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ART INVESTMENTS FOR PORTFOLIO DIVERSIFICATION

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Abstract: The paper constitutes an argumentation of art investments as portfolio diversification tool, presents conception of investments in art and analyses the impact of environment on art investments. In addition, the basic art market indexes were compared and Artprice Global Index forecast was conducted by applying the Moving Trend Line method. The main objective of this paper is to investigate art as an investment tool for diversification of investment portfolio. In order to evaluate the possibility to use art investments for portfolio diversification a correlation regression analysis was made. Creating and assessment of optimal portfolios and finding efficient frontiers was based on the material of C. W. Holden from Indiana University, entitled "Excel Modelling and Estimation in Investments". The article compares return and risk of the portfolios comprising art investment.

JEL classification: D14, D31, G11
Keywords: investment, art, Artprice Global Index, portfolio diversification.
Reikšminiai žodžiai: investicijos, menas, meno vertybių vertės indeksas, portfelio diversifikavimas.

1. Introduction

Investment in art has a quite long history, however its popularity increases each year all over the world. The art itself is qualified by both its aesthetic attraction and as an investment tool. Investment in art is one of the alternative tangible investments with a specific market and particular participants. According to art experts, the risk of investment in art decreases only for extremely expensive creations and if made for a fairly long period or if such investments (or an existing investment portfolio) are diversified by investment tools with different risk levels. In the latter case, a decrease of a particular art investment is compensated by the growth of another.

Investing in art or in other alternative tangible investments means a purchase of art works (such as paintings, icons, antiques, antique furniture, etc.) for investment goals, i. e. to maintain or increase the available capital (Postrigaj, 2009). The volatility, irrationality and illiquidity of the art market make it incomparable with more conventional investments. Art is not only a tangible investment. Sometimes it is treated as a hobby, since investors in art have to enjoy in what they invest. Art, as well as gold, is classified as real asset and is an appropriate tool to hedge against inflation. Experienced investors seek to invest some of their funds in alternative investments and more often art composes a part of their investment portfolios in order to protect themselves from losses in the financial markets and to diversify their investment portfolios. Every year investment in art becomes more and more popular, however Lithuania is still lagging behind the world's largest art markets. There are insufficient opportunities to invest in art in Lithuania, however every year more and more people show their interest in this sort of investment.

Although investing money in art is not as straightforward as investing in bonds or equities, the interest in this market increases. This alternative investment earns capital gains rather than dividends. Investment in art has existed for four centuries already and is still growing by developing new artistic directions in every century or decade and immediately attracting new investors. Investment in art has features typical for all investments and a few unique features. Therefore, before investing, one should study the art market carefully and find out all the subtleties.

Attempts in Lithuania to use art investment for optimisation of investment portfolio returns have already been made by Raškinis and Zigmantienė (2008). They composed a series of investment portfolios, consisting of two, three, or four instruments and one portfolio of five investment tools. Each of those portfolios was diversified by art investment. In the present article, two types of investment portfolios were distinguished. Three investment portfolios where created according to the time period (20, 10 and 5 years), each including five investment tools, except art investments. The final five portfolios include one art investment and the rest four vary in each portfolio. In addition, the forecast of Artprice Global Index was conducted for some years by using the Moving Trend Line method.

2. Conception of Investments in Art

The fact that art investment is becoming fashionable among alternative investments is validated by the recorded prices paid at auctions for art creations, the establishment of new private investment funds and formation of some tools, which help to analyse art market trends. Art creations become not only the collecting mean, but also a tangible asset used in trade and monetary relations (Art Brand, 2007).

History of investment in art dates back to the 17th century. Since the year dot the rich and famous old European families followed a simple strategy of capital formation: one-third of stocks, bonds and other securities, one third of real estate and one third of investments in art and precious metals, gemstones and etc. (Makselienė, 2007). The first art boom occurred in the Netherlands in the 17th century, when this country has won its worldwide fame not only in trade but also in art. Even after a hundred years the Dutch painting was the most expensive in the world. The "name buying" principle has been established in the 18th century and is applied till now. For both the buyer and the seller it is not only the artwork itself that is important, more important is the author. At the end of the 19th century and at the beginning of the 20th century art auctions were established and became famous in later times. Their influence on the art market has been growing steadily and today has reached unprecedented scales. There were many important events that affected the art market in the 20th century: the two world wars, the economic crisis in 1929–1933, the Cold War and so on.

Art market prices are reflected by differentials of income in the society. Revenues of 0.1 % of the wealthiest people in the United States increased by 343% from 1973 to 2000 (Plečkaitis, 2008). This affected the increase of art prices. Only the wealthiest people could pay a lot for their favourite work of art, but the prices of the number of art works didn't change, because average personal income didn't increase enough.

