



FINANCIALIZATION OF ART: ANALYSIS OF THE CZECH AND
SLOVAK ART MARKETS IN THE INTERNATIONAL
PERSPECTIVE

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DECLARATION

I hereby declare that no portion of the work referred to in this thesis has been submitted in support of an application for another degree, or qualification thereof, or for any other university or institute of learning. I declare that this thesis is my independent work. All sources and literature are cited and included. I also hereby acknowledge that my thesis will be made publicly available pursuant to Section 47b of Act No. 552/2005 Coll. and AAU's internal regulations.

Matyáš Kodl

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Introduction

The combination of the arts and numbers, more precisely the art objects and investment banking, may seem irrelevant the least to say, although the art objects have always been a symbol of wealth and well-being. In fact, the artists themselves and their works represent rather the human feelings and creativity; on the other hand, the bankers or financial advisors follow the strict logic of the mathematical models and tables.

Yet, these two apparently completely contradictory worlds are closer each other than ever before. The newly appeared, so called, art business industry has gained considerable size and volume in the Western markets, with two major centers - New York and London, and a yearly turnover above 50 billion US dollars (McAndrew, 2015). This remarkable growth gave birth to the corporate auction houses, such as Sotheby's or Christie's and many others. At the same time, there appeared major gallerists with international presence, such as Larry Gagosian or David Zwirner. The art objects, and especially the paintings, showed such sharp growth in values and attained so high, that more and more financial institutions, be it banks, insurances or companies from the big 4, turned their attention to the burgeoning art market. These institutions brought also their specialized vocabulary and analysis techniques used to evaluate diverse investments. At the same time, large auction houses offer more and more financial services connected to art, such as insurance, loans or tax engineering. This general tendency to connect art to finance is called “financialization of art” (Velthuis 2012) and is one of the key terms for this research.

At the same time, the relatively young Czech and Slovak art markets show very strong dynamics as well. According to the online database Artplus.cz, the total auction sales exceeded for the first time in history 1 billion CZK in 2016, representing astonishing 35% year over year growth. Therefore, the local markets have grown to be significant enough to be treated and analyzed in a similar way as the large international markets. Despite this attractiveness and dynamism of the local art markets, this kind of analysis is still very rare in case of Czech Republic and Slovakia.

The aim of my thesis is to explore at what point the art objects can be considered as an alternative investment tool in the environment of the Czech and Slovak markets.

To answer this general inquiry, my paper first starts with a categorized literature review which compares the level of research on this subject in the Western world and in the Czechoslovakian environment. This part shows the necessity of a further research in the Czech and Slovak art markets and introduces the sources of information for my own research.

Afterwards, I analyze briefly and compare the historical evolution of the art market in the West and in the Czech republic and Slovakia. This comparison enables me to make several forecasts for the future evolution of the Czech and Slovak art markets.

After this historical overview, I turn my attention to the current situation and how the art is actually analyzed in the West and in the local environment. This part includes also the description of the information which is used by the art collectors and investors when purchasing art.

Once the imaginary investor decides to invest in art, it is important to know where to invest and what are the options. This problematic is discussed in the next part, where I describe the various economic agents acting on the market. I include in this part also a brief description of the legal framework of art business since it is an important part of doing the art business.

In the next part, I describe the recent newly appeared services connected to art business which support further financialization of art. In fact, maybe the imaginary investor doesn't want to invest directly into a specific work of art or she is looking to use the financial value of her art works in a different way than just selling them. This section is precisely giving the possibilities one should consider.

Finally, in my last section I perform self conducted analysis of the Czech and Slovak markets in a similar way as it is performed in the West. The purpose is to give the reader concrete suggestions of investment portfolios in the Czech and Slovak art and also to put into practice the concepts which are theoretically discussed in this research.

1. Sources of information and level of research

In this section, I describe the literature review and at the same time make critical remarks which will be further developed and explained throughout my research. Therefore I don't intend to solve

all the underlined questions and problems in this section but simply to introduce them. The sources of information are divided into two main categories – the academic sources and the business reports. The first category includes standard theoretical researches made by scholars. The latter category encompasses also official documents, which contain however more up to date and more precise information about the art market, therefore these business reports are essential for my research too.

1.1. Academic sources

1.1.1. Western academic sources

The first publication to be mentioned in this category is a research paper made by Velthuis and Coslor in 2012, called “The Financialization of Art”. In this study, the authors describe the process of transforming the art into an investment asset class and question possible limits to this mechanism. Their study encompasses especially US market and to a lesser extent the UK market. In contrast to my study, authors use rather sociological or, one can say, even philosophical approach to answer the question whether art objects can be classified as an investment category. As it is an important approach, I take it into account, but I put in my thesis greater focus on economic and econometrical aspects of financialization of the art.

The second document applying to this category is a research paper prepared by Brenna Adler (2003), named “The International Art Auction Industry: Has Competition Tarnished Its Finish”, from the Northwestern Journal of International Law & Business. In this paper, Adler describes and compares the legal provisions for art auctions in the various Western countries, this information is particularly useful for my section where I discuss precisely this problematic.

1.1.2. Local academic sources

The first document to be mentioned in this category is “Art market – Study of socio-economical potential of the cultural and creative industries in the Czech republic” by Skrivanek (2010). He puts the situation of the art market in the Czech republic into an economical perspective. Skrivanek himself works for Artplus, the biggest Czech database of art and auction results, therefore he can use the data from this database and compare it with other economical indices. In this paper, he performs this comparison, however it is very limited and has only a marginal importance in his paper, which is mainly focusing on the history and the various personalities of

the local art business. In contrast with my research, I would like to limit the historical description and deepen the analysis of the current econometrical methods used in the art business.

The second local academic paper is called "Management v Kultuře" prepared by Tamara Sedláková (2010) from the Masaryk University. In her research, Sedlakova is focusing on the management of the non-profit cultural organizations, such as museums, but also of the commercial galleries. The section which is enriching for me is the one about the legal framework of the auctions and sales of art objects in the local markets. I develop this problematic, to a lesser extent, also in my paper.

1.2. Business reports

Since my study is more focused on the current situation and trends in the art market, the information contained in the business reports is more important for me than the one from the purely academic sources. That is also why there are more documents listed in this category than in the previous one. I would like however to mention the fact that these business reports are official documents resulting from the close cooperation of the experts from the field. Therefore they should be taken as seriously as the documents listed above.

1.2.1. Western business reports

The professional business reports on the art market, as we know them nowadays, appeared sometime around the year 2000. Since then, their editors strive to enhance the information provided by using more and more graphs and increasingly larger data. The general tendency of these reports is to pass from hundreds of pages of text to tens of pages of self-explanatory graphs and charts. This shift may be also explained by the pressure of the investors who want condensed and highly accurate information.

The first document to be mentioned in this category is the wealth report by Knight Frank. Although this company is more specialized in the real estate, it includes art in its wealth management reports, which compare investment in art with other alternative investments opportunities, such as coins, old cars, wine and so on. I use this report mainly to introduce the investment in art and put it into a broader context of alternative investment.

Next comes the Artprice report, which is actually the richest source of information for my research. In fact, Artprice is among the top 3 largest auction sales online databases and therefore has access to very large data. In its reports, it produces many insightful charts which compare investment in various artists and art styles with the performance of stock indices. The company Artprice has one whole econometrical department dedicated purely to these researches, which are actually the result of the financialization of art. In my own research, I use similar approach as the one applied by Artprice.

The last family of Western business reports is prepared in coordination between Deloitte and ArtTactic. The “Art and Finance report 2016” shows how art is actually analyzed by the consultancy companies, like Deloitte. Unlike the other reports, this document also includes many questionnaires illustrated with graphs, which reflect the general mood on the market. This quantification of mood and emotions on the market is very important and is best illustrated in this report. I dedicate more detail to this aspect further in my research.

1.2.2. Czech and Slovak reports

Before going into details, I would like to remind here the statistical fact mentioned in the introduction: the total auction sales in the Czech republic and Slovakia in 2016 reached a record high by surpassing slightly 1.2 billion CZK or some 45 million Euros. At the same time, in an evening auction at Christie’s in New York in November 2016, one oil painting by Claude Monet was sold for 75 million Euros. In other more economical words, the whole Czech and Slovak art auction markets are as big as roughly two thirds of an oil painting by Claude Monet. It is to say, that this painting was exceptionally beautiful and from the best period.

I started with this comparison mainly to remind the reader that the local art market is, despite its appearance, still very small compared to the international art scene. This means also that there are very few high quality business reports about it. Again, I would like to stress the words “high quality”. In fact, there are many reports about art, but these use very limited amount of data and the pertinence of their researches is therefore very low. In fact, the most reliable reports on the local art market are by far those prepared by Artplus. It makes sense, since Artplus is also the largest local database. The Artplus yearly report contains a lot of text and several graphs depicting the basic characteristic of the local market. I use this report mainly to underline the main characteristics of the local market, which any investor should know and which will be also

used in my own analysis. An interesting fact about this report is that since 2016 it is published in two volumes – one for art from the early 18th century to the early 20th century and the other for the post-war and contemporary art, what definitely reflects an increased interest in the art business in the Czech republic and Slovakia.

The second report to be mentioned here is the J&T Bank report. This report enables me to show how the art is actually perceived by a financial institution, a bank, in the local environment. Moreover, this report is primarily focused on the contemporary art, which I discuss also more in detail further on.

2. Brief historical overview of the art markets

Before investing in any market, a clever investor needs to know at least its basic historical background and development in order to have a better idea about its future. That is why, although my research is not primarily historical, I would like to outline here the main stages of the art market creation, both in the West and locally.

2.1. Stages of the art market in the West

For Velthuis and Coslor (2012), the beginning of the financialization of art started in 1967, as the first art index appeared in London and was published by *The Times*. This was revolutionary in the way that for the first time art could have been and was compared to other economical indices. This led to an increase in the value of art because “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” (Velthuis, Coslor, 2012). The number and accuracy of indices have well increased since then, but it is still important to remember that the financialization of art started in the West already in the 1960’s.

The art market has then seen many investment initiatives, but the real boom came in the late 80’s and 90’s. This was time where “transparency was enhanced by the emergence of art price services which, like Reuters or Bloomberg for traditional investment assets began supplying potential investors with systematic data about auction prices.” (Velthuis, Coslor, 2012). The

implementation of these first publicly available online databases, like Artprice or Artnet, has truly democratized the market, made it more transparent and therefore more attractive to a wider group of investors. One of the main problems of the art market, which was partly solved by these databases, was the asymmetry of information or more precisely, insider information. In fact, many markets suffer from insider information. It is not a coincidence that especially the insider trading became very much criticized and fought after during the early years of the 1990's. More precisely, according to a study by Utpal Bhattacharya and Hazem Daouk, "the existence and the enforcement of insider trading laws in stock markets is a phenomenon of the 1990s." The fact that governments in the US and elsewhere started to fight the insider trading in the stock markets at the same period as it started to be reduced in the art market shows actually the closeness of these two markets and foreshadow the financialization of art.

The next, and the latest, step towards the financialization of art occurred in the early 2000's, with the appearance of new highly sophisticated investment funds. Thanks to them, art was promoted as a tool of investment portfolio diversification. This phenomenon is explained by many sociologists as the mimetic isomorphism, term used by DiMaggio and Powell in 1983. These researchers were interested in the organizational structure and focused on how the homogeneity of structure is achieved from the uncertainty. In other words, they tried to explain why people tend to behave in similar ways when there is no apparent reason or connection between them. They defined the isomorphism as a "constraining process that forces one unit in a population to resemble other units that face the same set of environmental conditions". The mimetic isomorphism means that in order to avoid uncertainty, people tend to imitate the role models. Actually, this is what happened in the early 2000's. Many of the role models and organizational blueprints from the world of finance have joined the art investment community, what is a continuing trend even nowadays. For instance, the famous hedge fund manager and billionaire, Kenneth Griffin, bought in the early 2016 two contemporary paintings for \$500 million (Business Insider, Portia). Involvement of such individuals gives the whole art market an increased legitimacy and makes it thus attractive to others as well.

To conclude I reproduce here a graph used by Mossetto and Vecco (2012), which shows the art index MeiMoses along with S&P 500 with a base year in 1961 until 2011. This figure illustrates the historical comparison of the performance of art, as an investment asset, with other more traditional means of investment, such as S&P 500 and other American shares.

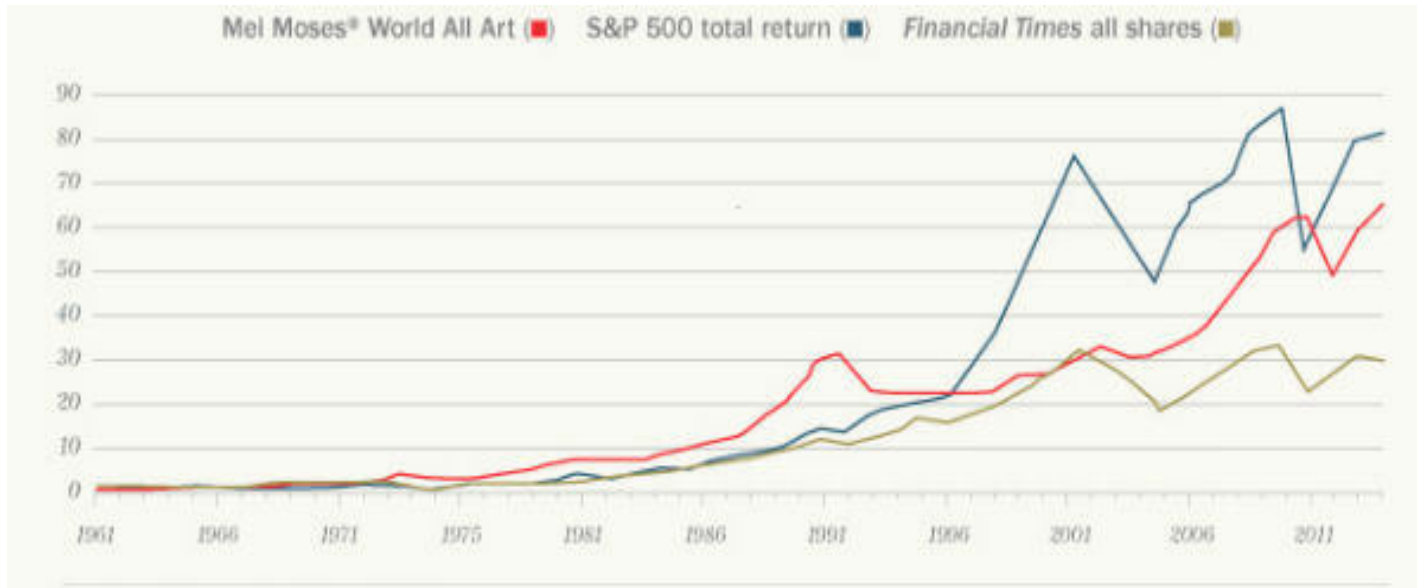


Figure 1: MeiMoses Index (source: Economics of Art Auctions by Mossetto and Vecco)

It is particularly interesting to see how the art market opposed the drop of S&P between 2001 and 2006 and remained on a positive growth.

2.2. Stages of the market in the Czech republic and Slovakia

The symbolic momentum in the reorientation towards free art market in the Czechoslovakia was undoubtedly the first auction of fine arts since 1957 held by the first private owned auction gallery Antikva Nova Praga in October 1989, which generated a surprisingly great success.

The Velvet Revolution in November 1989 started general economic structural reforms leading the country to the free market economy. One of the crucial aspects of these reforms is the substantial enrichment of the Czech society.

There is a clear increase in the number of high net worth individuals in the Czech republic in the post financial crisis period. These individuals constitute also the potential demand for the art market. Therefore if their number is increasing, so should the volume of the art market.

Ironically, one of the most important positive triggers of the dynamic of the Czech art market was the financial crisis in 2008. In fact, the growing distrust towards various traditional financial investing instruments pushed many affluent people to diversify the risk by investing in art.

These new art investors have progressively become the target customers, and some of them turned out to be even warmhearted art amateurs.

The following graph shows the number of USD millionaires in the Czech republic and the total turnover at Czech auctions. The data is provided by the company Capgemini, studying wealth management, and Artplus, the online art database of the Czechoslovak region.

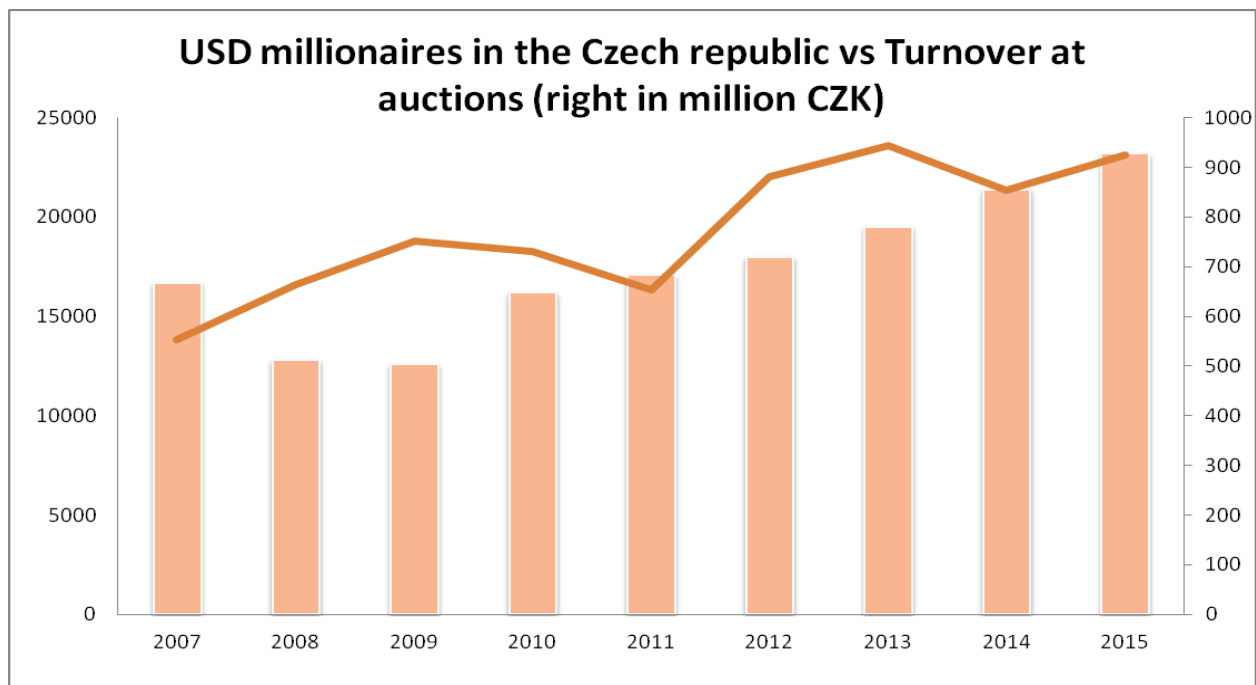


Figure 2 USD millionaires vs auctions turnover (source : Capgemini and artplus.cz)

The drop in the number of USD millionaires between 2008 and 2009 corresponds to the financial crisis. Despite this drop, the art market was particularly resilient, what reflects the distrust towards the traditional investment tools and interest in other alternatives among the affluent people. In the last years, the growth of the art market was rather strongly correlated to the growth in the number of USD millionaires. More precisely, the coefficient of correlation between these two variables in the post-crisis period (2009 – 2015) was equal to 0,72.

Another illustration of the development of the Czech and Slovak art market is the Artplus index, which reflects the state of the local art market.

