reality Check on Hedge Fund Returns, Working Paper.

[6] See also: Fung and Hsieh (2001) Park et al. (1999). Other works in which survivorship error measurement was attempted are: Brown et al. (1999), Liang (2000, 2001), Amin and Kat (2002).

The funds, which are being added to a database for the first time, also provide their historical data, which is registered in the database as *ex post* results. It is likely, that funds will only provide favorable results of their investments, in this way, overstating their average return rate. This kind of results is called an *instant history bias*.

Despite the fact that database bear some errors, they still are extremely useful and are an important source of information on the activity of the hedge fund sector. Increasing reporting activity regarding hedge funds' strategies and their results indicates that these entities are willing to be perceived as transparent. The growth rate of this sector, also reflected by database statistics, indicates that alternative funds are ceasing to be a marginal sector of the capital market.

2.8 Hedge Fund Indices

Most database suppliers offer additional services, such as e.g. assistance in selecting a fund or in selecting securities for a portfolio. The information accumulated in databases is also used to create hedge fund indices, which are a common assessment measure of funds' activity.

Indices belong to descriptive measures expressing relative time-changes in measurement series (Aczel 2000). Hedge fund indices allow a comparative analysis within the hedge fund sector as well as between other forms of capital investments. Activity of hedge funds can be described using various indices. Within the sector of alternative funds, we can distinguish the following indices (Niedziółka 2009):

- Investment indices (*investment vehicles*),
- Non-investment indices (*non-investment vehicles*),
- Cloned indices (*clone vehicles*).

Generally, indices are a synthetic measure of the changes in certain units of value making up a given index (Wiśniewska 2007a, b). Investment indices are based on the results of hedge funds. Alternative indices can be created on the basis of the results as well as based on the risk profile of a group of funds which are obliged systematically disclose certain data to a given index's creator. Using indices for the hedge fund sector brings similar benefits as for any other class of assets. Thus, many potential benefits of using indices can be noted. Such index provides important information about the condition, the results and the risk of the hedge fund sector during a particular time interval, as well as allows assessment of the links between the price changes and the assets. From the perspective of a strategic allocation of assets, it provides crucial information which facilitates proper construction of a diversified investment portfolio. It also allows evaluation of the hedge funds' results, depending on the investment strategies used by them. It should be noted, that there are large discrepancies between the skills of hedge fund managers, which often develop over time. In this situation, an index provides a pattern which allows evaluation of the managers' skills.

An index also constitutes the base for constructing a passive investment product, e.g. a fund index. Such a tool can be an interesting option for those investors, who

seek an effective diversified form of an investment. Possible benefits associated with a particular investment style are another advantage of creating investment indices. What is more, an index provides standardized data which is needed to measure a risk profile of a given fund, in comparison with the index.

Investment indices of hedge funds can be described as investment portfolios designed to present the results of selected hedge funds. The characteristics associated with distribution of hedge funds' results have been extensively described in the literature concerning the subject. For instance, Brooks and Kat stated that the results of hedge fund indices are characterized by a relatively low skewness and a high kurtosis (Kat and Lu 2002).

Indices are constructed using the same methodology that is used while constructing traditional financial indices. Investment indices are not representative, since they are created based on a selected group of hedge funds which permit reporting on their performance. A financial institution undertaking creation of an index selects the funds, the structured products and the derivatives which will constitute the basis for calculating its results. Investment indices allow the investors to invest, via the created index, in a certain group of hedge funds, according to an assumed risk profile. Those indices consider only those hedge funds, which agree to invest under the terms proposed by the constructor of an index. Often, investment indices do not consider the results of those large and profitable hedge funds, which do not accept the conditions proposed by the creators of a given index. That may be a drawback for those indices. Among recognizable investment indices the following should be mentioned: Hedge Fund Research, Eurekahedge Indices, CSFB Tremont or FTSE Hedge.

Non-investable indices, on the other hand, are representative in nature. They are used for assessment of particular hedge fund segments. At the same time, they use such statistical categories as the mean, the weighted average, or the median. Calculation of non-investable indices is based on information from the databases created on the basis of various criteria regarding selection and construction of hedge funds. This leads to significant differences between the indices being calculated.

Clone indices belong to the most innovative ones in the hedge fund sector. They seek to replicate some of the statistical properties of hedge funds. They do not reflect the results of hedge funds, but they use those hedge funds' historical results in order to construct a model, which is meant to determine the sensitivity of a given fund's return rate to the price changes of various investment assets. This model then allows construction of an investment portfolio. These indices, however, are based on rather short time series, which makes it difficult to determine whether this method is effective. Such indices are offered by Goldman Sachs and Merril Lynch.

2.9 Selected Hedge Fund Indices

Despite a very large number of currently existing hedge fund indices, only selected indices are reputable and are recognized among investors. The following hedge fund indices belong to a category of non-investable indexes.

Eurekahedge indices are created by AMB Amro and Eurekahedge Fund Advisors. These institutions create balanced indices, which represent the condition of Asian investment funds. They include such indices as: ABN EH Index, ABN EH Japa Indeks, ABN EH Asia ex-Japan index. The funds comprising those indices manage the assets of a minimum value of $40 million.

Altvest is a subsidiary company of InvestorForce Inc., involved in acquisition and provision of information about institutional investors, consultants and financial managers. Since 2000, Altvest has created 14 indices that are based on information from a group of over 2000 hedge funds. Altvest has constructed a base index, composed of 13 subindices. The information, that the largest pension system in the US—Calpers is going to use Altvest data for management of the positions on the market of alternative investments in total value of $1 billion (Lhabitant 2007), has greatly contributed to popularity of indices created by Altvest.

CSFB/Tremont Index LLC is a *joint venture* company founded by Credit Suisse First Boston and Tremont Advisors Inc. CSFB/Tremont Index LLC is a leading investment firm, while Credit Suisse First Boston and Tremont Advisors Inc. is a company specialized in financial services. Indices created by this company have been created since 1998 and are based on time series beginning in 1994 Selection of the funds, based on which CSFB/Tremont indices are being created, is done quarterly. The most important criteria to be met by hedge funds are as follows http://www.hedgeindex.com:

- Assets value in the amount of at least $10 million,
- Publication of financial statements,
- Meeting the requirements of CSFB/Tremont regarding the release of the data and the firm's transparency. Moreover, since August 2003 the company has been creating a series of investment indices, which are based on a sample of 60 funds.

Evaluation Associates Capital Market (EACM) is an advisory company, specialized in hedge funds and in investment programs for institutional investors and wealthy individual investors http://www.eacm.com. In January 1996, EACM introduced a new benchmark for alternative investment strategies, called EACM100-Index, as well as some other indices for 5 strategies and 13 substrategies that are based on information dating back to 1990. EACM indices are calculated based on information provided by a set composed of around 100 hedge funds. Based on the information obtained from hedge funds, advisory firm selects those funds, which are representative for a particular investment style. Correction of the indices is done at the beginning of the following calendar year.

Hedge Fund Research is one of the oldest hedge fund databases. This entity publishes a series of 37 indices, the value of which is based on the condition of the *onshore* and *offshore* funds reporting to the database. Since 2003, HFR has also been the founder of the HFRX index series, which reflect the changes of the following investment styles: convertible arbitration, *distressed securities*, *event-driven*, *equity hedge*, *equity market* neutral, macro, relative value and merger arbitrage. The indices created by the company have been cleared of survivorship bias errors since 1994.

Hennesse Group LLC is a company providing advisory services. The database created by Hennesse contains information on 3000 hedge funds http://www.hennesseegroup.com. Based on this information, 23 balanced indices and 4 complex indices are being created. Complex indices are based on a sample of 500 funds selected from 3000 of all reporting hedge funds. Majority of indices had been created in 1987, but they were published in 1992. The hedge funds contained in this database must fulfill certain qualification criteria. The assets managed by a given fund must have the value of at least $100 million, alternatively the value not less than $10 million, and over a year long period of operation. The next criterion is related to information that the funds are obliged to disclose to a reporting firm.

HedgeFund Intelligence is an independent publishing group which is concentrated on collecting information on the hedge fund sector and on organizing conferences. The company's independence and lack of its advisory activity or assets management are its characteristic features. Moreover, the group in owned, in 100 %, by its manager and employees. HedgeFund Intelligence also creates a series of global, European and Asian indices. European indices include the data since 2000, Asian indices since 2001 http://www.hedgefundintelligence.com.

Morgan Stanley Capital Indices (MSCI) is a leading institution creating indices based on the prices of the instruments that are listed on the international financial market, inter alia stocks and securities with a fixed income. In 2001 MSCI teamed up with the group Financial Risk Management and formed a new database, which collects information on about 1500 hedge funds. In addition, MSCI created the most comprehensive and most detailed criteria for classification of hedge funds, the so-called MSCI Hedge Fund Classification Standard, which allows detailed classification and grouping of hedge funds on various dimensions.

2.10 Hedge Funds and Their Impact on the Financial Market

The issue of hedge funds raises a lot of controversy. On one hand, hedge funds have a number of features that positively impact the financial market. They contribute to the growth of its liquidity and to efficiency of its functioning. Arbitrage strategies used by the managers allow effective valuation of instruments and eliminate the price imperfections prevailing on the market. Hedge funds also play a significant role in the financial system by allowing distribution of the risk onto various entities. Active participation of hedge funds on the market of derivatives contributes to a more effective transfer of the risk, among the investors operating on the market. Thus, hedge funds contribute to lowering the transaction costs. Absence of these funds on the market could result in fewer possibilities of risk management and in an increase of the cost of raising capital.

Activity of hedge funds, however, raises many disturbing questions, mostly regarding the consequences of their activity from the perspective of the entire

financial system. Hedge funds are often characterized by very high investment risk, while the strategies used by them often are speculative. The problem of too little transparency in functioning of these collective investment institutions also raises disputes. Lack of clear regulations referring to the activities of those entities, on a domestic level as well as internationally, raises additional controversies. Main controversies are raised by the following problems:

– Creation of volatility on the market, due to high transaction turnovers;
– Using leverages, which multiply the value of the rotated capital and may endanger stability of the financial system.

There are many studies connecting hedge funds with their impact on increasing market volatility. The OECD research suggests, that hedge funds serve a positive function on the financial market by ensuring its liquidity. Their activity, therefore, influences reduction of volatility Blundell-Wignall (2007).

2.11 The Global Hedge Fund Market

Data on the sizes of the hedge fund sector vary due to the lack of official statistical data, the lack of clear definition of hedge funds, as well as due to a very dynamic development of this segment of the market. Currently, the number of hedge funds operating worldwide is estimated at about 11,000, while the value of the assets managed by those funds increased within 10 years (2002–2011) from 550 billion USD to 2 trillion USD.

The global hedge fund market has also been characterized by very high growth dynamics since the moment of its emergence. While analyzing the data on the hedge fund sector, collected by Hedge Funds Research, it can be seen that the value of the hedge funds' assets increased from 39 million USD in 1990 to 1 trillion USD in 2004. The world economic crisis in 2007 led to withdrawal of the investors from investing in hedge funds, to accumulation of losses incurred by individual funds, and consequently, a to a rapid decrease in the value of the assets managed by those funds. The assets of investment funds in 2008 fell down by almost 30 % to the level of 1.5 trillion USD. Figure 2.1 represents the estimated value of the hedge funds' net assets during the years 2002–2012.

Analyzing the number of hedge funds, it can be seen, that according to Hedge Funds Research data, the number of hedge funds increased from 610 in 1990 to an estimated 1070 in 2007.[7] In 2008, the number of hedge funds decreased by around 6 % to an estimated number of 9600 funds. It was the first year during which a decrease in the number of operating funds was reported. Despite a further systematic decrease in the number of hedge funds during the years 2008–2011, the value of the assets being managed was increasing. This signifies a progressive concentration

[7] This data does not include funds of funds.

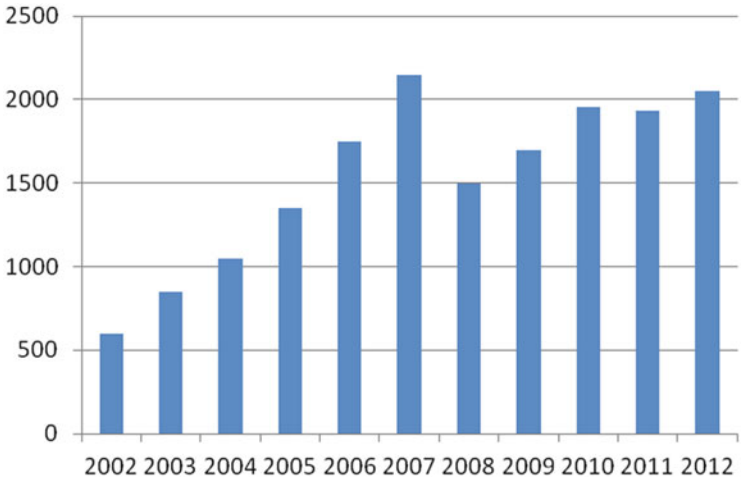


Fig. 2.1 The estimated value of the hedge funds' assets during the years 2002–2011 ($ billion assets) (The CityUK estimates 2014)

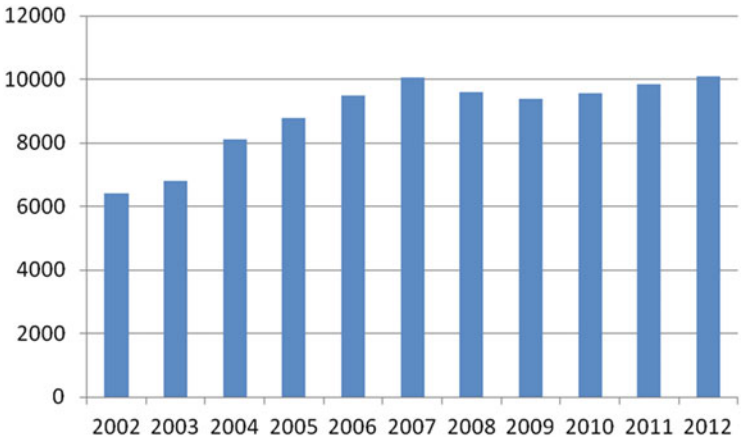


Fig. 2.2 The number of hedge funds during the years 2002–2011

of the capital being managed by the largest hedge funds. The number of hedge funds again began to increase starting in 2011, reaching a record amount in 2014, that is 11,000. The changes in the number of hedge funds during the years 2002–2012 are presented on Fig. 2.2.

Table 2.5 presents return rates of the hedge funds represented in comparison with stocks and bonds indices. The average losses of hedge funds in 2008 were around 21.3 %. It can be noted, that as much as 85 % of hedge funds reported financial losses. To compare, in 2008 the S&P 500 Index lost as much as 38 %. Hedge funds experienced heavy losses also due to closures of many banks in the US

Table 2.5 Return rates of the hedge funds represented by GV Global Hedge Fund Index, in comparison with stocks and bonds indices (Hennessee Hedge Fund Indices, . . .)

Year	S&P 500 (%)	Barclays Aggregate Bond Index (%)	Global hedge fund returns
2002	−22.1	10.3	−2.8
2003	28.7	4.1	23.5
2004	10.9	4.3	10.0
2005	4.9	2.5	6.7
2006	15.8	4.33	13.5
2007	5.5	7.0	9.3
2008	−37.0	5.2	−21.3
2009	26.5	5.9	18.2
2010	15.1 %	6.5	9.7
2011	2.1	7.8	−4.6
2012	16.0	4.2	6.1

and in Europe. Other causes included rapid declines on the stock market and pressure for rapid liquidation of the positions on the market due to investors' withdrawals.

It can be seen, that the hedge funds' assets are concentrated. Around 390 hedge funds manage over 1 billion UDS, thus control over 70 % of the global net hedge funds' assets.[8] Funds such as: Bridgewater Associates (assets valued at 76.1 billion UDS), JP Morgan Asset Management (assets valued at 53.6 billion USD) and Man Group (36.5 billion USD) manage lion's share of the assets in this sector. Table 2.6 represents the largest hedge funds according to their net assets in 2012.

While analyzing the structure of the hedge funds' assets according to the place of their management, it can be noticed, that the main place of hedge funds' management is the United States of America. In 2012 as much as 70 % of the hedge funds' assets were managed in the US. Analysis of the data from Table 2.7 indicates that during the years 2002–2008 US participation in management of those assets decreased—down to 15 %, while importance of European countries another places is increasing. Table 2.7 presents the structure of hedge funds according to the place of their management.

New York and London are the main locations of those managing hedge funds.[9] Analyzing the data from Table 2.8 it can be noticed, that while New York holds a stable position as a location for hedge fund management, by managing with participation about 40 % of the hedge funds, during the past years the position of London as the place of management has been decreasing. While during the years 2006–2008 London managed over one fifth of the hedge fund market, in 2012 participation of the funds managed there fell down to 18 %. Other important US hedge fund management centers include: California, Connecticut, Illinois and

[8] On the basis of the Hedge Funds Research data from December 20th, 2009.

[9] Estimates by International Financial Services London.

Table 2.6 The largest hedge funds according to their net assets in 2012 (Institutional Investor 2014)

Largest hedge funds, 2012	Place	$ billion
Assets under management		
Bridgewater Associates	Westport CT, US	76.1
JP Morgan Asset Man.	New York NY, US	53.6
Man Group	London, UK	36.5
Brevan Howard Asset Man.	London, UK	34.2
Och-Ziff Capital Man. Group	London, UK	30
BlackRock Advisors	New York NY, US	28.8
BlueCrest Capital Management	New York NY, US	28.8
Baupost Group	London, UK	28.6
AQR Capital Management	Boston MA, US	25.2
Paulson & Co	Greenwich CT, US	23.2
Angelo, Gordon & Co.	New York NY, US	22.6
Renaissance Technologies Corp.	New York NY, US	22.1
DE Shaw & Co.	East Setauket NY, US	20
Ellion Management Corp.	New York NY, US	19.5

Table 2.7 The structure of hedge funds according to the place of their management (in %) (TheCityUK estimates)

Management location of global hedge fund assets (% share)				
Year	Americas	Europe	Asia	Other
2002	82	13	4	1
2003	76	22	1	1
2004	72	25	2	1
2005	67	23	7	3
2006	66	27	5	2
2007	67	26	5	2
2008	67	25	6	2
2009	67	21	9	3
2010	68	22	7	3
2011	69	22	6	3
2012	70	21	6	3

Florida. The second largest hedge fund management center and at the same time the largest management center in Europe is London. Other important hedge fund management centers include: France, Spain and Switzerland.

The nature of the entities directing the assets into high risk funds has also been changing. Significant changes in the structure of different groups of investors can be noticed during the past years—an increasing significance of institutional investors on the hedge fund market. While in 1999 their participation in the structure of the assets was 47 %, in 2008 it increased by almost 49 %—up to the level of 70 %.

Table 2.8 London versus New York–share of total assets under management (%) (The CityUK estimates)

Year	London	New York
2002	11.9	50
2003	16.8	46
2004	20.7	44
2005	20.5	41
2006	22.3	40
2007	22.7	41
2008	22.6	41
2009	19.1	41
2010	18.4	41
2011	18.7	42
2012	18	42

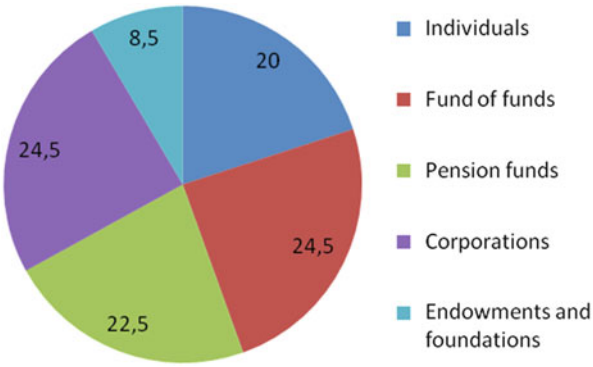


Fig. 2.3 Global hedge funds by source of capital in 2012 (%) (Hennessee Group LLC; FSA; TheCityUK estimates)

Figure 2.3 presents the share of selected groups of investors on the hedge fund market in 2012. It can be noticed, that institutional investors are the main group of investors on the hedge fund market. Their share in the structure of investors is as high as 80 %. The share of individual investors in the structure of investors in 2012 was around 20 %.

2.12 The Forecasts of the Hedge Funds Market

Alternative investments are intended for wealthy investors. It can be hypothesized, that an increase in the level of wealth of potential investors will increase the value of the hedge funds' assets. At the same time, it can be expected that these funds stand a chance of existing on the market after the financial assets at the disposal of citizens exceed a certain amount. Therefore, the impact of the value of the financial assets per one adult world citizen ($bfinad_t$) on the average annual value of the assets

in each of the existing hedge funds[10] ($akt1h_t$) during the years 2000–2013 was examined. As a result, the following empirical equation (2.1) was obtained[11]:

$$akt1h_t = \underset{(6.81)}{-163.67} + \underset{(11.92)}{12.101} bfinad_t + u_{akt1ht}, \tag{2.1}$$

$$R^2_{akt1h} = 0.922, Su_{akt1h} = 15.84, V_{akt1h} = 10.3\ \%.$$

Equation (2.1) has very good stochastic characteristics. The value of the financial assets per one adult world citizen ($bfinad_t$) explains 92.2 % of the volatility of each existing hedge fund's average annual asset value ($akt1h_t$). An increase in the value of the financial assets per one adult world citizen by a 1000 USD caused an increase in the value of the assets of each hedge fund, averagely, by 12.101 million USD.

At the same time, the absolute term of Eq. (2.1), equal to −163.67 million USD, indicates that the funds' assets are formed only after reaching a relatively high value of the financial assets at the disposal of the so-called average investor.

This amount is (163.67/12.101 = 13.525) and it means, that only after exceeding a certain value of the financial assets per one adult world citizen ($bfinad_t$), that is, 13.525 thousands USD, hedge funds' assets could be formed.

Equation (2.1) can be used to estimate the forecasts of the value of the average assets per 1 hedge fund ($akt1h_{Tp)}$ during the years 2014–2016. Estimation of these forecasts will be possible, if forecasts of the variable $bfinad_t$ are known.

An empirical equation describing a volatility mechanism of $bfinad_t$ was constructed. As such, an autoregressive-trend equation, with a first order autoregression, emerged:

$$bfinad_t = \underset{(2.041)}{13.103} + \underset{(1.275)}{0.509} t + \underset{(1.044)}{0.364} bfinad_{t-1} + u_{bfinadt}, \tag{2.2}$$

$$R^2_{bfinad} = 0.717, Su_{bfinad} = 2.416, V_{bfinad} = 9.07\ \%.$$

Forecasts ($bfinad_{Tp}$) for the years 2014–2016 were estimated, which are the extrapolants of Eq. (2.2). The results are presented in Table 2.9 and on Fig. 2.4.

These forecasts indicate, that worldwide, during the upcoming years, an increase of the financial assets per one adult citizen can be expected. These values can range from a little over 31,000 USD in 2014, through 32,563 USD in 2015, up to 33,610 USD in 2015. These increments, thus, will result in an increase of the hedge funds' assets.

[10] First and second order autoregression of the variable $akt1h_t$ and a linear trend were also analyzed. They turned out to be statistically insignificant at the significance level not exceeding $\gamma = 0.1$.

[11] R^2 is the value of determination coefficient, V—is the random volatility coefficient being a percentage of the standard residual error (Su) in the average arithmetic value of the equation's explanatory variable.

Table 2.9 Forecast of the values of the financial assets, worldwide, per one adult citizen ($\text{bfinad}_{\text{Tp}}$) for the years 2014–2016

Forecasted period (T)	Forecast of $\text{bfinad}_{\text{Tp}}$ (thousands USD)	Average prediction error (V_{T})	95 % confidence interval
2014	31.086	2.4157	25.703–36.468
2015	32.563	2.5708	26.835–38.291
2016	33.610	2.5906	27.838–9.382

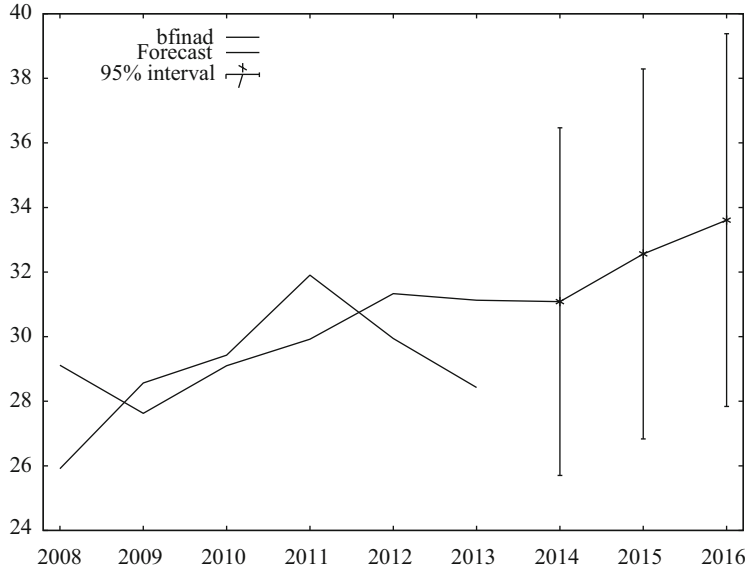


Fig. 2.4 Forecast of the values of the financial assets, worldwide, per one adult citizen ($\text{bfinad}_{\text{Tp}}$) for the years 2014–2016 (Table 2.9)

The forecast values of $\text{bfinad}_{\text{Tp}}$ presented in Table 2.9 were used to estimate the forecasts of the values of the average assets per 1 hedge fund (akt1h_{Tp}) for the years 2014–2016.

The results of the calculations are presented in Table 2.10 and on Fig. 2.5 The forecasts obtained indicate that further increases in the value of the hedge funds' assets can be expected. In 2014, the average value of a hedge find's assets can be equal to a little over 212 million USD, in 2015 it can exceed the level of 230 million USD, while in 2016 it can reach the value of over 243 million USD.

The next research question is whether global the wealth of the world (bglcur_t) has impact on the global value of the hedge funds' assets (akthed_t)?

The impact of the global wealth on the variable akthed_t, occurrence of a trend in this variable as well as autoregressions up to and including the second order were examined. Finally, only world wealth (bglcur_t) turned out to be statistically significant.

An empirical equation (2.3) describing the variable akthed_t has the following form:

Table 2.10 Forecasts of the average value of the assets per 1 hedge fund ($akt1h_{Tp}$) for the years 2014–2016

Forecasted period (T)	Forecast of $akt1h_{Tp}$ (million \$)	Average prediction error (V_T)	95 % confidence interval
2014	212.485031	17.132084	175.157428–249.812635
2015	230.357540	17.625007	191.955949–268.759132
2016	243.026814	18.041808	203.717091–282.336537

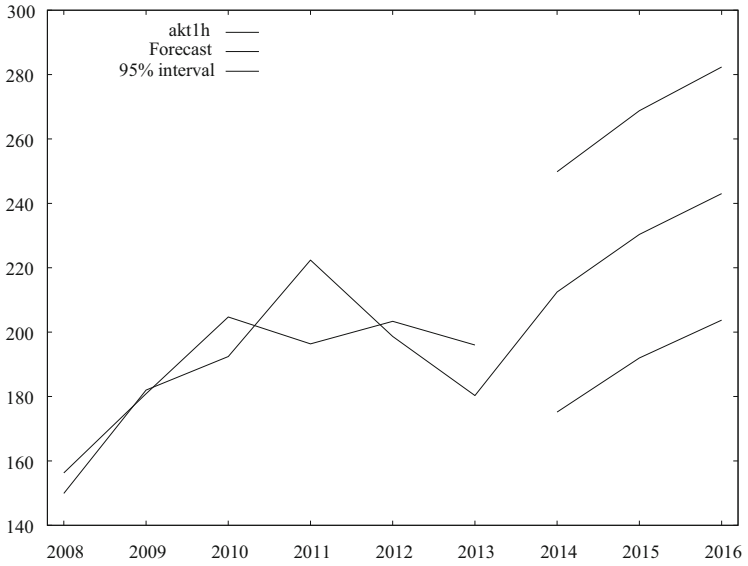


Fig. 2.5 Forecasts of the average value of the assets per 1 hedge fund ($akt1h_{Tp}$) for the years 2014–2016 (Table 2.10)

$$akthed_t = \underset{(7.639)}{-1273.44} + \underset{(16.49)}{14.923} bglcur_t + u_{akthedt}, \tag{2.3}$$

$$R^2_{akthed} = 0.958, Su_{akthed} = 144.89, V_{akthed} = 10.3\ \%.$$

Equation (2.3) indicates, that the global wealth ($bglcur_t$) explains almost 96 % of the total volatility of the hedge funds' assets. The variable $bglcur_t$ is statistically significant at the significance level of $\gamma < 0.01$.