The global art market began to grow rapidly in 2003, however during 2005–2006 the average costs of creations and the sales volumes increased significantly. In 2006, at least 810 (although in 2000 this number ranged from 100 to 200) art works were sold for more than a million dollars and income of auction houses in the same year amounted to 2.7 billion dollars (Molloy, 2007).

Law of the Republic of Lithuania on the Protection of Movable Cultural Properties (1996) defines art creations as "fine art and applied art". Using this classification, various creations could be attributed to these two groups (see Fig. 1).

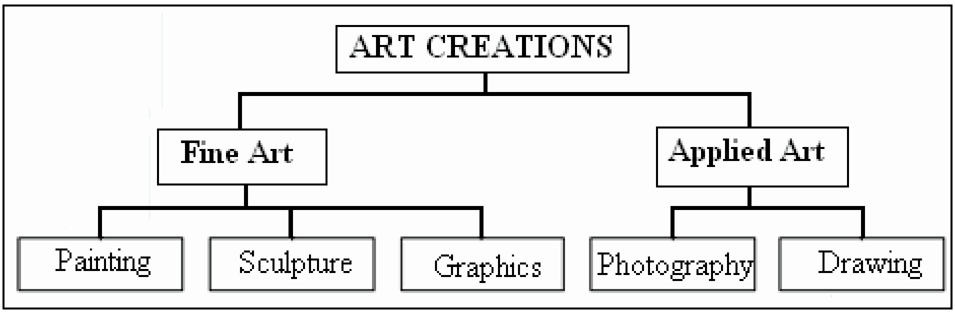

Fig. 1. Classification of art creations

The most comprehensive indicator of various sorts of art creations is Artprice Global Index[1] which is compiled by Artprice Organization operating in France. This organisation takes care of art creations and divides them into two groups according to type and period (Fig. 2).

[1] More information about indexes in Chapter 4.

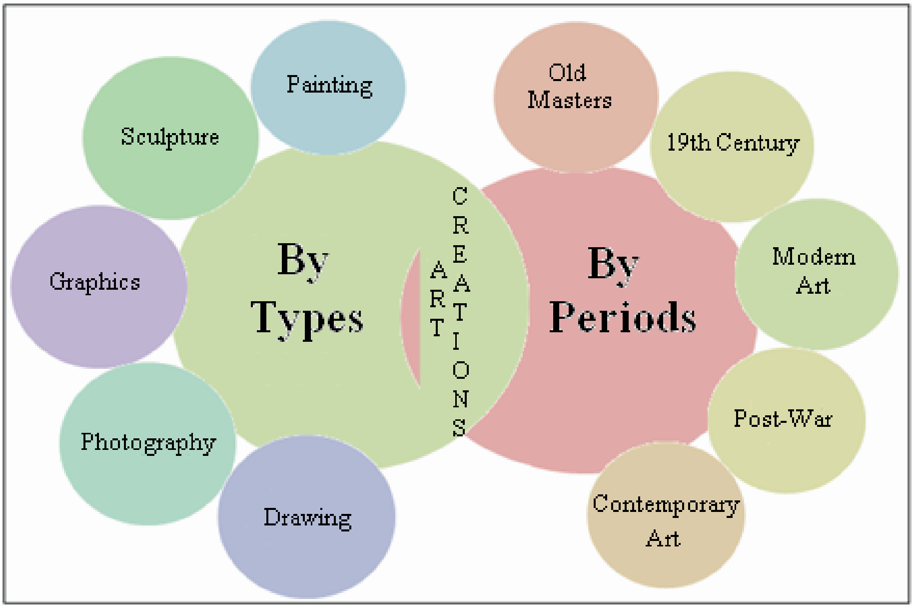

Fig. 2. Art creations structuring (Artprice, 2011)

Figure 2 shows that art creations as an investment tool can be classified differently, i.e. the same type of creation could be accredited to a different period (e. g. Old Masters or Modern Art paintings). A direct connection exists between the type of art and the art period. Thus, Fig. 2 shows that investing in a particular art creation has a direct impact on the entire art market (the total investment will increase the amount of art creation sales and the index itself).

Art market is characterized by increased confidence in public auctions, wider dissemination of catalogues, main exhibitions, globalisation of major art galleries, comprehensive information about prices, etc. (Melnik, Plaut, 2008). Although it has already been four centuries that investing in art exists (Makselienė, 2007) and covers a wide range of art types, such as graphics, photography, painting, sculpture and so on, originating new directions help to attract new investors.

3. The External Effects on Investments in Art

Investing in art is characterised by a specific object - works of art. Therefore, art market should be carefully examined; the subtleties of the market should be found out all and environmental factors affecting these investments should be taken into account before investing.