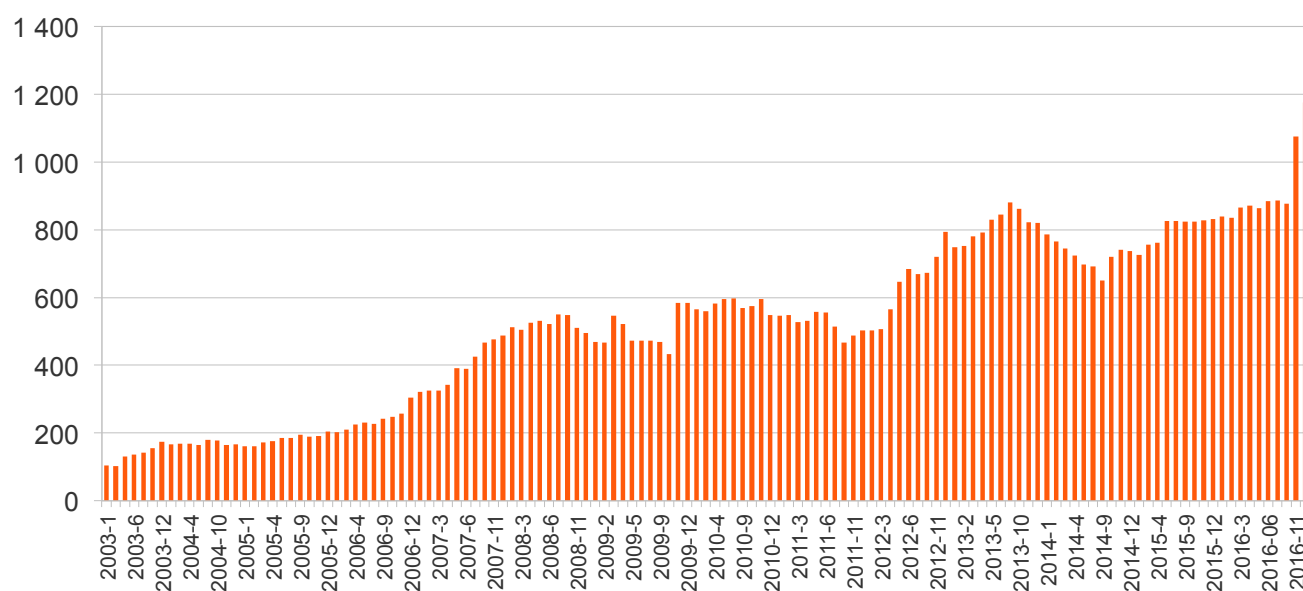


Figure 3: Art+ Index (source: Artplus report 2017)

The Art+ Index surpassed for a first time in its history the symbolic value of 1000, by reaching 1,175 points in December 2016. Here I would like to mention the fact that Art+ Index is a composite index considering more variables, these mainly are: total turnover, value of bids, percentage increase of prices at the auctions, number of lots not sold and total value of lots not sold corresponding to their starting prices (Artplus, 2017). The value of the index does not reflect strictly the price evolution but gives an overall idea of the health of the whole market and may be used for more long term analysis.

2.3. Lessons learned

From the above descriptions I would like to draw several main conclusions. The first is the fact that the Czech and Slovak markets did not have so much time to develop as their Western counterparts and they both have seen a very rapid and therefore a little bit disorganized growth. It is much more difficult to distinguish the phases as in the Western market. Nonetheless, they are both following the same direction. The fact the Czech and Slovak markets had much less negative reaction to the 2008 financial crisis shows actually how much more potential these markets have compared to their international counterparts. For a better understanding, I reproduce here the following graph using data from the online databases Artprice and Artplus:

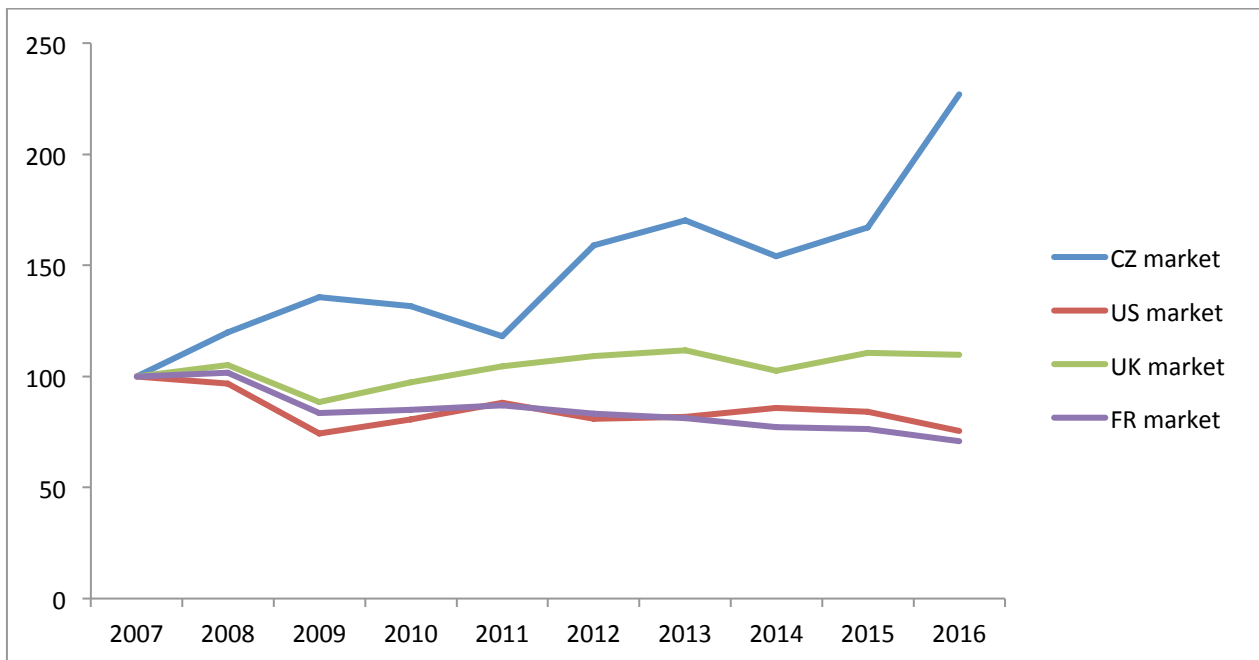


Figure 4: Change in volume in art markets (source: Artprice and Artplus reports 2017)

This graph shows the total turnovers in the various markets indexed 100 in 2007 over time, meaning 100 is the size of the respective market in 2007. The negative reaction to the 2008 crisis can be seen in all markets. However, the growth of Czech market remained bigger compared to 2007, unlike the other markets. Moreover, the size of the Western markets is already rather stable or even slightly negative. More precisely, the volumes of French and US art markets are down by 29% and 24% respectively of their volumes in 2007; the UK market is up by 10%. On the other hand, the Czech market is, by its current volume, up by 127% compared to the situation in 2007. In this way, the Czech market current situation may be similar to the one of the Western markets

in early 2000's, as these markets grew despite the poor performance of S&P discussed previously.

So far, the study has covered the general information and macro data about the Western and local art markets. In the next section I focus on the mechanisms of the art markets and how the art is analyzed in these markets.

3. How is the art analyzed today?

In this section, I would like to bring a closer look on the reports already mentioned in the literature review. An investor should always have a broad overview of the market's current situation and these reports are the best source of information. Moreover some of the concepts used in these reports are applied also in the self-conducted analysis.

3.1 In the West

3.1.1. Knight Frank and Artprice reports

I would like to start this review of reports analyzing art with a company which is not directly connected to art, the real estate agency Knight Frank. Despite the fact, that this company has little to do with the art market, it includes art and collectibles in its yearly wealth reports and its Knight Frank Luxury Investment Index. This shows that art is analyzed through financial perspective even by companies which are not specialized in the art market, what is an important sign of the financialization of art. The report summarizes the year 2015 and it states that "Contemporary and modern artists have performed particularly strongly this year, with Picasso's Women of Algiers setting an all-time auction high of \$179m with Christie's in May. Many other artists, including Modigliani (\$170m) and Twombly (\$70.5m), also scored personal bests" (Frank, 2016). The report is very useful in the way that it compares the financial progress of art objects with other collectibles. For a better understanding, I reproduce here an illustrative graph:

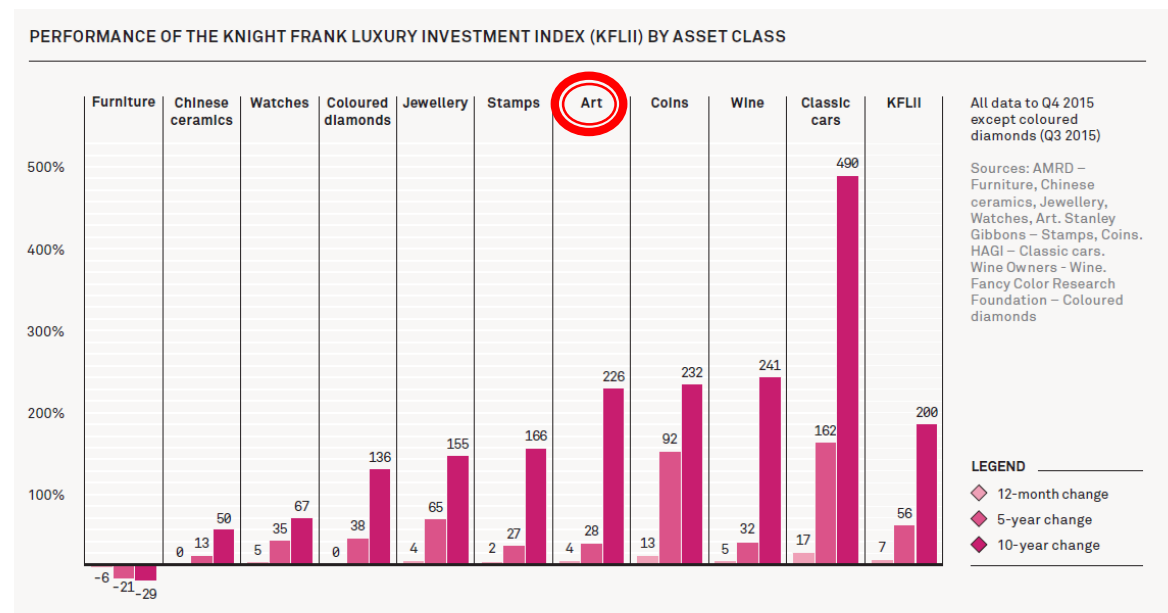


Figure 5: Knight Frank Index for collectibles (KnightFrank report 2016)

This graph puts art into a broader investment context. Based on the KFLII Index, 10 year performance of art is similar to the one of coins and wine and is strongly outperformed by the classic cars. Again it is important to stress that these indices are all based on different data and cannot be taken as absolutely reliable. Nevertheless, this first graph introduces well this section which is primarily focused on how the art market is analyzed by the Western market players.

After this brief and more general introduction thanks to Knight Frank report, I would like to narrow the focus of my study purely on the art market. To do so, the first document I am going to analyze is “THE ART MARKET IN 2015” prepared by the company Artprice and its founder and CEO, Thierry Ehrmann, about whom more information is provided further in the study.

The report is prepared on an annual basis and is constituted of some 100 pages. Right at the beginning of the document Mr. Ehrmann states that “Considering global economic and financial conditions, the Fine Art market has demonstrated its maturity as a genuine alternative investment channel, with Western art auctions generating \$11.2 billion”. In other words, the financialization of art is a fact and it is happening.

The specificity of Artprice reports is that they do not follow any preselected structure. Each year they differ in content, by focusing on what was the most important over the past year.

In this report, the first part describes the market in general with some key numbers. The most important is \$16.095 billion, total auction sales worldwide in 2015, a 10.31% decrease compared to 2014.

The report then provides two important insights into the art market, but each with different approach. The first divides the global market into regional categories, the second into art style categories. Both approaches are correct, the efficiency of each depends on the degree of market integration into global art scene. For truly connected markets the art style division is appropriate, whereas for the more isolated markets, the geographical approach is more suitable.

Regarding the geographical analysis, the report states that Europe and US are expected to grow at a slower rate while “China stabilizes”.

The art styles analysis is more interesting, because it includes much larger markets and I am also conducting similar research in the last part of this paper. In this section of the report, one can see the tremendous increase in value of modern, post war and contemporary art markets. More precisely, “It was a historic year for the Modern Art segment (artists born between 1860 and 1920) with a record auction total of \$5.2 billion” (Ehrmann, 2106). The post war art generated \$2.8 billion but according to Artprice data, the value in this segment increased by 308% over the last 10 years.

To have a better understanding of the global art market, I reproduce here a graph showing the total turnover per art styles and countries:

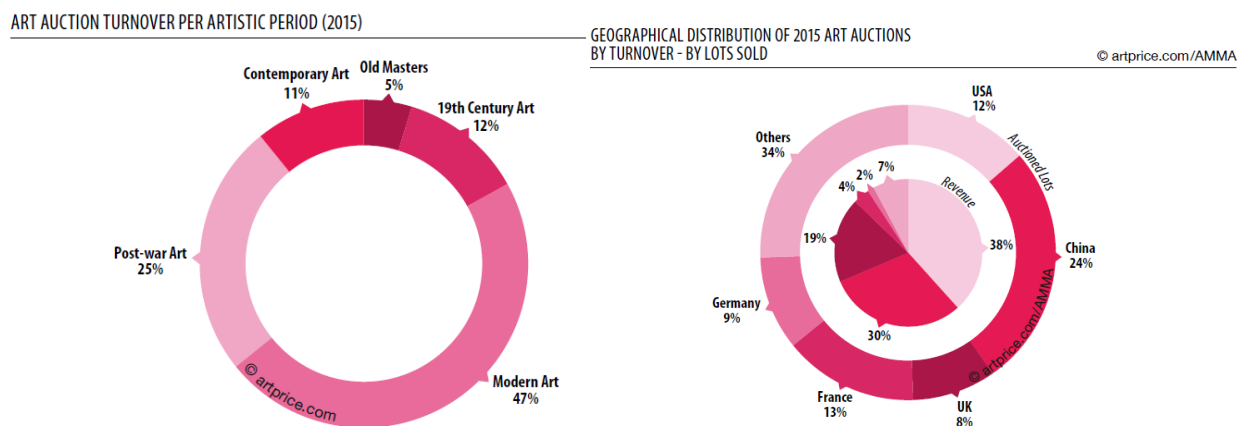


Figure 6: Artprice pie charts (source: Artprice report 2016)

These graphs illustrate both: what art is the most valuable and most popular. In both categories the first place would have been won by the modern art. However for the other categories, the classification may be more difficult to establish. Nevertheless, these charts illustrate well how the art styles are distinguished by the market analysts; a similar pattern is used also in my personal research. Regarding the geographical distribution, it is important to say that around 30% of the art market is located in Europe.

Another interesting point about the art market is the fact that in 2015 there were 45,600 contemporary art pieces sold in the auctions, 4 times more than in 2005, and generating a total of \$1.2 billion (vs. \$93 million in 2000). This figure illustrates well that despite its current minor difficulties the contemporary art market has flourished tremendously over the last several years.

Besides the art styles, the report also focuses on concrete artists. In other words, the report compares the price evolution of works by chosen artists with other financial indicators. As an example, I reproduce here a graph depicting Claude Monet.

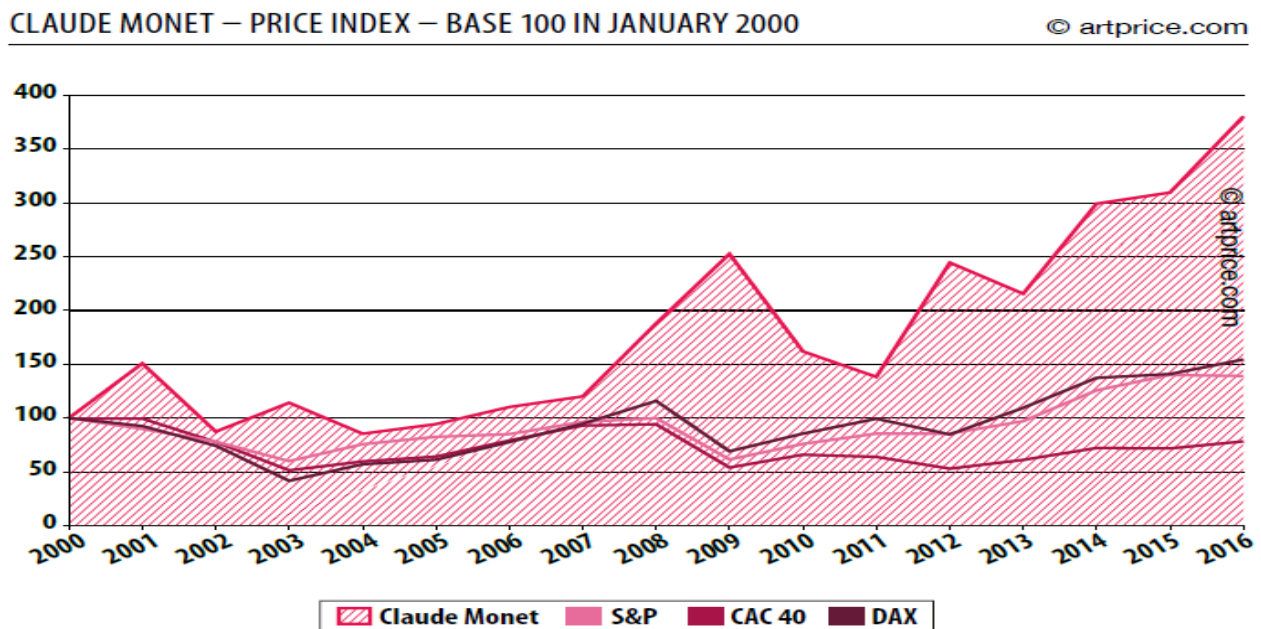


Figure 7: Claude Monet investment chart (source: Artprice report 2016)

This comparison is the result of a very sophisticated financialization of art. Artprice has great resources in terms of data, which it transforms into such insightful econometric analysis. The graph basically illustrates the value of 100 USD invested in an art work by Monet compared to the same amount of money invested in other stock markets over time. The value invested in

Monet's work is by far the highest nowadays compared to the traditional stock markets. Of course, there are many issues linked with purchasing art which are discussed further on, but such a comparison is very straightforward and useful. I use a similar pattern for Czech artists in my own analysis.

To sum up, the Artprice reports are very pertinent snapshots of the global art market. The information is well preselected and presented. However, commenting on the whole report would be too exhaustive. I would like to stress before all the logic of this report; it starts broadly by giving general characteristics of the global art market, which is then divided into geographical and art style categories, each further analyzed. Towards the end, these categories are further narrowed by focusing simply on the artists themselves. This procedure enables the reader to see more clearly the general context of the artists and artworks, and therefore I am arranging in a similar structure my own analysis.

3.1.1.1. Artprice index

Aside of the Artprice yearly reports, the company also produces a set of very valuable indices which are also used in the investment decisions by the art investors.

The first index made by Artprice is the Artmarket Confidence Index by Artprice which reflects the general mood amongst the market players. This Index is based on short questionnaires which are sent to the subscribers or which are mandatory to complete for the Artprice users to access certain devices of the website. Although the questions vary, the answer always reflect a certain level of determination. The typical questions can be as follows:

Q1) According to you, would now be the appropriate time to buy artworks?

YES NO INDIFFERENT

Q2) Is your financial situation better or worse than it was 3 months ago?