An increase in the value of the variable $bglcur_t$ by 1 trillion USD caused an increase in the hedge funds' assets on average by 14.923 billion USD.

At the same time, a negative value of the equation's absolute term (−1273.33) indicates, that the hedge funds' assets were created after exceeding a threshold of the global wealth.

Table 2.11 Forecasts of the value of the global wealth in the world ($\text{bglcur}_{\text{Tp}}$) for the years 2014–2016 in trillion $

Forecasted period (T)	Forecast of $\text{bglcur}_{\text{Tp}}$ (billion $)	Average prediction error (V_{T})	95 % confidence interval
2014	255.3	15.56	221.4–289.2
2015	265.5	15.97	230.7–300.3
2016	275.6	16.41	239.9–311.4

The threshold is equal to $1273.44/14.923 = 85.334$ trillion USD. Above this value the global wealth (bglcur_t), that is, above over 85 trillion USD, the hedge funds' assets emerged. An increase of this global wealth entailed an increase of the hedge funds' assets which was revealed in Eq (2.3).

Equation (2.3) can be used to estimate the forecasts of the hedge funds' assets for the next 3 years. It requires, however, a description of the global wealth's volatility mechanism (bglcur_t). As such, autoregressive-trend structure of this variable was examined. It turned out, that autoregression in the variable bglcur_t is statistically insignificant. The linear trend is significant—at a low significance level of $\gamma < 0.01$. An empirical equation of the trend in the variable's bglcur_t has the following form:

$$\underset{}{\text{bglcur}_t} = \underset{(13.48)}{103.07} + \underset{(11.30)}{10.150}t + u_{\text{bglcur}t}, \tag{2.4}$$

$$R^2_{\text{bglcur}} = 0.914, \text{Su}_{\text{bglcur}} = 13.547, V_{\text{bglcur}} = 7.56\ \%.$$

The trend explains 91.4 % of the global wealth's volatility. Equation (2.4) indicates that an average annual increase in the global wealth during the years 2000–2013 was above 10 trillion USD.

Equation (2.4) has good stochastic properties, which allows its application for a trend extrapolation. Estimated forecasts of $\text{bglcur}_{\text{Tp}}$ are presented in Table 2.11 and on Fig. 2.6.

Forecasts of the value of the hedge funds' assets ($\text{akthed}_{\text{Tp}}$) for the years 2014–2016 are presented in Table 2.12 and on Fig. 2.6

These forecast estimations indicate,[12] that further increases in the value of the hedge funds' assets can be expected. In 2014, the value of those funds should exceed the amount of 2.5 trillion USD. During the following years, increases in the hedge finds' assets, up to the level of 2688.7 billion USD in 2015 and up to 2839.43 billion USD in 2016, can be expected. Hedge funds, thus, are facing good perspectives for development in the nearest future.

[12] Rationality of the forecasts depends on realization of the global wealth's forecasts and on stability of the description mechanism of generating the hedge funds' assets, provided by Eq. (2.3).

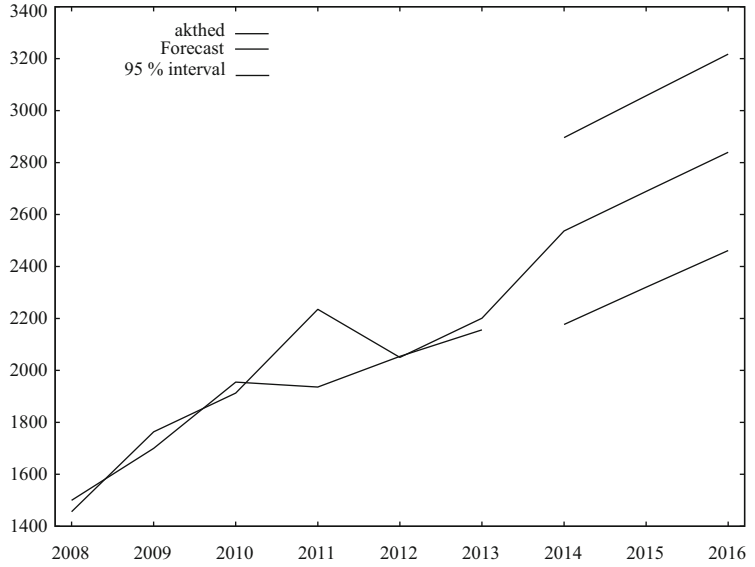


Fig. 2.6 Forecasts of the value of the hedge funds' assets ($akthed_{Tp}$) for the years 2014–2016 (Table 2.12)

Table 2.12 Forecasts of the hedge funds' value ($akthed_{Tp}$) for the years 2014–2016 in trillion $

Forecasted period (T)	Forecast of $akthed_{Tp}$ (million $)	Average prediction error (V_T)	95 % confidence interval
2014	2536.49	165.033	2176.91–2896.06
2015	2688.70	169.092	2320.28–3057.13
2016	2839.43	173.503	2461.40–3217.46

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Chapter 3
Investment Strategies of Hedge Funds

3.1 The Concept of Investment Strategies and Their Risk

Investment strategies, narrowly speaking, encompass and describe the behaviors and decisional assumptions of the entities investing on the market. An investment strategy is a set of rules and patterns of behavior, through which an investor intends to pursue his/her orders of buying and selling on a given market. Alternative investments are characterized by a very broad range of investment opportunities, while offering multiple risk and the return rate combinations, which generally are unavailable through application of traditional investment methods. Understanding the possibilities of shaping the risk profile and the return rate by the managers working under alternative strategies is one of key aspects of alternative investments.

Jaeger (2002) states, that the subcategory of alternative investments, which encompasses all investments except those of traditional nature, has been created owing to alternative investment strategies. The strategies of conducting activity on the financial market are very diverse, depending on the group of investors applying them. The main difference lies in the intensity of the undertaken actions and in the degree of the risk incurred. Application of the strategies characterized by various risk profiles and different return rates is possible, inter alia, due to the use of such tools as: financial leverages, short-selling and derivatives.

Investment strategies used by alternative funds should enable the investors to achieve attractive return rates, regardless the direction of the price changes on the market, and a low correlation with traditional classes of assets (Ineichen 2000). The variety of the instruments and techniques used for constructing investment strategies characterized by various risk levels and different potential return rates, goes far beyond traditional instruments such as stocks or bonds. Knowledge of applicable strategies is the foundation enabling creation of a coherent long-term investment plan. Inappropriate application of investment strategies is connected with the probability of incurring significant losses.

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Analysis of hedge funds' performance should be closely linked with analysis of the risks associated with those funds. In fact, risk management is one of fundamental issues associated with alternative investing. Complexity of the investment strategies used by hedge funds generates many kinds of risk. Three types of risk, which are particularly important for hedge funds' activity, can be distinguished:

- The market risk,
- Credit risk,
- Liquidity risk.

These three classes of risk have different impact, depending on the investment strategy used by the fund. In addition to these risk types, it is evident, that each of the applied investment strategies bears other types of risk that are characteristic for a given strategy. For instance, the following can be indicated:

- The funds using a *distressed securities* strategy, that is, those investing in companies with serious financial problems, are particularly exposed to a liquidity risk and a risk associated with not fulfilling the obligations (*default risk*);
- The funds using *merger arbitrage* strategies are exposed to the risk of a failure of the merger;
- The funds specializing in investing on the developing markets are exposed to a credit risk, with respect to a particular country (*country risk*);
- The funds using *long/short equity* strategies are exposed to the risk of a forced purchase/sale of stocks (*short-squeeze risk*);
- The funds using *fixed-income arbitrage*) strategies are exposed to the risk of a changing credit spread (*credit spread widening*).

Using leverages in transactions, in turn, exposes hedge funds to the risk of a rapid withdrawal of the financial assets, which often results in a necessary closure of the positions at unfavorable prices. Improper application of investment strategies can result in huge losses on the part of the entities using those strategies. It has been confirmed by some examples of huge losses incurred due to improper application of certain investment styles. Table 3.1 presents examples of such financial disasters, with respect to an investment strategy used by a given entity.

Despite an extremely diverse spectrum of applicable investment styles, some of them have gained special recognition by the managers and the investors. Investors' preferences vary according to the risk profile and the level of the expected income. Figure 3.1 presents the structure of hedge fund assets according to an investment strategy used, for the year 2012. It can be noticed, that *long/short equity* was the most popular strategy type used by hedge funds. The *multi* strategy, which is a combination of many various investment styles, also had a quite high share in the structure of the assets. The *relative value* strategy and *distressed debt* had the lowest share in the structure of the assets.

Table 3.1 Selected examples of financial disasters on the hedge fund market and the levels of their losses (UBS Warburg)

The fund	Investment strategy used	Year of bankruptcy	The losses (millions USD)
Askin Capital Management	Fixed income arbitrage (mortgage-backed securities)	1994	420
Argonaut Capital Management	Macro	1994	110
Vairocana Limited	Fixed income arbitrage	1994	700
Fenchurch Capital Management	Fixed income arbitrage	1995	NA
Global Systems Fund (Victor Niederhoffer)	Macro	1997	NA
LTCM	Fixed income arbitrage	1998	3600
Manhattan Investment Fund	Long/short equity	1999	300
Tiger Management	Macro	2000	NA
Soros Fund	Macro	2000	NA
Ballybunion Capital Partners	Long/short equity	2000	7

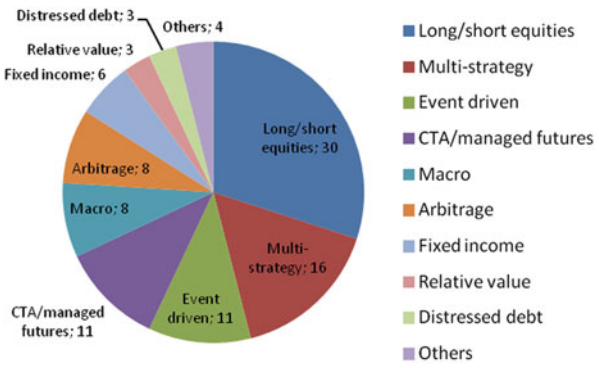

Fig. 3.1 The structure of hedge fund assets according to an investment strategy used, for the year 2012 (Eurekahedge)

3.2 Classification of Investment Strategies

Systematization of the investment styles used by hedge funds is a complex issue. Multitude of the investment styles applied by alternative funds as well as the number of the constructions achievable through using innovative techniques and instruments make it extremely difficult to create a uniform classification. What is more, dynamic development of the financial market results in a systematic expansion of the catalogue of possible strategies. It can be assumed, that common elements of the investment strategies currently applied include:

– Application of arbitrage techniques,
– Application of a financial leverage,

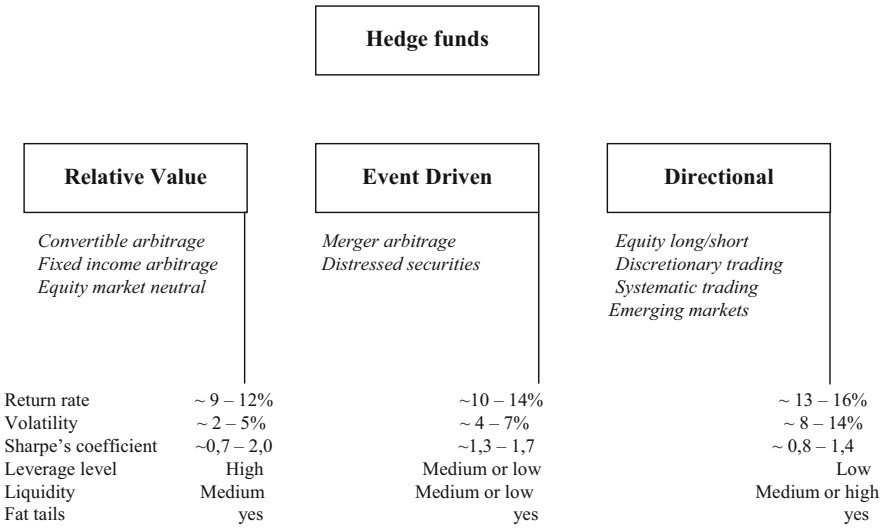

Diagram 3.1 Hedge fund classification according to their strategies and substrategies (Ineichen 2000)

- The use of a short-selling technique, which allows profiting from the price drops on the market,
- The use of derivatives and active investing in the futures markets,
- The use of a very wide spectrum of the base instruments constituting the subject of an investment (financial instruments, commodities, precious metals, real estate),
- Investing on the markets characterized by high price volatility,
- Participation in merger and acquisition transactions.

Diagram 3.1 shows a general hedge fund classification, which considers such characteristics as the return rate, liquidity or the leverage level. Calculations carried out by Ineichen are based on the historical data from the years 1990–1999. They can, however, constitute a reference point for further discussion on investment strategies.

Fung and Hsieh have classified hedge funds according to the investment style used by a given fund and to its investment aim (Fung and Hsieh 1997). The term 'investment style' refers to the nature of an approach and to the stand taken by the fund's managers, while the concept of 'location' refers to the class of the assets in which a fund invests.

Amenc et al. (2003) have divided investment strategies into those allowing increases of the return rate and of the risk, and into the strategies allowing reduction of the risk. The strategies allowing an increase of the return rate at a high risk include: *distressed securities*, *event-driven* and *macro funds*. On the other hand, the strategies allowing risk reduction include: *convertible arbitrage*, *fixed income arbitrage*, *long/short* and *short selling funds*.

Investment strategies can be classified based on various criteria. Given the investment horizon, we can distinguish the following: positional trade (where the time horizon ranges from few hours to few days), as well as short-term, medium-term, long- term strategies.

Another important division of investment strategies takes into account the level of exposure to the risk. Given the classification criterion, we can distinguish: firstly, the strategies of low exposure to the risk, that is e.g. those using the inefficiencies arisen on the market (arbitrage strategies), secondly, the strategies of moderate exposure to the risk, which include event-group strategies (*event driven strategies*), and thirdly, the strategies of high exposure to the risk, which include opportunistic strategies (*global macro*, *short sellers*, *emerging markets*).

Another possible classification criterion is division of investment strategies according to the use of information. Such strategies include those, which attempt inadequate valuation by using analytical tools. The following strategies can be mentioned here: short-selling/long-selling of shares (*long/short equity*), *discretionary trading* and *aggressive growth/market timing*. Yet another criterion of strategy division involves the degree of application of advanced quantitative methods. Such strategies attempt to detect inaccuracies in valuation or awarding for the risk, through the use of the relative value models. The strategies based on models include: convertible arbitrage, merger and acquisition arbitrage, relative valuation models and macro based market timing models.

We can also indicate the strategies which attempt detection of inaccuracies in valuation or the risk through the use of technical analysis. Such strategies include: the trend following strategies and the statistical arbitrage.

Another possible criterion of investment strategies division considers the process of making investment decisions and divides those strategies into: systematic strategies and discretional strategies. Systematic strategies establish trading based on the decisions made by complex computer programs. Discretional strategies base their actions on the decisions of the managers. Some hedge fund strategies bear the characteristics of both of these categories.

The literature on the subject often divides investment strategies into primary groups which are further divided into sub-categories. This division is based on the investment-technique criterion and distinguishes the following (Stefanini 2010):

- Short-selling/long-selling strategies (*long/short equity strategies*),
- The relative value strategies,
- Event driven strategies,
- Directional/trading strategies,
- Other strategies.

A study on a group of investors, conducted by Alternative Investment Management Association in 2003 (Lhabitant 2011), has provided interesting information on the investors' views on selected investment styles. According to the study, half of the respondents admitted to using their own classification of investment strategies. About 47 % of the respondents stated, that they use at least one investment strategy that has been described in the literature on the subject. The remaining 3 % of the

respondents answered that it is not possible to classify the investment strategies within the sector of alternative investments (www.aima.org). The group of those respondents who admitted to using at least one investment strategy that has been already classified, pointed to the systematizations used by: CS/Tremont (27 % indications), Hedge Fund Research (27 % indications), MSCI (23 % indications), and also to classifications of CISDM, Eurekahedge or Cogent Hedge. Some well-known systematizations used by prestigious institutions e.g. by USB Warburg, was not mentioned by the respondents at all. Systematizations created by institutions involved in data collection on the sector of alternative investments, can constitute a starting point in the division of investment strategies. According to the CS/Tremont classification, the following 10 basic investment styles can be distinguished (www.hedgeindex.com):

- *Long/short equity*, which involves acquisition of the shares and a simultaneous short-selling of the shares;
- *Dedicated short* strategy, in which hedge funds use short positions only and profit on the price drops on the market;
- *Equity market neutral* strategy, whose aims is to seek possibilities of using market ineffectiveness for valuation of the shares;
- *Distressed securities* strategy, which is based on searching for companies in a difficult financial situation;
- *Merger arbitrage*, which involves investing in the companies being the subject of mergers and acquisitions;
- *Convertible bond arbitrage* strategy, focused on finding the anomalies emerging on the market between convertible bonds and the shares;
- *Fixed income arbitrage*, which involves searching for price anomalies on the global market of the securities with a fixed income level, e.g. fixed rate bonds;
- *Emerging market fund*, which involves investing in various kinds of securities on the developing markets with a high growth potential;
- *Global macro* strategy, focused on accurate forecasting of global economic trends and macroeconomic indicators;
- *Managed futures*, covering a broad spectrum of the strategies implemented on the derivative markets.

VAN Hedge Fund Advisors, LLC from Nashville, USA distinguish four basic groups of hedge fund investment strategies, which are adequately divided into 18 more specific investment styles. These four basic categories are:

1. Neutral market strategies group
2. Long and short equities group.
3. Directional trading group.
4. Special strategies group.

Systematization by UBS Warburg was created based on the criterion of hedge funds' openness to the market risk. Under this classification, strategies have been divided into those characterized by low exposure to the market risk and the more

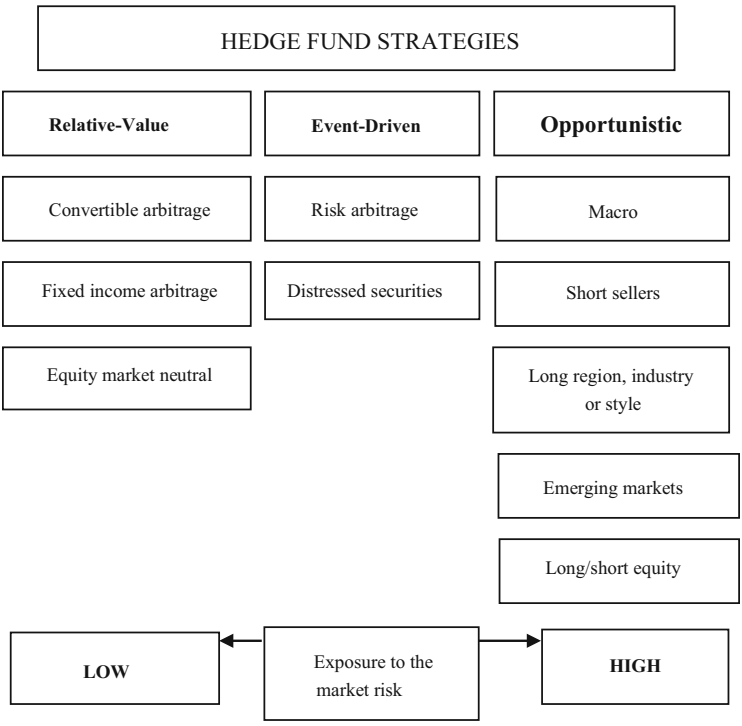

Fig. 3.2 The UBS Warburg's systematization of investment styles

risky ones.[1] The UBS Warburg's categories of investment strategies are presented by Fig. 3.2.

The above examples of investment strategies division provided by different financial institutions indicate the lack of a consensus on the formal system of classifying investment strategies. Hedge Funds Research company divides hedging strategies into 30 different investment styles, while TASS Research distinguishes 17 basic investment styles. Each of these classifications exhibits some common characteristics. Table 3.2 presents a classification summary, taking into account some characteristic features of investment strategies.

Lack of a uniform classification of hedge funds has caused the financial institutions involved in collecting information, in researching the market as well as in publishing information on the results of selected investment strategies to introduce their own classifications. As a result, there may be significant discrepancies in publications of the results achieved through given investment style. Comparison of

[1] A similar systematization of investment strategies, which takes into account the level of sensitivity to changes in the market trend was adapted by Jaeger (2002).

Table 3.2 Compilation of characteristic features of the investment strategies used by hedge funds, according to a chosen criterion

Criterion	Characteristic features of a strategy
Investment style	Global macro, event driven, long-short equity, statistical arbitrage
Investment market	Resources, precious metals, commodities, currency, real estate
Instruments used	Shares, bonds, contacts forward, futures, options, options on contacts futures, swaps
Exposure to risk	Directional, neutral in respect to the market
Investment field	Technology, health care, developing markets
Diversification	Multi manager, multi-strategy, multi-market, of multiple funds
Investment method	Discretionary/qualitative (individual investments are selected by the managers), systematic/quantitative, "Quant" (individual investments are selected using numerical methods and computer transaction systems)

classifications of the investment strategies used by the four largest, reputable financial institutions, which publish the results of indices, is presented in Table 3.3.

3.3 The Relative Value Strategies

The strategies based on a relative value involve the use of arbitrage, in order to profit from the price differences on particular markets. The group of investment strategies, called *relative value*, entails profiting from inaccurate valuation of financial instruments. Generally, taking directional positions is avoided in *relative value* and the *market neutral* strategies. This kind of strategy is suitable for those investors who expect stable return rates. Emergence of those strategies should not be directly related to the changes on the market. Relative value and market neutral strategies are based on identifying valuation errors occurring on financial markets. The term 'arbitrage', according to its classic definition, means a risk-free transaction which generates profit from price differences in of the same instrument on various markets.[2] Arbitrage deals become available when technical, geographical, legal and administrative barriers are restricting proper interaction between two particular markets on which the same instrument is handled. Ideally, in a perfect, highly effective world the option of arbitrage would not exist. Relative value strategies can be based on application of an appropriate formula, on the use of statistical methods or a on fundamental analysis. They generate income, if the value of a given instrument returns to its market value.

[2] This term was created by Ross (1976), who used this concept as the basis for the APT Theory (Arbitrage Pricing Theory).

Table 3.3 Comparison of classification of the investment strategies used by alternative funds, according to four largest index creators

Strategy group	Sub-category	CSFB/ tremont	MSCI	Standard and Poors	Hedge Fund Research
Event Driven		+	+	+	+
	Event Driven	+	+		+
	Event Driven Multi-Strategy	+			
	Merger/ RiskArbitrage	+	+	+	+
	Distressed	+		+	+
	Special Situation			+	+
Relative Value		+	+	+	+
	Arbitrage		+		
	Statistical Arbitrage		+		
	Specialist Credit		+		
	Convertible Arbitrage	+		+	+
	Fixed Income Arbitrage	+		+	+
	Relative Value Arbitrage				+
Long/Short		+	+	+	+
	Long/Short equity	+			
	Dedicated Short sellers	+			
	Equity Market Neutral	+		+	+
	Equity Hedge				+
	Long bias		+		
	No bias		+		
	Short bias		+		
	Variable Bias		+		
Tactical		+		+	+
	Global Macro	+		+	+
	Managed Futures	+		+	
	Equity/Long			+	
Location		+	+		
	Developed Markets		+		
	Emerging Markets	+	+		
	Global		+		
Multiple Strategy		+			

Table 3.4 Summary of selected characteristics of relative value strategy (UBC Warburg 2000)

Strategy	Income level	Volatility	Sharpe's coefficient	Correlation with shares	Leverage	Investment horizon
Convertible arbitrage	Medium	Low	Medium	Medium	Medium	Medium
Fixed income arbitrage	Low	Low	Low	Low	High	Medium
Equity market neutral	Medium	Low	High	Low	Medium	Medium

As part of a *relative value* investment strategy, attempts are made to use the exchange rate differences between financial instruments that are similar or dependant on each other. Financial instruments, which are priced above the market value, are sold through short-selling. Instruments priced below their market value, that is, *underpriced* instruments, are bought successively. Purchasing of an instrument at a lower price and its immediate sale at a higher price generates an instant income. Arbitrage strategies used by hedge funds also can seek opportunities to use the so-called *spread*. If the *spread* is expanding or narrowing (accordingly to the investor's expectations), income is realized. If the investor makes incorrect assessment of the spread's future formation, he/she will incur losses.

Arbitrage strategies are quite commonly used in hedge fund operation. In fact, arbitrage deals disappear quickly. The higher the number of entities engaged in arbitrage transactions, the bigger the competition on the market and, at the same time, the lower the potential income from an arbitrage.

As part of the relative value strategy, the following more specific strategies can be distinguished:

- Convertible arbitrage,
- Fixed income arbitrage,
- Market neutral equity.

More elaborate classifications contain such strategies as: *mortgage-backed arbitrage* or capital *structure arbitrage*. Table 3.4 presents selected characteristics of *relative value* strategy.

3.3.1 The Convertible Bond Arbitrage Strategy

The *convertible bond arbitrage* strategy, that is, an arbitrage of convertible instruments, entails the use of an inadequate relative valuation of a convertible instrument and/or of the shares of a particular company. This strategy is based on the use of hybrid instruments, that is, bonds or preference shares exchanged for ordinary shares. Usually, convertible instruments are convertible bonds or convertible preferred stocks, which are exchanged for ordinary stocks of a company that had issued

convertible instruments. Generally, the manager takes a long position on the convertible instrument and enters into a short-sale deal. Leverage is also applied in this strategy and it usually falls between 2 and 10 × the capital.

3.3.2 The Fixed Income Arbitrage Strategy

The fixed income arbitrage strategy also involves seeking income possibilities resulting from market inefficiencies. This strategy includes a number of strategies that are focused on searching for price anomalies on the global market of the securities characterized by a fixed return rate. The differences in valuation of the same or similar instruments generate possibilities of a risk-free income. Relative value strategies involve constructing such a portfolio, which will allow a positive return rate resultant from valuation irregularities between at least two fixed-income instruments composing that portfolio. The main purpose of this strategy is to maximize the income, while controlling the risk. The following factors have disseminated applicability of this strategy:

- Lack of a single model allowing pricing of instruments,
- Existence of many relative relations between the prices of financial instruments that are characterized by a fixed level of income,
- Complex construction of the instruments characterized by a fixed interest rate.

The *fixed income arbitrage* strategy, similar in its construction to a *fixed income directional* strategy which applies to fixed interest securities, however, does not only apply to bonds. The securities being traded are government bonds, corporate bonds, securities issued by federal agencies, local government securities, or treasury securities of developing countries. During arbitration, opposite positions on related markets are taken with an attempt to profit from the price anomalies of similar instruments. In general, portfolio managers open arbitrage positions in those securities, the prices of which are positively correlated. Because they operate on the differences in interest, ranging from few to several base points, they often use a high leverage of about 20 × the net asset value.

The strategy is relatively neutral towards the market, therefore volatility of the return rates achieved by this type of funds is low. Using arbitrage on related instruments, e.g. on a given primary instrument and on a *futures* contract of that instrument, is a common practice within this strategy's framework. The possibility of earnings emerges, when futures contracts on the bonds are inaccurately priced.[3] It should also be indicated, that the *fixed income arbitrage* strategy belongs to complicated ones and requires highly skilled managers.

Multiple ways of applying the *fixed income arbitrage* strategy allow distinction of its more specific uses, which, inter alia, include the following (Stefanini 2010):

[3] More on the method of pricing the *forward/futures* contracts can be found in Hull.

1. *Issuance driven arbitrage—snap trade*. Arbitrageurs predict, that the prices of recently issued treasury bonds (*on-the-run*[4]) and the prices of the penultimately issued bonds, which have very similar maturities, will be getting closer, due to a decrease in the demand for those recently issued bonds, as a result of planning next issuance;
2. *Yield curve arbitrage*. This strategy is based on an expectation of changes in the slope of a specific interest rate curve. A typical income curve arbitrage is called a *butterfly trade*;
3. A spread within the market (*intermarket spread trading*). This strategy is based on trading two income curves in two different currencies;
4. Trading based on the *futures* contracts (*futures basis trading*). This strategy allows income, due to incorrect valuation of the *futures* contracts of a primary instrument and due to the primary instrument at the moment of delivery. Obtaining an income is possible because of the base effect;
5. *Swap spread trading*;
6. Other kinds of trading associated with the spread;
7. *Capital structure trade*;
8. *Pair trading* (short/long position on the securities with similar characteristics);
9. *Carry trade*, which involves financing of a purchase of high interest bonds, loans contracted in low interest currencies;
10. *Break—even inflation trade*;
11. Trading of fixed-income securities on the developing markets (*emerging market fixed income*);
12. Cross-currency trade on the relative value of a given currency (*cross-currency relative value trade*).