The critics and the public strongly influence art works (Fig. 3). Unlike other assets, the cash value of investments in art is partly determined by the persistent value of art work and the demand for a particular artist's works, which is determined by its popularity. Popularity, as an important factor of the value of the artist's creation, is inconstant (Kancerevyčius 2009: 727).

The most important variables that influence the value and prices of art creations could be characterised by a number of environmental factors as indicated in Fig. 3.

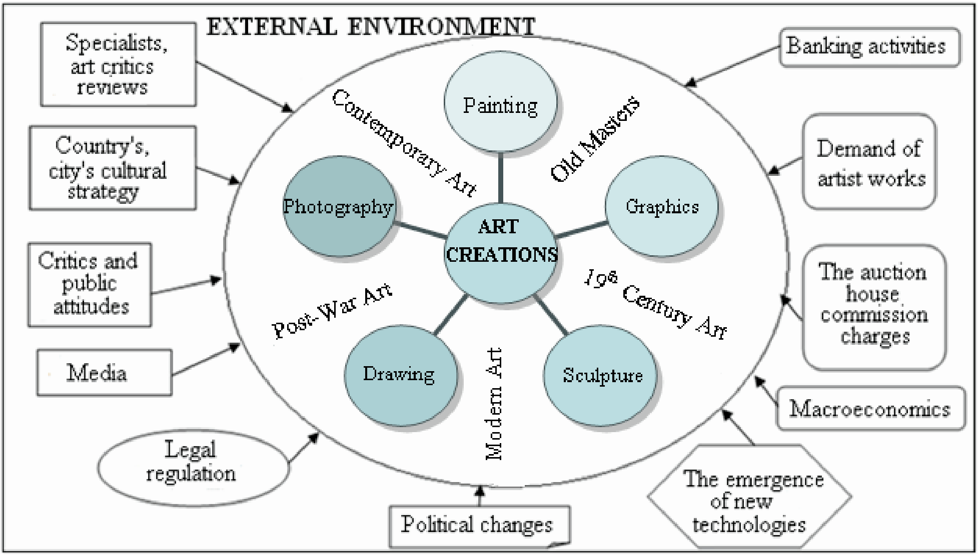

Fig. 3. The external effects on investments in art

Art and gemstone markets are the safest investment markets. This argument is supported by the fact that these markets are mostly insensitive to macroeconomic and political changes (Petronytė, 2008), and in practice inflation does not affect them (or has an inverse correlation, i. e. when currency becomes cheaper, art creations become more expensive - the same correlation is characterised by the dollar and oil ratio) (Makselienė, 2007).

According to the gallery owner D. Juškus, it is very important to pay attention to market conditions (existing situation), and much depends on the cultural strategy of the country and the city (Fig. 3) (Kutkaitytė, 2008). Prices of art works are determined by auctions' history (Mikalajūnas, 2008).

Value of the art creations also depends on the records of famous artist's teachers or art critics. What is particularly important – economic laws also exist in art markets, e.g., the prices of works created by **productive** authors is usually lower than those of non-**productive ones**.

Big commission charges are set in the highest level auctions. Moreover, the reserve (i. e., the lowest price lot at which an art creation can be sold), hammer price (the final price, claimed after an auction without a buyer's premium), buyer's premium (an amount paid by the buyer for the services provided by the auction house) and value added tax, which is dependent on the rate applicable in the country where the auction is organised) (Molčanov, 2011). For example, in Sotheby's auction the buyer's premium is about 12-30% of the sold art creation price. The same fees are also applicable for sellers (Sotheby's). It is better to buy or sell via smaller auction houses or via the art market intermediary in order to reduce commissions for the art work purchased or sold.However, it could be stated that television and press that started to elucidate investment in art prompted people to invest. The emergence of new artistic directions, creation of new technology helps attract more investors. However, the most valuable works are those created by the deceased artists and the creations of the old masters will always remain the most valuable and expensive.

All the external effects of art investments (Fig. 3) can be divided into five groups: political (political changes), economic (banking activities, demand for artist works, auction house commission charges, macroeconomics), social (specialists, art critics reviews, country and city cultural strategy, critics and public attitudes, media), technology (the emergence of new technologies) and legal (the country's legal regulation) factors. Therefore, before investing, a detailed analysis of all of the above-mentioned factors should be performed, their influence and importance for art investments should be estimated and particular attention should be paid to the economic and social factors.