BETTER WORSE STABLE

Q3) In the next 3 months, will you expect the economic climate to be:

FAVORABLE UNFAVORABLE IDENTICAL

Q4) What do you expect art prices will be in the next 3 months:

RISE FALL STABLE

Such easy and quick questions enable the Artprice.com to generate the index which quantifies the general mood at the market and is always included in the annual reports. Of course, more than the values themselves, it is interesting to see the change in this index, a significant drop may signal a drop in confidence, what might eventually foreshadow drop in prices. An example taken from the website is below:

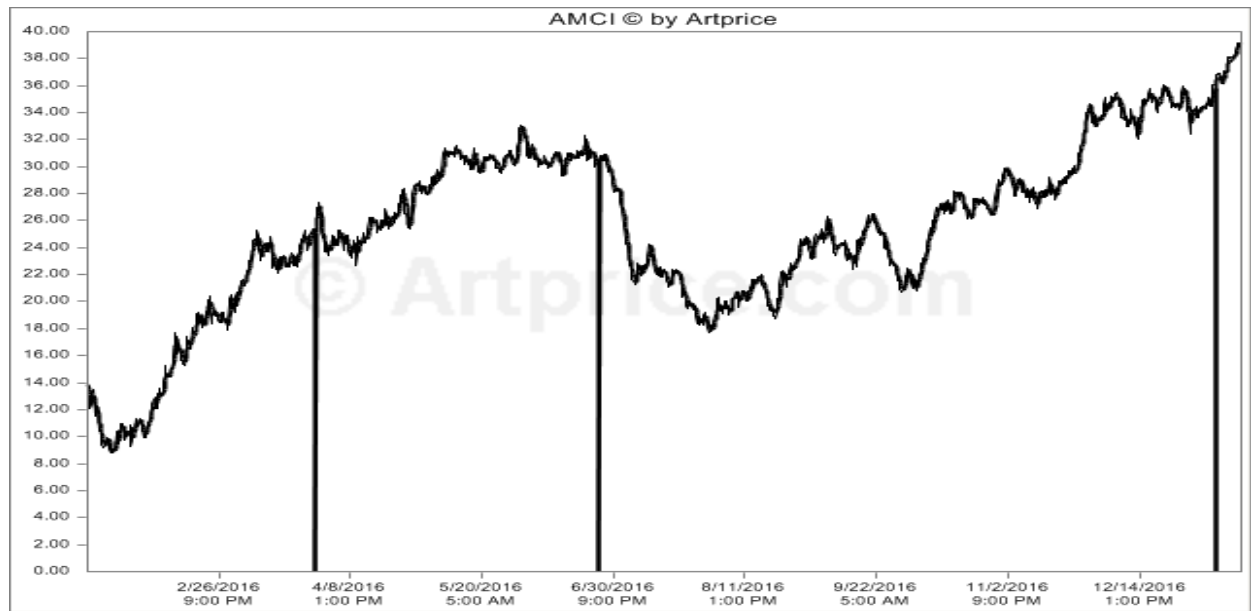


Figure 8: Art market confidence Index (source: Artprice report 2016)

On this graph, the x-axis represent the time and y-axis values are the arbitrary index points. According to technical notes in the Artprice annual report, “the barometer reference point is 0. A positive value reflects an optimistic mood of the market players, pessimism shows below 0.”. Since all the values are positive, according to this definition the mood on the market is only positive. This is of course not true and that is why it is important to look rather on the evolution of the graph than the definite values. In this case, the major period of drop in the index corresponds roughly to the summer (months of June, July, August). This is due mainly to the fact that during the summer months there are very few auctions. In other words, the art market is somehow sleeping in the summer. This inactivity explains also the drop of interest in the market.

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The market felt more optimistic again, once the first autumn auctions came and displayed some record sales at the end of October and beginning of November 2016.

The next and most important index prepared by Artprice.com is Artprice Global Index. This index reflects the volume and evolution of sales from 4,500 auction houses.

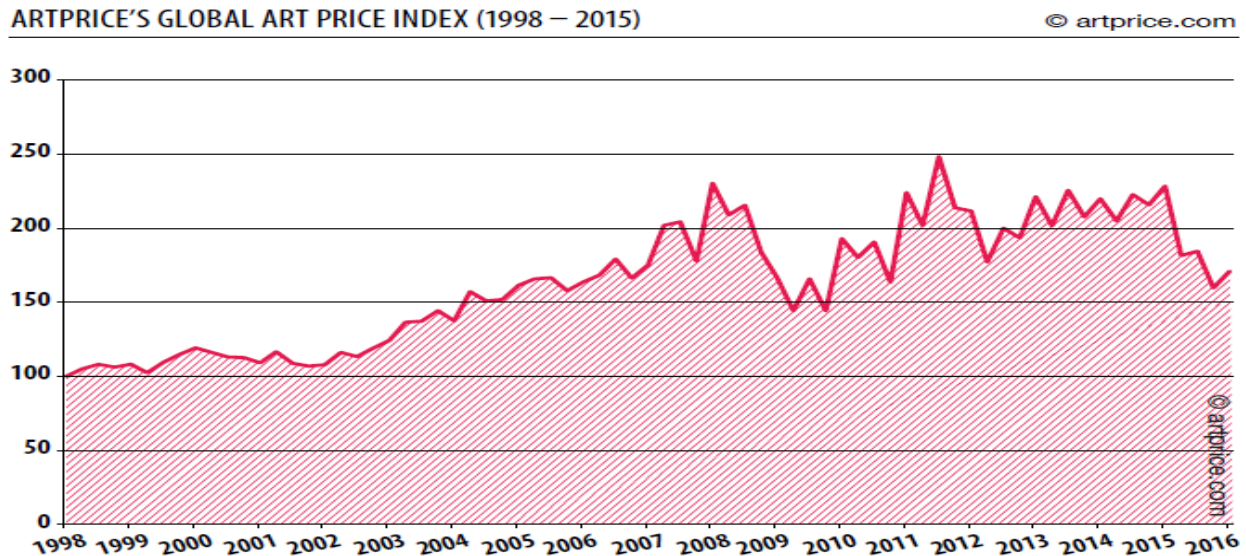


Figure 9: Artprice Global Index (source: Artprice report 2016)

This Index can be then divided into various categories based on the artistic style or geographical distribution for instance. However, here I would like to comment on the general index which has the ambition to reflect the whole art market, or at least a significant portion of it. In her article, Kathryn Tully reminds also the methodology of this index which is as follows: “The Artprice Global Index also uses the repeat sale methodology to track the performance of individual artworks that have sold more than once at auction and bought-in lots are not included.” (Tully, 2014). This means that the Index can differentiate multiple sales of the same artwork so it avoids any confusion. However, the main disadvantage is that the lots which are not sold aren’t reflected by the art index whatsoever. This means that theoretically if at an auction one lot sold for 100 million US dollars and the rest of the lots failed, the auction would still be perceived as a

successful sale, despite selling only one item. The problematic of how to incorporate the sales ratio of the various auctions into the indices is still an ongoing problem and subject to debate.

The first important observation is the fact that this index does not display exact amounts of total sales, rather it is indexed to the base year 1998, year of creation of the index. This enables its users to better grasp the evolution and changes of the index.

It is interesting to see how the art market reacted to the financial crisis in 2008. In the two following years, it lost around 80 points but then recovered quickly. However, the clear new trend following the crisis is higher volatility, which is also similar to the financial markets and shows the closeness between these two markets.

The third important type of indices that Artprice is generating are the individual indices of the respective artists. The individual indices are created for the selected artists for whom there are enough of data, meaning recorded sales, and which might be attractive to general public, such as Picasso.

The model used by Artprice for these reports is the hedonic price method which is based on the two main assumptions:

- Works are non-standard, not only within a similar range (ie, of the same artist) but particularly between different artists.
- The price of a work depends on more explanatory variables (the author, size, format, technique, materials, date, etc.)

Despite an apparent complication in the creation of this index, the result is surprisingly clear and straightforward. As an example, I would like to show here the individual index of Pablo Picasso:

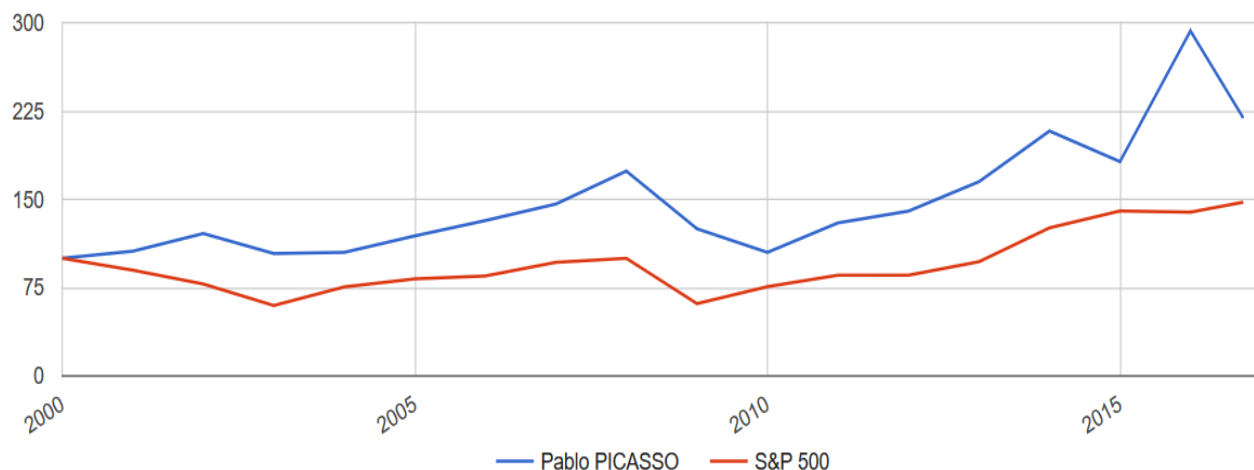


Figure 10: Individual index of Picasso (source: artprice.com)

The base year is 2000 with the arbitrary value of 100 and the chart is set to the Euro currency. The sharp increase and decrease in early 2016 in Picasso may be due to the sale of the painting *Les Femmes d'Alger*, which sold for \$179.4 Million. Nevertheless, according to those most recent data, the value of Picasso's index was 219 in October 2016, compared to 147 for the S&P 500. This can be also translated as; the value of 100 Euros invested in a work of art by Picasso is now worth 219 Euros which is an increase of 119% over the last 15 years, corresponding to annual return of 7.4%. For comparison, the S&P 500 annual return would be slightly below 3%.

3.1.2. Deloitte and ArtTactic reports

One of the most emblematic companies involved in the art market analysis is undoubtedly Deloitte, one of the so called "big 4". More precisely, Deloitte's offices in Luxembourg prepare on a yearly basis, since 2011, the "Art and Finance" reports made up of around 180 pages. These reports are prepared in cooperation with several other notable companies, such as: AXA Insurance, Edmond de Rothschild private banking or ArtTactic, which is also described further on. In this section, I analyze the "Art and Finance report 2016".

First of all, it is important to describe the activities of Deloitte in the art market. There are primarily four types of clients and related services. The first are traditional art-related companies, such as private galleries or advisories. For these clients, Deloitte gives advices regarding the strategy and operations, cash flow management, marketing or tax optimization. The second

category includes the public sector, such as museums and other cultural institutions. These clients require the most often project management, feasibility analysis and global outsourcing solutions. The third category are providers of private wealth art-related services, mostly the wealth managers. These require most often the art secured loans, risk management and anti money-laundering analysis. The last category of clients are art funds and non-profit art institutions, Deloitte provides these with investment analysis, advices on setting up funds and even organizing education and networking events. This categorization of clients show also who are actually the players on the art market requiring the financialization of art.

After this brief introduction, I would like now to focus more closely on the report itself and its content.

The first part focuses broadly on the general condition of the global art market. This section is primarily based on the analysis of the auction sales, economic indices of the various countries and some surveys distributed mainly to wealth managers. This study revealed for instance that increasing wealth allocation to art and collectibles is expected in the next 10 years. In fact, “36 percent of the 400 private bankers and wealth advisors surveyed in a recently published Knight Frank report said they expected an increase in allocation toward “collectibles”, such as art, wine, and classic cars, etc. (up from 26 percent in the past 10 years)” (Deloitte 2016).

The second part of the report is the art and wealth management survey, which is primarily based on the surveys distributed to major hedge fund managers, wealth managers and collectors. Their opinions are also compared with certain economical and financial statistics. Findings of this section prove the necessity and inevitability of the financialization of art. For instance, 78 percent of wealth managers say that art and collectibles should be included as part of a wealth management offering. This percentage is a clear increase compared to 2015, as 55 percent of the managers shared this opinion. Moreover, 48 percent of questioned wealth managers recognize the fact that their clients require from them art related services, such as art valuation, art investment consultancy, tax optimization and so forth. This also demonstrates that the financialization of art is further deepening, requiring thus more specialized services. The report reveals that there is a misalignment of expectations; on one hand wealth managers rely on more traditional wealth management services, but their clients expect them to take care also of their art collections and be thus reliable art advisors. Furthermore, 73 percent of wealth managers stated their clients wanted

to include the art and collectibles into their wealth reports. This is a significant proportion, making of the financialization of art a non-negligible phenomenon. Next, the art secured lending continued to increase throughout 2016, as 69 percent of responding wealth managers acknowledged to start offering services linked to art secured lending.

Deloitte’s section on the wealth management survey shows several insightful graphs. I reproduce here one as an interesting subject to further analysis.

Figure 15. Why are you/your clients buying art?

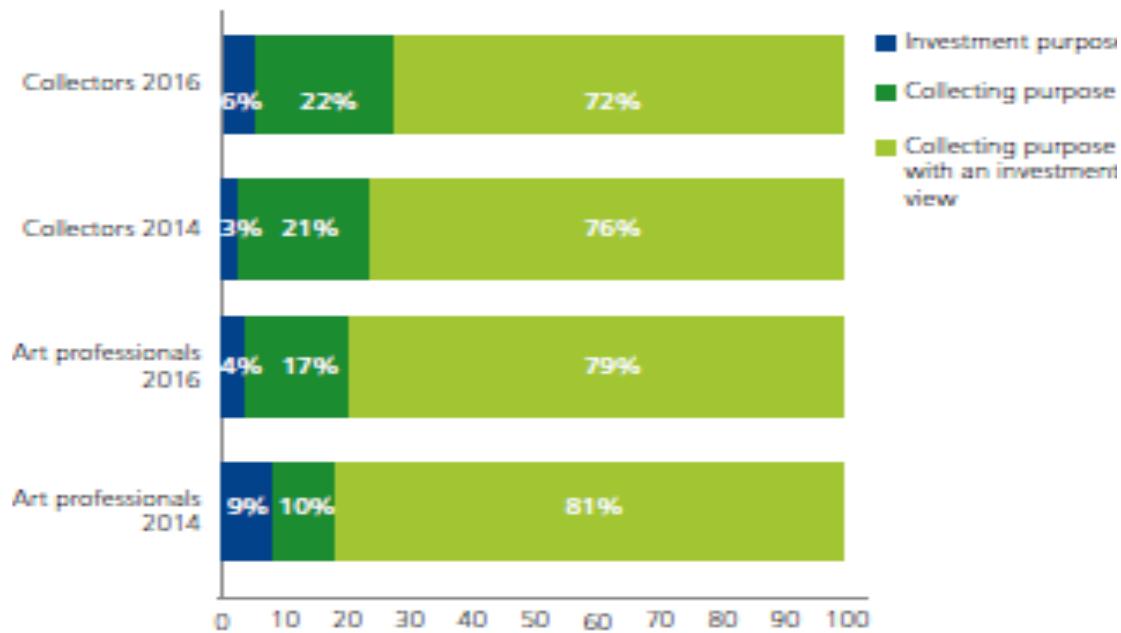


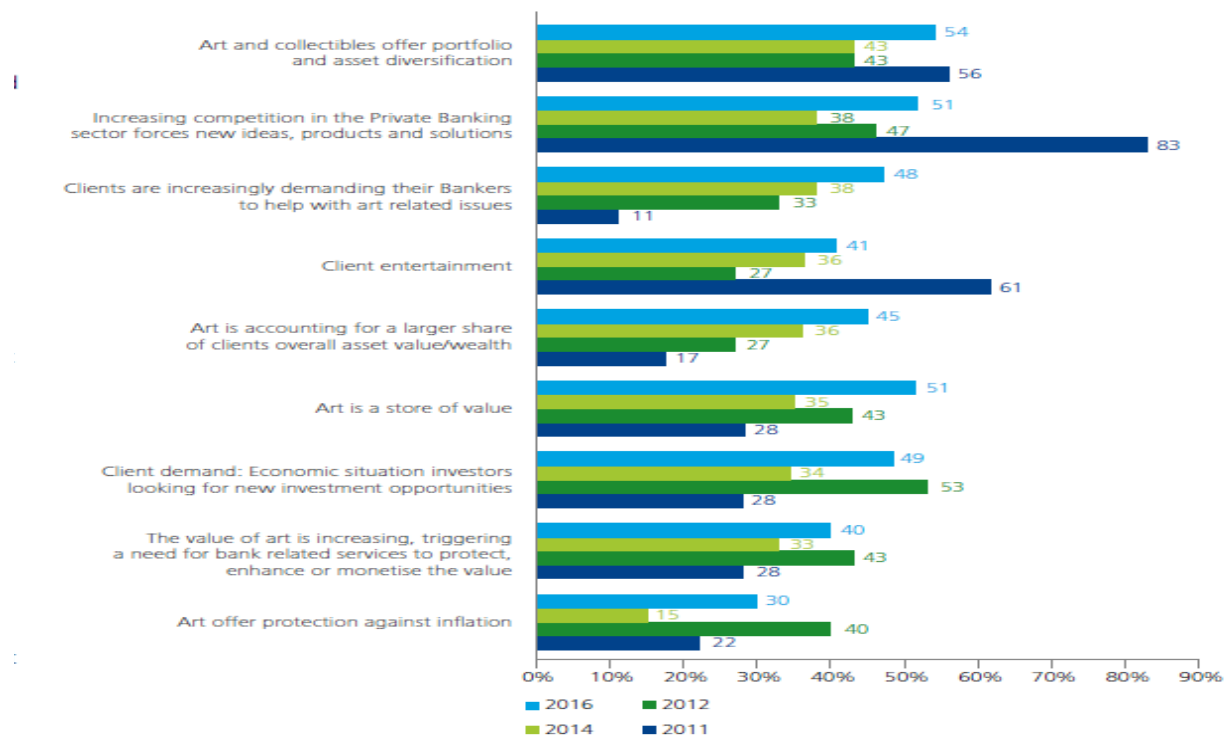
Figure 11: Deloitte wealth managers’ survey (source Deloitte report 2016)

This graph shows how the wealth managers responded to the question above. The result may seem surprising because the number of clients buying art for investment purpose is significantly low. In fact, considering the financialization of art one should expect to have an increasing share of collectors purchasing the art objects for investing purposes. Nevertheless, this statistics shows actually that the percentage of this client category has decreased from 9 percent in 2014 to just 6 percent in 2016. At the same time, there is a clear increase among individuals purchasing art objects for collecting purposes. This shift might be explained by the maturity of the market. In other words, the global art market has attracted many investors over the last decade, which were primarily driven by the investment potential of the art and collectibles. As this graph shows however, many of these investors became collectors purchasing art not only for potential profit

but also for emotional reasons. This means that many of the pure investors become later “connoisseurs” who can distinguish and enjoy high quality art objects and who are willing to pay for it. This fact also explains why the sales of, for instance, impressionist and modern paintings reach new records, despite the financial turbulences, as it was discussed in the previous section. Another explanation might be the fact that it is easier for the buyers of art to say they buy art for passion, rather than for economical profit.

The next graph is giving more concrete scenarios about the future evolution of the financialization of art and it comes also from the same section of the Deloitte report.

Figure 18. What do you consider the strongest arguments for including art and collectibles in traditional wealth management/private banking?



Source: Deloitte Luxembourg & ArtTactic Art & Finance Report 2016

Figure 12: Deloitte collectors survey (source: Deloitte report 2016)

This graph shows that the art is increasingly perceived as a store of value and therefore a nice alternative to diversify the investment portfolio. At the same time it is important to remember that there is a strong competition at the traditional investment markets, what pushes the wealth managers to seek alternatives, just like art and collectibles. These observations might seem

contradictory with the previous section. In fact, here the questioned individuals were the wealth managers who consider art purely from the investment point of view, but in the previous case the questioned individuals were the end buyers who might be also art lovers.