3.3.3 The Equity Market Neutral Strategy

Equity market neutral strategies, in their methodology, are similar to a relative value strategy. The funds seek possibilities to use market inefficiencies between related stocks, while neutralizing their exposure to the market risk. The main difference between those strategies results from systematic securing of the positions along with interest rate changes. The strategy involves taking opposite stands (buying/selling) on two securities/values representing the same segment on the market. Users of this strategy try to identify small, but statistically significant, opportunities for a return, often making a choice from among a very large number of stocks. Selection of the stocks constituting an investment objective is performed using a fundamental or technical analysis. Broadly speaking, the managers adjust long and short positions on the market in order to eliminate other types of risk. Usually, managers of such funds protect themselves against the exchange rate risk

[4] A term used in the US in reference to treasury securities with a specified maturity, which are characterized by high level of liquidity.

as well. This strategy results in different price behaviors of both instruments; this difference in price behavior is highly independent on the price changes on the market. This means, that positive returns are possible even when the prices on the exchange market are declining. *Equity market neutral* strategies have been designed to allow stable return rates, not only in case of price declines, but in conditions of low volatility as well. An exemplary application of *market equity neutral* strategy involves using the price differences between two types of equal stocks of the same enterprise, in case of a fusion.

3.4 Event Driven or Specialist Credit Strategies

The *event driven* strategy, or otherwise called a *specialist credit* strategy, involves seeking investment opportunities and obtaining profiting from extraordinary events. In practice, however, few areas that will encourage investment activity through an *event driven* strategy can be indicated. Events of this nature include, e.g.:

- A bankruptcy of a company;
- Restructuring, consolidation, or a change of the company's profile;
- Events affecting the company's credit rating and its assessment;
- Mergers and acquisitions;
- Bankruptcies;
- Buyouts and amortization of the company's own shares by that company (*share-buy-back*);
- Other possible events having significant influence on the company's valuation.

Event driven strategies are chosen by those investors, who prefer to concentrate on the value of an enterprise. This means, searching for the companies of inestimable asset value, which function in the underestimated value sector. Such companies, generally, have a stable financial foundation. The search for such companies primarily should be focused on the price, as one of the components of P/E (price/earnings) and a P/BV (price/book value) ratio while assuming that the share price is too low in term of these indicators, and comparing it to its fair value (Reilly and Brown 2006). Moreover, it seems reasonable to search for companies whose P/E or P/BV indicators are at a very low level, while there is a belief in an imminent correction of the stock prices, in the absence of any changes in the company's income.

Extraordinary situations generally lead to establishment of new stock prices. The actions undertaken usually tend to be focused on the events already known. Therefore, forecasting of those events is of a little significance. However, it is important to accurately predict the direction of the changes and their potential consequences for the company. That uncertainty associated with the final result of an extraordinary incident provides the investors, who will accurately diagnose its consequences, with ample opportunities of making a profit. As part of *event driven* strategy, we can distinguish the so-called sub-strategies, which include: *merger*

Table 3.5 Summary of selected characteristics of *event-driven* strategies (UBS Warburg)

Strategy	Income level	Volatility	Sharpe's coefficient	Correlation with stocks	Leverage	Investment horizon
Risk (merger) arbitrage	High	Medium	High	Medium	Medium	Medium
Distressed securities	Medium	Medium	Medium	Medium	Low	Long

arbitrage and *distressed securities*. A more detailed division of *event driven* strategies also includes e.g.: *special situations* strategies, multi-strategy, or *activism investors* strategy (Table 3.5).

3.4.1 The Merger Arbitrage Strategy

The merger and acquisition arbitrage strategy (*risk arbitrage*), also known as the *merger arbitrage*, is one of the oldest strategies in the group of *event driven* strategies. Its emergence dates back to 1940, when Gustave Levy had officially created the department of arbitration in the Goldman Sachs bank. Robert Rubin, later a secretary in the US Ministry of Treasure, was his successor. In the 80s of the twentieth century, the *merger arbitrage* strategy involved seeking opportunities for earnings resultant from such events as mergers and acquisitions (M&A) as well as from leveraged buyouts. Some basic types of mergers and acquisitions also can be specified, which include the following:

- *Cash mergers* and tendering sales of securities (*tender offers*),
- Multiple auctions (*multiple bidder situations*),
- Exchange of the shares connected with a collar (*stock swap mergers with a collar*),
- A shares exchange merger (*stock swap mergers*) or shares for shares mergers (*stock-for-stock mergers*),
- Separation of an enterprise (*spin-off*),
- *Leveraged buyouts and hostile takeovers*

Brealey et al. (2004) have found, that events like mergers and acquisitions, in US history, had occurred at a specific time. Many merger and acquisition events resulted from the industrial changes, technological changes, from deregulation, from the changes in the prices of raw materials as well as from a progressive globalization processes. The authors, therefore, have attempted to isolate those historical times, during which the events of mergers and acquisitions occurred relatively most often. In their study, they also have concentrated on identifying those factors, which had significant impact on the mergers and acquisitions.

Information on a planned merger or an acquisition of a given company is an important signal for speculators. The most common consequence of an acquisition announcement is a drop in the share price of the company being acquired. The capital of the company being acquired is treated as a kind of the capital reducing the value of the company planning a takeover. In the long term, if the merger process is successful, the synergy process is started and the price of the acquired company's shares increases.

The managers of hedge funds can use this information and take direct positions in the spread:

- In case of an acquisition, between the value of a proposed acquisition and the current market value of the acquired company;
- In case of a merger, between the theoretical exchange rate for the shares of the merging companies and the current rate expressed by the market.

At the same time, the higher the probability of an unsuccessful merger or acquisition, the higher the value of the spread. All mergers and acquisitions bear the risk of not meeting the deadline announced originally. If acquisition is not implemented, generally, the value of the acquired company decreases rapidly. The managers supervising an arbitrage of a merger and acquisition can use two approaches alternatively:

- Opening positions in the acquired and in the acquiring companies, after announcing a planned arbitrage of merger and acquisition;
- Attempting to forecast merger or acquisition events and taking the positions before announcing a planned merger and acquisition transaction.

Generally, the *merger arbitrage* strategy is used after the announcement of a planned transaction. Merger and acquisition transactions are complex, therefore their application should be preceded by a profitability analysis, which takes into account the following:

- The financial and strategic terms of the transaction;
- The number of potential candidates willing to submit a higher price bid;
- The potential level of a loss, in case of transaction failure;
- Profitability of the transaction, assuming its success as well as the expected duration of its implementation.

3.4.2 The Distressed Securities Strategy

The origins of the *distressed securities* strategy and its application date back to the nineteenth century. The industrial revolution in England accelerated the development of innovative, as for those times, transportation means. The British railway

network is the oldest one in the world. In 1926, the law had been passed to build a railroad, which begun to be constructed in 1930. Unlike in most countries, construction of the railway solely relied on private companies. As such, a problem emerged regarding technical unification of individual railroads, specified in the agreements on the so-called *running powers*, which formed a complicated and operationally linked structure that was exploiting the routes managed by other parties. Difficulties associated with competition from other transportation means began during World War I. The government, therefore, took the initiative of restructuring the railway. In 1923, consolidation of 123 railway companies into 4 large managements, still private, begun (*railway grouping*). The reform, however, did not lead to improvement of the railway's economic position.

The *distressed securities* strategy is speculative in character. It involves investing in securities of the companies facing financial difficulties. Investing in companies that are on the verge of bankruptcy, or in which restructuring is being carried out, is associated with many types of risk, such as:

– The risk of the company's bankruptcy,
– The risk of not fulfilling the terms.

The *distressed securities* strategy involves taking long or short positions on the shares or bonds of the companies at a risk of bankruptcy. Experts also invest in the securities issued by the companies, which have applied for protection against insolvency, or in the securities of the companies involved in negotiations with their creditors about their non-judicial restructuring. These companies, generally, can be purchased at attractive prices. Successful restructuring of a company is connected with an increase of its value and a simultaneous profit on the part of the investor who took a long position. A strategy involving taking short positions on the shares of a company in a difficult financial situation, in case of a further deterioration of its condition and a price decrease, means the fund's profit. It is possible to profit from a purchase of a non-subordinated debt of a bankrupting company at a price lower than its liquidation value.

The *distressed securities* strategy also allows purchasing a difficult debt and then a short-selling of the company's shares. The price of such a debt usually is undervalued. Therefore, in this variant, profit can be achieved regardless the change of the company's financial status. Improvement of the company's condition means an increase of its debt's price and simultaneously of its share price. As a result, profit will be generated from the interest on the deposit from short-selling and from the debt. If the company's financial situation deteriorates, a decline in the share price below the price of the debt will be the consequence, due to a higher priority of this debt in the bankruptcy process. Table 3.6 presents examples of publicly listed companies, which experienced the biggest bankruptcies during the period between 1980 and 2012.

Table 3.6 The biggest bankruptcies of the companies listed publicly, during the years 1980–2012 (www.bankruptcy.com)

Company	Date of bankruptcy	Industry	Value of assets (billion USD)
Lehman Brothers Holdings Inc.	09/15/08	Investment Bank	691.063
Washington Mutual, Inc.	09/26/08	Savings & Loan Holding Co.	327.913
WorldCom, Inc.	07/21/02	Telecommunications	103.914
General Motors Corporation	06/01/09	Manufactures & Sells Cars	91.047
Enron Corp.	12/02/01	Energy Trading, Natural Gas	65.503
Conseco, Inc.	12/17/02	Financial Services Holding Co.	61.392
Chrysler LLC	04/30/09	Manufactures & Sells Cars	39.300
Thornburg Mortgage, Inc.	05/01/09	Residential Mortgage Lending Company	36.521
Pacific Gas and Electric Company	04/06/01	Electricity & Natural Gas	36.152
Texaco, Inc.	04/12/87	Petroleum & Petrochemicals	34.940
Financial Corp. of America	09/09/88	Financial Services & Savings and Loans	33.864
Refco Inc.	10/17/05	Brokerage Services	33.333
IndyMac Bancorp, Inc.	07/31/08	Bank Holding Company	32.734
Global Crossing, Ltd.	01/28/02	Global Telecommunications Carrier	30.185
Bank of New England Corp.	01/07/91	Interstate Bank Holding Company	29.773
General Growth Properties, Inc.	04/16/09	Real Estate Investment Company	29.557
Lyondell Chemical Company	01/06/09	Global Manufacturer of Chemicals	27.392
Calpine Corporation	12/20/05	Integrated Power Company	27.216
New Century Financial Corporation	04/02/07	Real Estate Investment Trust	26.147
UAL Corporation	12/09/02	Passenger Air Carrier	25.197

3.5 Opportunistic Strategies (*Directional-Trading*)

Opportunistic strategies, also called *directional trading* strategies, allow profiting from a changing market trend. This category of strategies mainly includes such sub-strategies as: *global macro*, *managed futures* or *short sellers* (Table 3.7).

Table 3.7 Summary of selected characteristics of directional trading strategies (UBS Warburg)

Strategy	Income level	Volatility	Sharpe's indicator	Correlation with stocks	Leverage	Investment horizon
Macro	High	High	Medium	Medium	Medium	Short
Long shellers	Low	High	Low	Negative	Low	Medium
Long/short equity	High	High	Low	High	Low	Short
Emerging markets	High	High	Low	High	Low	Medium

Source: UBS Warburg

3.5.1 The Global Macro Strategy

Hedge funds using a *global macro* strategy had constituted one of the largest group of funds for quite long time. Application of this strategy also allowed achievement of the best investment results. Due to severe consequences of using a *global macro* strategy, from the perspective of financial systems of individual countries, it is going to be discussed in more detail.

Popularity of this investment strategy is owed to people like George Soros (Quantum Fund), Julian Robertson, Lewis Bacon or Bruce Kovner. One of most famous applications of the *global macro* strategy was a speculative attack carried out by George Soros, who was also called 'the man, who broke the bank of England'. It involved the sale of British pounds obtained from bank loans, which led to devaluation of the British currency. Soros had assumed, that Great Britain would be forced out of the European Exchange Rate Mechanism (ERM) in 1992. Thus, he decided to short-sell—besides the British pounds—also the Italian lira, and then instead to purchase German marks and French francs. On the 16th of September 1992, on 'Black Wednesday', Soros purchased back the pounds on the day the exchange rate was the lowest.

Application of this strategy revealed some possible consequences of operations on the alternative investment market. Speculative sale of the Italian lira and the British pound done by Soros, as well as his use of a leverage, on one hand, had caused devaluation of these currencies and huge profits for the Quantum fund, on the other, had threatened operational stability of the Central Bank of England and the Central Bank of Italy. The exit of the British pound and the Italian lira from the Monetary System in September 1992, enabled Soros to earn over 2 billion USD.

The 90s of the twentieth century were characterized by large popularity of the *global macro* strategy. However, some events, that were unforeseen by the managers, had caused severe losses for some well-known hedge funds using the *global macro* strategy. On the 4th of February 1994, an unexpected increase of interest rates by 25 base points caused great financial losses for the Steinhard Partners fund. Another fund, which recorded heavy losses due to improper anticipation of the market behavior was the Tiger fund. At the beginning of 1998, this entity was

managing assets of over 4 billion USD. In October 1998, Robertson, the fund's founder, lost over 2 billion UNS due to appreciation of the yen to the US dollar. In March 2000, Julian Robertson announced closing of the Tiger fund, blaming 'irrational markets' for the fund's huge losses.

Despite a huge popularity of the *global macro* strategy in the 90s, over the next years its significance decreased noticeably. This is confirmed by the following facts. In April 1990, up to 71 % of hedge funds was using the *global macro* strategy, while by the end of 2004 only 10 % of those funds admitted to using this strategy (www.lipperweb.com).

The decrease of this strategy's significance may have contributed to its perception as one of the riskiest.

The *global macro* strategy belongs to investment strategies, which are characterized by an extremely wide spectrum of activities, a wide range of the instruments used by it and the techniques applied, as well as by variety of the markets on which investments are done. The direction of the actions undertaken within the scope of global a *macro strategy* is determined using analyses of macroeconomic variables. Forecasts are often done on the basis of econometric models. The models are meant to enable detection of inconsistencies between statistical analyses done on the basis of such macroeconomic variables as: the gross domestic product, trade balance, budget deficit, interest rates of the bonds, the demographic data, the average return rate of the stock market, commodity prices, exchange rates, etc. Fund managers formulate their conclusions about the results obtained and using that information they construct a portfolio based on assessment of global economic trends.

Selection of the companies for a portfolio does not involve finding single companies, but consists in finding opportunities to obtain profits resultant from price changes of a particular class of assets, usually those with most liquidity. Managers of *global macro* funds use two basic methods:

- Basing investment decisions on the human factor (*the discretionary approach*), which means that they are mostly based on the managers' decisions;
- Basing decisions on computer programs (*systematic approach*), which are based on quantitative models.

Each of the above mentioned methods of operation can be divided according to the following categories:

- *Directional*, in which the manager clearly assumes an increase of the prices by taking long positions, or assumes a decrease in the prices by taking short positions;
- *Relative* value, in which the manager simultaneously takes a long and a short position in the same or similar groups of assets, in order to profit from emerging price differences.

In general, the *global macro* strategy does not involve any predetermined geographical restrictions regarding the area of investment, therefore the managers make investments worldwide. The managers of *global macro* funds try to predict price changes on the capital markets and thus take directional positions, often

without securing them. They attempt to use the exchange rate fluctuations induced by macroeconomic events, such as: wars, natural disasters or political decisions of crucial importance for national economy.

Each investment decision should be consistent not only with macroeconomic assessments, but also with the risk profile of the whole investment portfolio. The main purpose of the hedge funds using the *global macro* strategy is to protect the fund's capital. A relatively low investment transparency for the investors is a characteristic feature of *global macro* funds. Effectiveness of using this strategy is highly dependent on the competence, the skills and experience of the managers, who make the key investment decisions. The managers of those funds construct their positions gradually, simultaneously with several transaction parties, which makes it difficult to assess transaction scales, as well as to determine the direction of an investment.

Managers of *global macro* funds also openly trade on currency markets, taking into consideration the relative value of currency positions. The following exemplary positions can be indicated (Stefanini 2010):

- A long position of PLN in terms of a short position of Euro,
- A long position of the Swedish crown in terms of a short position of Euro,
- A long position in the Australian dollar in terms of a short one in the New Zealand dollar,
- A long position in the Korean won in terms of a Japanese yen,
- A long position in the Korean won in terms of a short one in Euro.

3.5.2 The Strategy of Short-Selling

History of short-selling dates back to 1609. Edward Chancellor (1999) in his work titled '*Devil Take the Hindmost: A History of Financial Speculation*' suggests, that the first short-sale transaction was carried out on the Amsterdam Stock Exchange by a Dutch merchant—Isaac Le Marie. He short-sold the Dutch East Indie Company (VOC) listed on the same stock exchange. In 1610 the managers of VOC convinced the Dutch States-General to consider short-selling as an illegal operation, which resulted in the Dutch government's decision of taxing the profits from short-selling.

Short-selling was also considered illegal in the eighteenth and nineteenth centuries in Great Britain, France and in Germany. Currently we are dealing with very different regulations on the use of short-selling in selected countries worldwide.[5] Summary of the regulations regarding using short-selling in selected countries is presented in Table 3.8.

[5] Analysis of effects associated with short-selling and their impact on informational efficiency of the market was analyzed by Diamond and Verrecchia (1987).

Table 3.8 Summary of the practices related to short-selling in selected countries worldwide (*International Encyclopedia of the Stock Market* 2000 as well as based on the websites of global stock exchanges)

Country	Possibility of short-selling	Short-selling practice
South Africa	Yes	Yes
Albania	No	No
Argentina	Yes	No
Australia	Yes	Yes
Austria	Yes	Yes
Belgium	Yes	No
Brazil	Yes	Yes
Bulgaria	No	No
Chile	Yes	No
China	No	No
Chech Republic	Yes	Yes
Denmark	Yes	Yes
Egypt	No	No
Ecuador	Yes	No
Estonia	No	No
Philippines	Yes	No
Finland	Yes	No
France	Yes	Yes
Gerece	Yes	Yes
Spain	Yes	No
The Netherlands	Yes	No
Hong Kong	Yes	Yes
India	No	No
Indonesia	Yes	No
Ireland	Yes	No
Israel	Yes	No
Japan	Yes	Yes
Jordan	No	No
Canada	Yes	Yes
Colombia	No	No
South Corea	Yes	No
Lithuania	No	No
Luxembourg	Yes	Yes
Malaysia	No	No
Marocco	No	No
Mexico	Yes	Yes
Germany	Yes	Yes
Norway	Yes	Yes
New Zealand	Yes	No
Pakistan	No	No
Peru	Yes	No

(continued)

Table 3.8 (continued)

Country	Possibility of short-selling	Short-selling practice
Poland	Yes	No
Portugal	No	No
Russia	Yes	No
Singapore	Yes	No
Slovkia	No	No
Sri Lanka	No	No
Switzerland	Yes	Yes
Sweeden	Yes	Yes
Thiland	Yes	No
Taiwan	No	No
Turkey	Yes	No
USA	Yes	Yes
Venezuela	No	No
Hungary	No	No
Great Britain	Yes	Yes
Italy	Yes	Yes
Zimbabwe	No	No

The strategy of short-selling is based on anticipation of future price declines of various financial instruments. Thus, the securities on the market are borrowed in order to be sold at a relatively high price and then bought back at a lower price. The difference between the sale price of a security and its purchase price is the investor's profit. The strategy is directed at borrowing the securities which are considered as overvalued. Most commonly, the entities which are the subject of a short-sale exhibit the following characteristics:

- A weak financial condition and high quotations. This class includes non-profitable companies or those characterized by a high level of a financial leverage;
- A changing structure of the shares;
- Affiliations with the *distressed securities* sector;
- High valuation on the market at a simultaneous low level of the cash inflows or a high level of the applied leverage;
- Systematic loss of the value e.g. with a low level of *dividend yield*, a high level of *price/earnings ratio*;
- Regular changes of an auditor and delays in submission of financial statements;
- Involvement in industries characterized by high risk;
- Involvement in unsuccessful mergers;
- A high level of confidential sales (*insider selling*), characterized by a high level of share sales by the managing company.

The strategy of short-selling belongs to category of much riskier transactions than those of a long position in securities. Borrowing the shares from another

investor for the purpose of their short-selling always involves a risk of the investor being called to return the shares at any time. The need for an immediate return of the assets (*short squeeze*) can be associated with severe losses, if their price drastically increases. Moreover, it is not always possible to borrow particular shares on the market. Hedge funds using short-selling must account for specific types of risk which are associated with this kind of activity. While in the case of taking a long position the potential profit, theoretically, is unlimited, in short-selling, the price of the shares cannot drop below zero. The entity is also obliged to a *dividend payout* to the borrower, who is the legal owner of the securities.

3.5.3 The Long/Short Equity Strategy

The *long/short equity* strategy involves profiting by taking long and short positions on the market. Short positions are taken, if the investor is expecting future price declines of the purchased instruments. Long positions are taken when expecting increases in their price. The *long/short equity* strategy often is called a classic hedge fund strategy, which has been most commonly used by hedge funds during the past few years. Alfred Winslow Jones was first to use a strategy, which today is called a *long/short equity*. As the founder of the Jones & Co LLC fund, he noticed that during recession, when share prices are dropping, it does not make sense to sell some of the shares and loose on those remaining in the portfolio. He thus decided to use short-selling in order to profit on the dropping share prices. It allowed him to secure the investors' money during a bear market period. In 1966, the 'Fortune' magazine described the investment phenomenon of the A.W. Jones & Co. LLC, which had reached a return rate of around 670 % (www.finanseosobiste.pl).

Long/short equity funds nowadays constitute a very heterogeneous group, with different exposure to the market risk and different levels of the leverages applied by them. Some managers mainly rely on long positions, others on short positions, or they stay neutral towards the market. In the latter case, they get close to the above discussed equity *market neutral* category of funds, with a low exposure to market risk. The choice of the securities depends on the expectations regarding price formation in the future. A Deutsche Bank (2004) report titled '*The role of long/short equity hedge funds in investment portfolios*' presents the results of a S&P500 Index and a TUNA Long/Short Equity Index.[6] During the years 1990–2003, the average return rate from the TUNA Long/Short Equity Index was 20.3 %, while the S&P500 Index, during the same period, increased by 10 %. It is also worth noticing, that in the same period, the fund's risk, measured by a standard deviation, was significantly lower for the Tuna index (9 %), than for the S&P500 index (15 %). The Deutsche Bank report, therefore, indicates, that minimizing the risk is another

[6] The Tuna Index is created based on information made available by *long/short* funds at HedgeFund.net.

important advantage of the funds using long/short strategy, besides a higher return rate. According to the Deutsche Bank's data, the asset value of the hedge funds using this strategy, has increased by over 20 % annually http://www.deutsche-bank.de. The *long/short equity* strategy can be classified according to the investment techniques used to achieve a desired result. Therefore, the following can be distinguished:

1. The *long biased* strategy, the portfolio of which is dominated by long positions and which gamble on increasing markets;
2. *Market neutral* strategy, which maintains market neutral positions and attempts using short-term inefficiencies occurring in valuation. At the same time, emphasis is placed on compensating these valuation inefficiencies on the market;
3. The *short biased* or *short sellers* strategies, in which short positions are dominant. Emphasis is, therefore, placed on a more probable decline of the share price. Short-selling of own financial instruments or those acquired through borrowing transactions is performed, in order to later buy them out at more favorable terms.

The *long/short equity* strategy provides an opportunity to use futures and options. Hedge funds, which use a strategy of a *long/short* type, are such funds whose managers take long positions in the shares simultaneously with short positions balancing them. Simultaneous combination of a long position in the stocks with their short-selling is aimed at securing the position. Such combination is meant to minimize the risk, but not reducing it to none. The investor therefore is slightly exposed to a market risk. Taking short positions is supposed to serve two purposes. First, it is to protect against the price declines occurring on the market, second, it is to provide opportunities of profiting on those declines. For the strategy to be effective, undervalued shares ought to be purchased at a simultaneous short-sale of the securities of the overvalued companies, preferably from the same sector.

The main motive for constructing a strategy of a *long/short equity* type is the possibility to earn through short-selling the stocks at reasonable prices. Selection of a right brokerage firm, which is able to negotiate the value of the deposit to be paid for an opportunity to borrow the shares, has high impact on the transaction.

3.5.4 The Emerging Markets Strategy

The *emerging markets* strategy involves investing on the emerging markets characterized by a high growth potential. The term 'emerging markets' most commonly is used in reference to certain regions of the world, in reference to their characteristics of economic growth and financial market activity. For example, such countries like: China, India, Malaysia, as well as Middle-Eastern Europe countries are considered as emerging markets.

This strategy, thus concentrates on a geographic criterion, which constitutes the basis for selection of the territory and the subject of an investment. These countries

generally are characterized by a dynamic economic growth as well as by a high level of investments. Such features make those countries attractive places for capital allocation.

Investments on emerging markets practically entail all kinds of securities on the emerging markets, including shares, bonds, and the so-called sovereign loans. This investment style is characterized by high volatility of return rates, which results from fundamentals of the markets called emerging markets.

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www.bankruptcydata.com

Chapter 4
Funds of Funds

4.1 The Genesis of Funds of Funds

Over the past few year, interest in investing through funds of funds has been increasing. Funds of funds are entities investing financial assets in the shares, units or in certificates of other investment funds. Funds of funds play a significant role on the market of alternative investments. According to the statistical data published, the value of the assets in funds of funds currently constitutes about 30 % of the assets of all hedge funds (http://www.ifsl.org.uk). This means that, from the hedge funds' perspective, those entities constitute a very important aspect of the demand.

The first hedge fund was created in Geneva in 1969 (Ineichen 2002; Gregoriou 2008). The Leverage Capital Holdings fund was formed by George Karlweis of the Banque Privee Edmund de Rothschild. This fund was also the first hedge fund in Europe. Less than 2 years later, that is in 1971, the fund was opened in the US by the Grosvenor Partners fund of funds. In 1973, Permal Group had introduced on the market the first fund which used *multi-manager* and *multi-strategy* strategies, calling it the Haussmann Holdings N.V.

In 1980, Julian Robertson and Thorpe McKenzie formed the Tiger Management Corporation and introduced on the market a new fund of funds, called Tiger. The fund's initial capital amounted to 8.8 million USD. The first company specializing in management was created in 1983. Several years later, it was overtaken by the USB AG (in 1999). Less than 5 years later, the company was managing assets worth 38 million USD. Currently, the funds of funds sector is developing rapidly. More importantly, due to lower capital entry barriers, a much wider group of investors has access to this form of investment.

E. Sokołowska, *The Principles of Alternative Investments Management*,
DOI 10.1007/978-3-319-13215-0_4

4.2 The Definition of Funds of Funds

Most countries lack a formal definition of funds of funds. The legal acts established only specify certain criteria, which ought to be met for a given entity to be classified as a fund of funds. For instance, German investment law allows a possibility of investing in hedge funds, however, it prohibits the use of leverages and short-selling methods.[1] In Spain, on the other hand, regulations require funds of funds to invest "at least 60 % of its assets in domestic hedge funds or in foreign ones that have their headquarters or their Boards in the OECD countries". French regulations require funds of funds to be created in accordance with strictly applicable regulations. The term 'funds of funds' defines such funds, which buy shares of a value exceeding 10 % of the portfolio, in hedge funds or in other alternative forms of investment. In turn, according to Brazilian law, hedge funds are a category of funds of funds, which are described as investment funds investing at least 95 % of their own assets in other investment funds. The funds which are the subject of an investment can belong to any category of investment funds. The above presented examples of regulatory solutions applied in different countries indicate, that despite the lack of a formal definition, activity of those entities on the global financial market has been noticed. These exemplary solutions also indicate, that attempts are being made to regulate their activity.

According to the classification used by the Polish Chamber of Fund and Asset Management, funds of funds and the funds investing a substantial part of its assets in participation entitlements (investment fund shares) of a single institution of a joint investment, should be classified based on assessment of the overall composition of investment portfolios of those joint investment institutions, whose shares a given fund invests in (i.e. based on the fund's model exposition onto the market of equity securities and fixed income securities or on the markets of alternative investments) (http://www.izfa.pl). This means, that the portfolio's composition determines the nature of a given investment fund.