4. The Basic Art Market Indexes

Databases, indices, and market reports become essential analytical tools with the help of which art investors can assess financial performance. A number of indices show average returns for artists and market sectors with data ranging from the 17th century until today (Campbell, 2007). Beginning investors face different art market indexes sooner or later. The value of investments can increase or decrease, so there is a probability for investors to gain less than invested. The main purpose of indexes is to provide investors with a toll to easily evaluate not only particular art creations, but also the situation of the entire art market, sector or region. Therefore, the index reflects variations of the art market movements. Using historical values and changes of index one can easily find out the situation existing in the market a week ago, what the situation is likely to be within the next period, and the situation in different regional markets.

There are many art market indexes, but the basic ones are presented in Figure 4.

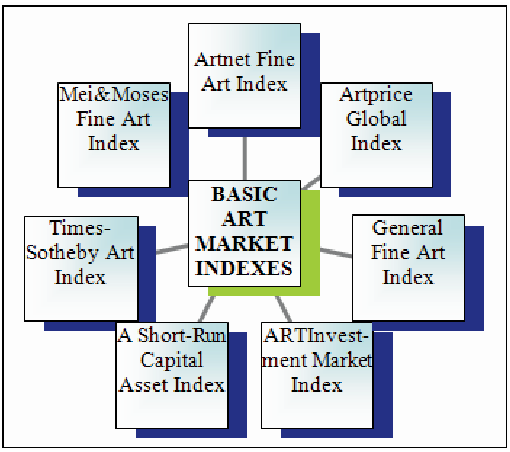

Fig. 4. Basic art market indexes

Artnet Fine Art Index (Fig. 4) was created by Artnet analysts in accordance with the world-renowned art auction data. Artnet is an online art database, based in New York that offers an archive of auction prices along with a variety of other art-related services. Users of the website can access articles on art events and particular artists as well as trends in the art market via the publication *Market Performance Reports.* These reports compile yearly auction market information on over 4.300 of the most important artists driving the global public auction market and offer readers information on market trends such as liquidity, sales volume and pricing. 85% of works sold at auctions were assessed for the purposes of calculation of this index. Artnet focuses mainly on fine art but launched a smaller decorative art database in February 2009. The art database covers a wide range of art auctions that have already occurred and is constantly updated for changes and new events. The fine art database covers an auction of over 182.000 artists covering auction sales from 1985 to the present and includes a wide range of nationalities and styles (McAndrew, 2010).

About ten years ago in New York Jianping Mei, Ph.D., professor of finance at Cheung Kong Graduate School of Business, and Michael Moses, Ph.D., now a retired finance professor at New York University's Stern School of Business, set up a database to chart the value of art works over time, compared to other financial assets (Palmer, 2010). They crated **Fine Art Index** (Fig. 4). According to J. Mei and M. Moses, the turmoil and wars are the most favourable time to invest in art. People who invested during the Second World War and later in the years 1949–1954 during the Korean War, earned a significant return. Researchers carefully analysed the sales of art works at Christie's and Sotheby's auction from 1950 and estimated that during the Vietnam War the value of art works has grown 256% on average and surpassed other investment tools (Beautiful Asset Advisor, 2011). After numerous detailed analyses of the art market, J. Mei and M. Moses have created Mei&Moses Fine Art Index, using data on repeated sales of fine art auctions from *Sotheby's* and *Christie's*. The index includes nearly 6 000 sales. While their index shows that art investing has nearly kept up with stocks, importantly, their index does not include transaction costs or storage costs (which can be quite high for art) (Sjuggerud, 2002).

Times-Sotheby Art Index is similar to Mei&Moses Fine Art Index. In 1967, Peter Wilson, the then chairman of the Sotheby's board, initiated the Times-Sotheby Index, which charted the cost of pictures just like any other commodity. It proved as a self-fuelling engine. By demonstrating that pictures could be thought of in this way, the index guaranteed that they would be. It presided over a vertiginous rise in the value of art, as moneyed individuals, corporations, even pension funds found that they could justify the acquisition of a painting in exactly the same way that they could a block of shares (Hensher, 2005).

British economist Robert Zanolo and Italian researcher Marinel Locatelli Biey have created a complicated pictures price index, **Short-Run Capital Asset Index** in 1998. They investigated the data of the world's main auctions held in 1987-1995 using the worldwide auctions database Mayer International Auction records. They analysed repeated sales of the same pictures within a year or two or even more after the first purchase of the picture. A theoretical and econometric analysis have been performed and it was found that art market was nevertheless affected by the global and the particular country's economic downturns and upturns. However, even during the economic crisis investment returns of art collections were very similar to the returns gained, for example, from the U.S. government securities, 30-year state debt securities or gold. During the economic upturn periods returns on art creations even overrun the returns of the investment tools referred above. It was also stated that return on capital of a sold art work purchased for speculative purposes in a year or two was much lower than of those sold after five years or more (Zanola & Biey, 1998).