The last section of the report analyzes art more through an investment perspective. To do so, the authors use an art index, Mei Moses World All Art Index, which is mostly used in the US. One of the key findings is that the Mei Moses index decreased by 3.1 percent in 2105, whereas the S&P 500 increased by 7.12 percent during the same period. The use of Mei Moses Art indexes is convenient in a way that this index can be divided into several main categories of art where the economical performances vary significantly. For a better understanding, I recreate here a summary chart.

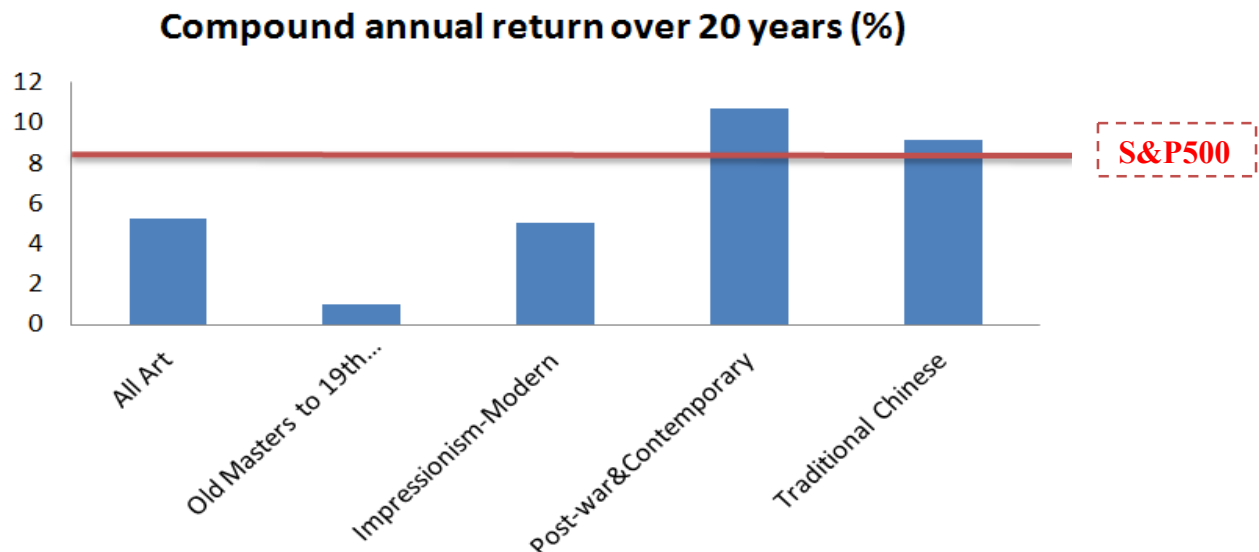


Figure 13: Average 20 year returns MeiMoses Index (source: Deloitte report 2016)

This graph shows the yearly average return over the last 20 years in the various art segments based on the Mei and Moses Indices and compares it with the S&P 500 index, illustrated with the red line. According to these data, the art in general generated on average 5.26 percent of interest per year, what is inferior to S&P 500 with the average score of 8.33 percent. Considering these numbers, the only investment in art which would overcome the traditional stock market would be either in post war and contemporary or the traditional Chinese art, which have 10.71 percent and 9.13 percent respectively.

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I would like to stress here the fact that various art indices use various numbers and the statistics can differentiate rather significantly. This is further discussed in the paper. Nevertheless such comparison shows at what point art can be compared with traditional means of investment, what is precisely the financialization of art about.

The next important observation of this section is the number of art investment funds in Europe and the US. This number oscillates around the value of 20 over the last 6 years, showing a rather steady and healthy market conditions. Unlike for instance the Chinese market, where the number of art funds plummeted from 90 in 2012 to 34 in 2015.

To sum up the Deloitte's report, I would like to stress its approach. In fact, Deloitte uses adroitly its approach of a financial consultant to the analysis of the art market. It understands well, that the art business is still primarily people to people business, therefore it uses extensive surveys and its well positioned connections to qualify the mood and opinion on the market. This qualitative approach is then supported with some more objective metrics and the whole is presented in an understandable business-like manner, so that even non art professionals can have a better idea about the market.

Regarding the content, the main message for this study is that the debate about the financialization of art in the Western markets is not anymore about whether yes or no, but about how and to what extent. The surveys with wealth managers show at what point these have to struggle to adapt to this rather recent phenomenon, nevertheless, they are inventing ways how to adapt and progressively stop being reluctant to this phenomenon.

Further on, I would like to discuss reports prepared by ArtTactic, one of Deloitte's contributors. ArtTactic provides its clients with many insightful econometrical analysis of various art markets. Here I would like to focus on the contemporary art. In fact, the contemporary art is subject to the highest speculation and therefore volatility. Analyzing this market can be very challenging and it is precisely the subject of the "Global Art Market Outlook 2017" produced by ArtTactic's founder and CEO, Anders Petterson, who is also a former investment banker.

This report is composed in a very straightforward way by combining qualitative and quantitative research in a similar pattern as Deloitte. The main differences are rather in the content itself.

One of the questions respondents, who are both collectors and art specialists, had to answer was for instance: “What do you consider the biggest risks for the global contemporary art market?” (Pettersen, 2017). The biggest perceived threat is political uncertainty.

This report suggests some negative shifts in the contemporary market: in fact, in the US the net auction sales of contemporary art were down by 30%, in Europe by 21% and South-East Asia by 29.7%, in 2016 compared to 2015.

The report then states possible scenarios for each geographical region. The most significant for my study is of course the prospect for Europe. According to the report, the outlook is rather positive for the European countries. The only major threat are the populist political tendencies which might reduce the free market. On the other hand, some of the European capitals have gained further share in the global auction market, namely Paris, Milan and Amsterdam. The French capital houses 6.5% of global auction sales in contemporary art market (Pettersen, 2017).

To sum up, I would like to underline the fact that the contemporary market is a more specific art market, simply because the artists are still alive, what complicates greatly the valuation of the artworks. That is also why the volatility of this market is much larger than in others, this is also further discussed in my study.

This section shows that investors in the Western market can enjoy a variety of highly specialized market reports, which can provide them with the accurate information about every single art medium and art style. Nevertheless, many serious investors often demand highly personalized art valuation reports, often based on the more general reports listed above. These personalized documents are primarily used when an investor is deciding about a purchase of one concrete art object. In this case, the consultancy companies can issue an in depth analysis of the respective art object. This service isn't provided in the local region but it is worth mentioning in this study. For a better understanding, an example of a valuation report prepared by Sotheby's in New York is added in the Appendix.

3.2. In the Czech republic and Slovakia

The previous section introduced the concepts and approaches which enable a better orientation and understanding of art and its markets in the West. These analysis have growing popularity since they contribute to a better transparency of the markets and enable new collectors to get a

better understanding of its mechanisms and simply of the prices and returns they should expect from purchasing a specific work of art. This clearer and more transparent analysis of the art market is one of the crucial results of the financialization of art. Therefore I would like now draw a parallel between these above approaches with the practices in the Czech republic and Slovakia and compare the level of financialization of the local markets.

3.2.1. Artplus yearly report

The first, and undoubtedly the most important document, to be discussed in this section is the yearly report prepared by Artplus.cz, the largest online database mapping auction results in the Czech republic and Slovakia, which is also described in the later section of my research.

These reports typically contain some 140 pages and outline the most significant trends in the local art market over the year. In this section, I comment on the yearly report 2017, analyzing the year 2016.

The overall message of the report is that 2016 was a record year: be it in total sales, sell through ratio, average price of lots sold or the value of the Art+ Index itself. Again these observations show the dynamics and strong potential of the local market.

Furthermore, the report states that the end of 2016 saw the biggest auction in the former Czechoslovakia. Aside of the record total turnover, reaching 180 million CZK, this auction held by Gallery Kodl generated also the highest increase in prices: the total turnover is higher by 78% compared to the sum of starting prices of all auctioned lots, the long term average in the Czech republic and Slovakia is around 40%. These results were reached especially thanks to several high quality pieces, which surpassed more than three times their starting price. This suggests that local collectors are willing to pay extra premium for the best quality works.

In fact, this observation is supported by the following facts also stated in the report. More precisely, 41% of lots offered in the auctions were successfully sold. However, these lots represent 72% of the total price of works offered, in 2015 it was just 64%. These numbers suggest that fewer works were sold, but for higher prices. In other words, more expensive lots, with a starting price superior to 1 million CZK, sell more and better than in the previous years. This comes to a similar observation as previously; people are willing to pay larger sums for high quality works.

However, even the works of other price segments increased in value. According to Artplus, the average price of auctioned lots, with starting price lower than 1 million CZK, rose from 44,500 CZK in 2015 to 57,000 CZK in 2016. This shows an increased interest in works of medium price range as well.

The last area of observations includes the performance of the auctions. A positive message is the fact that the value of lots not sold decreased from 295 million CZK in 2015 to 285 million CZK in 2016, this is a significant year to year decrease. The average increase in prices of lots auctioned slightly decreased from 43% to 41%, however there was a clear increase in the absolute value of auction increments: from 228 million CZK in 2015 to 299 million CZK in 2016.

An interesting figure, reflecting the dynamics of the local market is the total value of the ten most expensive works sold at local auctions per year.

Here is the graph:

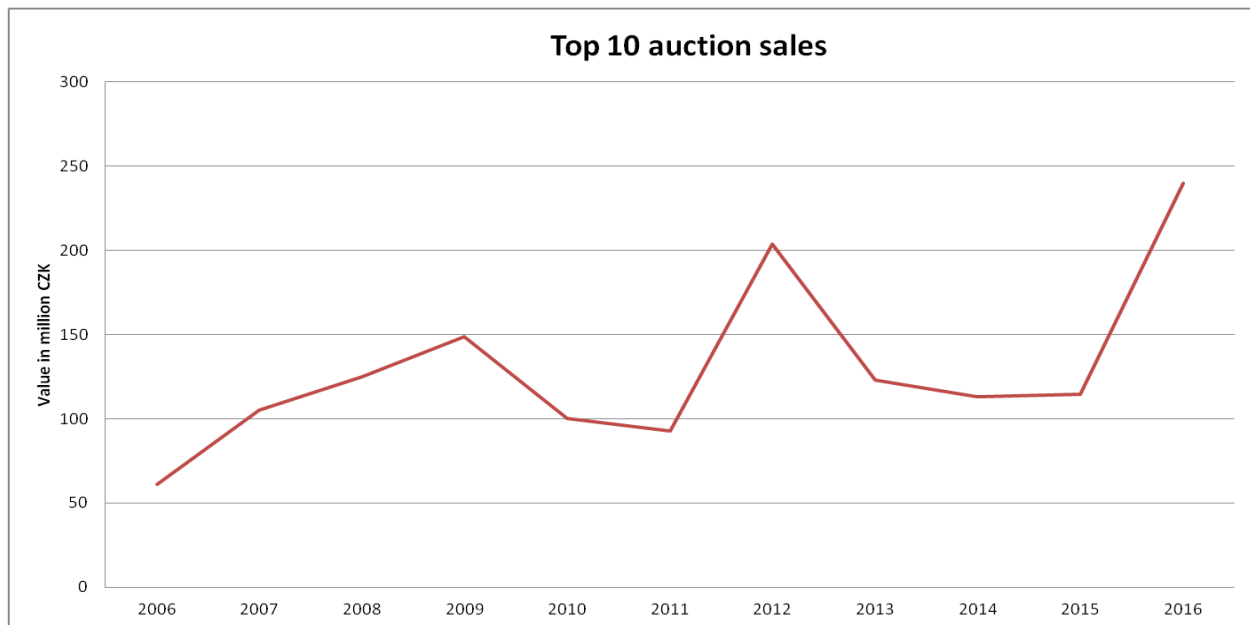


Figure 14: Value of top 10 auction sales over years (source: artplus.cz)

This shows that the high end of the market has recently seen a significant move upwards.

All in all, these observations reflect a very upward tendency of the local art market and its performance, which surpassed in 2016 even the very positive expectations. Regarding the structure of the Artplus report, it is rather easy to navigate through. Nevertheless, compared to the Western reports, the data are presented in a less intuitive way and sometimes tend to be repetitive.

Regarding the content, the qualitative surveys, which were described in the previous section are completely missing. In other words, the Artplus report completely omits opinions and forecasts by the leading actors of the market; be it collectors, curators or art dealers. The second significant difference is the fact that Artplus does not compare the evolution of its Index or of the price evolution of the various art markets with some other economic indicators, like for instance Artprice regularly does with Standard and Poor's Index. This shows that the financialization of art is not perceived as important and advanced here than in the Western markets.

Nevertheless, Artplus has all the necessary resources, similar to Artprice or Artnet, to create even more sophisticated analysis. It is therefore rather a question of time, when clients will require similar services also locally and companies such as Artplus would be ready to provide them. Considering the rocket increase in the local art market previously, these services should appear in the short term future.

3.2.1.1. Art+ Index

The most important similarity of Artplus with other international online databases and also one of its most valuable services is the creation and maintaining of the Art+Index. This index is so far the most accurate indicator of the condition of the art market in the Czech republic and Slovakia. The index started in 2003 and reflects relatively well the general mood and performance of the market. The existence of this index is also an important step in the financialization of art in the Czech republic and Slovakia, since it brings more transparency, standardization and understanding in the market. The index itself is computed based on total yearly auction sales, amount of price increases in the auctions and the value of lots not sold at the auctions (*artplus.cz*). I would like to stress that the index considers also the failed sales, unlike the Western indexes, and so it could be very accurate when illustrating the health of the market.

3.2.2 J&T Bank report

The Slovakian investment group J&T is one of the very few local financial institutions, which tend to analyze and treat art from an investment perspective. There are two main products: J&T Art report and J&T Art index, which is described later in my research.

The report is very useful because it focuses on the contemporary art, unlike the Artplus report, which is more about the classical art. The report provides short information about the artists considered to be most influential, not necessarily most expensive. Artists' impact is measured for instance by the number of exhibitions and publications or participation at international art fairs. Aside of the brief curriculums, the report also contains a list of Czech and Slovak artists who have the largest impact in the world, this table is based on similar criteria (Drdova, 2015).

The report presents also several interviews with influential persons of the local contemporary art scene, be it artists themselves, dealers or collectors. These interviews might contain interesting information but are not easy to follow.

Compared to the Western reports on the contemporary art, such as the ArtTactic report, there is a clear lack of econometrical information, be it regarding the prices or opinions of the influential personalities. This unfortunately diminishes the real value of the report and shows once again that financialization of art is not so advanced in the local environment. The J&T Bank Art Index, which has the most impact of the whole report is described further in the research, where I describe more closely the online databases and indices.

4. Once decided, where can you buy art?

This section follows the logic that once the smart investor knows the basics of the historical background of the market and its current situation, he or she should look where and how to invest and be part of the market.

4.1. In the West

The structure of the Western art markets has very old origins and therefore can be rather simply defined. There are two traditional agents, auction houses and galleries, and one new, the online. I describe here each of these agents more in detail.

4.1.1. Auction houses

The most visible and representative economic agents of the art market are the auction houses. Although very traditional and old, the auction houses remain the most significant players in the art markets. Their role can be compared with the clearing houses. According to the economic theory “When two investors agree to the terms of a financial transaction, such as the purchase or sale of a security, a clearing house acts as the middle man on behalf of both parties.” (*investopedia.com*).

In fact, auction houses act as middlemen when two collectors agree to the terms of a purchase of an artwork in case of a private sale or an auction sale. The auction houses attract also a lot of media exposure thanks to the big public auctions and so they are emblematic of the art market culture.

In terms of numbers, these auction houses generate a significant portion of total sales of art worldwide. For a better illustration, I reproduce here a table with total sales of the first ten auction houses in the world in 2015, some of them are also part of this section:

TOP 10 AUCTION HOUSES BY FINE ART TURNOVER (2015)

© artprice.com/AMMA

	Auction house	Revenue	Auctioned Lots
1	Christie's	\$4,968,338,763	19,238
2	Sotheby's	\$4,570,332,893	14,805
3	Poly International	\$833,136,882	9,922
4	China Guardian	\$553,020,191	7,695
5	Phillips	\$397,524,395	3,311
6	Beijing Council International Auctions	\$294,044,650	3,720
7	Shanghai Jiahe	\$160,679,547	1,893
8	Xiling Yinshe Auction	\$199,486,812	3,140
9	Beijing Hanhai Art Auction Co.Ltd.	\$147,791,657	4,492
10	Bonhams	\$143,121,888	8,949

© artprice.com/AMMA

Figure 15: Top 10 international auction houses (source: Artprice report 2016)

4.1.1.1. Christie's

The largest international auction house, by sales, is Christie's, totaling \$7.4 billion in 2015, including the private sales (*christies.com*). James Christie founded this auction house in London already in 1776. Nowadays, Christie's is headquartered in London and New York on King Street

and Rockefeller Plaza respectively. The current owner is the Groupe Artémis, which is the holding company of Francois-Henri Pinault. Christie's takes pride for having 53 offices in 32 countries and other 12 salesrooms in several prestigious destinations such as London, Paris, New York, Geneva, Milan, Dubai, Hong Kong or China. Apart of organizing auctions, Christie's is also engaged in numerous other domains, such as education, real estate, special event organization, travel and tourism.

Although, as already mentioned, Christie's ranks at the first position in total sales, it has only one independent consultant in the Czech Republic and one person office in Vienna. In other neighbouring countries, such as Poland, Slovakia or Hungary it has no stable professional. This implies that Christie's is less active and influential in the region of Central Europe than other auction houses and despite its size it plays consequently a less important role here.

4.1.1.2. Sotheby's

The next important auction house is also based in New York, Sotheby's, which realized sales totaling \$5.9 billion in 2015 (*2015 Annual Report, Sotheby's*). Moreover the net income of this company in 2014 was around \$117 million (*2015 Annual Report*). This auction house's long tradition dates back to 1744 as it was founded by a London bookseller Samuel Baker. Since then, Sotheby's developed into one of the most successful auction houses and was entrusted to perform such exceptional sales as Napoleon's Saint Helena Library, the Duchess of Windsor's jewels, the estate of Mrs Jacqueline Kennedy Onassis, Picasso's *Garçon à la Pipe* or the first print of the Declaration of Independence.

In 1983, Sotheby's incorporated in Michigan to become Sotheby's Holdings, Inc., before being reincorporated in the State of Delaware and renamed Sotheby's in June 2006.

Sotheby's has over 90 offices in 40 countries over the world and conduct about 250 auctions each year in more than 70 categories (*sothebys.com*). Moreover, Sotheby's is very active in many other domains. More precisely, it offers highly appraised education thanks to the Sotheby's Institute of Art, and special financial services which are still nowadays unique.

Furthermore, Sotheby's has a stable full time consultant in Prague as well as in Slovakia. This fact demonstrates well that unlike Christie's, Sotheby's is more engaged in the region of Central and Eastern Europe.

4.1.1.3 Bonhams

The third auction house based in London, which deserves to be mentioned, is Bonhams. This auction house was set up in 1793 by Thomas Dodd, an antique print dealer, and Walter Bonham, a book specialist (*bonhams.com*). Today, Bonhams is operating in its show rooms all over the world in locations such as London, New York, San Francisco, Hong Kong or Los Angeles and performs more than 400 annual sales through its sixty specialist departments.

Unlike Sotheby's, Bonhams remains privately owned company. Another distinctive feature of this auction house is its expansionist strategy. In fact, in 2001 it merged into Bonhams & Brooks and Phillips Son & Neale, which regroups two of the four initial Georgian auction houses, except for Sotheby's and Christie's. Furthermore, shortly after this merger, the most important auction house on the West Coast, Butterfields, joined the group in 2002, which became known as simply Bonhams. In 2013, the total sales of this auction house reached the sum of \$947 million and it outpaced the two above auction houses in domains such as arms and armour, watches and clocks or old sport cars.