4.3 The Types of Funds of Funds

Different types of funds can be specified, depending on their investment purpose. Funds of funds, similarly to hedge funds, can be created under various legal forms. Their legal form is mainly determined by the place of their origin and the applicable law. In practice, funds of funds can function as a category of investment funds (e.g. in Ontario Canada, Hong Kong, Ireland, Japan), as a limited liability company (e.g. in Ontario Canada, Switzerland, USA), as an investment company (e.g. in

[1] Investmentgesetz (InvG), vom 15 Dezember 2003, Kapitel 4, Sondervermögen mit Zusätzlichen Risiken (Hedgefons) Paragraf 113, 114.

France, Hong Kong, Ireland, Japan, Luxemburg, Spain, Switzerland), or in another legal form.

If a fund of funds is formed as an investment fund, it may be of an open investment fund character (France, Switzerland) or of a closed investment fund character (Ontario Canada, Quebec Canada, Switzerland, Greta Britain, USA). As a rule, however, funds of funds function as private companies, which enables them to avoid the restrictions of regulatory nature. Despite their significantly lower entrance barriers, in comparison to hedge funds, funds of funds often are run by accredited investors.

Funds of funds can also be classified according to the investment purpose. Such basic division distinguishes the following:

- The funds of investment funds,
- The funds of hedge funds,
- The funds of *private equity* funds.

The term 'funds of funds' most frequently is used in the context of an investment in hedge funds and in *private equity* funds. Construction of funds of funds is particularly important while investing in those funds.

Funds of funds, which invest financial assets in the newly created *private equity/venture capital* funds, are the so-called *primary funds of funds*. Funds of funds, which are oriented on investing in the already existing *private equity/venture capital* funds, are called *the funds of secondary funds*.

Another division of funds of funds takes into account the financial instruments which an investment is based on. Considering various possible ways of constructing a portfolio of funds of funds, the following funds can be distinguished:

- Fraction funds,
- Hybrid funds (sustainable ones and those of stable growth),
- Debt securities,
- Cash and money market funds.

Classification of funds of funds according to their construction type distinguishes the following:

- Closed funds of funds,
- Open funds of funds.

Depending on the management concepts used by funds of funds, the following variants can be distinguished (Fabozzi et al. 2008):

- Index funds,
- Qualitative funds,
- Quantitative funds.

The index concept involves investing in a maximum of a 100 hedge funds and its investment objective is to achieve a return rate from a given sector of the hedge fund market. Depending on the nature of an investment and on the intended investment objective, the managers select those funds, whose activity falls within the scope of their investment strategy. The managers using this approach assume

that their skills will allow selection of such hedge funds for the portfolio, which will enable achievement of high return rates, while minimizing the investment risk in the long term.

The qualitative concept is based on an assumption, that the investment portfolio of funds of funds should include a maximum of 50 funds. The funds for the portfolio are chosen on the basis of econometric models, which allow selection of the shares of particular funds in the portfolio. Selection of a category of funds, depending on the investment strategies used, is also performed using the models.

Using a qualitative concept involves investing in a strictly selected group of maximum 20 funds. Moreover, selection of funds for the portfolio is held through a very strict quality control of the strategies used by the funds. This concept, however, is associated with incurring additional, high costs.

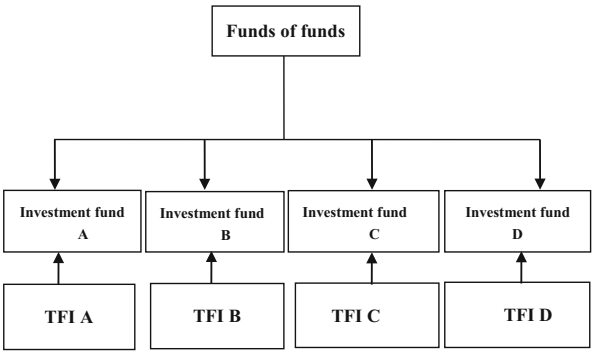
Funds of funds also can be classified according to the investment objective. Four basic strategies used by the managers of funds of funds (FOF) can be distinguished here (Hedge funds: Approaches to diversification 2002):

- The strategy of a *target return* rate, which involves allocating the fund's assets in other funds, with assumption of a target return rate at the level of 10–15 %, while reducing risk;
- Maximum return rate strategy, which involves allocating the fund's assets in other funds, assuming achievement of a maximum possible return rate and a simultaneous acceptance of the investment risk;
- A dedicated strategy, which involves investing the fund's assets in the funds using a specific type of an investment strategy, or in the funds investing on specific markets;
- A combined strategy, which takes into account a combination of the investment styles which allow achievement of a particular result.

4.4 The Constructions of Funds of Funds

Construction of funds of funds involves creation of a single investment portfolio comprised solely of participation units and investment certificates of other funds, not necessarily of the same company. Classification of a 'fund of funds' as a separate category, makes it an investment entity, whose basic strategy involves buying the shares of other investment funds, instead of investing directly in stocks, bonds or other financial instruments. Often, the category of funds of funds is treated as a subcategory of hedge funds, which uses a *multi-manager* strategy. Such understanding of the term, although correct, does not reflect the essence of this investment category and its developmental perspectives as a separate class of alternative investments. Therefore, in this work, funds of funds are treated as a separate category.

Diagram 4.1 Construction of funds of funds



Allocation of financial assets in a fund of funds generally means buying a portfolio reflecting the changes in the values of the units of 30–60 selected primary funds. Diagram 4.1 presents a typical construction of funds of funds.

4.5 Advantages of Investing in Funds of Funds

There are many advantages to be had by investing through funds of funds. The most frequently mentioned one is their double diversification of the risk. It is performed at the level of the primary fund, then at the level of the fund of funds. This form of investment also is more accessible to a wider group of investors, due to a much lower entrance barrier, in comparison to hedge funds or *private equity* funds. At the same time, the form of funds of funds enables the investors to access the instruments and the markets that are unattainable through unassisted investing.

Summarizing the benefits of investing in funds of funds, it can be concluded, that this type of collective investment institutions also allows diversification of the risk and professional portfolio management of the funds selected. Professional management of a portfolio of funds of funds allows avoidance of the costs associated with monitoring and analysis of various data, which in the case of own portfolios are necessary for effective investment management. Another benefit of investing in FOF is the possibility of using specialized databases, which collect and store information from a variety of sources, that is banks and financial institutions. This type of data is only accessible to the managers.

An important argument for advisability of investing in funds of funds is a successful selection of funds from among the many primary funds functioning on the market. The large number of the funds operating on the market often prevents the investors from an efficient selection of an appropriate investment level. The so-called information range, which allows selection of the object of an investment, is an important parameter in selection of funds. It can be expressed using an information ratio, which is described using the following formula (Ineichen 2000; Lee 2000):

$$\mathrm{IR} = \frac{\mathrm{ER}}{\mathrm{BR}} \tag{4.1}$$

where:

IR—information ratio,

ER—average positive return rate,

BR—standard deviation of the additional return rate.

The information ratio allows assessment of whether taking a risk in order to achieve a higher return rate is justified. Another option is to adopt a passive strategy, which faithfully copies the index. The numerator of the ratio is the average positive return rate, which is related to the return rate achieved by a given model portfolio. The equation's numerator is compared with the positive return rate, that is the *excess return* rate from the portfolio, above the model portfolio's return rate. The equation's denominator represents the risk. Standard deviation of the excess return rate is referred to as a *tracking error*. The more the manager differs in his/her portfolio from the composition of the benchmark constituting a reference model, the greater the tracking error.

Summarizing the discussion on the benefits of investing in funds of funds, it can be concluded, that its most important advantages are the following:

- Reduction of the risk associated with investing in a single fund,
- Possibility of investing in various classes of assets,
- Access to investing on various markets,
- Using a wide range of investment strategies,
- Using the knowledge and the experience of many managers from different regions of the world,
- Elimination of the need to conduct time-consuming and costly analyses, which are necessary to make investment decisions in numerous individual funds,
- Lower operating costs than those in traditional funds; as opposed to a fund investing in traditional instruments such as stocks and bonds, a fund constructed as a fund of funds does not need to incur the costs associated with a detailed analysis of the securities and financial instruments, as well as it does not need to incur the costs associated with their purchase,
- Access to a wider spectrum of leading funds, which may be difficult to access due to high capital barriers or their location.

Funds of funds often cooperate with hedge funds, which in this way secure themselves in case of a potential gain of the capital. In addition, funds of funds often become engaged in investors' educational activities, which are associated with explaining basic the forms of traditional and alternative investments, the role of the risk in investing, or possible applications of investment strategies. Often, educating the investors is part of the sales strategy of funds of funds. The above advantages comprise important presumptions for investors to invest in funds of funds, which is reflected by the data evidencing development of this sector of alternative forms of investment.

4.6 Disadvantages of Investing in Funds of Funds

Investing in funds of funds, however, is not without drawbacks. Their low availability to the investors is one of primary disadvantages associated with investing in funds of funds. Due to a relatively recent development of this sector and the lack of adequate regulations, this form of investment is not widely available for entities investing on the market. Funds of funds are not well recognized by the investors, who often are not familiar with this form of investing or cannot indicate any specific funds of funds that are currently operating on the market. Along with the development of this sector of alternative investments, as well as due to the increasing investors' knowledge, it is believed, that such state of the matters should soon change.

High transaction costs are a drawback of investing in funds of funds and thus its shortcoming as well. Investing in those funds involves incurring a double fee. The funds charge fees to those managing investment funds and to the distributor or to the investor. This double fee structure is considered a negative aspect of investing in funds of funds. Management fees, in case of funds of funds, usually are higher than those charged by traditional investment funds, because they include part of the management fee collected by the funds which are direct subjects of a given investment. These charges also include cumulated management fees.

Funds of hedge funds usually collect fees for their services. Generally these are management and performance fees, respectively 1.5 % and 15–30 %. In management of funds of funds the fee structures often are "1 plus 10", that is, a fixed management fee equal to 1 % and a commission of 10 %. There can also be a structure of "1 plus 15" or a "1 plus 20". These charges can decrease the investor's profits and potentially reduce the overall income, below the potential income to be achieved by cheaper investment funds or by the ETFs (Exchange Traded Funds).

Lack of transparency in funds of funds' activity is another drawback. The level of their transparency is lower than in case of traditional investment funds. Lack of clarity often results from the lack of information and, on the part of the managers, from not disclosing the names of the funds composing the portfolio. Such situation is referred to as a *black-box syndrome* (Ineichen 2001).

Moreover, while investing in funds of funds, attention should be paid to the following issues (Kaiser 2004):

- Possible difficulties with optimal capital allocation in case of a high value of the assets being managed,
- Difficulties associated with selection of the managers in accordance with the fund's warranty capacity,
- Possible tendencies associated with too wide diversification of the portfolio,
- Possible difficulties associated with capital allocation using specific investment strategies,
- Difficulties with applying niche or *quasi-closed* strategies.

4.7 The Global Funds of Funds Market

The subject of the analysis is going to be the market of the funds investing in hedge funds. The number of these funds does not correspond with the number of all funds functioning globally. The number of hedge funds has increased since 1999, so just in 10 years it has increased from 800 to more than 3000. This means that the average annual increase rate of the funds of funds was almost 28 %. This period was characterized by an apparent increase in the number of funds of funds as well as by an icrease in the values of the investment assets that were managed by those funds. The number of functioning funds of funds was highest in 2007. It is estimated, that around 3250 funds of hedge funds functioned globally in this year. A decrease in the number of funds of funds in 2008 was related to the financial crisis and to outflow of the capital from this sector of the market. Outflow of the capital from the funds of funds sector directly contributed to the decrease in the number of funds of funds globally. The number of funds of funds during the years 2002–2012 is presented on Fig. 4.1.

The increase in the number of funds of funds in recent years has been associated with a rapid growth of the value of the net assets being managed by funds of funds. While in 1999 the value of the assets being managed by funds of funds was estimated at 58 billion USD, in 2008 this amount was 600 billion USD. Also, with regard to the value of investments, it can be noticed that the funds of funds market reached the highest value in 2007 (860 billion USD). As a consequence of the global economic crisis, the number of the funds of funds as well as the value of the assets managed by them decreased. According to the estimations by the Hedge Fund Research (HFR), the fund of hedge funds industry suffered net outflows totaling 221 billion dollars (162 billion euros) between 2008 and 2013, including net outflows of 8.1 billion USD in fourth quarter 2013 alone. The value of the assets

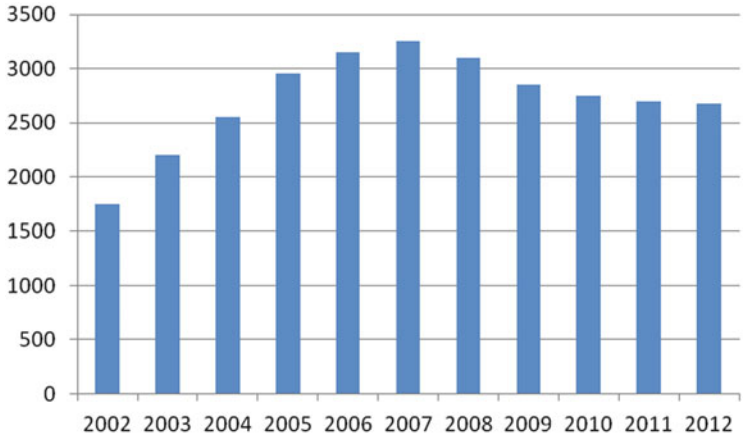


Fig. 4.1 The number of funds of hedge funds worldwide during the years 2002–2012

being managed by funds of funds during the years 2002–20012 is presented on Fig. 4.2.

Analysis of the emergence process of funds of hedge funds seems to be interesting. It can be noticed that the most funds of funds were created in 2007. A downward trend in creation of new funds of funds can be observed, with the exception of the year 2010. The number of new funds introduced on the market in the years 2002–2012 is presented on Fig. 4.3.

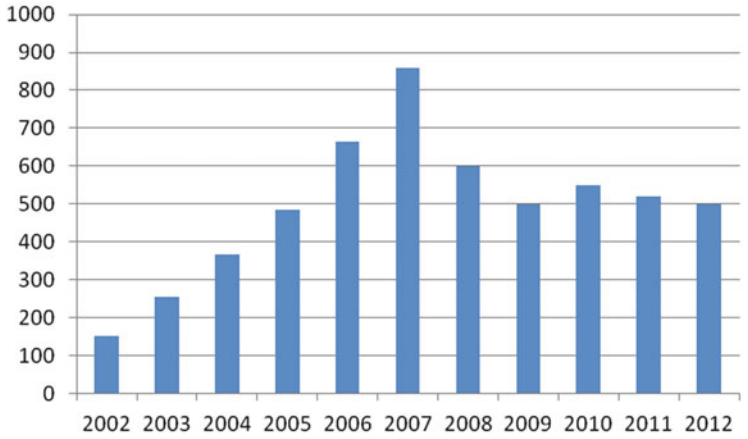


Fig. 4.2 The value of the assets being managed by funds of funds in the years 2002–2012

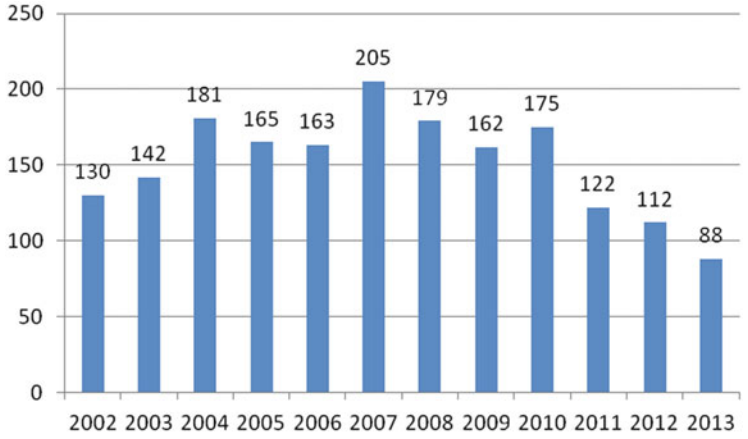


Fig. 4.3 Fund of hedge funds launches 2002–2013 (Prequin 2015)

4.8 The Forecasts of Funds of Funds Market

An attempt was made to examine the structure of an autoregressive-trend variable: funds of funds' assets (aff_t) in billion. It turned out, that autoregression does not occurs in this variable, while a linear trend does. Thus, impacts of the simultaneous world's wealth ($bglcur_t$) as well as a delayed by 1 year world's wealth ($bglcur_{t-1}$) and a delayed by 2 years world's wealth ($bglcur_{t-2}$) were examined. An empirical equation describing a formation mechanism of the funds of funds' assets has the following form:

$$aff_t = \underset{(6.313)}{-1245.84} + \underset{(5.841)}{9.053}bglcur_t + \underset{(3.637)}{5.920}bglcur_{t-1} - \underset{(5.826)}{124.4}t + u_{afft}, \qquad (4.2)$$

$$R^2_{aff} = 0.912, Su_{aff} = 70.99, V_{aff} = 15.3\ \%.$$

Equation (4.2) highly accurately describes volatility of the funds of funds' assets. The linear trend, as well as the current and the delayed by 1 year values of the world's wealth explain 91.2 % of the total volatility of the variable aff_t. The trend mechanism indicates an autonomous decrease in the annual value of the considered assets on average by 124.4 billion USD. An increase of the current wealth by 1 trillion USD causes an increase in the value of the funds of funds' assets, one average, by 9 billion USD. An increase of the wealth delayed by 1 year ($bglcur_{t-1}$) results in an increase of the current funds of funds' assets, on average, by close to 6 billion USD. Each explanatory variable in Eq. (4.2) is statistically significant at a very low significance level ($\gamma < 0.01$). A negative value of the absolute term (-1245.84) indicates that funds of funds emerge only at a high level of the wealth. Equation (4.2) can be used to estimate the forecasts of the funds of funds' assets (aff_{Tp}). As such, it will be necessary to use the forecasts of the wealth, which are presented in Table 2.2. Forecasts of the global funds of funds' assets are presented in Table 4.1 and on Fig. 4.4.

The calculations indicate, that during the upcoming years increases in the value of those assets up to the level over 577 billion USD in 2014, over 678 billion USD in 2015 and almost 706 billion USD in 2015 can be expected. Of course, realism of the estimated forecasts depends on accuracy of the forecasts of the world's wealth (aff_{Tp}).

Table 4.1 Forecasts of the global funds of funds' assets (aff_{Tp}) for the years 2014–2016 (billion USD)

Forecasted period (T)	Forecast of aff_{Tp} (billion $)	Average prediction error (V_T)	95 % confidence interval
2014	577.44	86.700	381.31–773.57
2015	678.58	85.201	485.84–871.32
2016	705.99	87.982	506.96–905.02

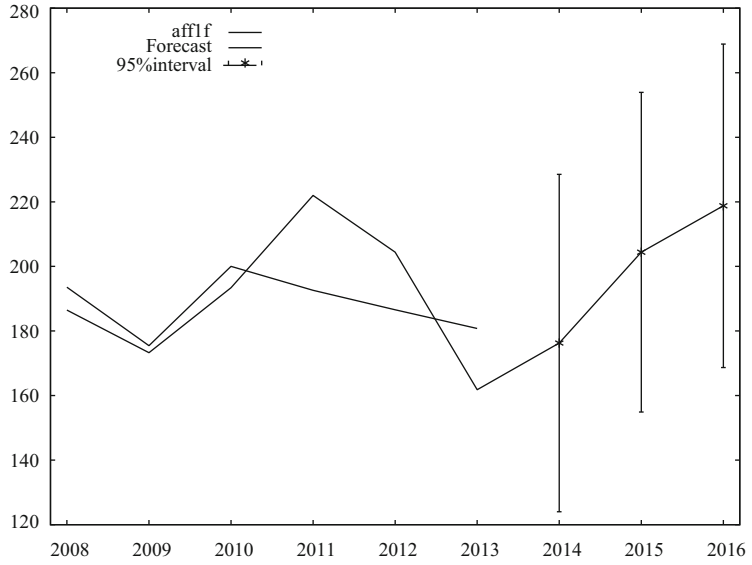


Fig. 4.4 Forecasts of the global funds of funds' assets (aff_{Tp}) for the years 2014–2016 (billion USD) (Table 4.1)

Another issue needing explanation is the mechanism of fluctuations in the funds of funds' assets per 1 fund (aff1f_t). Analysis of an autoregressive-trend structure of the variable aff1f_t revealed existence of a negative linear trend only and a lack of autoregression. As such, impact of the values of global financial funds per 1 adult, the current value as well as the delayed by 1 and 2 years values, were examined. As a result, the following empirical equation emerged:

$$\underset{}{\text{aff1f}_t} = \underset{(5.196)}{-281.69} + \underset{(5.761)}{12.93}\text{bfinad}_t + \underset{(2.606)}{6.935}\text{bfinad}_{t-1} - \underset{(3.078)}{9.401}t + u_{\text{aff1f}t}, \tag{4.3}$$

$$R^2_{\text{aff1f}} = 0.922, \text{Su}_{\text{aff1f}} = 17.139, V_{\text{aff1f}} = 10.2\ \%.$$

The structure of Eq. (4.3) is similar to that of Eq. (4.2). The trend and the values of global financial assets per 1 adult, both the current one and the one delayed by 1 year, explain 92.2 % of the total volatility of the average assets per 1 fund of funds. An autonomous decrease of the average value of the asset per one fund of funds, annually, by around 9.4 million USD, is observed. An increase in the value of global financial assets per 1 adult by a 1000 USD entailed an increase in the value of the assets per 1 fund of funds, averagely by 12.93 million USD. At the same time, an increase in the value of global financial assets per 1 adult by a 1000 USD, delayed by 1 year, resulted in an increase in the value of the assets per 1 fund of funds, averagely by 6.935 million USD.

Assessment of the forecasts of the average funds of funds' assets per 1 fund (aff1f_{Tp}) for the years 2014–2016 was attempted. The forecasts of global financial

Table 4.2 Forecast of the average global funds of funds' assets per 1 fund ($aff1f_{Tp}$) for the year 2014 (million USD)

Forecasted period (T)	Forecast of $aff1f_{Tp}$ (millions $)	Average prediction error (V_T)	95 % confidence interval
2014	176.269	23.1046	(124.003; 228.535)
2015	204.408	21.8886	(154.893; 253.924)
2016	218.785	22.1466	(168.686; 268.884)

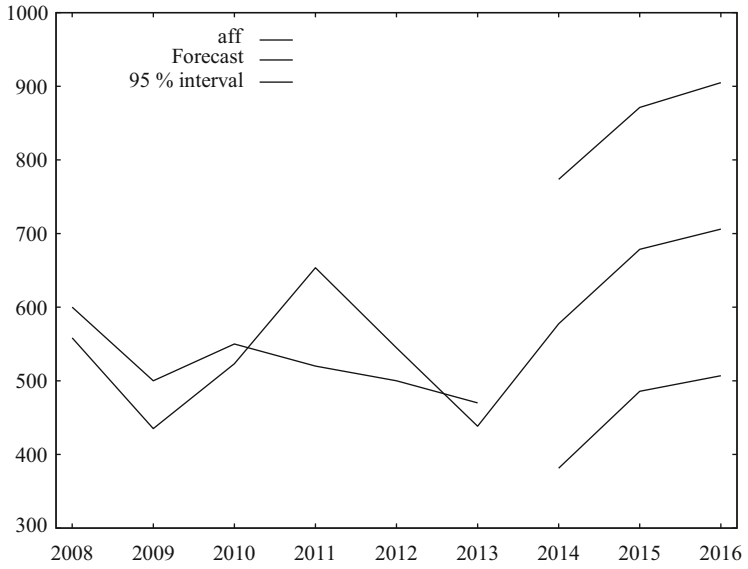


Fig. 4.5 Forecast of the average global funds of funds' assets per 1 fund ($aff1f_{Tp}$) for the year 2014 (million USD) (Table 4.2)

assets per 1 adult ($bglcur_{Tp}$), presented in Table 2.11, were used for this estimation. The forecasts ($aff1f_{Tp}$) turned out to be not significant enough, in the statistical sense. Therefore, we present a forecast for the years 2014–2016 ($aff1f_{2014p}$), which is characterized by a relatively high relative prediction error $V^*_{2014} = 13.11\ \%$. The results are presented in Table 4.2 and on Fig. 4.5.

A decrease of the average global funds of funds' assets per 1 fund in 2014, down to the level of a little over 176 million USD, can be expected. It results from the changes in legal regulations associated with funds of funds.

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Chapter 5
Managed Futures Investments

5.1 The Genesis of *Managed Futures* Investments

Analysis of a type of investments called *managed futures* should begin with introduction of the derivatives to the subject of the matter, particularly of the *futures* contracts, which constitute a direct object of this type of investments. Derivatives are the futures market's tools, the value of which depends on the value of the so-called primary instrument constituting the base of a futures transaction. These innovative instruments of the financial market can be used both for hedging, arbitrage as well as for speculation that allows profiting on the changes in the basic instrument's price.

Analysis of the Bible revealed some references to the contracts, construction of which corresponds with today's derivative instruments (Wiśniewska 2007). The Book of Genesis, chapter XXIX, mentions a contract, which was to guarantee the marriage of Labam with Jacob's daughter—Rachel, in exchange for 7 years of work. The nature of that contract, depending on its interpretation, bore characteristics of both modern options—the swaps and *forward*/*futures* contracts. Records on derivatives can also be found in the works of Aristotle and in many other writings on the history of humanity. The first contracts on food products were meant to protect both the producers and the buyers against the risks arising from infertile crop harvests. Crop changes could have caused significant price fluctuations and unfavorable changes in the prices of agricultural and food products.

The first *futures* contracts on agricultural products were introduced in 1848 on the Chicago Board of Trade stock exchange. They were called the *to arrive contracts*, that is, contracts to delivery, and they applied to such food products as flour or hay. Successive derivatives stock exchange markets emerged very rapidly. In 1898 the Chicago Mercantile Exchange, initially known as the Chicago Butter and Egg Board, was created. On the New York Mercantile Exchange (NYMEX) contracts on energy products were traded, while on the New York Cotton Exchange contracts on cotton and orange juice were traded. Introduction of the first financial

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futures contract on mortgage-secured certificates (Government National Mortgage Association mortgage-backed certificates) in 1975 was the next step in development of the *futures* contracts. Less than 2 years ago, futures contracts on the US Treasury bonds were introduced. As a consequence of the derivatives market's development, increasingly sophisticated strategies, which correspond with different risk profiles and potential return rates, were created (Sokołowska 2009a, b, c).

An important figure in the history of the *managed futures* transactions development was Richard Donchian, known as the father of contemporary theory of trend-following (Stefanini 2006). The original Donchian method involved the use of the moving averages as entrance/exit indicators in the sale/purchase transactions. In 1948, the system's constructor created the first public commodity fund dedicated to investing in commodities (Commodity Fund Future, Inc.) (Anson 2006). Installation of electronic displays showing real-time price changes was another important event that affected the development of managed futures investments.

Along with a rapid development of transactions using derivatives, the need to create some regulatory frameworks for the market was recognized. In 1974, the Commodity Exchange Act was passed and a commission supervising the derivatives market—Commodity Trading Commission—CFTC—was created. The Act of Commodity Exchange has defined the concepts of a *commodity pool operator* and a *commodity trading advisor*.[1] It can therefore be assumed, that the events described here had significant impact on development of the *managed futures* investments.

Managed futures transactions, as an alternative form of investment, emerged on the market as early as the 60s (Chance 1994; Fox-Andrews and Meaden, 1995; Peters and Warwick 1997). Currently, transactions of this type are managed by professional investment advisors called the *commodities trading advisors* (CTAs), who conclude transactions on the global derivatives market. They enable the investors to release their cash funds within 3 months. A hedge fund, which engages its own assets in a transaction on the futures market is called a *commodity pool* and is required to be registered with the CFTC. An advisor once specified as a CPO or a CTA undergoes continuous registration with the CFTC.[2] Some well-known hedge funds and funds of funds, which are registered as CTAs or CPOs, entail the following (Schneeweis and Gupta 2006):

– Caxton Associates, LLC;
– Kingdom Capital Management LLC;
– Moore Capital Management, LLC;
– Renaissance Technologies Corp.;

[1] Section 1a(5) CEA contains the definition of a CPO; Section 1a(6)(A) contains the definition of a CTA. An 'advisor' in hedge funds does not fall under those descriptions, provided that he/she invests in swaps and in *forward* contracts of synthetic *futures* contracts only.