General Fine Art Index was created in 2006 by R. A. J. Campbell. General Fine Art Index evaluates the three major art market indices: Mei&Moses Fine Art Index, Artnet Fine Art Index and Artprice Global Index. R. A. J. Campbell (2007) and J. Mei&M. Moses (2006) affirm that General Fine Art Index is a comprehensive and reliable art market index.

The **ARTIMX Index** is generated by the artinvestment.ru specialists using a unique method. It is a comparative index and indicates an average price of artworks at a certain time. The index is calculated by using artwork sales data on the main international auctions. The base of the index is 1000 points as an average price of artworks in 2000 (Artinvestment, 2011).

The ARTIMX indexes family includes the general ARTIMX index that describes the state of the world art market, as well as ARTIMX Painting and ARTIMX Graphics that are calculated according the prices of the types of art works respectively. In addition, indexes intended only for the Russian art market are represented: ARTIMX-RUS, ARTIMX-RUS Painting and ARTIMX-RUS graphics. Furthermore, certain indexes are designed for each art work creation period: ARTIMX Old masters, ARTIMX Impressionism & Modern Art, ARTIMX Contemporary Art. Upon calculating indexes defining the Russian art market, the results of the Russian auction houses are included (Artinvestment, 2011). Therefore, there are some similarities between this index and *Artprice Global* index due to formation methodology.

The most popular and comprehensive is **Artprice Global Index (AGI)**, compiled by Artprice Organization operating in France. The analysis of this index is presented by Artprice.com online database on an annual basis. Over 290 000 catalogues of art are placed in this database, presenting generalised results and the analysis of 25 million auctions. Biographies of artists are also soundly analysed in the site. AGI reflects performance of international art markets and changes in the value of different art creations (Skirkevičius 2008; Lubytė 2007). There is no correlation between art and other investment tools (see Fig. 5). On the contrary, during the peak of the financial crisis the Artprice Global Index constantly increases.

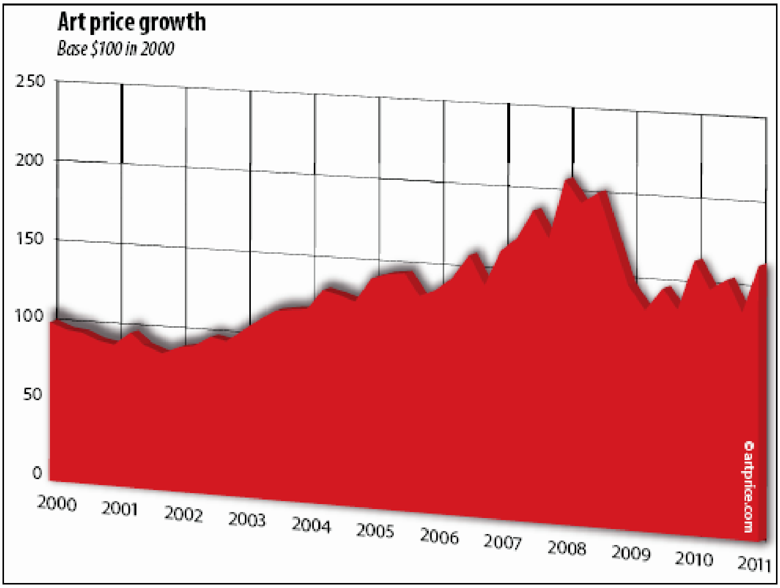

Fig. 5. Artprice Global Index 2000–2011 (Artprice, 2011)

The index is composed on the basis of 405 000 artist results achieved in the auctions. This is the most important art market index. It enables one find particular art trends in the past, present and future art auctions. As the most expensive works of art are bought and sold at auctions, such indexes are very relevant. A TOP-100 of artists was compiled based on the Artprice Global Index according to sales volumes.

Figure 5 shows that between 1990 and 1995 AGI fell by 132.56% (i. e. 2.34 times). From 1995 to 2008 the index has grown fairly steadily (AGI index rose by about 5-10% per year) and during 2005-2006 the Artprice Global Index rose by 25.4%. Moreover, during that period the sales of very expensive works increased (810 works valued more than 1 million dollars were sold and total profit amounted to more than 2.7 billion dollars in 2006). The highest index growth was recorded from January 2007 to January 2008. A sharp drop of the index was related to the global economic crisis, decline in investment in art was recorded in 2009, but in 2010 the art market revived and the index began to rise again.

5. Artprice Global Index Forecast

Forecasting is basically associated with time series and causal models. It is a mean of predicting values of variables important in decision processes from historic values of selected variables. The world's art market is not stable, it is changing constantly. Forecasting is an integral part of the investor's decisions and can help one choose a certain investment. Artprice Global Index (AGI) forecast was conducted by means of Trend Line method.