It is important to note that Bonhams is very active in the North America through its subsidiary Butterfields, and in Asian markets; moreover it has also offices throughout Western Europe in France, Germany, Italy and even Greece. Nevertheless, the only independent Bonhams' consultant in Central Europe is located in Vienna, Austria. Bonhams gives therefore clearly priority to other regions and has very little influence over the Central European market.

4.1.1.4. Dorotheum

The last and most important Western auction house is Dorotheum, founded already in 1707 in Vienna by the Austro-Hungarian Emperor Joseph I. Its former name was "Versatz- und Fragamt zu Wien", but once it moved to the splendid Palais Dorotheum, it changed its name after this beautiful palace, where it is still nowadays headquartered.

Since the former Austro-Hungarian Empire was composed by the current territories of Austria, Czech Republic, Slovakia, Hungary, Croatia, Slovenia, Romania, Montenegro and parts of Italy, Ukraine and Poland; Dorotheum is clearly the leading auction house in the region of Central Europe.

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Dorotheum conducts about 600 auctions per year and relies on its more than 100 specialists operating in 40 countries over the world, what makes Dorotheum the biggest auction house in the continental Europe. Some of its most important international offices are in Brussels, Dusseldorf, Munich, Prague, Rome and Milan (*dorotheum.com*).

Dorotheum' structure is rather straightforward, since it is made only of three main divisions. The first is the Dorotheum jeweller, which is Austria's largest jewelry store. The second is the Dorotheum Gallery, which may be the most interesting for this study. The gallery is based in the Palais Dorotheum in Vienna, which assures an unforgettable atmosphere for its numerous auctions. The third division, called Dorotheum Financial Services, offers special loans for purchase of an art object and safekeeping of high valued artifacts.

It is to say that Dorotheum is not only an auction house, it keeps also heavy reliance on traditions which is one of the main reasons why Dorotheum attracts increasing number of people.

4.1.2. Galleries

There are thousands of art galleries in the world and the business they do is often made behind the closed doors, so there are no real statistics regarding the turnover or economic performance of the majority of galleries. The most influential and biggest galleries, in terms of exhibition space, are those of contemporary art. Although there is no clear ranking, I briefly describe the most well-known of them.

4.1.2.1. Gagosian Galleries

Larry Gagosian is often described as the king of the galleries. From his modest beginnings as a salesman of postcards in LA, he became the best known gallerist controlling an empire generating revenues of 925 million USD in 2011 (Forbes, 2011). Artists he represents include Jeff Koons, Pablo Picasso, Damien Hirst and many others.

4.1.2.2. David Zwirner

Zwirner's galleries are mostly based in New York. The art he shows ranges from important Minimalist works to time-based media. He fostered the careers of some of the most important artists working today, such as Luc Tuymans and Neo Rauch. Although this blue-chip gallery

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carries big names that demand big prices. The revenue of this gallery in 2011 was estimated at 225 million USD (Forbes, 2011).

4.1.2.3. The Pace Gallery

This gallery was built by Arne Glimcher and has currently six locations throughout the world. In 2011, the revenues were estimated at 450 million US dollars. Again, most of the art is contemporary art.

4.1.2.4. Hauser and Wirth

This gallery was created by Iwan Hauser and Manuela Wirth, initially in Zurich. They display mainly contemporary art, but also modern and post war. The revenues in 2011 were estimated at 225 million USD.

4.1.2.5. Acquavella galleries

This is an iconic Manhattan gallery generating 400 million USD in 2011. William Acquavella, its founder, focuses mostly on blue-chip artists like Monet, Rothko, Degas or Lucien Freud.

4.1.3. Online

The last option to purchase art objects, and the most recent, is online. This is a more and more popular way of purchasing art. Meanwhile all of the mentioned auction houses offer online sales, there are also specialized companies in this business, which I describe below.

4.1.3.1. Paddle8

This relatively young auction house was founded in 2011 and has now offices in London, New York and Hong Kong and focuses primarily on pieces situated in the price range of \$1,000 to \$100,000. Category range is also very wide; it includes Post-War and Contemporary art, prints & multiples, photography, street art and other collectibles.

4.1.3.1. Artnet

Although I mention this company in this section, it is a similar giant as Artprice. These two companies have similar business model, the only exception is that Artnet has also very sophisticated online auction platform, that is why I mention it here. The project launched in 2008 is the so called “Artnet Auctions”. The name is quite self-explanatory, Artnet serves also as an online transaction platform for various auctions. The main advantages for buyers and sellers

are the attractive prices and fast turnaround, which can be prepared in a few weeks. This is a much shorter time span compared to brick-and-mortar art auctioneers, where the process of sale can take even months. Artnet Auctions offers mainly works by blue-chip modern and contemporary artists that sell in the five- and six-figure range (artnet.com). This does not mean that Artnet would be hosting the auctions on its own, rather it enables other auction houses to offer their works to other Artnet clients and Artnet enables those clients to bid online. This is a very smart business model, since Artnet is not risking any sale failures, because it offers this service for a fixed fee.

4.2. In the Czech republic and Slovakia

The local art market developed since its birth a rather unique category of economic agents, the so called “auction galleries” (“aukční galerie”). These institutions combine in fact the roles of auction houses and galleries from the Western markets. More precisely, these are relatively large exhibition galleries which also afford to organize auctions on their own. This kind of combination was never seen in the West and is actually only now slowly appearing. As an example I could mention the S2 galleries which are official exhibition galleries of Sotheby’s launched in 2010.

4.2.1. Auction galleries

To start I would like to show here the table of the top 5 largest Czechoslovak auction galleries as listed in the Artplus yearly report 2016:

Name	Turnover (CZK)
Galerie Kodl	313,150,000
European Arts	241,810,000
Adolf Loos Apartment and Gallery	200,780,000
Arthouse Hejtmánek	108,590,000
1. Art Consulting	79,220,000

Figure 16: Top10 Czech auction houses (source: Artplus report 2017)

4.2.1.1. Galerie Kodl

The largest auction house is the Gallery Kodl, which is a combination of exhibition gallery and an auction house. This gallery has its roots in the late 19th century. It is also to mention that the founder of this gallery was co-organizing the first public auction in the Czechoslovakia after the

fall of the communism. The main focus of this auction house are the paintings from the first half of the 20th century, the so called classical modern style. Despite the fact that it offers rarely also sculptures, the main domain by far remain paintings, especially oil paintings. Therefore, unlike the large Western auction houses, the company remains very specialized.

4.2.1.2. European Arts

By the order of sales, the second biggest auction house is European Arts. This is a relatively young gallery, opened in 2012, which emerged from the redesign of a former auction house, named Meissner-Neumann which was initially started in 1997. In this case, the business model relies also on a combination of activities of a typical exhibition gallery and an auction house. The company European Arts has kept the tradition of the Meissner-Neumann gallery, which was selling a wide spectrum of goods, ranging from antiquities, coins, furniture, jewelry, to paintings. This auction house is therefore less specialized than the previous and offers its clients a larger variety of fine art products and collectibles.

4.2.1.3. Adolf Loos Apartment and Gallery

The third and last auction house to mention here is the Adolf Loos Apartment and Gallery which bears the name of a well-known Czech architect but has nothing to do with the family descendants. It is a relatively young gallery created in 2009, which became known thanks to recent successful sales of oil paintings from Frantisek Kupka. This auction house presents also paintings by artists from abroad, its primary specialty are paintings from the neighboring Austria, especially by the well-known expressionist painter Oskar Kokoshka.

4.2.2. Online

The online commerce with art is gaining in the importance in the local environment. This may be also due to the fact that many of the art objects can be bought for very low sums of money and it is easier and more efficient to sell these objects through internet than having a brick shop.

4.2.2.1. *Obrazy v aukci*

This is the largest Czechoslovak online auction house, founded already in 1992. It is mostly focusing on paintings and drawings from all periods. The annual turnover in 2016 was 65 million CZK (obrazyvaukci.cz).

4.2.2.2. *ArtBanana*

This online gallery has a very similar business model as the previous one, but focuses solely on the young contemporary artists. This platform is thus also promoting and supporting the young art. Most of the traded art objects are paintings or drawings, but also photographs and prints.

4.3. Legal framework

In this section, I would like to follow again the logic of an investor, purchasing art. Once decided where, it is still important to have at least the basic knowledge of the legal limitations of art business. At the end of the day, it can be a six digit business and any legal disputes can be therefore very costly.

4.3.1. In the West

The auctions in the UK and the USA are defined primarily by the agency relationship between the seller, the consignor, and the auctioneer, the consignee. The auctioneer has therefore the “fiduciary duty to act in the utmost good faith and in the interest of the consignor” and so to obtain the best price for the consignor (Adler, 435). However, at the same time auctioneers serve as an agent to the buyer, what results for instance in the United States in a “double agency to both the buyer and the seller” (Adler, 443). This means that a buyer who purchased a forgery can sue the auctioneer for misrepresentation. Auctioneer can be therefore held personally liable for a sale of art object by the buyer. A very similar mechanism exists also in the UK. This liability explains also partly why the two biggest art business centers are located in these two regions- buyers have more confidentiality buying there, because they have more legal power towards the auctioneers. On the other hand, a specificity of the Anglo-American model of auctions is the fact that the reserve price, minimum price required by the seller, is often kept in secret, what is allowed by the common law. That is why the auction catalogues contain only auctioneer’s estimates, representing the market price, but not the starting, or reserve price.

On the other hand, the continental Europe has slightly modified legal system of auctions. In general, auctions in Western Europe are more or less supervised by States, what gives “the state a tighter stronghold on the auctioneering practice” (Adler, 436). More precisely, auctions are often supervised by a state-appointed notary or other official. This means that while auctioneers have some fiduciary duty to sellers, they have practically no liability towards the buyers. This means

that if a buyer is convinced of purchasing a forgery, he or she would have to prove it in an open hearing addressing the respective state official. Alternatively, instead of the auctioneer, the buyer would have to proceed in legal actions directly against the seller, the previous owner. On the other hand, the reserve prices are often publicly available or on demand. Such system is, with some differences, practiced in the Netherlands, France, Switzerland or Germany.

4.3.2. In the local environment

The Czech legal system in general is very young and still not perfectly fit to a free market economy. That is maybe why it has very poor definition of the auctions. In fact, art auction regulation is mainly defined thanks to the law n. 26/2000 Sb regarding public auctions (“veřejné dražby”) (Sedlakova, 2010). Here I would like to underline the fact that the definition provided by this law was adopted in a very similar wording by Spain and Slovakia.

The first major drawback of this law is the fact that it does not differentiate the voluntary and involuntary auctions. Therefore the law is very general and does not provide with any concrete guidelines about how to organize specific auctions of different goods, such as art objects, antiquities, cars or real estate.

The main difference between the involuntary “public auctions” (veřejné dražby) and the art auctions is the fact that bidders do not need to attend personally the auctions. They can make an “absentee bid” by submitting to the auctioneer a given amount for which they are willing to buy respective object; or they can be represented by a third person on the phone or they can simply register online.

Nevertheless, the specificity of all auctions is the transfer of the title of ownership. In fact, the title of ownership is transferred after the auctioneer knocks with the hammer. There is no need for a signed contract, instead it is concluded by an act.

These definitions show that the legal systems around the world remain quite vague when it comes to art auctions. This gives a great space of freedom to the auctioneers who can create and impose their own regulations. In the Western markets, these regulations have progressively converged to a more or less standardized form. However, in the Czech republic and Slovakia, where markets are younger, the regulations of auctions can still vary between the auction houses.

5. New services for the investors

Once the investor is sure about the chosen artwork, the place and the legal environment, the purchase can happen. In this section, I would like to discuss what are the possible future services and opportunities for the art investors.

5.1. Art investment funds

As Olav Velthuis and Erica Coslor points out in their research: “since the late 1960s various attempts have been made to establish investment funds that focus on art”, the really important and sophisticated investment funds focused on art appeared only at the beginning of the 21st century. These funds are the most obvious connection between art and investment and so they are the players who can foster and accelerate very significantly the financialization of art.

Although several major art investment funds deserve to be mentioned, I will focus more closely on the Fine Art Fund (FAF), because the FAF is currently the most sophisticated and biggest active art investment fund on the international market. The FAF was founded in 2001 by Philip Hoffman, a former CEO of KPMG in the United Kingdom. It is interesting to observe that Mr. Hoffman had no formal education in art or any similar field. At that time, he was before all a professional financial consultant and auditor. The fact that an individual with no knowledge of art decided to establish an art investment fund may seem frightening, but in fact this still remains the primary strength of the FAF. Mr. Hoffman is a very capable financial specialist so he can assess very effectively and accurately any investment opportunity, including art. The fact that, unlike art historians and art curators, he has no or very limited knowledge of art enabled him to make pragmatic and unbiased decisions when investing. Of course, the FAF expanded quickly at the early stages and Mr. Hoffmann managed to hire highly skilled art historians and former bankers who were forced to work together. In 2013, the FAF was managing some \$ 400 million, which came from private as well as institutional investors. It is to say that since its launch in 2001, the FAF opened successively three separate investment funds and in 2016 the FAF was transformed into the Fine Art Group offering other financial services connected with art business. The success of Mr Hoffmann shows that the art market can be understood even by people with only financial education what is made possible thanks to the financialization of art.

On the other hand, Czech republic has not seen for a long time since 1989 any investment fund which would be specialized in art. The first and currently biggest art investment fund in the Czech republic is called Pro Arte, headquartered in Prague. Since its foundation in 2013, the fund has expanded significantly and owns works by renown artists such as Kupka, Toyen or Zrzavý. Pro Arte works on a traditional basis of an investment fund. The minimal invested sum is 3,500,000CZK or 125,000 EUR for a recommended time span of 5 years minimum. In their press releases, fund's managers claim to aim at 8% net revaluation per year, however there is no guaranteed interest rate.

It is interesting here to focus again on the structure of the fund. In fact, its owner is an investment company, however most of the managers are art historians. This structure shows that coordination between investment analysts and art historians can indeed happen and brings many positive results.

The comparison of these two funds illustrates several important points I would like to highlight. First of all, art investment funds are the results of advanced financialization of art. The fact that they exist also in the Czech republic shows that the financialization of the local art market is already significantly advanced.

At the same time, the art funds promote cooperation between the financial and art worlds and thus help further financialization of the market. In this sense, the art funds can be understood as bridges two very distant shores separated by a wild river.

Finally, I would like to stress and compare the dates of creation of each art fund. In other words, Pro Arte was founded in the Czech republic 12 years after the FAF in London. This would mean that the financialization of art in the Czech republic and Slovakia is about 12 years behind the West. Even if this gap is narrowing, the level of sophistication is still many years ahead in the Western markets than in the local environment.

5.2. Projects bringing more liquidity to the market

One of the biggest weaknesses of the art market is illiquidity. In other words, most of the high quality artworks are very expensive and resell on a very no regular and long term basis in general. This problem is well illustrated with the too expensive shares of Warren Buffet's Berkshire Hathaway (The Economist 2008), which normally trade at 130,000 USD per share.

This pricing strategy led to a very limited amount of business operations on the market with these shares. This in turn, induced very large spreads between the value estimates and the market price. The details are described in the article. Anyway, this problem of illiquidity became so harmful for the company that Warren Buffet has decided to personally issue other stocks with much lower nominal value, in order to promote trade in the shares and approach the market price closer to the expected value.

Unfortunately this solution is not possible in the art world- you cannot cut an oil painting into several pieces and sell it separately at lower price. One alternative to solve this problem was already discussed: the art funds, through which basically more parties contribute to buy one expensive artwork.

Aside of the art funds, which are nowadays considered already as traditional means of investment and of bringing liquidity to the market, there are other very recent new ventures, if not start-ups, which aim to tackle this same problem.

The first example comes from the international art scene, the company Borro. Although the company was founded already in 2008, it has undergone several important changes both in its business model and infrastructure, so it can be considered as a company which started operating in mid 2014.

In an interview, the company CEO, Paul Aitken, characterized the company when he said that "We're about as similar to a private bank as we are to a pawn shop" (Kane 2017). In other words, Borro provides its clients collateral loans on their luxury assets. The company offers three types of loans:

- 1) Sale advance loans: These loans are provided when a client wants anyway to sell the luxury asset but needs liquidity as soon as possible. In this situation, Borro provides the client immediately with a sum equal to up to 70% of the estimated market price. The company then arranges the sale of the asset which might take a longer time, and once the sale is successful, it pays the client the rest of the money. This service partly solves the problem of illiquidity of the luxury assets. Borro typically charges 1 to 2% on the advanced sum per month and takes additional sales fee corresponding to 15-20% of the sales price of the asset.

2) Bridge loans: These are the company's most common loans. They enable the clients to get in a quick and confidential manner liquidity out of their luxury goods. In this situation, Borro estimates the market value of the asset which is used as collateral. Borro then lends the client between 30 to 75% of that value immediately upfront. The client is obliged to pay back the loan with an interest rate which typically varies between 3% and 4% per month. A typical bridge loan lasts for six months and upon a successful repayment, the luxury good goes back into the property of the client.

3) Term loans: This type of loans is similar to the bridge loans. However, in this case, the luxury good is used as collateral for a longer period of time. These loans last typically between 18 to 36 months. The other difference is the fact that the minimum required value of the asset is 250,000 USD. This means that this loan is primarily for clients seeking large sums of money, by leveraging more valuable art or luxury objects.

Aitken states that the most common loan is a bridge loan of around 15,000 USD. This shows that the services of the company are not presumably used by the richest collectors, who would hardly find themselves in need of an extra cash. Rather, this company is a good solution for the medium to low income collectors. This is actually very important, because Borro enables actually to attract more people in the market and also open it to those who wouldn't be otherwise able to afford to collect art or luxury goods. Aitken confirms this assumption by stating that "are small-business owners, property developers, or people working in sports or media with short-term contracts." (Kane 2017).

The next important specificity of the company Borro is the fact that the list of accepted items as collateral is narrow and precise: jewelry, art and antiques, high-end automobiles, gold and precious metals, luxury handbags and fine wine. Although art is only one of the categories, there is no other similar company specialized purely in art, therefore Borro can be considered also as an economic agent bringing more liquidity to the art market. The success of the company is

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illustrated by several important distinctions, for example: SME Export Track 2016 Top 100 or KPMG FinTech 50 Innovators from 2014 (borro.com).

The second innovative company has its roots in the Czech republic and is called Artstaq. The name of the company is an anagram for Automated Rating & Trading Standard for Art Quotation. This bold start up aims to create a first truly global online and stock-like art market place, which would enable the participants to trade art in a same way as shares.

The vision of the company was formulated by its initial founder, Roman Komarek. However the team has quickly expanded and the company has now offices in Prague, Brno, Dubai and headquarters in London. Moreover, the additional contributors, such as art historians, come from several European countries and the US. The expansion of the company is remarkable, because it started to operate only in October 2016, as it has raised 6.65 million CZK on Fundlift in order to increase the capital.

The project Artstaq regroups three main online platforms: pro BigData, Rating and Art Exchange. Therefore, as stated by Jozef Barta, company's CEO, Artstaq is primarily technological company (Mikulova, 2016). Mr Barta underlines the company's aim to bring more transparency to the global art market and more just and objective price creation. It is true that particularly the contemporary art can have very volatile prices and the value of the artworks is often estimated very subjectively. This is precisely what Artstaq would like to change, by enabling contemporary artists to offer their works online and sell them even partly. In other words, sell only shares of the paintings, which can be further traded online via the Artstaq platform.

More precisely, Artstaq relies on a very sophisticated website which would enable its users to discover the artworks and contemporary artists, which are on offer. The website then shows the artworks offered for a trading price and a market valuation calculated by the company's algorithms. If the market valuation is higher than the trading price, then it should be a good deal to buy the painting. The other specificity if this trade is the fact that once purchased, the artwork can be shipped to the new owner, or it can remain in one of the company's deposits. Theoretically one can therefore resell the artwork without even seeing it in person.