[2] See: Section 4m(1) of the CEA. A person generally registers with the CFTC as a CPO or a CTA by filing a completed Form 7-R and certain supporting materials with the National Futures Association (NFA), the self-regulatory organization governing the commodities markets. 17 C.F.R. Section 3.10.

– SAC Capital Advisors, LLC;
– Tudor Investment Corporation;
– Pacific Alternative Basset Management Co.; LLC.

Initially, the primary object of investments realized under the *managed futures* mostly involved the *futures* contracts on commodities. Currently, however, the futures contracts on various types of primary instruments constitute the subject of trade. Four basic classes of managed futures investments can be distinguished:

– Goods and commodities,
– Financial instruments and metals,
– Currencies,
– A diversified portfolio of the above mentioned classes of assets.

5.2 The Concept of *Managed Futures* Investments

The term 'managed futures' signifies a manner of operating on the futures market, through authorizing the advisors to manage money on the futures market, on behalf of the client. The term *Commodity Trading Advisor* literally means an advisor on the commodities market, therefore it can be somehow misleading. *Commodities*, that is goods/products, are associated, for instance, with agricultural products, precious metals, petroleum and many other physical assets, which can constitute a base for a transaction on the futures market.

In financial terminology, the term Commodity Trading Advisor (CTA) signifies a professional, whose activities are also related to currency markets, the futures markets, financial instruments, and to stock indices. Managers are supervised by the National Futures Association—NFA—an American institution regulating the futures markets. A CTA license is issued by the Commodity Futures Trading Commission (CFTC). It is worth to emphasize the fact, that CTAs also undergo a thorough check by the FBI and are obliged to carry out financial audits, which are then evaluated by appropriate authorities supervising the futures markets.

The term *managed futures* often is translated into other languages as managed accounts and investment programs. In fact, this term entails the whole industry based on advisory of specialized consultants, who use the derivatives as profit developing tools (Schneeweis 1998). This activity is therefore associated with active investing on the futures market. The purpose of investing assets on the derivatives market is diversification of the investment portfolio and an ongoing speculation, which allows profiting from future the price changes of financial instruments.

The first managed accounts, as an alternative type of investment, appeared at the end of the 60s, however, interest in this type of investments increased at the end of 70s of the twentieth century. Increasing demand for derivatives was mainly related to increasing risk on the international financial market and to possibilities of transferring that risk, which the futures transactions offered. Rapid development

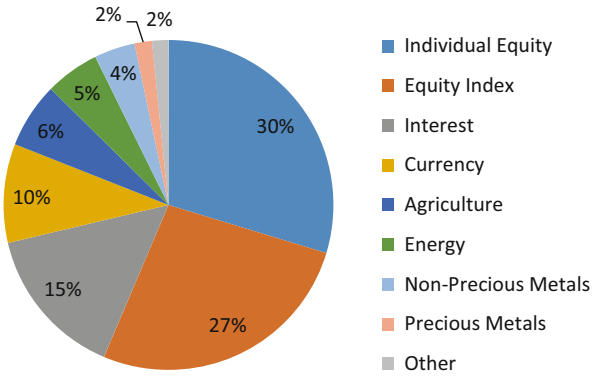

Fig. 5.1 Structure of the options and futures market, according to the primary instrument, in 2013 (Futures Industry Association 2015)

on the derivatives market became a stimulus for development of *managed futures* investments. According to Barclay Hedge Ltd, which monitors the market of alternative investments, the value of the assets invested in managed accounts worldwide was 330 billion USD at the end of the 3rd quarter of 2013, while 10 years earlier it had reached 75 billion USD (www.barclayshedge.com, accessed: July 27, 2014).

Derivatives encompass the following: *forward* contracts, *futures*, options, warrants and *swaps*. The *futures* contracts offered on many stock exchanges constitute primary subjects of investments in *managed futures* transactions. As such, they are standardized instruments. Daily *marking-to-market* allows minimization of the credit risk associated with transaction counterparty's insolvency. Currently, the *futures* market offers a wide range of primary instruments, which constitute the basis for futures transactions. It should be underlined, however, that the *futures* contracts are symmetrical instruments, which oblige both parties to honor the contract at the transaction's maturity. These instruments use a leverage, which multiplies potential profits or losses of those participating in a transaction.

Figure 5.1 shows the structure of *futures* and options contracts, in terms of the primary instrument. It can be seen, that the futures and options contracts on individual equity (30 %) and on equity indexes (24 %) had the biggest share in the derivatives market. The futures and option contracts on interest rates constitute about 9 % of the futures market's value.

While analysing the market of alternative investment according to the place of transaction conclusion, it can be noticed, that 38 % of the transactions were concluded in North America, more than one third on Asia Pacific, and Europe constitutes one fifth of the entire market. Figure 5.2 presents global futures and options volume by region in 2013.

Very rapid growth of trading the derivatives as well as the expanding range of these products offered globally, have created a wide spectrum of portfolio diversification possibilities, both geographically as well as based on the primary assets constituting the subject of a transaction. Table 5.1 presents the selected top

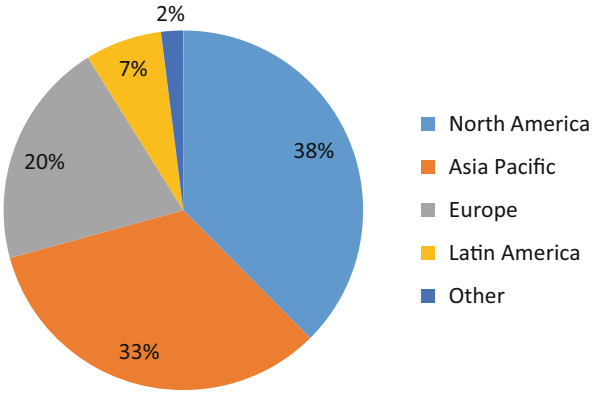

Fig. 5.2 Structure of the options and futures market by region in 2013 (Futures Industry Association 2015)

20 Futures and options contracts in 2013 traded on global exchanges worldwide which were the subject of most intensive trading continentally.

5.3 Forms of *Managed Futures* Investments

A decision about investing through the accounts managed by order alternatively means: entrusting own capital to be managed by a professional CTA on an individual account, or joint investment using *managed futures* funds specializing in such transactions. Based on this information, three basic forms of *managed futures* investments can be distinguished (Anson 2006):

1. Investing through public institutions of collective investment (*public commodity tools*).
2. Investing through private institutions of collective investment (*private commodity tools*).
3. Investing through *individual managed accounts*.

Managed futures funds are similar to hedge funds in their construction and their manner of operating. Such a fund is managed by the so-called *general partner*. An entity functioning as a manager, in general, is obliged to obtain permits from the Commodity Futures Trading Commission and the National Futures Association. An entity obtaining authorization is called a *commodity pool operator*. Operators of funds generally employ at least one investment advisor (CTA), who invests the capital entrusted him/her.

Under a Lungarella and Harcourt's (2002) classification, investments can be divided according to four basic criteria:

– The nature of an investment,
– The type of analyses used,
– The source of a return rate,
– The time horizon of an investment.

Table 5.1 Selected Top 20 Futures and options contracts in 2013 traded on global exchanges worldwide

	Equity	Interest rate	Currency	Agricultural	Energy	Metals
1	CNX Nifty Options, NSE India	Eurodollar Futures, CME	U.S. Dollar/Russian Ruble Futures, Moscow Exchange	Rapeseed Meal Futures, ZCE	Brent Crude Futures, ICE Futures Europe	Steel Rebar Futures, SHFE
2	SPDR S&P 500 ETF Options*	10 Year Treasury Note Futures, CBOT	U.S. Dollar/Indian Rupee Futures, NSE	Soy Meal Futures, DCE	Light, Sweet Crude Oil Futures, Nymex	Silver Futures, SHFE
3	Kospi 200 Options, Korea Exchange	One Day Inter-Bank Deposit Futures, BM&F	U.S. Dollar/Indian Rupee Futures, BSE*	White Sugar Futures, ZCE	Henry Hub Natural Gas Futures, Nymex	Iron Ore Futures, DCE
4	S&P Sensex Options, BSE	5 Year Treasury Note Futures, CBOT	U.S. Dollar/Indian Rupee Futures, mSXI	Rubber Futures, SHFE	Coke Futures, DCE	Copper Futures, SHFE
5	E-mini S&P 500 Futures, CME	Euro-Bund Futures, Eurex	U.S. Dollar/Indian Rupee Options, NSE India	Palm Oil Futures, DCE	Coking Coal Futures, DCE	High Grade Primary Aluminum Futures, LME
6	Euro Stoxx 50 Futures, Eurex	Eurodollar Mid-Curve Options, CME	U.S. Dollar Futures, BM&F	Corn Futures, CBOT	Gasoil Futures, ICE Futures Europe	Comex Gold Futures, Nymex
7	RTS Futures, Moscow Exchange	7 Sterling Futures, ICE Futures Europe	U.S. Dollar Futures, Rofex	Soy Oil Futures, DCE	NY Harbor RBOB Gasoline Futures, Nymex	Zinc Futures
8	Euro Stoxx 50 Options, Eurex	Euribor Futures, ICE Futures Europe	Euro FX Futures, CME	Soybean Futures, CBOT	No. 2 Heating Oil Futures, Nymex	Copper Grade A Futures, LME
9	S&P 500 Options, CBOE	Euro-Bobl Futures, Eurex	U.S. Dollar Futures, Korea Exchange	Egg Futures, DCE*	WTI Crude Futures, ICE Futures Europe	Special High Grade Zinc Futures, LME
10	CSI 300 Futures, CFFEX	10 Year Treasury-Note Options, CBOT	U.S. Dollar/Russian Ruble Options, Moscow Exchange	Cotton No. 1 Futures, ZCE	Crude Oil (LO) Options, Nymex	SPDR Gold Shares ETF Options*

11	Nikkei 225 Mini Futures, OSE	30 Year Treasury Bond Futures, CBOT	Japanese Yen Futures, CME	Wheat Futures, CBOT	Natural Gas European-Style Options, Nymex	Gold Futures, SHFE
12	iShares Russell 2000 ETF Options*	2 Year Treasury Note Futures, CBOT	U.S. Dollar/Indian Rupee Options, BSE*	Sugar #11 Futures, ICE Futures U.S.	Crude Oil Futures, MCX	iShares Silver Trust ETF Options*
13	VIX Options, CBOE	Euro-Schatz Futures, Eurex	U.S. Dollar/Rand Futures, JSE	No. 1 Soybean Futures, DCE	Brent Crude Oil Last Day Futures, Nymex	Silver MIC Futures, MCX
14	Taiex Options, Taifex 50	DI x US Dollar FRA Futures, BM&F	Euro/U.S. Dollar Futures, Moscow Exchange	Soybean Oil Futures, CBOT	U.S. Oil Fund ETF Options*	Primary Nickel Futures, LME
15	Powershares QQQ ETF Options*	Eurodollar Options, CME	British Pound Futures, CME	Corn Options, CBOT	Natural Gas Futures, MCX	Comex Copper Futures, Nymex
16	iPath S&P 500 VIX Short Term Futures ETN Options*	3 Year Treasury Bonds Futures, SFE	Australian Dollar Futures, CME	Soybean Meal Futures, CBOT	Brent Crude Opt. on Fut., ICE Futures Europe	Aluminum Futures, SHFE
17	iShares MSCI Emerging Markets ETF Options*	IDI Index Options, BM&F	Euro/Russian Ruble Futures, Moscow Exchange	Soybean Options, CBOT	U.S. Natural Gas Fund ETF Options*	Comex Silver Futures, Nymex
18	Bank Nifty Options, NSE India	Long Gilt Futures, ICE Futures Europe	U.S. Dollar/Indian Rupee Options, USE	Rapeseed Oil Futures, ZCE	Brent Oil Futures, Moscow Exchange	Standard Lead Futures, LME
19	S&P BSE 100 Options, BSE	Euro-Bund Options, Eurex	Mexican Peso/U.S. Dollar Futures, Mexder	Live Cattle Futures, CME	EUA Futures, ICE Futures Europe	Gold Futures, Moscow Exchange
20	E-mini Nasdaq 100 Futures, CME	5 Year Treasury Note Options, CBOT	Canadian Dollar Futures, CME	Lean Hogs Futures, CME	Henry Hub Swap (NN) Futures, Nymex	Silver M Futures, MCX

*Traded on multiple U.S. options exchanges

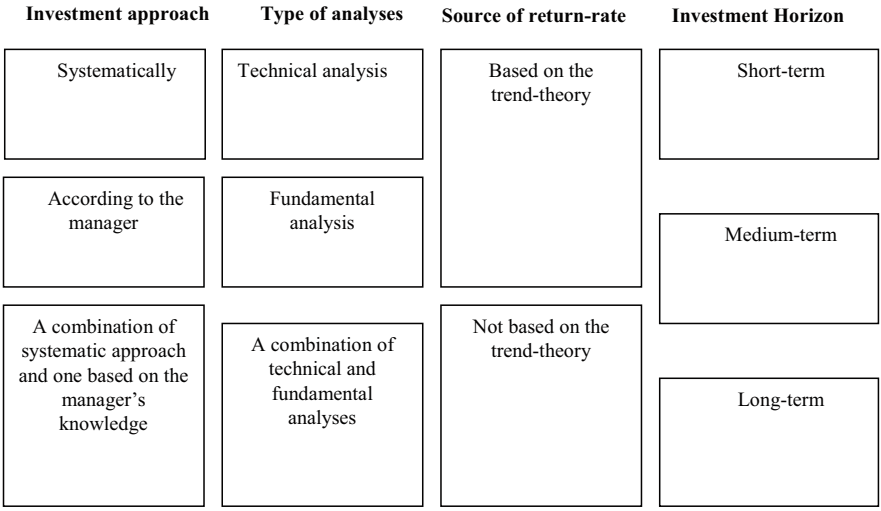

Diagram 5.1 Classification of m*anaged futures* investments (Lungarella and Harcourt 2002)

A more detailed classification considering the above mentioned criteria is presented in Diagram 5.1.

Currently, managed futures transactions include methodical and mature industry entailing different variations of the investment strategies used. Barclay indicates that the value of the assets in CTA management can be equal to around 312.6 billion USD (2014) (www.barclays.co.uk, accessed: July 10, 2014).

Public *managed futures* funds (Public Commodity Pools) are presented to investors through a public offer, therefore access to this type of investments is open for all those potentially interested, who have an appropriate amount of capital. Before their release into public trade, these funds are obliged to register their business activity. This means, that they need to apply for a registration with the Securities Exchange Commission. Lower entry levels, compared to the ones in private funds, undoubtedly are an advantage of investing in public funds. A relatively high liquidity of fund units allows a fast withdrawal of the cash assets from the investment.

Private funds (Private Commodity Pools) are mainly sold to wealthy individual investors (High-Net-Worth Investors) and to institutional investors. Private funds are not obliged to register their business activity with the SEC. They also are not obliged to report on their business activity to the CFTC. A lower margin of the broker's profit and greater flexibility in implementation of sophisticated investment strategies are advantages of private funds.

It is also possible to invest in futures contracts through individual managed accounts. Managed account is a simple form of investment, which involves an investor opening—in his/her own name—a broker account at one of licensed brokerage firms and signing a contract granting the power of attorney for a specialized advisor (CTA) to manage that account. Such transactions are carried

out as *assessment management* services. Investing accordingly with the investor's profile, high transparency of transactions and high liquidity are advantages of this form of money allocation. Undoubtedly however, high entrance levels, which means that such services are available only for wealthy investors, are its disadvantage.

The discussed above classification of *managed futures* investments ignores the option of investing in *managed futures* indices. Schneeweis and Gupta (2006) provide a more extensive classification of the Managed Futures investments, which distinguishes the following:

- Investing in CTAs using managed accounts,
- Investing in private or public investment funds,
- Investing in active *managed futures* indices,
- Investing in *managed futures* indices.

Investing through managed accounts and through investment funds has also been discussed on the basis of the above classification. Investing in indices, described as active, is a flexible management strategy involving a smooth and frequent use of long and short positions, depending on the expectations associated with the price changes. Profitability of such operations highly depends on the abilities and competency of the people responsible for the management process.

Most recognized active indices are: S&P Managed Futures Index created by Standard&Poors, the BTOP50 index created by Barclay Group, as well as indices created by Credit Suisse First Boston (CSFB)/Tremont Partner. They are built based on the data obtained from those, who voluntarily report to the databases managing *managed futures* investments. Each index has a different construction. The Barclay CTA index is a reference index for the *managed futures* industry. This index is calculated based on information obtained from 429 investment programs with at least 4-year history of business activity.

Passive investing makes profitability of indices dependent on long-term return rates from the markets constituting the subject of an investment. Passive management, also called passive investment, is a financial strategy where the fund's manager makes as little as possible investment decisions regarding the portfolio. Lack of activity is meant to minimize the transaction costs.

Primary Commodity Managed Future indices are divided into three categories. First category includes *commodity indices* based on the return rates of the *future* contracts and the return rates of the spot market. This group includes such indices as: CRB, Goldman Sachs, Chale Manhattan, Commodity Index, Dow Jones-AIG Commodity Index, JPMorgan. The second group entails indices based on current CTA condition. This group includes such indices as: MAR, Barclay, TASS and EACM Global Basset Allocators. The third group of indices guarantees return rates comparable with the results achieved from passive *long*/*short* positions on listed future contracts. Exemplary *managed futures* investment indices are presented in Table 5.2.

Table 5.2 Selected *managed future* indices

Active indices	S&P Managed Futures Index
	BTOP50
	CSFB Managed Futures Investable Index
	CSFB Sector Invest Index
	Barclay CTA Index
	MAR (Managed Account Reports) Indexes
	MLM (Mount Lucas Management) Index
Passive indices	Dow Jones-AIG Commodity IndexSM (DJ AIG CISM)
	Commodity Research Bureau Index (CRB Index)
	Goldman Sachs Commodity Index (GSCI)
	Reuters-CRB Total Return Index

5.4 Application of *Managed Futures* Transactions

Managed futures investments, similarly to other alternative forms of investment, should be treated as complementary to the investment portfolio. Numerous benefits associated with incorporation of the *managed futures* transactions into the investment portfolio can be indicated. Most commonly these advantages include:

- Possibilities to reduce the investment portfolio's risk,
- An opportunity to increase the total return rate of the portfolio,
- Ample opportunities of diversifying the portfolio,
- Possibility of profiting during a period of increases as well as during declines of the prices on the market, due to the possibility of taking both long and short positions.

Primary advantage resulting from complementing a portfolio with *managed futures* investments is a limited portfolio volatility. Reduction of the risk is possible due to transactions carried out within the portfolio, in various areas of international financial market, which are strongly positively correlated with traditional instruments. According to Markowitz's (1952) theory, an investment portfolio composed of uncorrelated investment instruments leads to a lower risk and higher return rates than the average for these investments. Lack of correlation between the managed futures transactions and the stocks and bonds has been recognized in numerous scientific studies (Lintner 1983; Edwards and Liew 1999; Edwards and Caglayan 2001; Fung and Hsieh 2001).

Many examples of the studies focused on the benefits of incorporating *managed futures* investments in the portfolio of assets can be specified.[3] Numerous studies indicate, that the contracts on commodities, which allow particularly effective

[3] The following studies should be mentioned: S. Irwin, W. Brorsen, (1985); S. Irwin, D. Landa, (1987); G. R. Jensen, J. M. Mercel (2001); C. M Conover, G. R., Jensen, R. R., Johnson, & J. M. Mercer, (2010).

Table 5.3 Correlation coefficient of return rates from selected classes of assets (BarclayHedge 2014)

Class of assets	Managed futures	U.S. Stock	Bonds (3)	Real Estate (4)
Managed futures	1.00	0.01	0.02	0.01
U.S. stock	0.01	1.00	0.19	0.58
Bonds	0.02	0.19	1.00	0.2
Real estate	0.01	0.58	0.2	1

Correlation coefficients calculated on the basis of the data from the period of 1980 to 2012

portfolio diversification[4] or even protection against inflation,[5] carry specific benefits.

Table 5.3 shows a correlation dependency between the *managed futures* investments and two other selected classes of assets, that is, American stocks bonds and real estate. This dependency was measured using a coefficient of Pearson's linear correlation, based on the data from 1980 to 2012. Indices are treated as a substitute of the market portfolio.

Managed futures have compared favorably with stocks and bonds over the past 30 years and has the potential to profit in various economic environments. Since managed futures have the ability to use the prive trends in different markets to its advantage, they can profits during the periods of losses for other investments (e.g. stocks and bonds). The managed futures' performance during the worst peak-to-valley declines of stocks, long-only physical commodities, bonds, and real estate is illustrated by Table 5.3.

The results of the calculations indicate, that the *managed futures* transactions expressed by the Barclay CTA Index were positively correlated with American stocks, however, the value of the correlation coefficient was low. Empirical observations thus confirm, that addition of the *managed futures* investments to a classic stocks portfolio allows reduction of the overall risk of the portfolio; keeping in mind though, that the so-called *total risk* is a sum of two components: a *systematic risk*, also called the *market risk*, and a *specific risk*, *nonsystematic risk*. Skillful diversification of a portfolio allows almost complete elimination of the specific risk, without impacting the systematic risk.

Table 5.4 shows selected statistics for the *managed futures* transactions, calculated on the basis of the data form 1990 to 2005. *Managed futures* transactions have been expressed using the CISDM indices. The CISDM database, also known as MAR/Hedge, is one of the oldest, most comprehensive and highly reputable among market participants databases. It was created in 1979, while CISDM indices were developed and constructed in 1980. Since then, it has been collecting information

[4] The following studies should be mentioned: B. Bjornson, C. Carter, 1997. G. Jehnsen , R. Johnson, J. Mercel, 2000; Conover, C. M., Jensen, G. R., Johnson, R. R., & Mercer, J. M. (2010).

[5] The following studie should be mentioned: Z. Bodie, Spring 1983, Bodie, Z., & Rosansky, V. I. (1980). Spierdijk, L., & Umar, Z. (2013).

Table 5.4 Selected statistics of indices, during the years 1990–2005 (Schneeweis et al. 2008)

Index	Average annual return rate (in %)	Standard deviation (in %)	Tendency	Curtosis	Correlation with the S&P Index	Correlation with the Lehman Govt/Corp. Index
CISDM CTA Asset Weighted Index	10.47	9.77	0.71	2.28	0.08	0.28
CISDM CTA Equal Weighted Index	8.89	9.43	0.52	0.66	−0.14	0.26
CISDM CTA Asset Weighted Currency Index	8.87	11.53	1.55	5.34	0.06	0.15
CISDM CTA Asset Weighted Diversified Index	8.86	11.26	0.44	0.63	−0.12	0.27
CISDM CTA Asset Weighted Financials Index	11.94	12.62	1.02	3.63	−0.08	0.33
CISDM CPO Asset Weighted Index	8.23	9.42	0.73	2.81	−0.12	0.30
S&P 500 Total Return	10.55	14.32	−0.45	0.73	−0.13	0.31
Lehman Govt/ Corp	7.42	4.42	−0.44	0.77	0.13	1.00

on *managed futures* transactions. Currently, over 700 CTAs and CPOs advisors are reporting to it.

The results presented in Table 5.4 constitute research material, which allows drawing many interesting conclusions. All *managed futures* indices were characterized by a volatility level lower than that of S&P Index. It may also be noticed, that the average annual return rate from the S&P Index, during the research period, was 10.55 % and was comparable or slightly higher than most return rates from the *managed futures* indices. The table also includes correlation coefficients of the CTA and CPO indices with S&P 500 stocks index. Almost all *managed futures* indices were weakly negatively correlated with the S&P 500 Total Return Index.

Analysis of managed futures investments would be incomplete without indicating their limitations. First of all, it should be underlined, that these investments are characterized by a high investment risk, similarly to majority of investments in derivatives. Leveraging has a significant impact on the risk level. A high leverage level can mean high profits, but also, in case of price changes it can go in the opposite direction—very heavy losses. What is more, managers do not guarantee that the investor will achieve the desired financial results. Often, simulations carried out on the models, which work well on historical quotations, may prove to be inadequate for future analysis of the data. This means, that investors should be prepared for different variants of final financial results. The "drawndown" ratio, which allows calculation of the highest cumulated loss in the history of the analyzed CTA, is an analytical tool which can be very practical for investors. The indicator shows the level of the investor's potential loss, in case of a payout of the capital at the worst moment in the CTA's operation period. An investor planning to invest using *managed futures* should also be prepared to incur high transaction costs. Standard fees reach about 2 % of the value of the invested funds, and additionally, the fees charged from the profit reach 20–35 %. Investing in CTAs who have been active for less than 5 years is also risky.

5.5 Automated Transaction Systems in the Activity of Commodity Trading Advisors

Investing in managed accounts and in investment programs is equivalent to using *managed futures* strategies. This strategy is very similar to the *macro-type* strategy. Both strategies are directed at investing in the *futures* contracts listed on global exchange markets. *Managed futures* investments most often use the so-called automatic transaction systems, which are meant to make decisions with exclusion of the human factor and human emotions.

A transaction system defines the rules of concluding transactions on the financial market. Automatic investment systems operate within a specially developed investment strategy, often based on the *trend following* theory. The strategy, in its assumptions, implies that there is a possibility of generating income during the bull and bear market. As such, the models programmed are meant to follow the trend are. Comparison of the *global macro* and CTAs strategies is presented in Table 5.5.

Moreover, they are to ensure security of a transaction through programming a maximum level of risk for a given market position. The man's role comes down to designing and controlling the activities undertaken within the framework of the developed system. Such approach is aimed at eliminating emotions being the factor influencing subjective assessment of the situation on the market. All open positions are monitored on an ongoing basis, thus preventing an increase of the risk above a predetermined level. Continuous updating the *stop-loss* limits allows adaptation to the price changes on the markets. Based on the analysis of historical data conducted within the framework of the programmed system, buy and sell signals are sent out.

Table 5.5 Comparison of the *global macro* and CTAs strategies

Global macro	CTAs
This strategy uses a very broad spectrum of instruments, beginning with stocks and bonds, currencies, and ending with complex derivatives	The strategies used by CTAs use derivatives only
It is mainly based on analysis of a fundamental nature	Decisions made within those managed futures investments often result from immediate decisions, not from those backed by analysis
It is often characterized by decisions made by people, not by computer transaction systems and are based on subjective assessment of the market	The managed futures strategy most commonly is based on automatic transaction systems, in which the human factor is eliminated, such decisions are based on the market models
Decisions are made in teams specializing in the financial instruments being traded	CTA's generally base their actions on one or two persons managing the portfolio

5.6 The Forecasts of *Managed Futures* Investments

The value of managed accounts (CTA_t) during the period between 2000 and 2013 increased over eightfold. We examined how did the wealth level per one adult, the current one as well as the delayed by 1 and 2 years impact this variable. A possibility of occurrence of an autoregressive-trend process in the variable CTA_t was checked. It turned out, that autoregression did not occur, while a linear trend did. An empirical equation describing the variable CTA_t has the following form:

$$CTA_t = \underset{(0.338)}{-11.832} + \underset{(3.045)}{3.596}bfinad_t - \underset{(3.468)}{4.834}bfinad_{t-2} + \underset{(14.09)}{28.375}t + u_{CTAt}, \qquad (5.1)$$

$$R^2_{CTA} = 0.993, Su_{CTA} = 8.924, V_{CTA} = 4.39\ \%.$$

Each explanatory variable of the above equation is statistically significant at a low level of significance ($\gamma < 0.01$). A trend, as well as the current and the delayed by 2 years level of the financial assets' value per one adult citizen of the world explain 99.3 % of the volatility of managed accounts.

The average annual increase in the value of managed accounts during the years 2000–2013 was equal to 28.375 billion USD. An increase of the variable $bfinad_t$ by 1000 USD entailed an increase in the value of the managed accounts, on average, by 3.596 billion USD. An increase in the value of the financial assets, which are represented by the variable $bfinad_t$, prior to 2 years, by 1000 USD, resulted in a decrease in the value of managed accounts, on average, by 4.834 billion USD. This means that the owners of the financial assets make financial corrections of their financial investments generally every 2 years.