Forecast by trend line method show how to predict the data in the long run (Pabedinskaitė, 2006). Quarterly data values in the period from 1995 to 2011 were used for Artprice Global Index forecast from 1 January 2012 to 1 January 2014. Trend lines are graphical representations of data trends that could be used to analyse problems of prediction. It is very important to choose the right trend line. A linear trend line was used for Artprice Global Index forecast, because in 1995–2011 the indices were rising. A linear trend line is a best-fit straight line that is used with simple linear data sets. Data are linear if the pattern in these data points resembles a line. A linear trend line usually shows that something is increasing or decreasing at a steady rate. Artprice Global Index function can be written down as follows (1):

$$T_t = a_0 + a_1 t: \quad (1)$$

where: t – quarters, T_t – trend value for the period t, a_0 and a_1 – coefficients.

Coefficients a_0 and a_1 can be calculated by Microsoft Excel Functions INTERCEPT and SLOPE. Using these functions, the following values were obtained: a_0=37,85 and a_1=0,86. Trend equation (2) could be written down by using the following data:

$$\mathrm{T_t} = 37{,}85 + 0{,}86\mathrm{t} \quad (2)$$

Coefficient a_1 value 0,86 in this equation (2) means that the value of Artprice Global Index increased in average by 0.86 $ per quarter during 10 quarters. If the said trend is relevant in the future equation (2), it could be used for future forecast (from 1 January 2012 to 1 January 2014) using the numbers from 68 to 76 for (2) equation as t value. The index forecast is obtained as follows: for 68 quarter (1 January 2012) the calculated Artprice Global Index is $ 96.48, for 69 quarter (1 April 2012) – $ 97.34, for 70 quarter (1 July 2012) – $ 98.21, for 71 quarter (1 October 2012) – $ 99.07, for 72 quarter (1 January 2013) – $ 99.93, for 73 quarter (1 April 2013) – $ 100.79, for 74 quarter (1 July 2013) – $ 101.65, for 75 quarter (1 January 2013) – $ 102.52 and for 76 quarter (1 January 2014) – $ 103.38 (see Fig. 6).

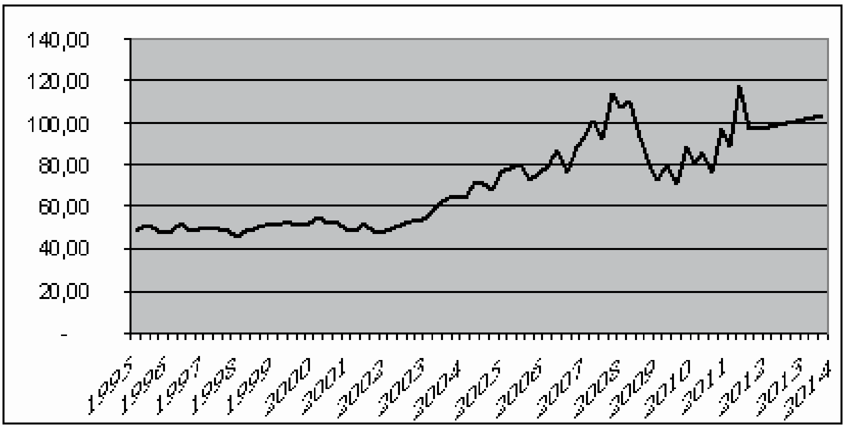

Fig. 6. Artprice Global Index Movement during 1995–2011, base 100 $ in July 1990, (Artprice…, 2011) and Forecast for the period from 1 January 2012 to 1 January 2014

For determining the error of Artprice Global Index forecast the Mean Absolute Percentage Error (MAPE) was calculated. In addition, this error is called *ex post* indicator. The calculated indicator MAPE = 11.26.

The results of the Artprice Global Index forecast show that the index will increase in the future. It can be called an optimistic and accurate forecast with 11.26 % error rate that the prices of artworks and the auctions' turnover will rise.

6. Portfolio Optimisation by Art Investments

Correlation regression analysis was made to measure whether the investments in art can be used for diversification of the investment portfolio. Art price Global Index (*Artprice*…, 2011) as the dependent variable and S&P 500 index (Econstats…, 2011) as the independent variable where used in the analysis. Correlation regression analysis showed that Art price Global Index weakly correlated with the United States stock indices S&P 500 and the analysis is statistically important. Thus, changes in the stock market do not affect the art market changes. Therefore, the statement of research that art is an appropriate measure of portfolio diversification can be confirmed.