Despite many technological difficulties and a very young age of the company, Artstaq shows that there are many ways how to push the financialization of art further. It is symbolic that this project

was initiated in the Czech republic, where the market is young and dynamic and where it would therefore be easier to implement such innovations.

The above section shows that the new technologies change even the very traditional scheme of the international art market. In other words, buyers and sellers are no longer obliged to purchase or sell the entire art objects, but as an alternative they can use the investment funds or use the online platforms, such as Artstaq, enabling their users to purchase shares of an art object. At the same time, even the collectors can enjoy new financial services connected to their artworks, such as collateral loans, insurances and so forth. The main remark to be made here is the fact that thanks to these new services and technologies, the art market becomes progressively attractive to a larger community and thus it is expected to expand further. For the imaginary investor, this means that there are many new doors getting open to investment in art.

6. Self-conducted analysis

The previous sections compared and discussed the concepts of financialization of art abroad and locally. Now I would like to put these concepts into practice and make a similar analysis, in a smaller extent, of the local market. In other words, based on the approaches discussed in the previous sections, I would like now to advise the imaginary investor where and how to invest in the local art market.

6.1. Purpose and scope

The primary purpose of this analysis is to put into practice some of the optimization tools commonly used in the Western art markets but not practiced locally. The secondary, but not less important, purpose is to provide the reader with specific suggestions where and how to invest in the Czech and Slovak art markets, based on the findings. The ideal result is therefore a set of investment portfolio suggestions corresponding to the character of the investor and especially his or her willingness to take risk. My research also considers other means of investment in order to compare art with other more traditional investment tools, just like the Western reports.

It is also important here to state that throughout my whole research I am only focusing on the oil paintings by the most iconic artists of each art style. This means that my model is applicable only to the best quality artworks from the best artists, the so called “blue-chip” artworks. This is in line

with my assumption that similar reports would be used only by serious and affluent investors who are willing to invest only in the highest quality.

6.2. Applied theory

From what precedes, it is clear that in my research I want to use the local market data in order to draw some meaningful conclusions in regards to where and how much an investor should invest. In other words, the main problematic of my research is portfolio optimization. That is why my main source of theoretical information is the *Chapter 8: Portfolio theory and Capital Asset Pricing Model* from the book by Brealey (2011).

From this chapter I use primarily the Markowitz Efficient Frontier, which is often presented as a graph. The efficient frontier is an investment set of given stocks, which minimize the volatility for a given expected return. Therefore the two crucial variables, which need to be known are stocks expected return and volatility. These two variables are most often calculated based on the historical data. In my research, instead of stocks or bonds, I am analyzing in the same way the art styles. More precisely, the artists would be the imaginary stocks and art styles would be the more general investment funds. This is further explained in the section Procedure.

When evaluating a Markowitz Efficient Frontier, every investor should pay close attention to the various possible combinations of investment portfolios and decide which one corresponds the most to his or her needs and character. However, there is one particular investment portfolio which always needs to be considered, at least as a benchmark. It is the so called “optimal portfolio”, which maximizes the Sharpe ratio. This optimal portfolio is a portfolio offering the highest expected return with the minimum risk. Below is the formula to compute the Sharpe ratio.

$$\text{Sharpe Ratio} = \frac{R_p - R_{rf}}{\sigma_p}$$

R_p = Expected portfolio/asset return

R_{rf} = Risk-free rate of return

σ_p = Portfolio/asset standard deviation

Figure 17: Sharpe ratio equation (source: investopedia.com)

In fact, according to theory, the optimal portfolio is the one that maximizes the Sharpe ratio. In other words, an optimal portfolio is a situation where if an investor requires a higher return, higher risk would be involved. The optimal portfolio can be thus also seen as the beginning of Markowitz's efficient frontier. I compute the optimal portfolio also in order to compare it with other portfolio suggestions.

6.3. Source and nature of data

The vast majority of data used includes auction results of preselected artists, which can be accessible through the website Artplus.cz. This website offers also basic metric functions such as total sales of respective artist, number of lots sold and unsold and so forth. It is to say that aside of the auction results I use also dimensions of the respective works sold, which are also displayed on artplus.cz.

The data is also completed by the information of private sales made at the Gallery Kodl. More precisely, for lack of data I added to certain auction sales also private sales, in order to increase the accuracy of my model and estimates. These private sales are not individually listed in this research, they were only anonymously added to my optimization model.

Although the procedure and findings are further discussed more in detail, I would like here to reproduce a graph depicting the expected return and volatility of different art styles, because these two variables are already mentioned in the previous section:

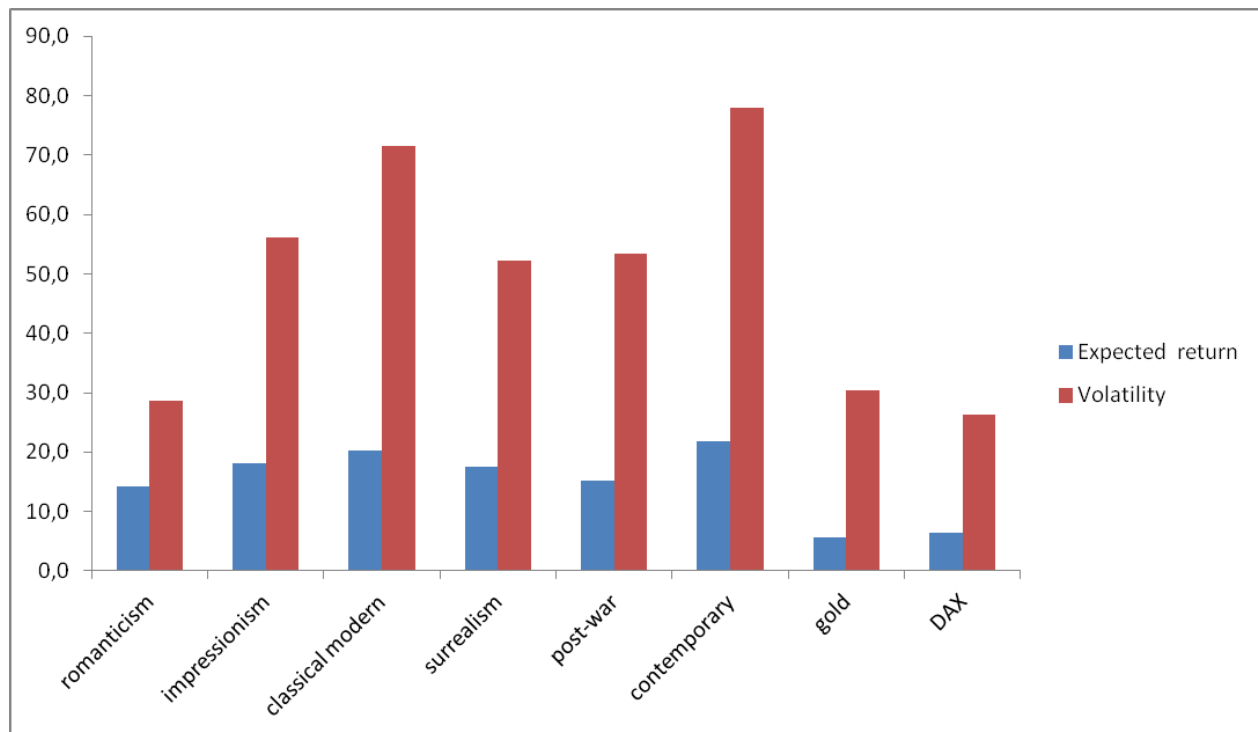


Figure 18: Expected return and volatility (source: own calculation and finance.yahoo.com)

This figure summarizes well the whole local art market and its characteristics. The first observation to be made is the fact that, in general, the younger is the art the higher volatility, but also expected return, even though surrealism and post-war art do not follow this logic in this case. The second important observation an investor should make is that old art, romanticism, shows comparable volatility as traditional means of investment; gold and shares traded on the German stock exchange DAX; but clearly higher expected return. This might be for many surprising, but it was already revealed by several reports discussed previously.

Here, I would like to explain also why I chose for my model gold and DAX index as benchmark traditional investments. Regarding gold, this precious metal is traditionally perceived as a safe and reliable investment commodity, which is a great anchor of value. Therefore the choice of gold is rather straightforward.

Regarding the DAX, it is true that at first I wanted to choose the PX, index of the Czech stock exchange. However, thanks to my classes of Corporate finance at the Anglo-American University, where I learnt that the Prague stock exchange is very rigid because there are only few companies listed, I decided to look for an alternative. I chose the DAX for several reasons:

- It is one of the strongest European stock markets, so very active and attractive
- The German economy has strong influence on the economy of the Czech republic, so the evolution of DAX would reflect also the one of the Czech economy
- Finally it is the nearest perspective stock exchange where an average Czech or Slovak investor could invest couple of millions CZK

For the reasons above, I chose gold and DAX as benchmark and extracted the necessary data from the website finance.yahoo.com.

6.4. Procedure

6.4.1. Segmentation of the market

The first step to analyzing any art market is to divide it. I am using similar categorization by art styles as in the Western reports and to each category I associate two iconic artists. The art style categories follow the chronological order and are commonly used for references. The choice of artists was more difficult. In fact, these artists have to fulfill several main criteria for my further analysis:

- They must be iconic of the respective art style (their individual price evolution should reflect at best the price evolution of the whole style)
- There needs to be a lot of sales of their works at auctions (the more, the better)
- Their main medium needs to be oil painting (or possibly acrylic painting)

After a thorough research in various art history books and several consultations with curators from the Galerie Kodl, I selected the artists which are in the table below.

Art style	<u>Romanticism</u>	<u>Impressionism</u>	<u>Classical</u> <u>Modern</u>	<u>Surrealism</u>	<u>Post-War</u>	<u>Contemporary</u>
Artist 1	Max Haushofer	Antonin Slavicek	Emil Filla	Toyen	Mikoláš Medek	Theodor Pištěk
Artist 2	Adolf Chwala	František Kaván	George Kars	Josef Šíma	Robert Piesen	Josef Boštík

6.4.2. Presentation of the artists

Although art historical approach is not of primary necessity for this research, it is still appropriate to make at least a short introduction about each of these masters. It is also true that any investor should be familiar with the basic historical background of the artists he or she chooses to invest in.

Maximilian Haushofer

Haushofer was born in 1811 near Munich in Germany. Although German painter, he is very important for the Czech art, because he brought to Bohemia the romantic style and was a very influential professor at the Prague Academy of Fine Arts, where he was leading the so called “Haushofer landscape painting school” (artplus.cz).

Adolf Chwala

Born in 1836, Chwala is one of the several famous disciples of Haushofer. His work represents the Czech romantic landscape painting of the 19th century (artplus.cz). Unlike the others, Chwala’s works are regularly presented in auctions, even though in small numbers, that is why he was chosen for my research.

Antonin Slavicek

Born in 1870, Slavicek represents the Czech early impressionism. He is mostly a landscape painter, but unlike the romantic predecessors, his paintings are made with more gestural brushstrokes similar to the French impressionists from that period (artplus.cz).

Frantisek Kavan

The name Kavan is synonymous to the classic Czech impressionism. Kavan was member of the so called “Marak’s school” largest art group of the impressionist landscape painting and a leading figure of this group. If Slavicek represents the early and special form of impressionism, Kavan is the perfect representative of the heyday of the Czech impressionism and its most common form (galeriekodl.cz).

Emil Filla

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Born in 1882, Filla is by far the most emblematic figure of the Czech cubism. He had the opportunity to study and work in several European cultural metropolis, including Paris, where he personally met with Picasso and got familiar with his work (artplus.cz). Moreover, his works appear regularly in the Czech auctions so his price evolution is easily traceable.

George Kars

Kars is also representative of the modernist Czech painting, although not purely cubist, as in the case of Filla. Kars studied at the Academy of Fine Arts in Munich and also traveled in several European cities where he got familiar with the European painting.

Toyen

Marie Čermínová, more known as Toyen, is a czecho-french artist and one of the very few Czech artists who were in a close circle around the French surrealist group of André Breton and Paul Éluard. Thanks to these personal connections and her indisputable artistic talent, Toyen is nowadays praised as one of the most influential Czech surrealist artists (artplus.cz).

Josef Šíma

Born in 1891, Šíma is the second Czech artist, aside of Toyen, who were in active cooperation with the French founders of the surrealist movement. That is why he is also a “blue-chip” Czech surrealist artist. (galeriekodl.cz).

Mikoláš Medek

Medek, born in 1926, is the grandson of Antonin Slavicek, mentioned previously. Despite the political regime, Medek managed illegally to remain in contact with the Western art scene, that is why his work is praised as one of the most significant cornerstones of the Czech post war art.

Robert Piesen

Piesen, born in 1921, is another leading figure of the Czech post war art scene. He was the cofounder of the art group Máj 57 and also managed to remain in contact with the Western art scene. That is why, similarly to Medek, his work has more international dimension and is sought after by the collectors and investors.

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Theodor Pištěk

Pištěk designed the costumes for the Academy award winning film Amadeus produced by Milos Forman and is actually the only Czech painter holding an Oscar. His life is full difficulties and adventures linked to his strong opposition to communist regime. Despite these problems, Pistek maintained high quality in his work and is deemed to be a living legend.

Vaclav Boštík

Although Bostik died in 2005, he can still be considered as the old generation of the contemporary art. His work is often abstract, with geometric forms. Bostik was also cofounder of several influential art groups. His works are regularly presented in the auctions.

The following figure shows the total auction sales in CZK of the above mentioned artists:

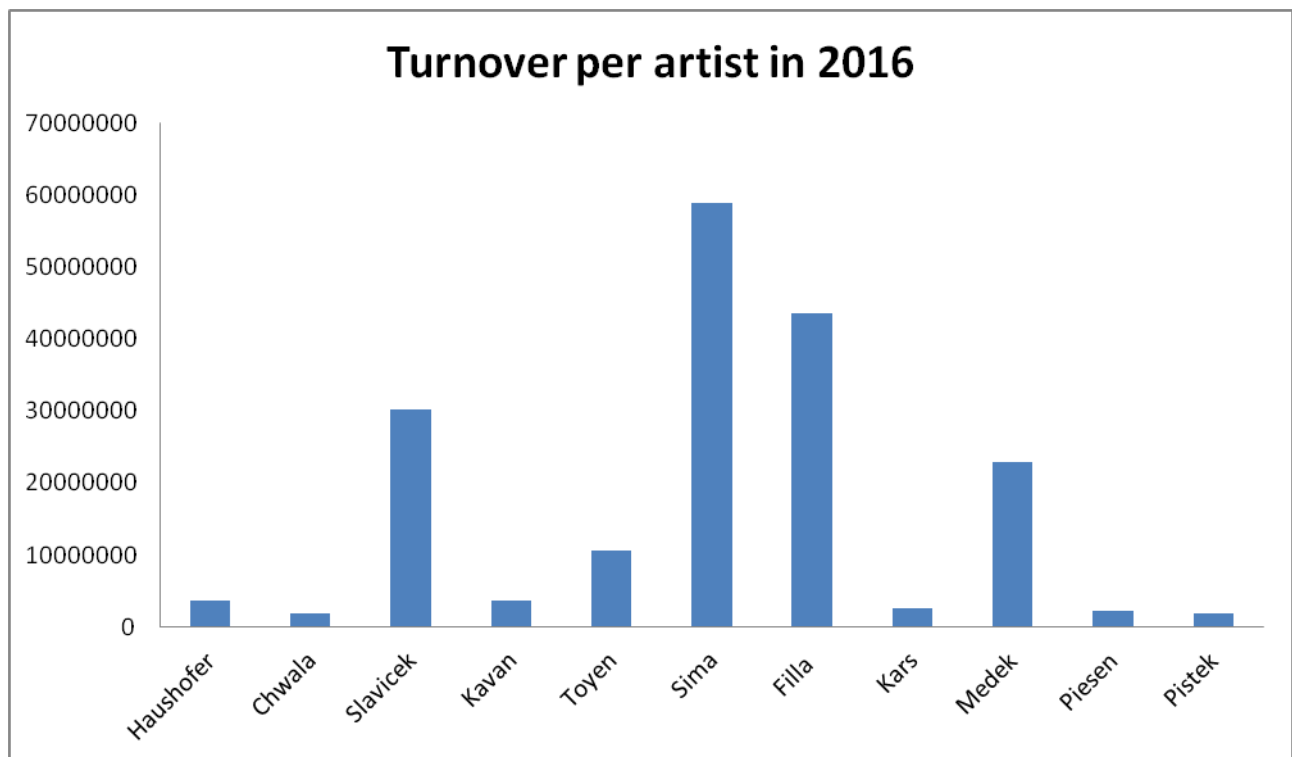


Figure 19: Author's turnover in 2016 in CZK (source: own calculation and artplus.cz)

The total turnover of the selected artists was some 182 million CZK, representing some 15% of the total market turnover in 2016.

6.4.3 Data collecting and indexation

My initial idea was to compute average price of the artwork for each artist over the given period. Nevertheless, I realized that the average price per work was somehow misleading. To explain, I use two extreme examples: suppose two paintings by the same author Kavan: one very small but of very high quality and one relatively large of inferior quality. The fact is that despite inferior quality, the large painting will sell for more than the small good quality painting. The results would not thus reflect the quality of the artist's work or the attractiveness of the style, but simply the size. In other words, the Czech and Slovak art markets are still very conservative in the sense that people are willing to spend more money on simply larger canvases.

To solve this problem, I chose a more complicated, but more equitable, way of computing the prices: I computed average price of cm² over the years, further on is the resulting table:

year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Haushofer	65		110		63		46		40	161
Chwala	67	78	84	71	115	75	79	70	65	80
Slavicek	371		448	331	753		637	768	568	1439
Kavan	32	28	36	77	90	37	34	68	56	40
Filla	755	790	350	949	1307	1340	2186	1820	1619	1131
Kars	44	126	133	93	25	67	134	57	213	118
Sima	726	571	516	1023	782	692	1232	532	824	1260
Toyen	502	785	2470	1446	1080	1083	1370	1256	852	1264
Medek	197	152	229	82	136	237	440	143	592	237
Piesen	57	48	42	84	47	96	99	83	113	65
Boštík	161	385	310	396	227	535	169	435	387	193
Pištěk	42		22			8	85	39	200	141

Figure 20: AVG price of cm2 per artist (source: own calculation)

It is to say that the values are denoted in the CZK. The next problem is that despite of choosing the most commonly appearing artists in the auctions there are years for which artists have no record. To solve this problem, I used prices of privately sold paintings in the Gallery Kodl.

Because there are relatively large spreads between the price levels of the artists, I decided to index all the prices at the base year 2007:

year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Haushofer	100		170		97		71		61	248
Chwala	100	116	126	105	171	112	117	105	97	119
Slavicek	100	0	121	89	203	0	172	207	153	388
Kavan	100	87	110	240	280	115	107	211	172	123
Filla	100	105	46	126	173	177	289	241	214	150
Kars	100	284	299	209	56	151	301	129	481	265
Sima	100	79	71	141	108	95	170	73	114	174
Toyen	100	156	492	288	215	216	273	250	170	252
Medek	100	77	116	42	69	120	223	73	301	121
Piesen	100	86	74	149	84	170	175	146	199	115
Boštík	100	239	192	245	140	331	105	270	240	120
Pišťek	100	0	53	0	0	20	201	94	476	336

Figure 21: Authors' prices indexed (source: own calculation)

This table was completed by the records of the private sales. In order to have a full set of index for each artist. The fact that the prices are indexed enabled me to get rid of the wide spreads between prices of each artist and rather compare the evolution of the price level of their works, it is a same approach as in the case of Artprice and Picasso described previously.