Equation (5.1) has a very high stochastic characteristics, which allows its use for estimation of the forecasts of the variable CTA_t. The condition for this estimation is having the forecasts of the values of the financial assets per one adult. These

Table 5.6 Forecasts of the values of global financial assets per one adult citizen ($bfinad_{Tp}$) for the years 2014–2016

Forecasted period	Forecast of $bfinad_{Tp}$ (thousands $)	Average prediction error	95 % confidence interval
2014	31.086	2.4157	25.703–36.468
2015	32.563	2.5708	26.835–38.291
2016	33.610	2.5906	27.838–39.382

Table 5.7 Forecasts of the values of managed accounts (CTA_{Tp}) for the years 2014–2016

Forecasted period	Forecast of CTA_{Tp} (billion $)	Average prediction error	95 % confidence interval
2014	380.8	11.44	354.5–407.2
2015	421.9	13.48	390.8–452.9
2016	441.1	12.66	411.9–470.3

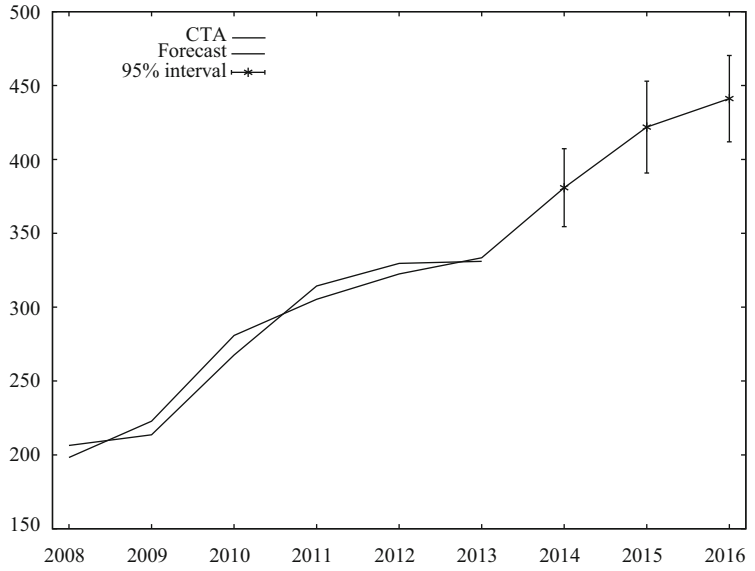

Fig. 5.3 Forecasts of the values of managed accounts (CTA_{Tp}) for the years 2014–2016 (Table 5.7)

forecasts were estimated earlier, during forecasting of the hedge funds, and are presented in Table 5.6.

Forecast estimations of managed accounts (CTA_{Tp}) are presented in Table 5.7 and on Fig. 5.3.

The calculations indicate, that if the values of the financial assets per one adult will increase up to an adequate level, further increases in the values of managed accounts can be expected. The expected value of managed accounts in the year

2014 can reach the level of 380.8 billion USD. In 2015, the value of managed accounts can exceed the amount of 420 billion USD, while in 2016 it can be expected to exceed the value of 440 billion USD.

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Chapter 6
Structured Products

6.1 The Concept of Structured Products

Structured products are a combination of traditional investments into stocks and bonds with investments in derivatives. A combination of traditional instruments with more innovative ones allows the investors to generate higher return rates. A traditional instrument is meant to protect the capital invested in an investment. A derivative is meant to multiply an income. Creation of asymmetrical payout profiles is possible by using e.g. options. Such financial vehicles are designed to better fit the changing conditions on the financial market. Development of the market of structured instruments is an answer to the changing investor demand. The current low interest rates environment and a simultaneous decrease in attractiveness of bank deposits has motivated individual investors to become interested in structured products, which offer potentially higher return rates. The demand for structured products is also linked to the exposure to risk of those assets, which are not necessarily available to the investors on the base market. Structured products, similarly to other alternative investments, also allow the possibility of diversifying the investment portfolio, thus allow reduction of the investment risk and provide access to various investment structures. Some of these structures also enable tax savings (unit-linked products).

Currently, there are many structured products offered on the stock market and over the counter market (OTC). Often, various names are used to describe the same structures. A classic structured product consists of two elements: a traditional debt instrument and a derivative.[1] Exemplary market databases, which can constitute the basis for calculating the amount of the interest paid out, include i.e.: short-term and long-term interest rates, exchange rates, stock exchange indices (global and local), stock prices or commodity prices (for example the prices of precious metals, energy carriers, agricultural commodities, etc.).

[1] In structured products, an option often is a derivative.

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Although structured products have been present on the market for almost 10 years, they have not been defined in a uniform manner. Also, there is no single, official definition in most legislations either. The financial market has adopted a description of structured products as complex instruments composed of at least two elements.

According to the definition used on the Warsaw Stock Exchange, structured products should be understood as financial instruments, whose price depends on a specific market index (e.g. stock rate or the rate of the baskets of shares, the value of stock exchange indices, the price of resources, currency exchange rates) (http://www.gpw.pl). By investing in a particular security, the investor gains an opportunity of a relatively simple participation in the changes of foreign indices, share baskets and/or resource prices, such as gold or oil.

According to a different definition taken from foreign literature, structured products are hybrid products often composed of the assets bringing a fixed income (e.g. bonds) and of at least one derivative. Issuer of a structured product, in relation to the buyer (investor), covenants to pay him/her a settlement amount calculated according to a specific formula, at the maturity of a given investment. The formula defining payout rules allows the owners of those instruments to calculate the current value of a given instrument. Drawing on literature, many more various formulated definitions of structured products can be found. Swedroe and Kizer (2010) define structured products as packaged synthetic investment products designed to meet those expectations of investors, which are not met by available financial instruments. Another definition states that structured products are combinations of derivatives with traditional instruments, such as stocks or bonds.

The definition provided by the Securities Exchange Commission emphasizes the fact, that structured products are instruments, in which cash flows depend on one or more various indices. What is more, they have a built-in derivative or another instrument. The attached instrument determines the investor's potential income, as well as defines the issuer's obligations resultant from the changes of that instrument's value. A definition used on the Pacific Stock Exchange describes structured products as products based on specific assets or on a basket of assets, such as. shares, indices, commodities, currencies, debt instruments, and many other instruments.

The above facts show, that the multitude of structured products is sort of a barrier on the path to creation of a universal definition of those instruments. Due to an extremely dynamic development of the structured products' market, especially in the EU countries, it is important that a proposed definition should not prevent further development of various constructions of those instruments. Despite the lack of a universal definition of structured products, it is possible to distinguish some characteristic features most of those instruments exhibit. Structured products are characterized by the following features:

– Possibility to preserve the capital, which can be fully or partially secured,
– A specific duration of the investment,

– Possibility to obtain a return rate, the amount of which is calculated based on a specific formula,
– An embedded derivative instrument.

According to Wallmeier (2011), this can be caused by the complexity of the products sold, by lack of financial education for individual investors, as well as by behavioral factors. Hens and Rieger (2009) in their study indicate, that for rational investors the benefits arising from using structured products are scant. On the other hand, Henderson and Pearson (2011) present a hypothesis, that issuance of structured products, which belong to innovative and very complex instruments, seeks to exploit information asymmetries. Since assessment of structured products' profitability is not easy, the investors who are unaware of the risk associated with those instruments can incur unexpected losses, which may reduce their confidence in financial markets and institutions.

Good knowledge of the possible constructions of structured products has positive impact on the investors' investment decisions and facilitates management of investment portfolios.

6.2 The Types of Structured Products

Generally, structured products have a defined minimum level of capital warranty or are characterized by a guaranteed minimum return rate. Under this classification, they can be divided into:

– The products characterized by a full capital protection, where investment risk is limited to the amount of a potential return rate,
– The products characterized by partial protection of the capital, where a percentual value of the protected capital is predetermined,
– The products without capital protection, which are characterized by high investment risk, but allow achievement of higher profit.

Structured products characterized by capital guarantee often have a defined limit of a possible return rate (the so-called cap). Typically, before purchasing structured products, one can become familiar with the mathematical formula on which the profit will depend, according to the changes of the base instrument, at the moment of their expiry. Payouts from structured instruments commonly occur once, usually at the maturity of an instrument.

According to their construction, structured products can be divided into (http://www.barclaysstructuredproducts.com):

– Structured certificates,
– Products enabling a maximum return rate,
– Products ensuring capital protection.

Structured certificates replicate the price changes of the primary instrument constituting the basis of a transaction. They enable investors to operate on a particular market, in a specific sector, or to use a defined scheme by a single transaction.

The products allowing a maximum return rate usually are formed by a combination of a primary instrument with an option. They are directed to those investors, who are willing to take a higher risk.

Products ensuring capital protection also are a combination of items in a primary instrument with an item in an option. The main difference between the products allowing a maximum return rate and the products ensuring capital protection is a different profile of the risk option. Possible items allowing construction of the structured products that are characterized by certain parameters will be presented, in detail, further in this chapter.

As already mentioned, a whole set of derivatives can be used to construct structured products. While classifying structured products according to a reference base, they can be divided into the following categories:

- The products and the deposits based on interest rates *(interest rate-linked notes and deposits)*,
- The products and the deposits based on shares (*equity-linked notes and deposits*),
- The products and the deposits based on currencies and on commodities (*FX and commodity-linked notes and deposits*),
- Hybrid products and deposits (*hybrid-linked notes and deposits*),
- Credit products and deposits (*credit-linked notes and deposits*),
- The products and the deposits connected with the market (*market-linked notes and deposits*).

It is worth noting, that the range of the products which can form a reference base for structured products, is currently expanding. It is possible to construct structured products connected with e.g. investment funds, funds of funds, hedge funds as well as with the ratings (of companies, countries), inflation level, with the weather conditions or with mortality level.

Depending on the time of maturity, structured products can be divided into:

- Short-term ones,
- Medium-termed ones,
- Long-term ones.

Structured products also can be divided according to the nature of investment. Considering such criterion, we can distinguish the following:

- Investment products characterized by a longer, few-year lifetime; investors expect a profit after a longer period of time; those for example include structured bonds,
- Speculative products based on indices or on stocks of a relatively short time horizon, from few months up to 1.5 years; they include e.g. certificates.

Raiffesen Research classification of structured products takes into account the amount of the invested capital and divides them into two main groups:

– Leveraged products,
– Investment products.

Leveraged products are instruments, which in their construction use a financial leverage. For those products, basic assumption is to allow realization of a specific investment goal through a relatively low amount of capital. This is possible by using a leverage effect. Such strategies, however, are subject to higher risk. Exemplary types of leverage products, according to Raifaissen Research, are presented in Diagram 6.1.

Diagram 6.2 shows selected examples of structured products, in which leverage is not applied.

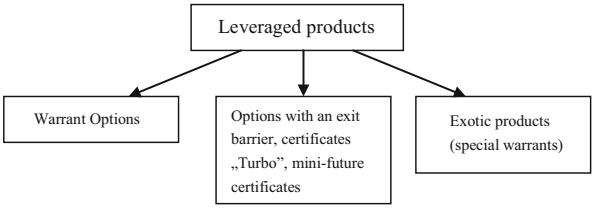

Diagram 6.1 Selected structured leveraged products (Hirsch and Reindl 2006)

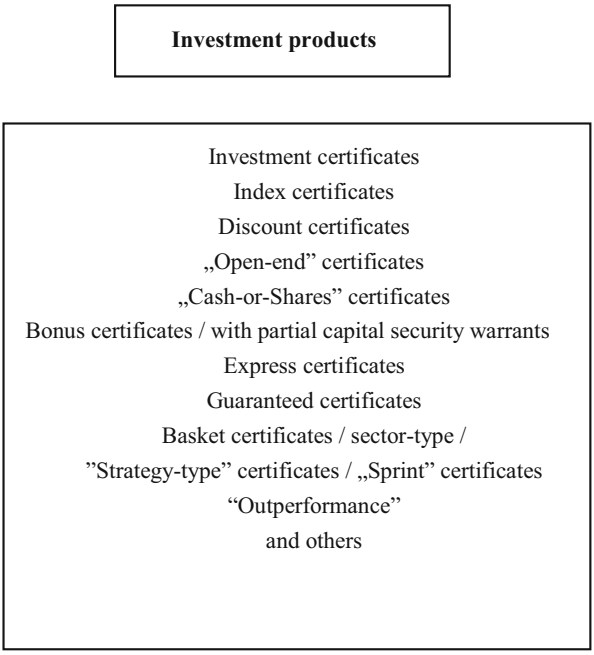

Diagram 6.2 Selected structured products (Hirsch and Reindl 2006)

6.3 The Construction of Structured Products

An important advantage of structured products is the possibility to fit their offers to various expectations of investors in connection with future price changes. Diagram 6.3 shows possible payout profiles of structured products, depending on their construction. Appropriate constructions of structured products can be fitted to both, the anticipated rising prices on the market to the anticipated price declines. The constructions of structured products used in anticipation of future rising prices are presented in Diagram 6.3.

The graph on the left side of the diagram presenting possible constructions of investment products shows a payout profile of an investor, who expects a future increase in the price of the primary instrument.

The middle chart, where a final payout profile is composed of a combination of an option with a primary instrument, is characterized by a risk profile of the sale option's issuer. Such position is used when an investor expects a future increase of the price of a primary instrument. The investor sells the sales options and accepts a higher risk, while receiving a bonus for the option and takes a long position in the base instrument. Diagram 6.4, on the other hand, shows the constructions of structured products, which are possible to be used while waiting for future price declines.

Depending on the situation on the market, the types of structured products can be attributed to appropriate degrees of risk acceptance on a two-dimension matrix. Table 6.1 shows selected types of structured products, which meet the investor's expectations during a given market situation, and take into account the investor's attitude to the risk.

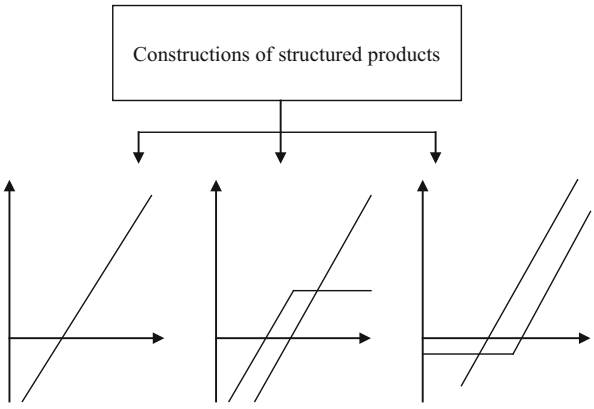

Diagram 6.3 The constructions of structured products used in anticipation of future price increases

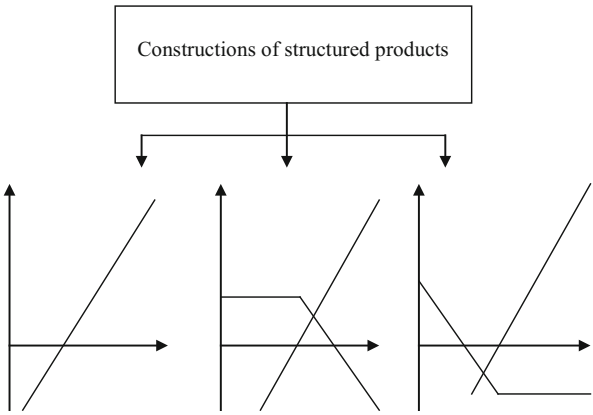

Diagram 6.4 The constructions of structured products used while awaiting future price decline

Table 6.1 Risk matrix/the matrix of market trends

The market state	The degree of risk acceptance by an investor		
	High	Medium	Low
Growth market	Certificate Turbo long purchase warrants	Bonus certificate Index certificate	A certificate with capital protection Warrants, with participation in the profits from the market growth
Side market	Corridor certificate	Bonus certificate with an upper limit Discount certificate "Cash-or-share" certificate	Bonus certificate Certificate with a large discount
Declining market	"Turbo" certificate short warrants of the sale	Reverse index certificate Reverse bonus certificate	A certificate with a capital protection Warrants, with participation in the profits from a declining market

6.4 Structured Certificates

Structured certificates are a type of a structured products, which replicates a return rate of the primary instrument constituting the basis of the transaction. Shares, baskets of shares, stock indices, interest rates, commodities or other combinations of financial instruments—all those can be the primary instrument. Structured certificates are designed for those investors, who locate their capital on the markets, in anticipation for a price increase, without using the financial leverage effect. This means, that a 1 % increase of the base instrument will also cause a 1 % increase of its value. A more extensive classification of structured certificates involves the following certificates:

– Index certificates,
– Basket certificates,
– Guaranteed certificates,
– Bonus certificates,
– Discount certificates,
– Turbo-type certificates (using a leverage effect).

The demand for each of the above mentioned types of certificates depends on the investor's expectations regarding future price changes of primary instruments.

6.4.1 Index Certificates

Index certificates are instruments based on share indices *(index certificates)* or on a basket of shares (*basket certificates*). An index certificate is a simple form of an investment in a basket of shares comprising the index. The certificate's value is directly related to the value of the base index. Those instruments allow a purchase of an index for those base instruments, the purchase of which, under normal conditions, is not available for an average investor. They are often based on:

– Price indices (*price indices*),
– Total indices of return rates (*total return indices*).

Main global stock indices or the indices reflecting exchange quotes of the companies coming from a given region are the base instrument of the certificates based on price indices (Fig. 6.1).

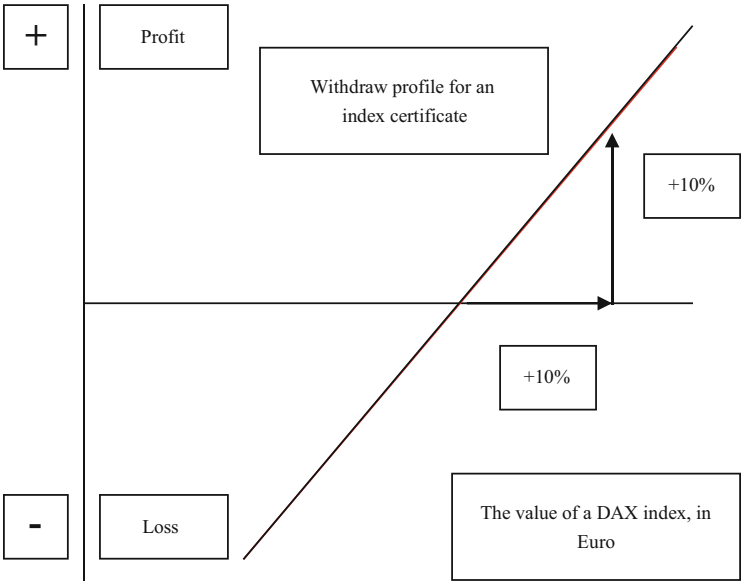

Fig. 6.1 Payout profile for structured index certificates

6.4.2 Bonus Certificates

Structured bonus certificates are instruments directed to those investors, who are anticipating a sideway trend of the market in the nearest future. Those instruments, similarly to discount certificates, are formed by a primary instrument and an expiring option, which helps to protect against a risk of a decline of the base instrument's price to a certain level (a barrier). While constructing a particular bonus certificate, the bonus level, the barrier level and a possible price limit are determined. Those parameters are determined depending on the time of purchase, volatility of the base instrument's price, as well as on the predictions of a dividend level. Those parameters remain constant throughout the duration of a certificate. At the time of certificate's issue, its price corresponds to the price of the primary instrument. Protection of a bonus certificate through an expiring sales option is active until the primary instrument's price decline to the barrier level. At this point the option automatically expires. The level of the primary instrument's price, which will not reach the level of the fixed price barrier nor a price below that level, is the condition to withdraw the bonus. The bonus is paid out at the time of the certificate's maturity. The amount of the resulting bonus depends on two basic factors: the primary instrument's price at the time of maturity as well as at the time of the primary instrument's price formation during the duration of the transaction. If the base instrument's value is above the bonus level, the investor will be able to fully participate in price increases (100 % participation). A bonus certificate allows unlimited participation in the price increase of the primary instrument, if there is no upper boundary in the form of an upper limit *(cap)*.

A graphic representation of a payout profile, in respect to ownership of a bonus certificate, is a Fig. 6.2. The maximum level of a payout from a bonus certificate depends on the base instrument's value at the time of calculating the final settlement price.

6.4.3 Basket Certificates

Basket certificates are based on a basket of shares, which is a reference base for structured products. One of the advantages of those certificates is enabling the investors to replicate the return rate of a selected segment of the market, using one transaction. The owner of a certificate does not receive an interest payment, but receives a payout based on a discount formula. Price indices can be the base instrument for structured products as well. Owner of such a certificate does not receive an interest payment, but receives an investor's profit calculated on the basis of the discount.

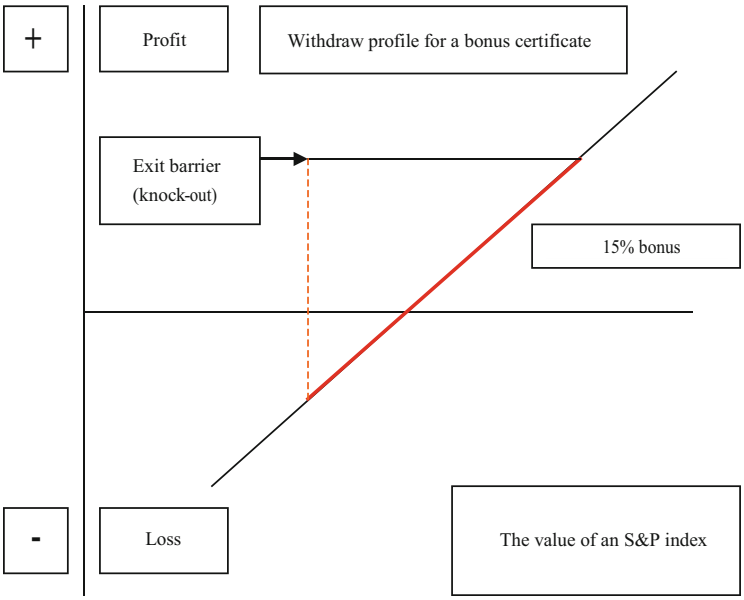

Fig. 6.2 Payout profile of structured bonus certificates

6.5 Structured Maximum Return Rate Products

6.5.1 Discount Certificates

Construction of discount certificates is based on application an option strategies called a 'sales strategy of a covered call option'. Discount certificates involve a purchase of a base instrument and a simultaneous sale of the call option. Due to the built-in option, the value curve of a certificate can deviate from the value curve of its base instrument during the period of the certificate's duration. Such construction of discount certificates allows income in case of a price increase of the instrument constituting the transaction basis as well as during a stagnation period or during slight declines. Discount certificates are sold with a discount, that is, below their nominal price. This means, that investment in a discount certificate is cheaper than investment in a corresponding base instrument. Such construction of a certificate provides the investors with a possibility of profiting on the markets remaining in a sideways trend as well as on slightly declining or slightly growing markets. Purchase of a discount certificate allows the investors to participate in the price changes of the base instrument constituting the basis of the certificate's construction. At the same time, sale of the call option with a strike price (the price of implementation), at the level of the interest rate's upper limit (*cap*), generates a bonus for its issuer, which is used to finance the discount. Certificate's price can only increase up to a certain limit, referred to as *cap* (upper limit of the interest rate). If the price of the base instrument increases above this limit, the certificate

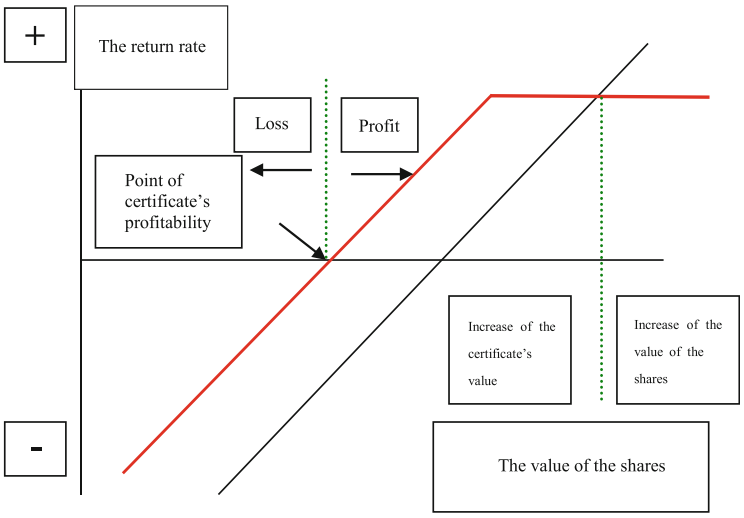

Fig. 6.3 Payout profile of structured discount certificates

holder will not be able to profit from the increase of the base instrument's price, above this limit. The value of the discount depends primarily on the strike price of the option, on the volatility of the base instrument's price, and on the maturity of the certificate. The bigger the volatility of the base instrument's price and the longer the time to maturity, the higher the value of the discount (Fig. 6.3).

6.6 Structured Products with Capital Protection

The third primary group of structured products are the instruments guaranteeing capital protection. The products guaranteeing capital protection, among others, include guaranteed certificates and structured bonds. Those instruments are an alternative to traditional instruments, such as e.g. treasury bills or bonds. The profit from investments in structured products with capital warranty depends on the instrument's duration, on the issuer's credibility and solvency, as well as on efficiency of primary instruments.

6.6.1 Guaranteed Certificates

Guaranteed certificates are composed of two elements: a bond, which allows capital warranty at the time of the certificate's maturity, and an option. Usually a zero-coupon bond or a bond characterized by a low-interest coupon are used to construct

this certificate. The option used to build a certificate usually is exotic in nature. Guaranteed certificates can be divided into two general categories:

– Guaranteed coupon certificates,
– Guaranteed participation certificates.

Guaranteed coupon certificates allow a voucher payout, the value of which depends on the basket of shares included in the primary instrument. There is also an option of receiving a voucher with a guaranteed fixed interest rate. The certificate's value, in this option, depends on the pricing of the primary instrument at the time of its purchase. Capital protection can mean, that on the day of transaction's maturity, the investor receives the amount, which was defined at the time of a purchase of the structured product. It is also possible to guarantee various capital levels. The lower the level of guaranteed capital, the higher the possibility of obtaining higher profits. The amount guaranteed also can be slightly higher than the amount initially invested (e.g. by 105 %). Usually, however, the guaranteed profit is symbolic and rarely exceeds a possible profit from secure instruments. Structured products *plain vanilla (plain vanilla capital protection products)* are the simplest form in this category of structured products. This type of structured products guarantees a predetermined payout at the time of transaction's maturity. At the same time, those instruments allow participation in the profits arising from the changes of the primary instrument. The level of participation in the profits is determined by the so-called participation rate (Fig. 6.4).

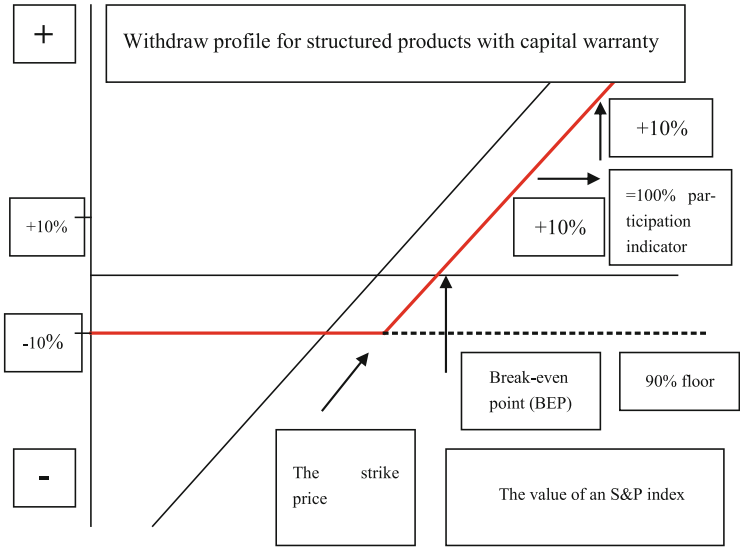

Fig. 6.4 Payout profile of the structured products with capital protection

6.6.2 *Structured Bonds*

Structured bonds are structured instruments enabling capital warranty. Structured bonds are financial instruments, which are a combination of two elements:

1. A security of a fixed income (bond) with maturity ranging from few months to a dozen or so years. Payout from a security is obtained periodically during the bond's life or on the day of its maturity;
2. A financial instrument influencing the value of the capital during the investment or on the day of its maturity. It can include other bonds, shares, indices of various markets (of shares, commodities, real estate), interest rates of investment funds, currencies, resources or other financial assets.