The material "Excel Modelling and Estimation in Investments" of C.W. Holden from Indiana University (Holden, 2008) was used for the calculation of optimal portfolios and for drawing the efficient frontiers. Optimal portfolio computing model from five investment tools was created according to C. W. Holden's material and "MS Excel" program. A total of 8 different investment portfolios were created: 3 portfolios including five instruments without art investments and 5 portfolios with five instruments, where one of them was art. Correlations between various investment tools, profitability (return) and risk (standard deviation) where estimated by using the above models and S&P, Bloomberg, NAREIT, NCREIF, Per Track, The Federal Reserve, Mei & Moses researches and Art price annual reports (Asset…, 2009).

Firstly, the investment portfolios from three identical structures, but different periods (i. e. 1900–2009, 2000–2009 and 2005–2009) were composed (Fig. 7).

Fig. 6 shows that the most beneficial investment portfolio for investors is the one consisting of the 2005–2009 data with investments in the U. S. stocks, gold, real estate, risk-free bonds and t-bills. Compared to the other two portfolios, with 25% risk the 2005-2009 portfolio is the most profitable. The difference of return between the efficient frontiers of portfolios of 1990–2009 and 2000–2009 is small and they intersect at the point A2 (6.85%; 8.57%), this is the starting point of the 2000–2009 period portfolio efficient frontiers.

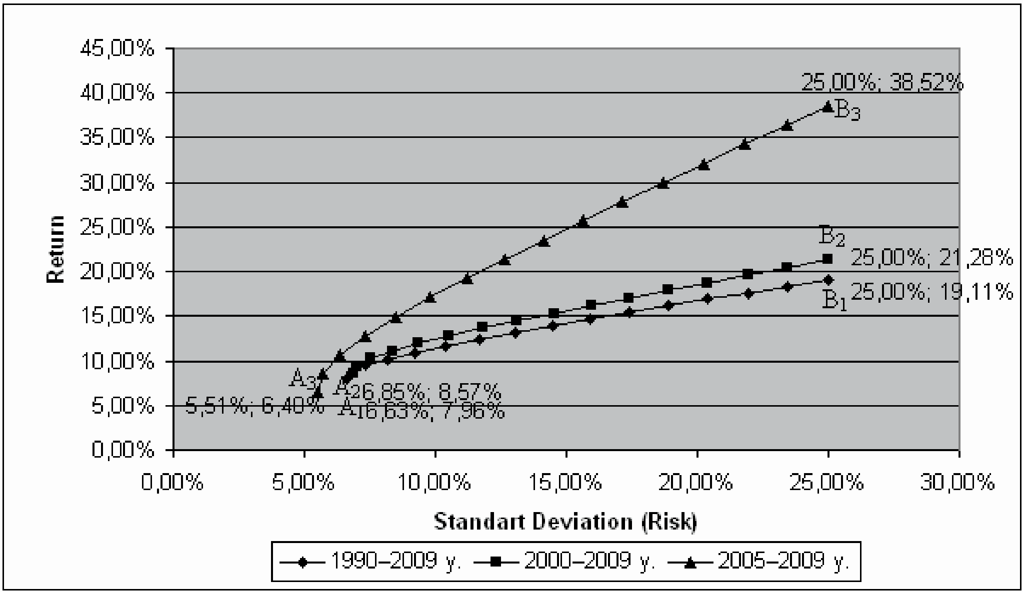

Fig. 7. Efficient Frontiers of Investment Portfolios of 1990–2009, 2000–2009, 2005–2009, without Art Investments

Investment portfolios composed by using the 2005-2009 data as the most profitable and least risky portfolio data were chosen for further calculations. Five investment portfolios were compiled from five investment tools, where one of them was art, using the 2005–2009 data (see Fig. 8) in order to compare the return and risk of portfolios with different structures.

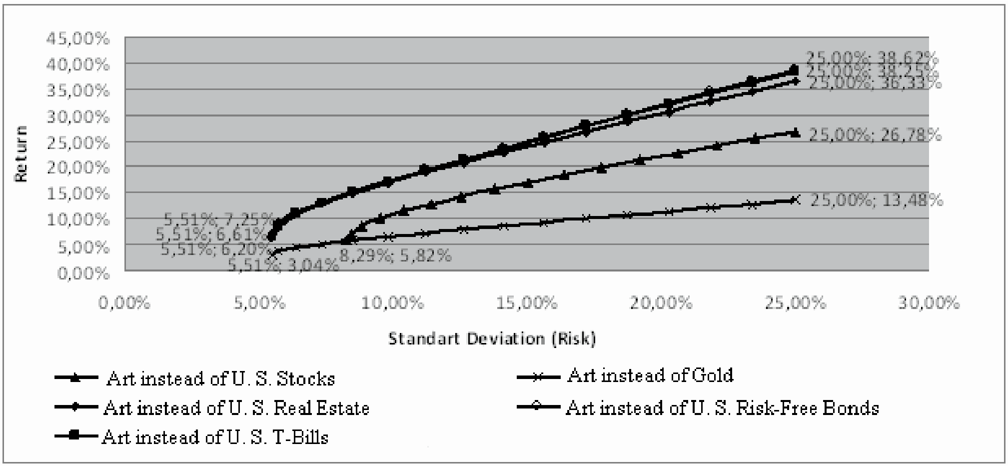

Fig. 8. Efficient frontiers of optimal portfolios, consisting of five investment tools, including art