The final step was then to regroup the artists into the respective art styles. To do so, I simply took the average of the two individual indices corresponding to the same art style, hence the following table:

year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
romanticism	100	116	148	105	134	112	94	105	79,1	183
impressionism	100	87	116	165	241	115	139	209	163	256
classical modern	100	194	173	168	114	164	295	185	347	207
surrealism	100	118	282	215	161	156	221	162	142	213
post-war	100	81,4	95,3	95,6	76,4	145	199	109	250	118
contemporary	100	119	122	123	70,2	176	153	182	358	228
Gold	100	104	130	170	183	199	144	143	127	144
DAX	100	59,6	73,8	85,7	73,1	94,4	118	122	133	142

Figure 22: Art styles indexed (source: own calculation)

This table is actually the backbone of my further analysis. I have also added two other instruments for comparison: gold, representing the traditional conservative investment instruments, and the Index of the German stock exchange, DAX, representing investment into shares and bonds, which are the most common.

This table can be also interpreted in the following way:

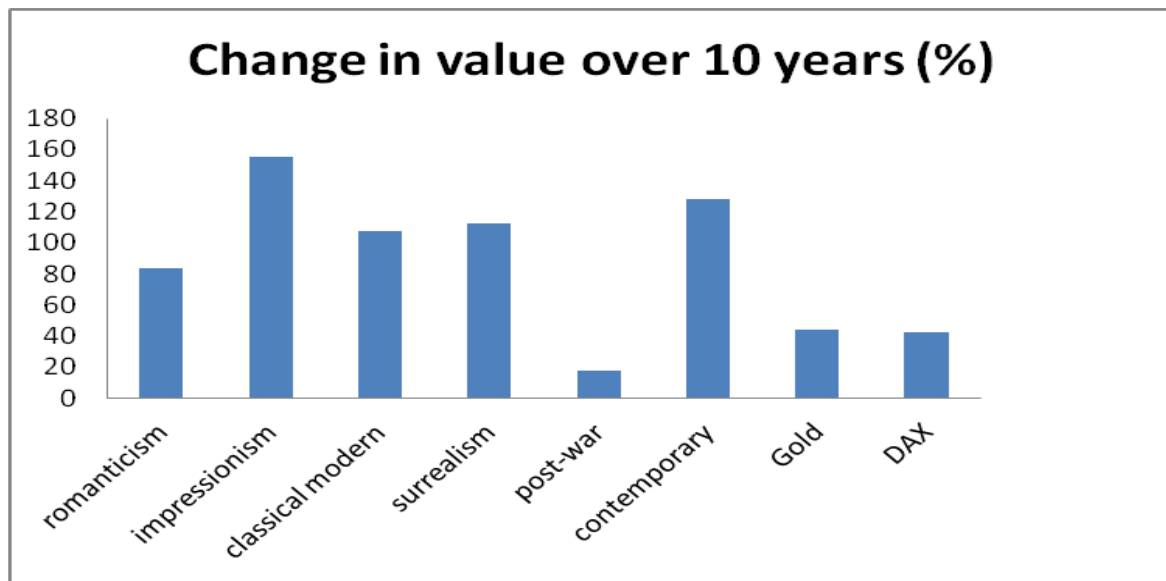


Figure 23: Price growth over 10 years (source: own calculation and finance.yahoo.com)

This figure shows by how much the prices are higher of each instrument. Gold and DAX were outperformed by every art segment, except for post-war, which has seen a significant drop in 2016.

From the table above, I was then able to compute the expected return, volatility and covariance of each art segment, what was the necessary step forward in my analysis.

6.4.4. Sharpe ratio and Efficient frontier

Thanks to Excel functions and the software Solver, I was able to find the optimal portfolio which maximizes the Sharpe ratio. Once I found it, I decided also to find the whole efficient frontier in order to see what are the ideal investment structures for a given risk.

To do so, I have created on my own a special working Excel sheet, which includes the list of the art styles with their respective expected returns and volatilities and a covariance matrix which is necessary for further computation. I have also added a formula calculating the Sharpe ratio and linked it to a cell. In the software Solver, I maximized this cell of Sharpe ratio, by enabling Solver to modify the shares of each art style under two conditions:

- Sum of shares of the art styles has to be equal to 1 (resp. 100%), because I assumed that the investor would invest all of the money without borrowing and creating thus a leverage
- All of the shares has to be equal or greater than zero, because these numbers represent invested money and so cannot be negative

To find the Efficient frontier, I used a similar Excel sheet with several important modifications. In fact, I kept the same outline of the sheet, but this time made different conditions for solver:

- Sum of shares of the art styles has to be equal to 1 (resp. 100%)
- All of the shares has to be equal or greater than zero
- Minimize the volatility
- Expected return has to be equal to X%

I was than manually writing the values for the expected return. I started with the expected return equal to the lowest expected return of the investment tools (5.6%) and made increments of 0.5% until reaching the highest expected return in the observed investment tools (21.8%). I did this because of the assumption that no combination of these investment tools can fall behind or exceed these numbers.

I saved the results of each query into a table, thanks to which I created the resulting graph with the typical parabolic shape:

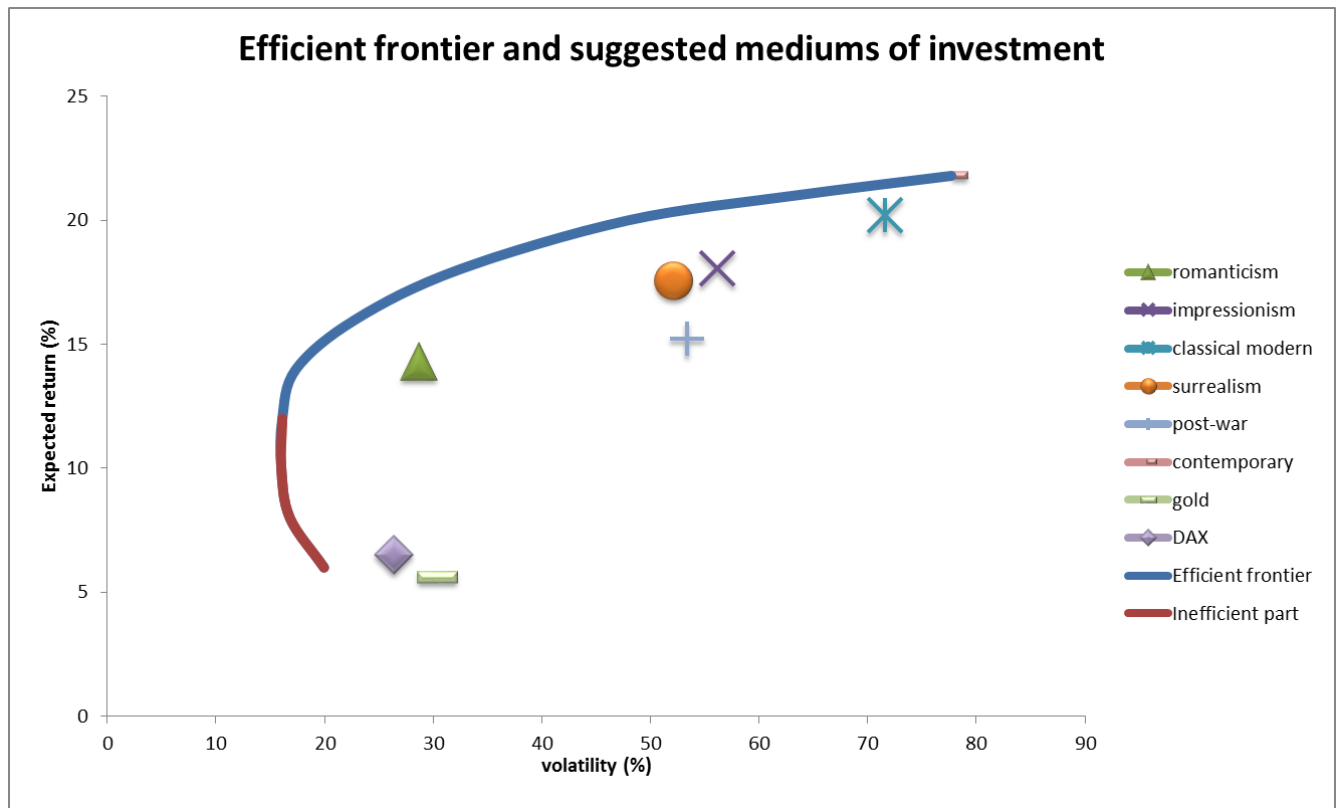


Figure 24: Efficient Frontier (source: own calculation)

The blue line illustrates all combinations of portfolio which maximizes the expected return for a given volatility. The problem can be also solved by searching minimum volatility for a given expected return. These two approaches lead to the same result. Everything below this line includes non-efficient portfolios – either with too high volatility or too low expected return. In fact, all of the individual asset classes are below this line, which means that investing in only one asset does never make sense. It is true, that contemporary is approaching this line, but at the same time it is the riskiest investment class, so not very attractive to most of the investors.

A smart investor should therefore decide to invest in a combination of these investment tools, which should be ideally situated on the efficient frontier.

6.4.5. Portfolio suggestions

From this graph, I decided to take four portfolio suggestions – conservative, dynamic, aggressive and optimal – which reflect investor’s willingness to undertake a risk. Each of these suggestions are more closely described in this section.

Conservative

This portfolio has the lowest volatility possible, so the lowest risk. It is primarily for investors seeking long term, 15+ years, investments with low risk, but also lower returns. This portfolio is useful rather as a store of value than a potentially strong stream of revenue.

The composition is as follows:

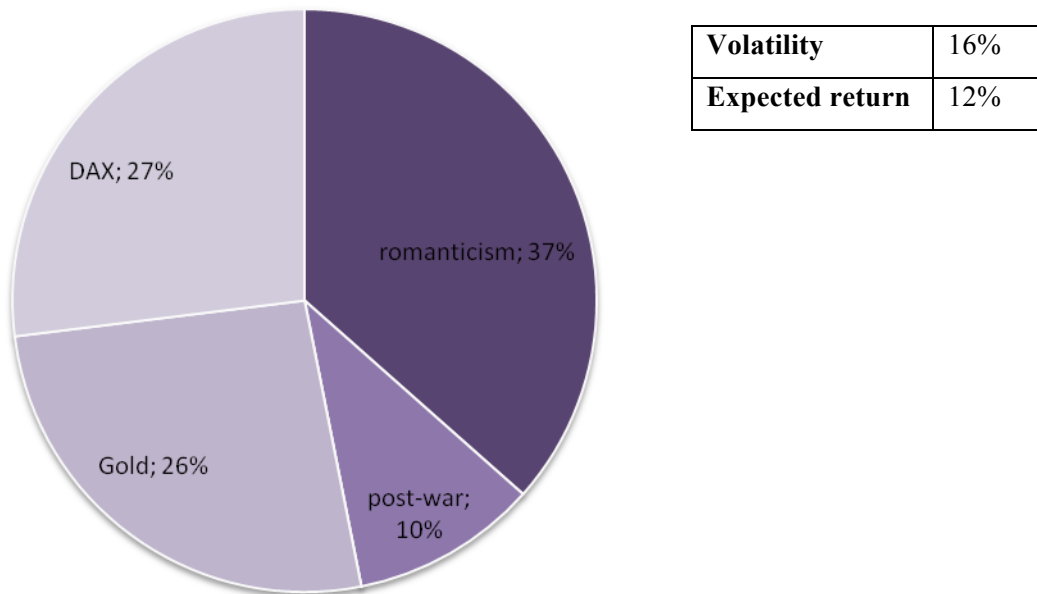


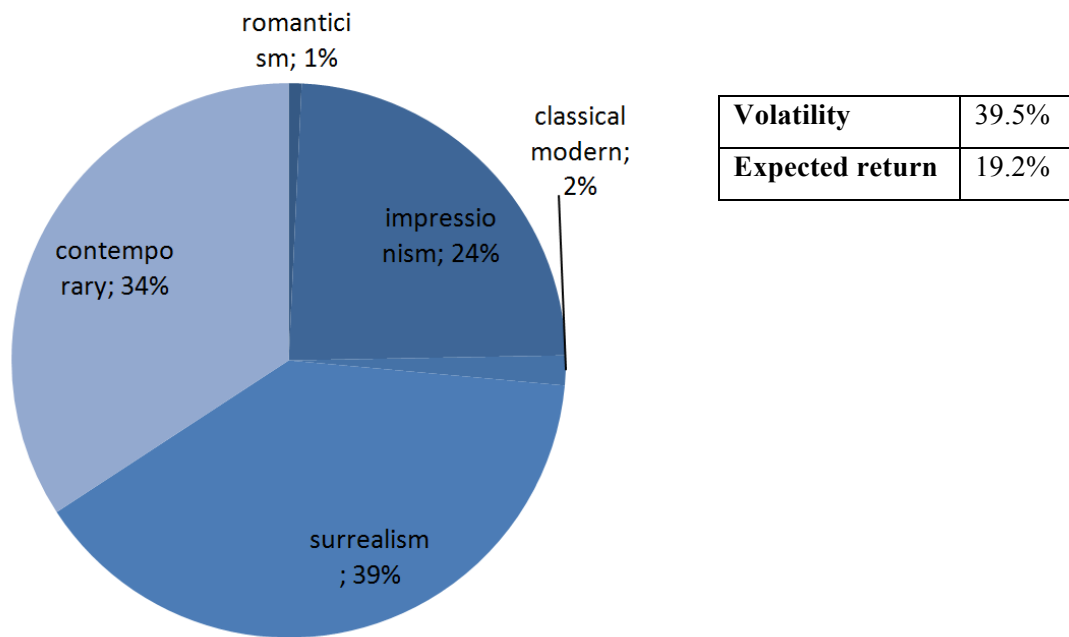
Figure 25: Conservative portfolio (source: own calculation)

This portfolio is dominated by the traditional investment instruments – Gold and DAX combined represent 53% of the investment. The predominant art style is romanticism, what makes sense, since this art style showed also the lowest volatility (see Figure 19).

Dynamic

The dynamic portfolio has more potential of realizing a profit, but also bears more risk than the conservative one. This portfolio is suitable mostly for investors who are also collectors and who buy art also for esthetical reasons. The volatility of this portfolio lays at equal distance between the conservative and aggressive portfolios.

The composition is as follows:



Volatility	39.5%
Expected return	19.2%

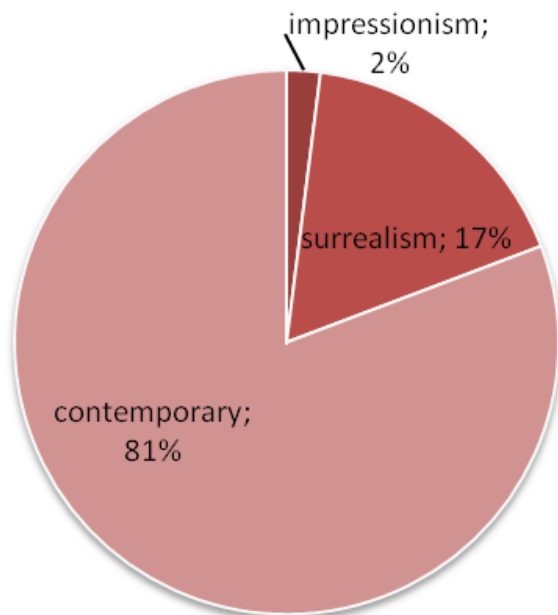
Figure 26: Dynamic portfolio (source: own calculation)

The volatility is roughly two times higher than in the conservative scenario. Nevertheless, the structure of the investment is much wider. The art collected is more diverse, therefore this case would be more suitable for an investor who is actually building a collection and who can appreciate the artworks. Still, the majority of the portfolio is invested in the most sought after art, that is the early 20th century art: 65% is invested in impressionism, surrealism and classical modern.

Aggressive

This is the portfolio with a very high risk, but also potentially very high returns within a relatively short term period, say within 5 years. This kind of investment would be recommended either to pure investors who are willing to undergo a great risk of losing money and consider art as an alternative way of investing extra cash; or to the real amateurs of the riskiest art category, the contemporary. It is to say that the contemporary is a segment which would need a closer look, because investing with the right advises is not as risky as it may seem.

The composition is as follows:



Volatility	63%
Expected return	21%

Figure 27: Aggressive portfolio (source: own calculation)

The structure is rather straightforward; investing the vast majority, more than 80%, to the contemporary segment. Around one fifth is still recommended to invest in older and more reliable segments in order to hedge against the potential risk of defaulting in the contemporary segment. It is to say that the risk is 4 times greater and the expected returns twice bigger than in the conservative scenario.

Optimal

The optimal portfolio is the one that maximizes the Sharpe ratio. In investment theory, a portfolio maximizing the Sharpe ratio gives the mix of shares that maximizes the expected return with the lowest risk (ie volatility) possible, it is the same here in the case of art styles. This portfolio is therefore recommended to a similar profile of investor as the conservative option; it should rather be somebody who seeks a save store of value for the investment with a better expected return than the ones offered currently by the banks.

The composition is described below:

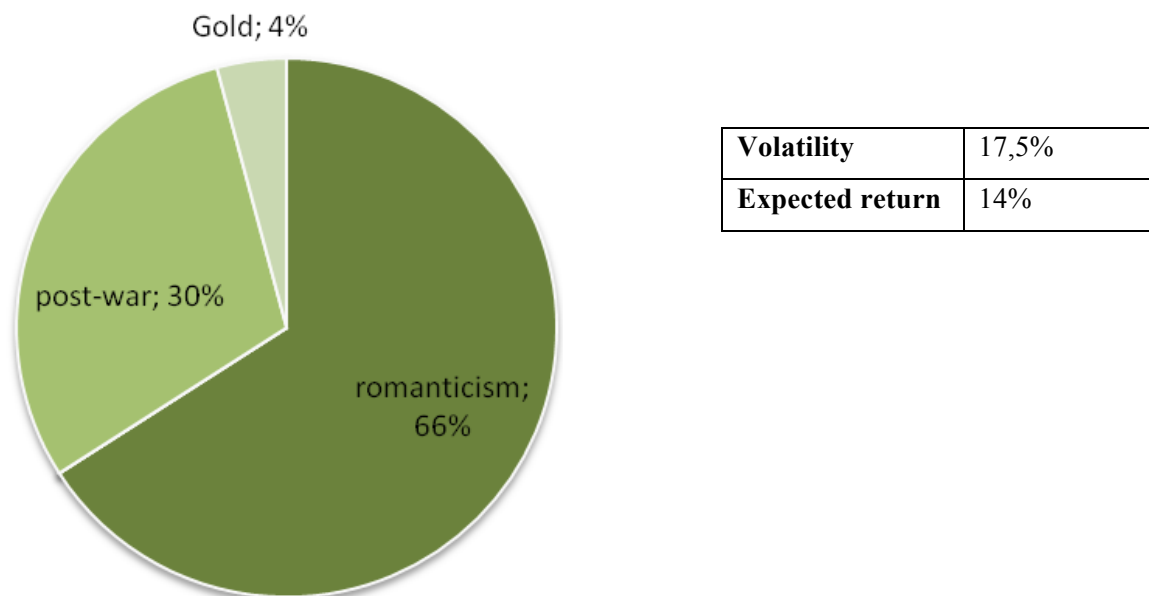


Figure 28: Optimal portfolio (source: own calculation)

It is dominated by the safest art style: two thirds should be invested in the romanticism. The relatively strong position of post-war may seem surprising but buying a younger art style gives the portfolio the necessary increase in the expected return. The surprising aspect is the low position in the traditional investment instruments, only 4% should be invested in gold. It is also to say that while the volatility is higher by only 1.5% than in the conservative scenario, the expected return is up by 2%.