The design of structured bonds, by definition, is identical with the design of the certificates guaranteeing capital. The difference results from terminology and from construction details. Table 6.2 summarizes the above considerations of possible constructions and types of the structured products available on the market. It also presents classification of the risk associated with the structured products listed. Products which can be used by investors in case of rising prices on the market are also included in Table 6.2

Table 6.2 Classification of the risk of structured certificates (materials from the II Forum of Structured Products, presentation Raiffeisen Centrobank A.G., Warsaw)

	Type of a certificate	The market (a predicted trend)	The risk
Products characterized by a risk under the market value	Guaranteed certificates	Growing, stable	100 % capital warranty
	Bonus certificates	Growing, stable	Partial capital guarantee
	Discount certificate	Growing, stable	Risk buffer
Products characterized by a risk identical to market risk	Index certificates	Growing	Market
	Basket certificates	Growing	Market
Products characterized by a risk higher than the market	Turbo long certificates	Growing	Higher than the market
	Turbo short certificates	Declining	Higher than the market
	"Call"warranties	Growing	Higher tha the market
	"Put"warranties	Declining	Higher than the market

6.7 The Market of Structured Products in Europe

The bonds guaranteeing capital had been offered by insurance companies as early as the 70s of the twentieth century. The sale of structured products began in the 80s, however, for several years, mainly institutional investors were interested in those products.

Paradoxically, the market of structured products currently is much more developed in the European Union countries than in the United States, due to the fact, that structured products are an alternative and relatively safe form of investing. Moreover, these products are offered not only on the stock markets, but often by banks as well. In case of certain complex structured products there is no access to any statistical data reflecting the state of the market's development. The www.StructuredRetailProducts.com database currently contains information on the structured product markets in 19 European countries.[2] The database contains sales figures for most of the products, based on the country of the investors rather than the country of the issuer. It means that a product issued in UK but sold in Germany will appear in the German database.

The value of the assets of the structured products on the European retail market in 2006 exceeded 803 billion euros. The market of structured products, despite its rapid development, also was the subject to impact of the financial crisis during the years 2008–2009. After reaching a maximum volume of the sales in 2007, in the amount of 250 billion euros, the volume of structured products' sales dropped down to 110 billion euros (StructuredRetailProducts.com 2015).

In 2012, over one million structured products were issued and sold to retail investors. According to the data, most of the products were equity linked (60 % of total volumes in 2012) and interest-rate linked (25 % of total volumes in 2012). In addition, lowering of the interest rates, in most countries, led to a search for products, which would be characterized by a higher profitability than bank deposits. One of the observed behaviors among the investors on the market of structured products is moving away from the products characterized by 100 % capital guarantee. The share of the products with capital protection lower than 100 % increased from 30 % in 2009 to 48 % in 2012 (StructuredRetailProducts.com). Still, most of the products being sold is characterized by a certain level of capital protection (around two thirds of the products sold during the years 2007–2012). Among those products, capped and uncapped call represent around 40 % of the volumes sold, followed by yield enhancement products (12 %) and participation products (7 %) (ESMA Economic Report 2013).

[2] These countries include: Belgium, Czech Republic, Denmark, Finland, France Germany, Ireland, Italy, Norway, Slovenia, Spain, Sweden, Switzerland, The Netherlands and Great Britain, while in 2008 Poland and Austria joined the list. As far as Europe is concerned, the database covers over 2,000,000 retail structured products issued in all the major markets: AT, BE, CZ, DK, FI, FR, HU, DE, IE, IT, NL, NO, PL, PT, SK, ES, SE, SW, and UK.

With regards to wrapper types, most structured products are issued as securities (63 % of volumes sold in 2007–2012), funds (9 %), deposits (8 %) and life insurance products (5 %), with the remaining representing a wide range of wrappers (tax efficient schemes or pension products etc.).

In December 2012, the volume of the structured products in Europe reached the value of 770 billion euros. An extremely dynamic development of structured products, especially in Italy and in Germany—the largest retail structured products market in the world—contributed to that. This tendency mainly results from development of such trends like an increasing market competition, low costs of auctions, and cross-border sales in Austria and Switzerland, which led to a rapid increase of issued instruments. During the years 2007–2012, issuance of over one million new products for the retail investors on new markets was reported. The growth rate of new products' issuance, thus was extremely rapid, given that in 2007 around 175,000 structured products were issued. Development of the European structured products' market, however, was not even, since a decrease in issuance of structured products as well as their sale on individual markets were observed.

Table 6.3 presents structured products' sales volumes in selected European countries in 2012. The presented data confirms that Italy and Germany constitute as much as 44 % of the structure of the European structured products market.

In 2012, over one million structured products were issued and sold to retail investors, in the value of 110 euros. After reaching a maximum of 250 billion euros in 2007, the volume of the sales in 2012 did not return to its level from 2004. Most of the products were capital-related (60 % of the total volume in 2012) and interest rate (25 %) (StructuredRetailProducts.com).

Structured products, although represent a relatively safe form of alternative investments, also can pose many risks for financial markets. Purchase of structured products is also associated with a risk and can cause financial losses for retail investors. This is especially true for the products not offering 100 % capital protection, which can cause not only a lack of income, but also partial or total loss of the invested capital.

Due to the complexity of structured products, retail investors often are not able to assess the actual value of those products, the factors impacting the potential return rate, nor the potential credit risk associated with structured products. These

Table 6.3 The European structured products market (StructuredRetailProducts.com)

Country	Outstanding amounts (end-2012, EUR billion)	Market share
IT	204	27 %
DE	134	17 %
FR	81	11 %
BE	79	10 %
UK	59	8 %
ES	42	5 %
Others	170	22 %
Total	769	100 %

elements, however, should be considered during selection and management of structured products. Bouveret and Burkhart (2012) show, that a systemic risk resultant from negative financial effects of investing in structured products is relatively low. Structured products, in fact, constitute less than 4 % of the financial wealth of households in Europe. As a result, a 20 % decrease in the value of structured products in the portfolios of individual investors will lead to a small decrease in GDP by 0.002 %, even when considering the highest wealth estimates (ESMA 2013). This information is extremely valuable, also from the perspective of the financial sector's stability.

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Chapter 7
Private Equity/Venture Capital Investments

7.1 *Private Equity/Venture Capital*: The Controversy Surrounding the Concepts and Their Possible Interpretations

The sector of *venture capital* investments is assumed to date back to the year 1946, when Georges Doriot, R. Flanders, K. Comptone, M. Griswold and other partners founded the American Research and Development Corporation. Their goal was to invest in the stocks characterized by a low level of liquidity or in the securities of newly established companies (Swedroe and Kizer 2010).

Most studies on *private equity/venture capital* investments aim at presenting these investments by pointing to numerous advantages of a private capital in the process of financing business projects. Increased-risk capital (*venture capital*) primarily serves as a source of financing prospective long-range projects. It also points to a positive impact of the *private equity* and *venture capital* sector's development on the process of stimulating innovations, on promoting small and medium enterprises, on combating unemployment, and consequently on supporting economic development of many countries. High-risk capital (venture capital) is closely related to financing new and innovative enterprises, which bear high risk—much higher than in already existing entities having more capital, more market experience, and better protection of their business.

One of the most important issues for investors on the financial market is the potential return rate from an investment and its relation to the risk incurred. Private equity investors, while analyzing potential projects, do consider an additional, increased investment risk, which is associated, among others, with low liquidity of an investment, lack of security, a possibility of losing control due to malfunction of the law, lack of informational transparency, characteristic of non-public markets, as well as with restricted options of exiting an investment, etc.

E. Sokołowska, *The Principles of Alternative Investments Management*,
DOI 10.1007/978-3-319-13215-0_7

Therefore, investors seek such projects, the required return rate of which would include a premium for an increased risk. Often, such projects are rejected by banks as too risky.

Private equity/venture capital investments, at the same time, are forms of alternative investment on the securities market. This conceptualization points to a possibility of achieving superior return rates resultant from financial participation in projects of a high growth potential. Specificity of those investments lies in operating on the niche market segments, which on one hand are associated with a possibility of earning high incomes, and on the other bear high risk.

Definitions of the terms *private equity* and *private capital*, as well as their further interpretations differ significantly, depending on where they are applied. According to a definition published by the European Venture Capital Association (EVCA) in 1995, *private equity* funds entail investments in the companies at various stages of development, from the moment of their establishment and start-up, through their expansion stages, until they are sold (White Paper 2001).

While defining the term *private equity*, in the most general sense, it can be said it encompasses all investments on the private capital market, which are aimed at obtaining a medium-term and a long-term profit from an increase in the value of the capital. The term *venture capital* also refers to private investments in early stages of development. As such, it can be inferred, that *venture capital* is a type of *private equity*. The term *venture capital* most often is interpreted as an investment into a completely new project, while *private equity* is an investment in an already existing entity, financing of which is aimed at its further, more dynamic development.

Venture capital is a private equity capital invested in the companies, which are at an early stage of development. Such investments can, for instance, include fund investments in an idea (seed capital), that is, in a business concept, in start-up, post-creation companies initiating their business, or investing in rapid development of the companies with a high expansion and development potential.

Particular individual stages: the seed stage, the company's start-up stage and its post-creation stage, by the investors are called early development stages, and are characterized by lack of profit during the initial stage of the company's financing. The earlier the phase of the company's development, the higher the risk of the project; thus, the highest expected return rate. Financing a company at these stages is called the initial funding. The EVCA reports and data regarding private equity market also provide the notion of the 'later stage venture', which signifies a development and expansion stage, up until the moment of the company's market maturity.

Venture capital investments are characterized by a substantially higher risk compared to private equity investments, which entail investing in mature companies as well. In addition, the concept of a venture capital entails all the elements contained in the definition of a private equity. Application of these two concepts is still quite common.

The importance of financing the projects which are at the beginning of their capital venture path—not only for the development of innovation in various sectors of the economy and for creation of entirely new industries—is confirmed by

Table 7.1 Interpretations of the terms: *Private Equity* and *Venture Capital* (Arundale 2007)

Private equity	Venture capital + management buyouts, management buy-ins), replacement capital/secondary purchases
Venture capital	Seeding stage (seed), start-up stage (start-up), expansion stages

specific data from a more developed and market, which has been applying such solutions much longer. The example of the North American market reveals quantifiable benefits of this for the entire economy—during the difficult years of 2008–2012, when sales in the US decreased by 1.5 %, the companies which used venture financing in the years prior to that (since 1970) recorded their incomes increased by 1.6 % (Gabriel 2013; Golec & Gabriel 2014). For every dollar invested in the form of a venture capital during the years 1970–2010, a sales income of 6.27 USD was generated in 2010 (Venture Impact 2011).

The term *private equity*, although often used interchangeably with the term *venture capital*, is a much broader term (Sokołowska 2010). It should also be underlined, that there are significant differences between the definitions of *private equity* and *venture capital* functioning in the US and in Europe. In the US the term *venture capital* is used to describe projects in early stages of their development, while in Europe this term can also entail further stages of project development (Table 7.1).

Private equity refers to the process of acquiring stocks and shares in the companies not listed on regulated public markets, with an intent of a future resale of those shares at a profit (http://www.privateequity.pl). Investment of a the capital can be also done through the funds especially appointed for this purpose. Each fund has its own investment policy, often with a preference of selected industries, regions, or development stages of the company invested in.

Swedroe and Kizer (2010) distinguish three basic *private equity* investment subcategories:

- Venture capital
- Leveraged buyouts (*buyouts capital*),
- Mixed financing (*mezzanine financing*).

A similar classification of private equity investments has been proposed by Jobman (2002), Gladstone and Gladstone (2002), who also include venture capital, leveraged buyouts and *mezzanine* debt. A definition by *Executive Encyclopedia* describes *venture capital* as capital of high risk (Friedman 1987).

Another category distinguished within *private equity* investments—*buyout capital* transactions—involves buying out by a fund a part or the entire company, in cooperation with the current management (Management Buy-Out MBO) or with the new management (Management Buy-In). These transactions use debt capital.

Buy-outs are a specific type of private equity. European Private Equity and Venture Capital Association (EVCA) describes the funds specializing in conducting buy-outs as the funds directed at purchasing a larger part or even

majority of a given company's stocks/shares from its owners, which usually is accompanied by a change in the ownership structure as well. Buy-out funds generally invest in the companies at advanced stages of development, in order to finance and support a given company's expansion. It can be in the form of a merger, restructuring, a sale, or extraction of some parts of the assets from the company structures (venture management).

There are several types of buy-outs involving private equity funds. Their common feature is conducting transactions when current company owners decide to sell all or part of their shares, with intention to withdraw from active participation in the company's business or with intention to extract part of the company's assets for strategic reasons. A decision to focus the company's business on its main object of activity can be such a reason. Generally, divestment by venture capital/private equity funds can take various forms. The methods currently used include the following:

- Introduction of the company on the stock exchange (IPO),
- Sale of the shares to a given industry investor or a strategic investor (trade sale),
- Sale of the shares to a financial investor or to another venture capital/private equity fund (secondary purchases),
- Sale of the shares to the remaining company's owners (buy back),
- Managerial buy-out by the company's managers (MBO—Management Buy-Out) or by managers outside the company (MBI—Management Buy-In),
- Purchase of the company by another investor in return for his shares (Reverse Takeover),
- Company's liquidation and amortization of the shares (write off),
- Other buy-out transactions.

Other buy-out transactions can include:

- Purchase by the company's managers and by those outside it (BIMBO),
- Managerial-employee buy-out (MEBO—Management Employee Buy Out),
- Employee leasing (EBO—Employee Buy Out),
- Assisted buy-out also called a leveraged buy-out (LBO—Leverage Buy Out),
- Public Buy Out.

Furthermore, additional methods of divestment can be distinguished, however, most commonly they are a combination of those mentioned above.

Mixed financing, also called the *mezzanine capital*, can occur in the form of a *venture capital* or financing an MBO transaction. The term *mezzanine* comes from French and signifies an element connecting two floors. *Mezzanine* is a term most commonly used in finances to describe an innovative method of financing the companies. Another description of *mezzanine* is the term *subordinated debt* (subordinated loan). The nature of this source of financing predestines this instrument to be treated as an indirect form of financing between a debt financing (e.g. a credit) and an equity financing (e.g. the issue of shares). One of main applications of *mezzanine* financing is financial support of mergers and acquisitions.

7.2 Classification of Venture Capital/Private Equity Investments

Venture capital/private equity investments can be divided considering various classification criteria. Taking into account the subject of investment, the funds of *private equity*—type can be divided into *single funds*, that is funds investing directly in companies, and *funds of funds*, that is funds investing in other *private equity* funds.

These investments can also be divided according to the industries, which the assets are invested in. Considering this criterion, the following can be distinguished:

– Defense industry,
– Telecommunications,
– Computer science,
– Biotechnology,
– Food production, etc.

Another classification divides funds according to the development stage of the companies in which they invest, where the following can be distinguished:

- *Venture capital* (investments in new projects and in companies at an early stage of development),
- *Development funds* (investments in flourishing companies, in relatively young ones as well as in new ones),
- *Buyout funds* (investments in mature companies that usually are in the manager buyout phase (MBO), in leveraged buyout (LBO), or before a market debut IPO (*initial public offering*),
- *Balanced funds* (investments in each of the above mentioned categories),
- *Special situation funds* (investments in the companies being in specific situations e.g. fusion, division, liquidation, etc.).

Tamowicz (1995) proposed classification of venture capital/private equity funds according to the value of the funds entrusted in them. Taking this criterion into account, first of all, we can distinguish mega funds, generally independent, with capital not less than 100 million UDS. Activation of investment projects is done both on the domestic market and on a foreign market. Involvement of these funds in one project generally ranges from 1 to 3 million UDS. Additionally, they specialize in financing the expansion phase as well as in assisted buyouts.

The second group consists of *mainstream funds*, which operate with capital ranging from 25 to 99 million USD. These funds, in one project, usually engage a sum of up to approximately 1 million USD. *Second tier funds* have capital of around 25 million USD, at an average investment magnitude ranging from 500,000 to 750,000 USD. The last group includes niche funds, which operate with capital under 25 million USD. They specialize in financing the start-up phase and in

financing specific industries. Average magnitude of an investment fluctuates around the amount ranging from 50,000 to 250,000 USD.

Some of private equity funds specialize in providing a *mezzanine*-type capital. *Mezzanine* financing is a specific kind of raising capital, in which most often used instruments include the following (http://www.mezzanine.com.pl/KPK):

- A loan with the right to participate in the capital,
- A loan with the right to participate in the income,
- Warrant bonds,
- Convertible bonds,
- Exchangeable bonds,
- *Zero-coupon bonds*/discount bonds,
- Bonds or preferred PIK bonds (*pay-in-kind*) *securities*,
- Increasing coupon bonds (*increasing rate bonds*),
- Bonds with extended maturity (*extendible bonds*).

A loan with the right to participate in the capital is a specific form of financing, in which the owners bear the costs, if the project ends with a planned financial result. Interest costs are incurred by the company. An entity financing a *mezzanine* is entitled to buy a certain amount of stocks or shares at a pre-estimated price and at a predetermined time in the future. This right is in the form of a warrant and most often it comprises a small package of the company's stocks or shares, which usually does not exceed few percent of the capital. Before financing using a *mezzanine* instrument begins, the number and the price of the stocks available from the warrant are specified.

A loan with the right to participate in the income entitles the lender to partial participation in the profits from the investment.

Warrant bonds are a type of financing, in which the company bears the cost of financing a given enterprise, in the form of a coupon. All other financing costs are incurred by the company's owners. The company issuing convertible bonds, which is another financing possibility, is the entity incurring the costs of interest coupons. The entity financing a *mezzanine*, in turn, is entitled to later on convert the bonds issued by the company into its stocks or shares, accordingly with predefined rules.

Exchangeable bonds are a type of an instrument very similar to convertible bonds. These instruments, however, differ in the possibility of exchanging the bonds for stocks or shares of an issuer other than the original issuer of the bonds.

Zero-coupon bonds/discount bonds are a type of debt instruments, in which the issuer pays off the entire amount at one time, along with the interest, at the time of the bond's maturity.

Bonds or stocks called the PIK (*pay-in-kind*) securities are privileged securities. Alternatively, interest on the bonds or on the dividends from the stocks are paid out without using cash, in the form of securities. Usually, only a form of non-cash debt payment is possible in the first periods. The form of the payment is specified by the issuer.

A bond with an increasing coupon (*increasing rate bond*) is a debt instrument, in which the issuer specifies the value of the coupon in the initial period as well as sets the rules of this coupon's increase in the following periods.

Bonds with extended maturity (*extendible bond*) are an instrument containing a clause permitting extension of its maturity time by certain periods (e.g. by 1, 2, 3 years), noting that the total cannot exceed the maximum specified value.

7.3 Legal Forms of Venture Capital/Private Equity Funds

Venture capital/private equity funds can be formed using various legal forms. Vc/pe funds can exist in the following legal forms (Kornasiewicz 2004):

- Contractual private companies (*private limited partnership)*,
- Funds listed on a public market (*publicly traded funds*),
- *Corporate venture capital* funds,
- Investments by private persons (*angel investors*).

Contractual private company (*Private Limited Partnership*) is an organizational and legal form frequently used to form a *venture capital* fund. This form was first used in the US by such companies like Silikon Valley, Kleiner Perkins, Sequoila and Accel, and subsequently has been popularized in Europe by such companies as Amadeus, Apax Partners and Adwent Venture Partners in Great Britain, Sofinnova Partners in France, Capricorn Ventures in Belgium and Wellington Partners in Germany. Those investing in a *private limited partnership* company are obliged to provide, the capital necessary for financing their investment plans,[1] over the following few years. Repayment of the capital usually takes much longer, even up to 8–10 years. The policy statement of the *European Private Equity and Venture Capital Association* defines the concept of an investor acting as a venture capitalist. Organized entities or private persons, whose primary objective is to obtain profit from the invested capital can act as a Venture Capitalist entity. Furthermore, these entities help in management of the project constituting the subject of investment. *Venture capitalists* should have effective capital or quasi-capital management skills within the scope of newly established or developing subjects of high developmental perspectives.

Another legal form allowing creation of a *private equity* fund is a *limited liability partnership*. It is based on a conclusion of an agreement between the fund's manager (*general partner*) and the fund's investors (*limited partners*). This organizational form seems to be beneficial from the tax and legal perspective. Similarly as in the case of the *hedge* funds using this form of operating, the responsibility of paying tax is at the level of the investor. Basic rules of the fund's operation are

[1] *General partner* is also an investor. Similarly as in hedge funds, financial involvement of managers is meant to motivate them and help them identify with the fund's politics.

regulated by a contract called a *partnership agreement*, which specifies basic rights and responsibilities of the fund's managers and investors. Investment funds and other institutions invest the capital as *limited investors*.

Public venture capital/private equity funds (*publicly traded funds*) are formed as public companies, subjected to reporting and informative requirements. Because of the nature of venture capital/private equity projects, this form is not attractive. It is used by the companies, which gather capital in order to start business activity, or by the entities providing capital for bridge financing.

Venture capital funds formed as corporations (*corporate venture capital funds*) can be formed as separate projects (similar in character to *private limited partnership*) or in the form of organizationally separate units of the company. The goals of a fund created within a corporation must be consistent with its strategy and generally ought to serve its extension onto new markets.

Investments by private persons (*angel investors*, *business angels*) involve individual wealthy investors searching attractive projects, which can provide opportunities for future high return rates. They are long-term investments, which take place at early stages of investment's development.

Business angels are private persons supporting entrepreneurs both financially and substantively. Most commonly, they are subjects who have managed to successfully develop their own companies, managers, stock exchange investors, who want to have influence on investments.

7.4 The Stages of Venture Capital/Private Equity Investments

On the *private equity* market the following can be distinguished: institutional entities (formal ones), and informal entities. Numerous entities, varying not only in their legal form but also in the subject of their activity, can become providers of private equity capital. They invest in various companies operating on the private market. Leading investors on the venture capital/private equity market are: banks, pension funds, insurance companies, family offices, government agencies, public institutions, scientific institutions and private entities.

Sometimes other private equity funds and funds investing in private equity exclusively through other funds (funds of funds) can become providers of the capital for private equity funds.

Among the largest private equity investors are banks. Through provision of capital for private equity funds, banks seek to expand their investment activities and to achieve high profits, as well as hope to attract new customers. In addition to bringing capital for the funds, banks often become lenders, specializing in financing the transactions associated with private equity, including management buy-outs. Banks are among the biggest European investors in private equity funds.

Pension funds are also one of the major investors on the market of private equity funds. These entities, although theoretically characterized by an aversion towards incurring risk, manage large amounts of assets, have a long investment horizon and use very advanced risk management methods. The main objective of placing private equity investments in the investment portfolios of pension funds (as long as the law in a given country allows it) is to diversify this portfolio. The amount of the capital managed by pension funds is so high, that it determines their significant position among the providers of capital.

Another group of investors are insurance companies, which seek attractive, long-term investment options for their assets.

Companies and corporations are also important feeding investors for private equity funds. This group of investors, as well as other entities in the financial sector, can invest their surplus assets as long-term investments, taking maximization of the profits and minimization of the risk as the criteria for selecting investments. Another group of capital providers uses private equity activity for restructuring or development of particular technologies and the solutions later on used in their production activities. This type of private equity investment often is called venture management.

Institutions operating as family office emerged as a separate category of providers of the capital for private equity in recent years. They are companies offering comprehensive management of the assets for wealthy clients. These solutions are included in the family office service and they mainly combine management and investing of the capital with tax and legal advisory, as well as with intergenerational transfer of the assets.

Wealthy individual investors often act as business angels, by supplying innovative and promising companies with capital, thus expecting future extraordinary return rates. Entities on the increased risk capital market can also be divided into formal and informal ones. A detailed classification of the entities according with this criterion is presented in Diagram 7.1.

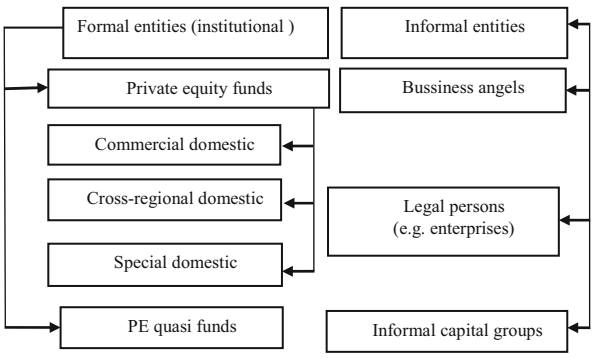


Diagram 7.1 Entities on the *private equity* market (Private Equity Consulting 2004)

After accumulating the capital, it is time for selecting an investment. The selection procedure is very detailed, in order to select entities with the highest growth potential as compared to the risk incurred. In the first stage, negative selection is made, during which about 90 % of the initially analyzed entities are discarded based on a document called an elevator brief, which contains basic information about the company (its financial results, product information, and information about the company and its owners). For the companies, a more detailed analysis is then made, which is meant to explore such aspects as the products, the markets and competition, the clients, development strategies, the companies' fixed assets, as well as to prepare, along with the company's board, reliable financial forecasts. These forecasts are to realistically present the companies' predicted growth, which would be possible with an investment from a fund.

The next step is a due diligence analysis conducted over several weeks. It involves mediation with the fund's representatives and outside specialists, mainly lawyers, auditors and experts from the industry in which a given company operates. The purpose of this analysis is to verify the financial projection estimated previously, the company's valuation and finding any shortcomings in the areas of risk.

For a fund, it is also very important to find a method for obtaining profits from an investment. Obviously, besides the profits from a high growth potential and favorable perspectives, a fund can also earn by buying a company that requires restructuring and cost reduction, but is much cheaper than other similar entities. It may also be useful to apply a leverage, that is, to purchase using much cheaper foreign capital (e.g. a bank loan). As a result, the fund's expected return rate from the entire investment automatically decreases, which allows the fund to achieve a better return rate from own capital measured by the ROE (return on equity).

Investors can finance venture capital/private equity projects at various stages of their development. Classifications of venture capital/private equity investment stages vary depending on the location of an investment. Main terminological differences occur between the US and European countries. Private equity investments, in general, tend to be long-term in nature. A specific life cycle is also their characteristic trait. The following stages of venture capital/private equity activity can be distinguished:

- Activation of the capital,
- Exploration, analysis and selection of potential investment projects, and the investment undertake,
- Duration of the investment (increase in the value of the portfolio companies),
- Realization of portfolio profit (divestment from the companies).

The above mentioned stages are not disjoint successive in character. Some of them can occur simultaneously. There also is a possibility of reacquisition of the capital during the term of the financial investment, using the assets obtained during the first acquisition of the capital (the first closing). Private equity/venture capital funds adopt a certain strategy and decide to enter an investment during one of the stages: seed capital, start-up, expansion, or a buyout.

The seed phase, associated with the first stage of the development, is characterized by a relatively high investment risk. This phase is often called the *seed-up* phase. One way to reduce the risk on the part of the investor is to engage relatively small financial assets. The phase related to provision of the so-called incubation capital is associated with a possibility to develop the concept of the company's project and with qualifying for start-up capital financing. The following funds can be specified on the developed markets: *seed capital* funds, *start-up* funds, and *early stage* funds.

The seed stage occurs when the fund invests less in a company, and more in the people who begin to run it. At this stage, what counts is a genius idea, which can bring a very high rate of return. However, the risk is very high, which makes investing at such an early stage very uncommon.

At an early stage, the so-called early development, which is associated with activation of the capital, assessments are carried out in order to determine whether a given prototype justifies taking the risk of its further financing (Kornasiewicz 2004). The start-up stage is related to smaller risk, because there already is a concept of a product which can generate profit.

Investments in the expansion phase are designed to provide a given commodity to the final purchaser and to check the reaction to that product. The initial phase is associated with the company's further development and with conducting investments. Small profits for the company can emerge at this stage. We can speak of the start-up stage when the capital is supplied at an early stage of a project, most commonly for launching production or service provision. Investing at this stage also entails a considerable risk and a high growth potential, yet a less one than at the previous stage. Most of investments at both mentioned here stages apply to the companies affiliated with high-tech industry, often those introducing entirely new products and services to the market, which are meant to become market pioneers bringing high profits.

The next two stages concern less risky, yet still financially very attractive, companies, which already are operating on the market, have a stable position, but their development is inhibited by a lack of capital. In such case, the fund investing in a company at the expansion stage provides not only the capital needed, but also the know-how of the managers (sometimes helping in e.g. developing a new strategy or in restructuring). At this stage, the company should begin to make profits. Although the profit will not be as high as in case of investments in companies at early stages of development, it will be characterized by lower risk and the investment period will be shorter.

Expansion phase is associated with the company's development. An enterprise at further stages of its development is characterized by a stabilized market position and by lack of difficulties with financing its current activity. Such entities carry out activities related to expansion of their recipients. McKinsey studies conducted among eleven leading American private equity funds have indicated five most important projects, used by the managers of those funds, in order to create the value of the portfolio companies (Panfil 2006).

The last investment method involves the fund's participation in purchasing of a company's shares (stocks) from its owners by this company's managers (management buyout) or by an outside group of managers (management buy in).