Figure 7 shows that the most profitable investment portfolios at 25% risk are those in which art is replaced by the U. S. risk-free bonds (38.62%) and the U.S. treasury bills (38.25%). Thus, when art investments are used instead of risk-free investment instruments, then the highest portfolio return can be expected. Investing in gold instead of art, when the risk is 25%, gives the lowest return (13.48%), i. e. 25.14% lower than the most profitable investment portfolio. If investing in art instead of shares, the portfolio return is increased, because the investor faces higher risk. Shares provide lower profitability and higher risk, but gold is an investment tool with lower risk and higher return. In conclusion, the portfolios compiled on the basis of the 2005–2009 data, with art as one of the investment tools, show that portfolio profitability is lower than for portfolios consisting of the same period data, but without art investments, except the portfolio in which art is replaced with the U. S. risk-free bonds.

7. Conclusions

Investment in art is referred to as alternative tangible investment and art creations as investment tool can be classified as follows: according to the type of art: it can be painting, sculpture, graphics, photography and drawing, and according to the period: art can be Old Masters, 19th Century, Modern, Post-War and Contemporary Art.

Before investing, a detailed analysis of all external factors should be performed, their strengths and importance for investing in art should be estimated and particular attention should be paid to the economic and social factors.

Performance of the art market can be measured by various indices. The most popular indexes are Artnet *Fine Art, Mei & Moses Fine Art* and *Times-Sotheby Art* indexes. Artprice Global Index (AGI) is used most often and is important for various calculations and assessment of art creation fluctuations. This index reflects the performance of art markets in various countries and the performance of different types of art in the market. The results of Artprice Global Index forecast show that in the upcoming year the index will increase between 96.48 and 103.38 (while the base in July 1990 was $ 100) and will reach the level of the first quarter of 2008. This forecast can be regarded as optimistic, with a 11.26% error, that the artwork prices and the auctions' turnover will rise, because Artprice Global Index covers fine art auction prices.

Correlation regression analysis showed that art can be used for diversification of investment portfolios. In order to calculate the optimal portfolios and to draw the efficient frontiers, eight investment portfolios were composed. The first three were compiled from the most popular instruments among investors, excluding art, and were made for 20, 10 and 5 years. The most favourable investment portfolio for an investor was in the period from 2005 to 2009. The next five portfolios from the five investment tools, including art, were composed for the most favourable period referred above (2005–2009). The most profitable investment portfolios at 25% risk are those in which art is replaced by the U. S. risk-free bonds (38.62%) and the U.S. treasury bills (38.25%). In conclusion, it could be stated that art can be used as an investment tool to diversify the investment portfolio.

In summary, it could be stated that investments in art are a truly good diversification tool for investors and that returns on these investments could be significant if the art creation itself was held for at least five years or purchased at the time of economic downturn. In addition, contrary to other investment instruments, having an art creation brings joy for the investor.

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INVESTICIJŲ PORTFELIŲ DIVERSIFIKAVIMAS MENO VERTYBĖMIS

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Straipsnyje nagrinėjama investicijų portfelių optimizavimo galimybė, naudojant meno vertybes kaip skirtingos struktūros portfelių diversifikavimo priemonę. Apibūdinama investicijų į meno vertybes koncepcija, atliekamas išorės poveikių investicijoms tyrimas. Taip pat pateikiami pagrindiniai meno rinką atspindintys indeksai. Siekiant nustatyti investavimo į meno vertybes perspektyvas, buvo atlikta visuotinio meno vertybių vertės indekso (angl. Artprice Global Index) prognozė eilutės trendo metodu. Pagrindinis šio straipsnio tikslas) – įvertinti meno vertybių kaip investicinės priemonės tinkamumą portfeliams diversifikuoti. Šiam tikslui pasiekti buvo atlikta koreliacinė regresinė analizė. Nustačius, kad meno vertybės yra tinkama investicijų priemonė portfeliams diversifikuoti, buvo sudaryti 3 investicijų portfeliai be meno vertybių ir 5 investicijų portfeliai, kur viena iš investicinių priemonių yra meno vertybės. Taip pat buvo palygintos skirtingų investicijų portfelių efektyvios ribos ir nustatytas kiekvieno portfelio, kur viena iš investicinių priemonių yra meno vertybės, pelningumas bei rizika.

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