To sum up this part, I would like to stress several important points. First of all, the old art shows surprisingly similar characteristics as the more traditional investment tools. Secondly, the fact that with increasing age of the art objects, the potential returns as well as risks increase, is well reflected in the various portfolio structures discussed above. Before investing, an investor should always consider his own expectations and character and decide where would he or she like to be situated on the imaginary efficient frontier. For a better illustration, below is the frontier with the portfolio suggestions from above. It's up to the investor and his personal feelings to state towards which point of the line does he or she feel the closest.

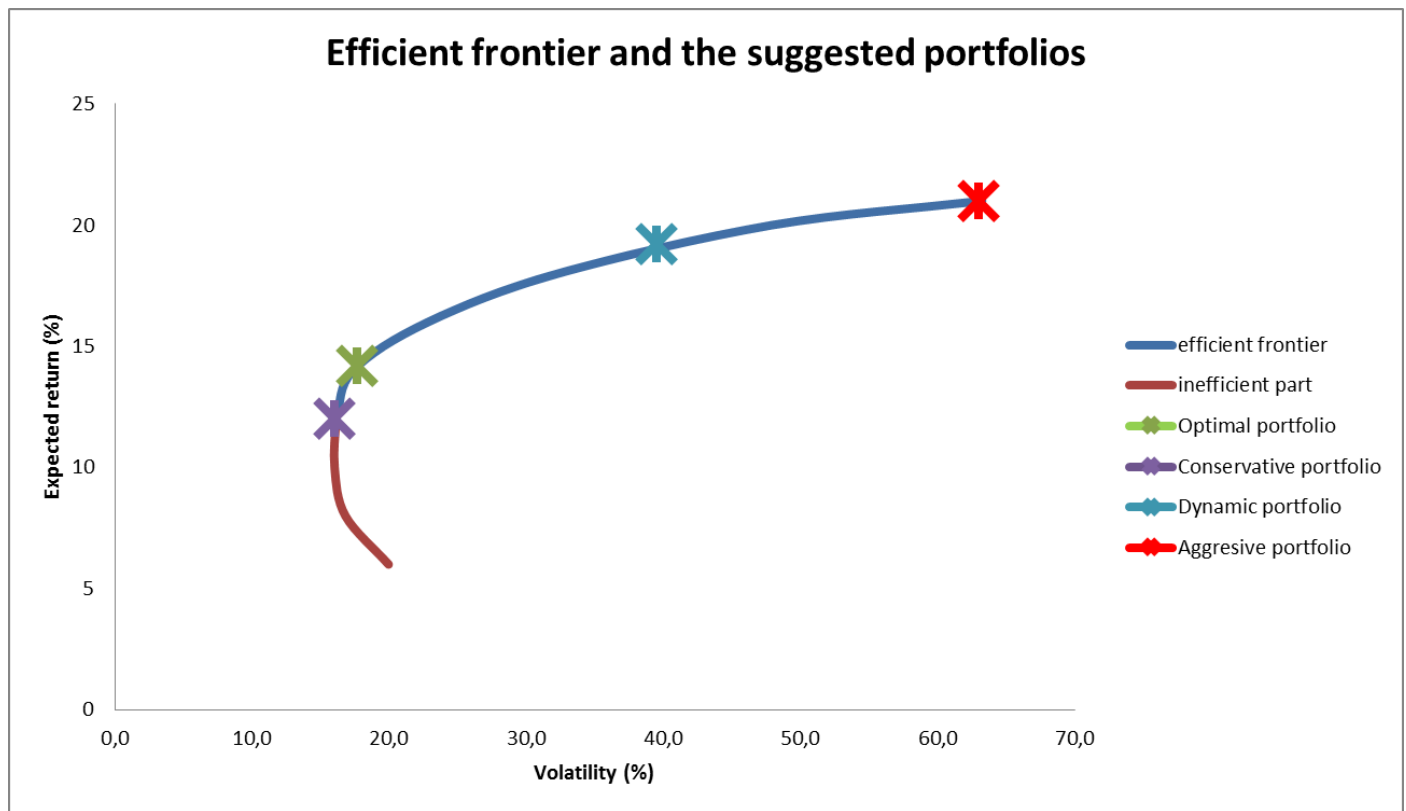


Figure 29 Portfolios and Efficient Frontier (source: own calculation)

6.5 Findings and conclusion

My research was certainly successful in its objective of giving reasonable portfolio suggestions based on the objective data of the art auctions and econometrical models, something that was not made so far in the context of the Czech and Slovak art markets. The most important is that this study shows that such analysis can be easily understandable and so it can potentially help to open the art market to an even larger community of investors seeking alternative investments.

The main drawback I acknowledge is the amount of data processed. In fact, the more artists are assigned to each category, the more accurate the model and predictions become. Of course assigning two artists for each art style is the very minimum. This fact is mainly due to the time pressure, because the whole process is very time consuming and would require a more sophisticated technical equipment.

Nevertheless, this research was a valuable experience for me, since I had the chance to apply the theory to a real life situation. Moreover, as the local art market is growing stronger since several years, I believe that similar and even more extensive analysis will be made in a near future, just like in the international markets.

General conclusion

Financialization of art, a phenomenon commonly discussed in the Western art markets since several decades, remains almost unknown in the region of the Czech republic and Slovakia; despite the local art market's positive dynamic growth over the last ten years. The financialization of art resides in the fact that the investment in art is evaluated in a similar way as investment in any other category and the whole market and artists are analyzed and compared as stock markets and bonds or shares. Although this approach may seem far stretched, the truth is that with increasing volume and complexity of the market, it is the most effective way to get a quick and reliable overview of its dynamics and make good investment decisions, especially for those who are not familiar with art history, meaning financial investors.

To show what the financialization of art did entail in the Western markets and how is this concept applied locally I used the various business reports focused on the art market. Through various examples I showed how the art market is analyzed in the West, thanks to a large variety of

specialized reports including graphs, charts and other econometrical information. On the other side, the Czech and Slovak resources are much more narrow. There are two reports which were used for the comparison, however the information is much more general and less precise than by the Western counterparts, what suggests a less developed financiliaztion of art.

To tackle this problematic of lack of information, I conducted my own analysis where my primary purpose was to give an imaginary investor some concrete advises based on the historical data. This study revealed that old art (prior to 19th century) has surprisingly similar characteristics as more traditional investment tools, such as gold or stocks. The second important point revealed here is the fact that investing only in one art style does not make sense since all of the art styles were situated below the efficient frontier. The only exception was contemporary art, situated right on the efficient frontier, but this is also the riskiest art class, so investing only in this art wouldn't be advisable in any case.

All in all, the aim of this thesis was attained because it puts the local art market in a broader international context. The analysis was for me a valuable experience in combining mathematics and the very subjective approach of evaluating art. The combination of the rational and irrational, stated in the introduction, was successful. I want to stress that this approach of quantifying the art market is only one element among many others of understanding this complex and fast moving environment. It is impossible to categorize and quantify objectively all the art objects, but maybe this is precisely the reason why this market is so fascinating and attractive.

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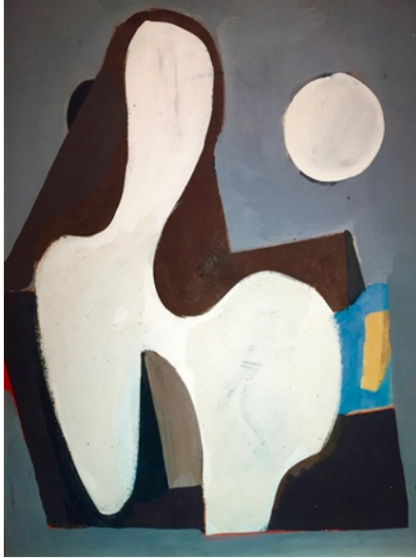
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Appendix: Valuation report



1. Art object to be analyzed

Title: *Geometric figure*, dated 1938

Artist: Vaclav Vytlacil (American, 1892 - 1984)

Medium: oil on board

Size: 23 x 18 in

currently offered at Vanita Fine Art & Antiques, Inc.,
accessible through artnet.com

2. Author's biography

Vaclav Vytlacil, son of Czech immigrants, was born in New York on November 1, 1892, but at a young age moved to Chicago, where he studied at the Art Institute of Chicago. In 1913, Vytlacil earned a scholarship to pursue his studies at the Art Student League in New York under John C. Johansen and Realist Anders Zorn. After graduating at ASL he moved to Minneapolis where he was teaching for five years at the Minneapolis School of Art.

The turning point in his career came in 1921, as he decided to travel to Europe, where he eventually matriculated at the Bavarian Academy of Art. After a short stay there, he decided to leave the academy and join Hans Hofmann, who would play a key role in the development of the American abstract expressionism in the later years. Vytlacil, being the first American artist, remained with Hofmann for the next six years what influenced significantly Vytlacil's style.

After returning to the US in 1935, Vytlacil was teaching at the Florence Cane School in Rockefeller Center, the Art Student League, Black Mountain College, Queens College, and the Art Institute of Chicago.

Matyas KODL

Among his many students were for instance: Cy Twombly, James Rosenquist, Robert Rauschenberg, Tony Smith or Louise Bourgeois.

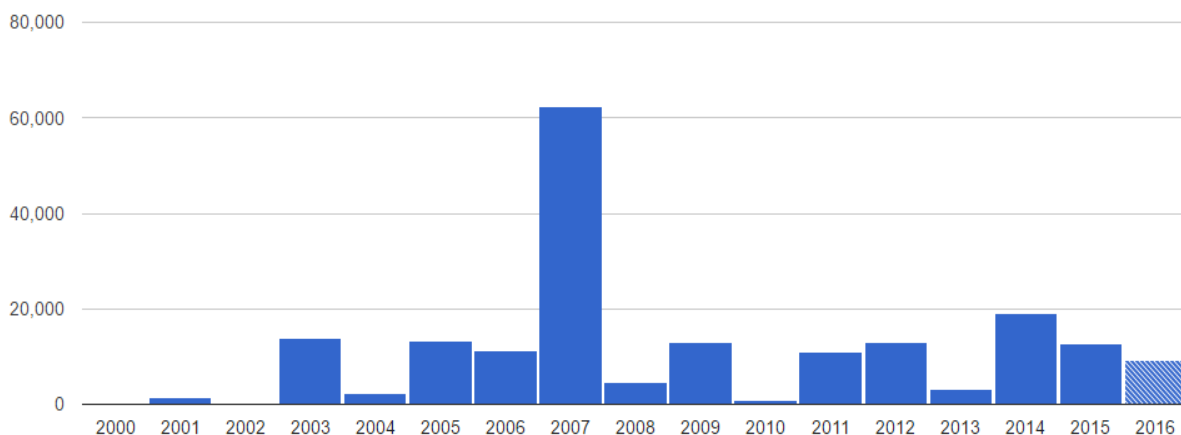
In 1936, Vytlačil has also cofounded the American Abstract Artists Group with Arshille Gorky, Byron Browne, and William De Kooning.

In 1996 was founded the Vytlačil School of Painting and Sculpture at the Art Students League in honour of Vaclav Vytlačil.

Vaclav Vytlačil died in New York on January 5th 1984, aged 91.

(the information comes from artprice.com, sullivangoss.com, hanshofmann.org)

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3. Market Analysis

The geographical distribution of sales is clearly dominated by the United States, representing 98% of the total turnover.

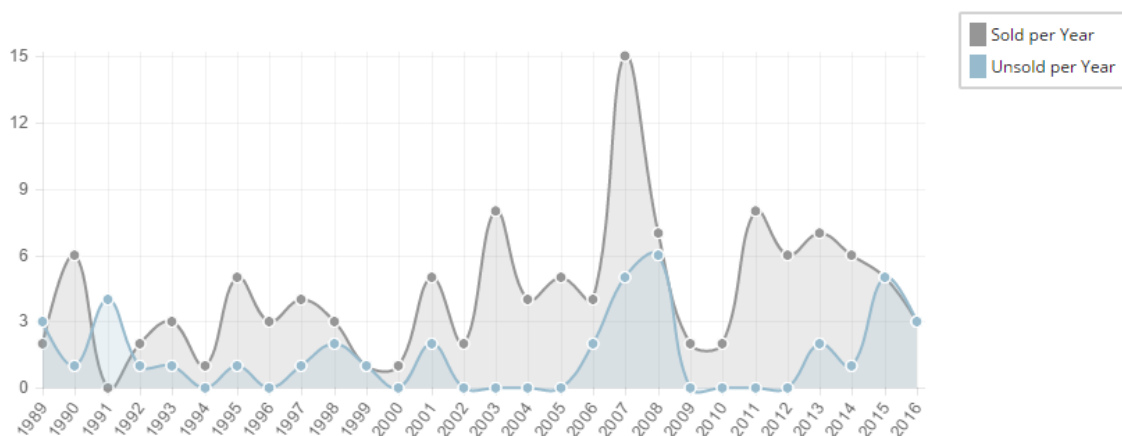
The main category is paintings, representing 72% of the total turnover. However the prices are not so elevated, only about 13% of the lots offered at auctions exceeded \$5,000.

The artist is however present on the market on a regular basis, over the last 5 years there were at least 5 works per year presented in the public auctions.

Here is the graph showing yearly turnovers in Vytlačil's paintings (artprice.com):

After the substantial fall in 2008, corresponding to the financial crisis, we see a slight but steady increase in sales, what can be optimistic for the next few years.

The next graph (askart.com) shows number of lots sold and unsold over the last decades. All in all, this graph suggests that there is a reliable demand on the market, although the gap between sold and unsold narrowed during the last two years. This may also be due to the quality of works offered.



4. Good, better, best

Vaclav Vytlacil played a historically important role in discovering Hans Hofmann and bringing the abstract expressionism to the US. Although at first misregarded, this style has become emblematic for the American art scene, especially in the 1940s and 1950s. The best works would be therefore connected with the abstract expressionist style, which is representative for Vytlacil.

A) Good



Autumn trees (1915)

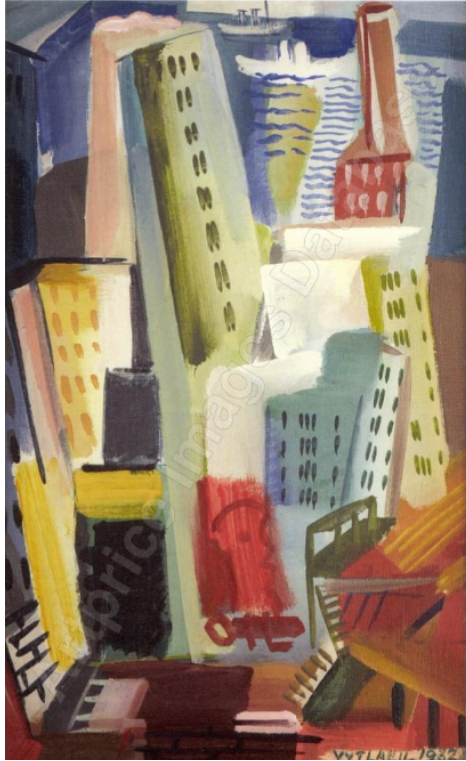
Oil on board

32.4 cm x 38.1 cm

Sold for **\$1,680** at Christie's New York on 31st July 2007

Matyas KODL

This work is not representative of the abstract expressionist style. However it comes from a relatively early stage of Vytlačil's career, so might be attractive rather for a collector of Vytlačil's work.



- **B) Better**

Rocks at Sea (1954)

Oil on Board

71 cm x 50 cm

Sold for **\$5,368** at Leslie Hindman Inc. in May 2012

This is a more abstract like work with a very bright and attractive palette. However it is a late work, coming from a period where Vytlačil was only following his own style from earlier stages of his career.



- **C) Best**

New York Street (1932)

Oil on canvas

61 cm x 38.1 cm

Sold for hammer price of **\$13,000** at William Doyle, New York, on 19 May 2009

Matyas KODL

This artwork combines the abstract art with a landscape painting. It comes from the very best period of Vytlačil's oeuvre, as he was heavily influenced by Hofmann. With such a title, this work somehow symbolizes the arrival of the abstract expressionism to New York and the US in general. It is therefore iconic and also symbolic from the historical point of view.

5) Comparables

5A) Comparables by the same artist



Abstract Construction #3 (1939)

Oil on board

35.6 cm x 33 cm

Sold for **\$4,500** at Sotheby's New York on 23rd April 2015



Abstract (1938)

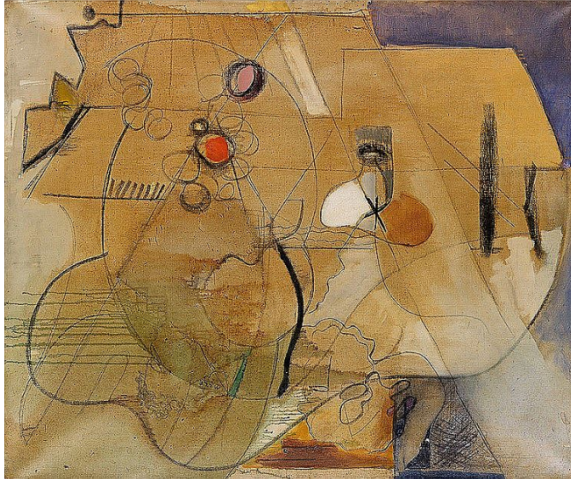
Mixed media on board

28.00" x 24.00"

Sold for **\$4,481** at Shannon's Fine Art Auctioneers in October 2005

5B) Comparables by other artists

In the Archives of American Art Journal, Vol. 14, No. 1. (1974), pp. 2-7., particularly two names are closely connected to Vaclav Vytlacil: Byron Browne and Arthur Beecher Carles, who „emphasized the necessity for sensuality of form and surface in their painting and sculpture“.



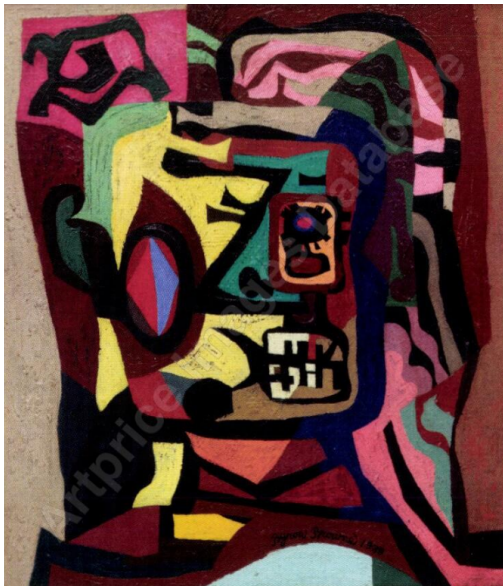
Head by Byron Browne

Oil on canvas

Dated 1938

Price including premium: **\$8,750**

Sold Sotheby's New York in April 2015



Abstraction by Arthur Carles

Oil on canvas

Dated 1932

33.00" x 39.50"

Sales price: **\$8,450**

Sold at Swann Galleries in April 2015

6) Price estimate

Considering the information above, the price range of this work of art should be between **\$4,800 and \$5,200.**

7) Further suggestions

More comparables would be needed, since many of Vytlačil's works sell privately, the information in the public databases is not sufficient. It would be also interesting to explore libraries in Prague and look for books about this artist. I found a link on the website of BHA and RILA to a book called „Jan Matulka a Václav Vytlačil, průkopníci modernismu v americkém umění.“, which is written only in the Czech language. It would be interesting to read it and learn more about Vytlačil's work.

Sources

Artnet.com

Artprice.com

Askart.com

<http://www.hanshofmann.org/>

Larsen, Susan C. "The American Abstract Artists: A Documentary History 1936-1941." *Archives of American Art Journal* 14.1 (1974): 2-7. [Http://timothyquigley.net/](http://timothyquigley.net/). Web. <http://timothyquigley.net/vcs/larsen-abstract_artists.pdf>.

[http://www.sullivangoss.com/Vaclav_Vytlacil/#An Analysis of the Artist's Work](http://www.sullivangoss.com/Vaclav_Vytlacil/#An%20Analysis%20of%20the%20Artist's%20Work)

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