Average time of investment in one company ranges from 3 to 7 years. Much depends on the type of the company, the stage of its development during which the investment was made, as well as on the prospects for exiting the investment. Two most common solutions are: a sale of the company to an investor form its industry who is willing to contribute a certain premium, thus increase the company's value, due to potential synergy to be possibly achieved; or an IPO, that is, introduction of the company to the public market.

Other, less commonly used methods of exiting an investment involve a sale of the shares/stocks to those managing the company or to another venture capital/private equity fund. A possibility of failure should also be accounted for, with an option of writing a given company's shares off the fund's assets.

First of all, venture capital/private equity funds analyze the investments in detail before engaging capital. They use the board's knowledge of and the data acquired from external trusted sources of information. Secondly, these funds introduce an incentive program concentrated on management of the company's value.

Encouraging the CEO to purchase stocks/shares, or motivating him/her by facilitating a purchase of the options for stocks/shares at an attractive price, is a common practice. Usually, plans to maximize the company's value are also incorporated. A resale of the stocks/shares acquired previously, also called an exit from the investment or divestment, is the last stage of a private equity fund. This exit can occur once, at several stages.

A summary of these considerations is presented on Fig. 7.1, which shows dependencies between the risk and the expected return rate in particular forms of venture capital/investments. It can be noticed, that the most important risk is related to the investments in their initial stages. Relatively lower risk characterizes buyouts and indirect *mezzanine* financing forms (Graph 7.1).

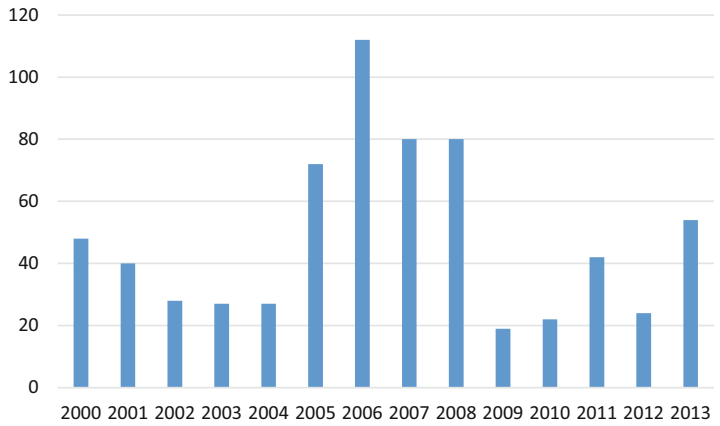
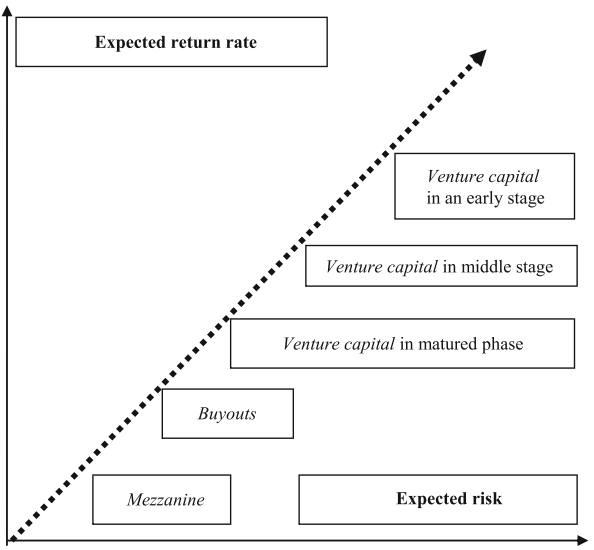


Fig. 7.1 Overview-all private equity-fundraising (billion euro) Thomson Reuters/EVCA (2000–2006) & EVCA/PEREP analytics (2007–2013)



Graph 7.1 The risk and the expected return rate in selected types of venture capital/private equity investment

7.5 Alternative Investments Markets in Europe

It is quite impossible not to notice the growing importance the capital markets play in the process of capital raising by companies. The changes were the beginning of institutional innovations, including trade of financial instruments, which caused legislative changes. One such change was emergence of alternative trade systems. Introduction of a company on the stock exchange (IPO—initial public offering) also is a classic exemplary manner of financing using the capital of an increased risk.

Due to a lack of a developed stock market for venture capital/private equity investments in Europe, many companies in the 80s tried to gain capital on American stock exchanges. The problem had been noticed by the European Committee, which in consequence took initiatives in the 90s to support development of stock exchange markets in the EU countries. As a result, stock exchange markets for small and medium-sized companies characterized by high growth potential emerged.

The main focus in this chapter will be on analysis of alternative trading systems in Europe. Since the subject of the analysis in this book entails various alternative investments, it is worth to indicate, that European requirements for issuers are much less restrictive than in the US. It can also be noted, that the base markets in Europe are also less restrictive with future issuers compared to the US. In the US, NASDAQ is the alternative market, which is entirely different from its European counterparts. While considering alternative investments as institutions functioning

on the verge of the regulated market, it seems that such an approach reflects the nature of the matter. Other global alternative markets were omitted in this chapter, due to their differing characteristics resulting from the various roles capital markets play in individual countries.

The legal regulations, which determine the different specificity of alternative trade systems around the world, are diverse. Most of the alternative trade systems in Europe function as multilateral trading facilities—the MTF, accordingly with the intra-European Union law. Their definition stems from European directives and regulations (The Directive 2004/39/WE 2004; The Commission Directive 2006/73/WE 2006; The Commission Regulation WE NR 1287/2006 2006). These markets can be regarded as young, since majority of them emerged during the first decade of the twenty-first century. Comparing those to alternative trade systems in the US, which are the home to the capital market, it can be noticed that the period of their functioning is much longer. The origins of the NASDAQ market date back to 1971, when a platform for trading on the OTC market had emerged.

Currently, alternative trading systems also function if Asia. At the beginning of 2009, the Tokyo AIM market was launched within a joint venture of the Tokyo Stock Exchange and London Stock Exchange (Tokyo AIM 2011). Previous to that, such markets as the Catalyst in Singapore (earlier called SESDAQ) KOSDAQ in Korea or GEM in Hong Kong. In Africa, there are markets dedicated to smaller and more risky companies, for example, the AltX organized by the stock exchange in Johannesburg.

According to a definition by Federation of European Securities Exchanges, alternative markets or segments are defined as those having other rules and regulations, compared to main markets (FESE 2015). Majority of European stock markets has alternative markets of segments. In Europe, Hungary and Bulgaria are exceptions. Some institutions are the owners and the operators of few alternative trade systems, differing in the instruments being traded within those markets (e.g. Weiner Borse) or in their business model and in satisfaction of their need (e.g. AIM Italia and Mercato Alternativo del Capitale). The main features distinguishing alternative trade systems from regulated markets are the criteria of admission to trading and informational requirements. In addition, various entities conduct administrative and organizational as well as supervising functions on both market models. Among those less restrictive criteria of admission to trading within the alternative trade systems (ASO), lack of a requirement to produce a prospectus under certain conditions, lack of restrictions or lower requirements for minimum capitalization and free float. In terms of informational requirements, liberal information policy applies to both, current reports, through a shorter catalogue of required information, and periodical reports. What is more, the penalties for breaching these requirements are defined market regulations, not a law or decrees, non-compliance of which can also result in criminal responsibility.

The data in Table 7.2 confirms, that the market organized within the alternative trade system currently is run by majority of the stock markets in Europe. Most of them emerged in the first decade of the twenty-first century. Main factors stimulating development of alternative markets of capital acquisition are lesser formal

Table 7.2 Classification of selected alternative markets in the world (FESE 2014)

Exchange	Market	Kind of the market (alternative trading system-MTF/ regulated market RM)	Date
Athens	EN.A	MTF	2007
BME	MAB (Segment 1 collective investment companies)	MTF	2006
	MAB (segment 2 private equity)	MTF	2007
	MAB (segment 3 SMEs)	MTF	2008
Borsa Italiana	STAR	RM	2001
	Mercato expandi	RM	1997
	Mercato alternativo del capitale	MTF	2007
Bratislava SE	New listed market		2008
Cyprus SE	CSE alternative market	RM	2004
Deutsche Börse	Entry standard	RM	2005
Irish SE	Irish enterprise exchange	MTF	2005
Ljubljana SE	Semi-official	RM	
London stock exchange	AIM	MTF	2005
Luxembourg SE	Euro MTF	MTF	2005
NYSE Euronext	NextPrime	RM	2002
	NextEconomy	RM	2002
	Alternext	MTF	2005
NASDAQ OMX	First north	MTF	2005
Oslo Børs	Oslo axess	RM	2005
	Alternative bond market	MTF	2005
SWX	Local caps	RM	2005
Warsaw SE	NewConnect	MTF	2007
Wiener Börse	Second regulated market	RM	1989
	Third market	MTF	2002

and informational restrictions placed on issuers. European platforms organized in terms of alternative trade systems offer many incentives designed to attract potential issuers, including e.g.

- No requirement to submit a prospectus—Athens SE;
- No requirement to submit quarterly reports—Mercato Expandi;
- No requirement to define the company's minimum market capitalization—AIM;
- Lower acceptable share prices—Oslo Axess;
- Possibility to issue shares by new companies with no documented credit history—New Listed Market.

The most important markets in Europe are the London AIM in the European Union and the Alternext in the Euro area.

7.6 Alternative Investment Market in London

Alternative Investment Market is the largest OTC market in Europe. It is a segment of an international stock exchange—the London Stock Exchange—created in order to issue stocks of small, innovative companies. AIM was initiated in 1995. Since then, the market collected almost 24 billion £ for over 300 companies (http://www.londonstockexchange.com/companies-and-advisors/aim/aim/aim.htm. The companies listed include both, small companies at the start-up stage, which are financed by high-risk capital, as well as mature companies with an established position on the market. Transfer of the shares from the AIM segment to the main market can be a consequence of strengthening a company's capital. Three other indices, which illustrate the changes in innovative companies, are listed on the market: FTSE AIM UK 50 Index, FTSE AIM 100 Index, and FTSE AIM All-Share Index.

The AIM market is attractive for small and medium-sized enterprises, enabling acquisition of relatively small assets for financing a company. The companies listed on the AIM can be divided into two categories.

The first category includes developed companies with a well-established market position. For those companies, the AIM is an expansion path allowing a decrease of the capital costs. At the same time, those companies often move onto the main market, after a certain period of time. The second group includes venture companies operating in innovative or niche industries, for which the AIM is one of the phases in financing their development.

The London ASO allows the use of tax benefits in the form exemption from the tax on the gains from capital donations, in the form of the shares listed on the AIM. In addition, the Enterprise Investment Scheme (EIS) allows individuals to benefit from the exempt from the income tax. Each investor who, during the fiscal year, invests up to 500,000 Pounds into emission of shares of a company in the AIM and does not sell it within 3 years, will benefit from an income tax exempt in the amount of 20 % of the invested assets (London Stock Exchange 2009). A similar program has been developed for institutional investors. The above mentioned actions could have a significant impact on rapid development of the market.

Despite the fact that the companies listed on the AIM are companies operating in increased-risk conditions, the number of bankrupting companies is small. The AIM market operated by the London Stock Exchange is supervised by the United Kingdom Financial Services Authority. This institution oversees activity of both, the London stock exchange and the AIM. The institution itself aims to promote knowledge about the financial market. The AIM regulatory system is based on entities called Nominated Advisers, who can be referred to as authorized advisors. A nominated advisor guarantees emission of the company's shares on the AIM and monitors fulfillment of the criteria set by the stock market. Evolution of an

alternative trade system in London has made it simple and homogeneous, which has guaranteed its international success. In 2005, the AIM gained two European competitors: the Alternext managed by the Euronext and Entry Standard managed by the Deutsche Borse in Frankfurt.

7.7 The European Venture Capital/Private Equity Market

The *private equity* market has developed very intensively during the past 25 years, which has been indicated by the statistics reflecting the state of the venture capital/private equity market in numbers.

While activity in Northern Europe is satisfactory, activity in the South has significantly decreased. It results from the problems with public debt and from the savings measures undertaken. As such, the available assets directed at the emerging markets exceeds Western Europe. The private equity industry in Europe developed at the same rate as in North America. Traditionally, the UK is the largest and most attractive private equity market in Europe. The UK suffered one of the hardest hits by the financial crisis, but it also has recovered as one of the first. The data on private equity fundraising, investment and divestment across the industry sectors is regularly published by the EVCA. The atmosphere in the European private equity sector indicates an optimistic perception of the future. The total funds raised in 2013, that is 53.6 billion euros, was more than twice its volume in 2013 (2013 European Private Equity Activity). This increase was caused by buyout funds, 12 of which accumulated more than 1 billion euros each, representing 66 % of the total funds raised. The financing for creating the funds mainly came from pension funds. It can be noticed, that 40 % of financing for this phase came from pension funds, 16 % from funds of funds, 11 % from sovereign wealth funds (11 %) and from insurance companies (11 %) (EVCA 2013). Around half of the funds' financing came from the assets of institutional investors outside Europe. Private equity investments constituted around 8 % of the total fundraising. The structure of the private equity market, in terms of fundraising, according to the financing sources is presented on Fig. 7.2. The 2013 statistics cover 90 % of the 555 billion euros, constituting the capital being managed on the European market, including the data on more than 1200 European private equity companies.

While analyzing the volumes of private equity investments in Europe, it can be noticed, that during the years 2000–2013 a dominant share of private equity investments in the venture capital/private equity market occurred. The largest investment amounts of the assets accumulated by the venture capital/private equity funds in Europe, equal to over 70 billion euros, were in the years 2006–2007. In 2008, the upward trend collapsed and fully revealed the effect of the financial crisis in 2009—by shrinking the market to the smallest size during the analyzed period (around 24 billion euros). As for Middle-Eastern Europe, the amounts during the period of investing by the venture capital/private equity industry ranged from around half a billion (during the years 2004–2005) to as little as 2.5 billion euros

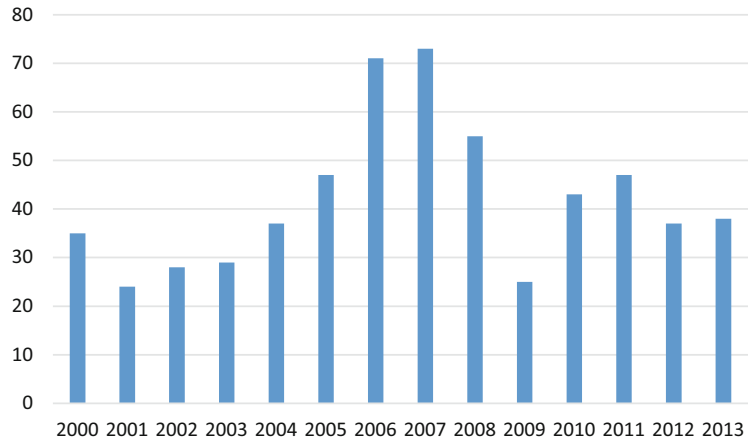


Fig. 7.2 Overview-all private equity-investments (billion euro) Thomson Reuters/EVCA (2000–2006) & EVCA/PEREP analytics (2007–2013)

(the years 2007–2009), and for the majority of the study period they constituted from one to few percent of the entire market of venture capital/private equity investments in Europe (the median was 2.87 %, the average share was 3.59 %). During the years 2009–2010, the effects of the crisis in the Middle-Eastern Europe were recorded with a certain delay. A significant collapse in the investments was observed only in 2010 and 2011.

During the following years, the value of the venture capital/private equity investments stabilized. In 2013, more than 5000 companies were supported by this capital (EVCA 2013). Over 40 % of the companies which received investments in 2013 were supported for the first time. The total amount of the venture capital invested increased by 5 %, to the amount of 3.4 billion euros. It is also worth to note the tendency on the part of the investors to buyout. In 2013, over 800 companies received buyout investments. Most of the venture capital investments in involved such sectors as: life sciences, computer and consumer electronics, communications and energy and environment. It is estimated, that these sectors constitutes around 70 % of the entire venture capital investments. Just as in 2012, over 1000 companies attracted developmental investments. They constituted a 6 % increase in the number of the companies and a decrease by 10 % in the amount of the capital invested. Around 50 % of those enterprises' investments targeted the companies operating in the sector of business and industrial services. Figure 7.2 presents the values of private equity investments in Europe during the years 2000–2013.

The number of the companies that exited was 2290, which represent former equity investments in the amount of 33.2 billion euros (EVCA 2013). The number of the companies increased by 10 %, while the amount divested increased by 54 %. Most significant, in terms of the amounts, exit routes included trade sales (27 %), sales to another private equity company (26 %) and sale of quoted equity (14 %). Almost 40 % of the divested companies used these exit routes (EVCA 2013).

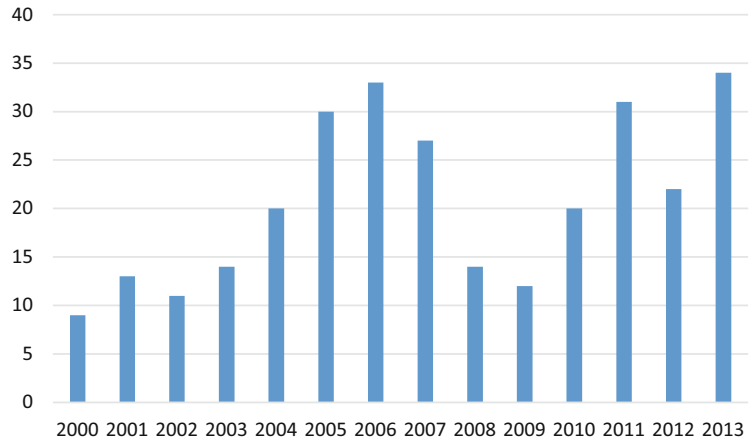


Fig. 7.3 Overview-all private equity-divestments (in billion euro) Thomson Reuters/EVCA (2000–2006) & EVCA/PEREP analytics (2007–2013)

The value of the buyouts related to the exits increased by 53 %, up to 28 billion euros. The value of divestments at cost increased by 54 %, up to the amount of 1.8 billion euros. The potency of public markets in 2013 was displayed by a rapid increase in the divestments through floatation (IPO). Application of this exit route increased over sevenfold in its amount (2.2 billion euros) and almost four times in term of the number of the companies (23). The value of divestments from venture capital increased by 21 %, up to the amount of 2.2 billion euros. The overview of all private equity divestments presents Fig. 7.3.

In 2007, due to the banks' policies, credit financing that was cheaper began to displace *mezzanine*. As a result, the value of the *mezzanine* market decreased. The rapid decrease in the number of leveraged transactions in 2008 also caused a decrease in the value of the European *mezzanine* market. Among current European mezzanine financing providers the following can be indicated: the banks, investment funds and pension funds as well as hedge funds. According to Fitch Ratings, in 2007 an average 78 % of the acquisition values were financed by debt, 74 % of which usually constituted crediting, while the remaining 26 % was other forms of debt financing http://www.fitchratings.com. During the years 2010–2012, the value of mezzanine financing decreased further. Due to numerous advantages of this form of financing, it is expected, that further development of the mezzanine market is possible, despite the difficulties.

7.8 The Forecasts of Venture Capital/Private Equity Market in Europe

A study of an autoregressive-trend structure of the value of the funds created in Europe (fr_t) was done for the years 2000– 012. It turned out that this variable does not have a trend nor autoregression. In addition, there is an effect of a crisis "speculative bubble" during the period between 2006 and 2008. Therefore, further considerations include the dummy variable identifying the years 2006–2008, defined as follows:

$$cris_t = \begin{cases} & for \quad 2006, \quad 2007, \quad 2008, \\ up & to \quad 2005 \quad and \quad after \quad 2008. \end{cases}$$

An econometric model describing impact of the variable $cris_t$ and of the following explanatory variables on the value of the funds created (fr_t) was constructed:

$bglcur_t$—the value of wealth in Europe, in trillion Euro;

$desinv_t$—the value of divestments in Europe, in billion Euro.

The empirical model has the following form:

$$fr_t = \underset{(4.294)}{36.726} + \underset{(8.446)}{58.505} cris_t - \underset{(4.097)}{0.478} bglcur_t + \underset{(4.540)}{1.771} de\sin v_t + u_{frt}, \qquad (7.1)$$

$$R^2_{fr} = 0.923, Su_{fr} = 9.34, V_{fr} = 19.5\%.$$

Equation (7.1) describes the volatility of the variable fr_t with sufficient accuracy, since the explanatory variables included in this equation explain 92.3 % of the total volatility of the explanatory variable. Equation (7.1) indicates that during the peak of the crisis (2006–2008), the values of the funds created (fr_t) in Europe were averagely higher in comparison to the so-called systematic component by over 58.5 billion euros. Along with an increase in the wealth of Europeans by 1 trillion euros, a decrease of the value of the variable fr_t by around 478 million euros followed. Along with an increase of divestments ($desinv_t$) by 1 billion euros, there was an increase in investments, averagely, by 1.771 billion euros. This means that capital holders generally transferred their assets to other investment areas after achieving profits from current investments, thus increased those amounts, on average, by 771 million euros. The actual and theoretical values of the variable fr_t are presented in Fig. 7.4.

Forecast estimation for the variable fr_t based in the statistical information available is very risky. Specification of the changes in the funds created (fr_t) in Europe only allows an assumption, that during the next 3–4 years their value will oscillate around the value of the equation's (7.1) absolute term, that is, around 37 billion euros.

Similarly, as before, a study of the autoregressive-trend structure of the values of the investments in Europe (inv_t) was done for the years 2000–2012. It turned out that the variable inv_t does not have a trend nor autoregression. An empirical

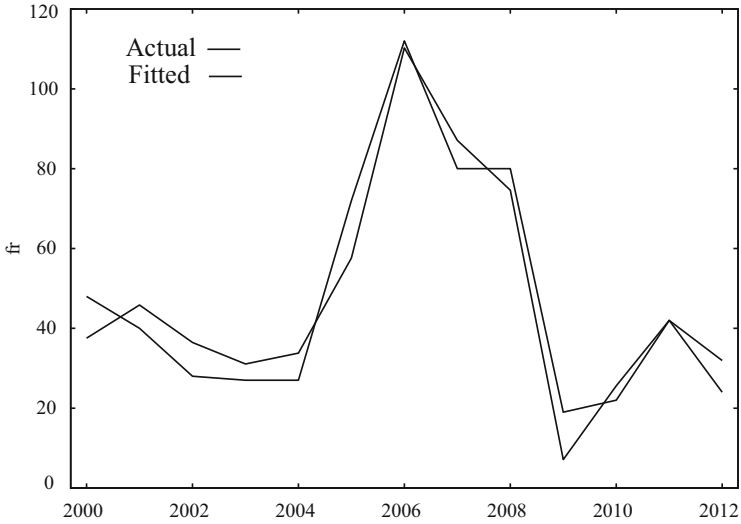


Fig. 7.4 Actual and fitted value of variable: fr (billion euro)

econometric model describing the volatility mechanism of the investments has the following form:

$$inv_t = \underset{(5.314)}{18.027} + \underset{(7.831)}{25.032} cris_t + \underset{(5.594)}{0.944} de \sin v_t + u_{invt}, \tag{7.2}$$

$$R^2_{inv} = 0.933, Su_{inv} = 4.564, V_{inv} = 10.77\ \%.$$

Equation (7.2) indicates that 93.3 % of the total volatility of investments (inv_t) is a reaction to fluctuations of divestments and it results from crisis period between 2006 and 2008. During the years 2006–2008 the value of the variable inv_t was higher than the so-called systematic component, on average, by over 25 billion euros. In turn, an increase in divestment in Europe by 1 billion euros caused an increase in the value of new investments, on average, by 944 million euros. The actual and theoretical values of the variable inv_t, calculated on the basis of Eq. (7.2), are presented in Fig. 7.5.

Equation (7.2)—due to a large irregularity of the volatility of investments' values—cannot be used for forecast estimation of the variable inv_t. It can be expected, that the values of investments during the upcoming 3–4 years will oscillate around 45 billion euros. It results from a visual assessment of the dispersion of the empirical values in Fig. 7.5, after elimination of sudden increases during the peak crisis.

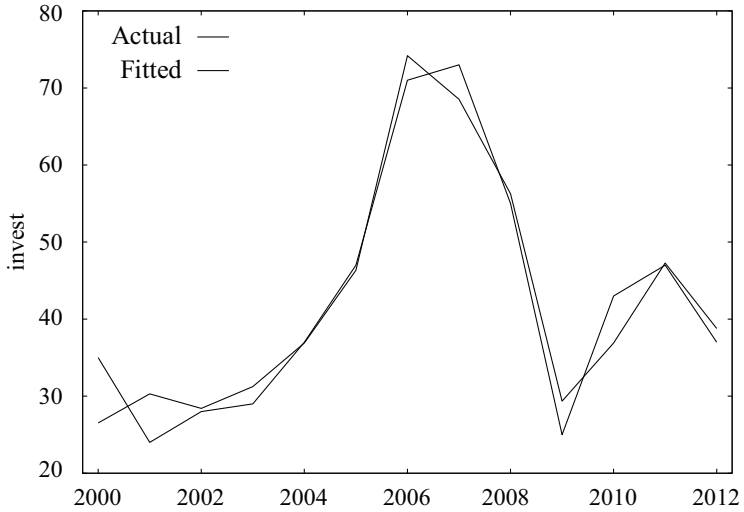


Fig. 7.5 Empirical and fitted values of variable: invest

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Conclusion

Every investment is inherently connected with risk. Its existence and diversity among various types of investments is one of the driving forces behind the development of the capital market. The risk has also caused emergence and development of alternative investments. Flourishment of this segment of the market has also been influenced by periodical financial crises, which have been the driving force behind the search for investments that would allow investment portfolio diversification and would provide opportunities for profiting, even during price declines on the market. Alternative investments constitute an effective tool for risk diversification, however, they are not suitable for all investors.

Institutional investors, including the banks, pension funds, large companies as well as individual investors within the wealth management sector, constitute a dominant group of the investors on the alternative investments market. Investors considering such investments should rely on their own preferences regarding the acceptable risk as well as on the entities acting as the trustees of the investors' assets. Often, it is the experience gained during management of own alternative investment portfolio, which allows verification and assessment of the acceptable level of the risk, definition of the maximum loss tolerance, and designation of achievable financial targets.

This book aims to present alternative investments in management of the investors' assets. Analysis of this sector of the global financial market is not possible without determining which alternative investment categories can be qualified within this group. There is still no universal definition of alternative investments which would be agreed on in the financial world and which would indicate a set of homogenous characteristics that are relatively stable over time. As a result, many individual and institutional investors are not fully convinced that 'alternative investments' constitute a separate category of investments. Multitude of various definitions raises the need for creation of some universal patterns, which would allow correct classification of individual investments and at, the same time, would make it easier to manage them.

E. Sokołowska, *The Principles of Alternative Investments Management*,
DOI 10.1007/978-3-319-13215-0

The book attempts to analyze and evaluate the following types of investments: hedge funds, funds of funds, managed futures, structured products and private equity/venture capital. While the hedge funds and funds of funds market is, by far, most developed in North America, the structured products are an attractive subject of investment on the European market. On the other hand, the definitions and the development stages of the private equity and venture capital market vary across different areas of the world.

The attempt to evaluate and forecast the alternative investments market was conducted with caution. A different specificity, not only of the investments themselves, but of the market on which these investments are made, have been considered as well. Undoubtedly, the lack of access to crucial statistical data has hindered the inference considerably.

Despite these difficulties, an attempt has been made to verify the study hypothesis that globalization and international integration of the financial market will cause the alternative forms of investing on the securities market to penetrate into new areas, including the European Union. The dynamics of this penetration and its development depends on the pace of the citizens' enrichment and on their knowledge about financial innovations. Diversification of the specificity of alternative investments around the world, resultant from cultural and historical predispositions as well as from differences in economic development can be expected.

The estimated forecasts of development of individual categories of alternative investments allow indication of the priorities in their management. The forecasts also allow measurement of additional types of risk these investments may bear.

The models constructed in this book have confirmed, that evolution of this segment of alternative investments leads to development of those categories, which meet the expectations of the market participants and leads to expiration of those investments, which do not find customers and cease to be accepted by them.

This monograph is meant to extend the knowledge segment, which will contribute to a better understanding of alternative investments within the category of modern, contemporary financial innovations.

It is, however, necessary to further continue the studies on the development of innovative instruments and the institutions permanently developing on the financial market. Given the huge capital amounts involved in this market, the directions of development of these investments have impact on the economies of countries around the world as well as on all participants of the financial market. What is more, it means that proper understanding of the risk, of management and transparency is essential.

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