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Prices of works of art by living and deceased artists auctioned in Poland from 1989 to 2012

Adrianna Szyszka[1], *Sylwester Białowąs*[2]

Abstract: Art is increasingly perceived as an investment asset among investors in Poland. In order to achieve high rates of return it is crucial to identify the main factors affecting the value of the works of art in the art market. Death of the artist seems to be one of the essential determinants influencing art market prices. The main aim of the study is to examine if the artist's living status (i.e. information whether the artist did or did not live when the transaction was held) affects the prices of the works of art. According to the findings the largest percentage of the works of art that showed a price increase between the first and second auction was in the group of artists alive at the time of the first sale and deceased at the time of the second sale in comparison with artists alive and deceased at the time of both transactions.

Keywords: art prices, living status, death effect, art market.

JEL codes: G11, G12, Z11.

Introduction

The art market is characterized by specific features i.e. illiquidity, asymmetry of information, occurrence of trends and difficulty in the valuation of assets being traded (Borowski, 2013). The estimation of the market value of works of art is reflected in the prices they achieve at auction. Knowledge about the factors shaping the prices in the art market is therefore crucial for investors. The factors affecting the prices of works of art can be divided into the following categories: factors related to the work of art, to the artist, to the market and macroeconomic factors (Mamarbachi, Day, & Favato, 2008). The determinants associated with the artist include—among others—the artist's living status i.e.

[1] Poznań University of Economics and Business, Department of Market Research and Services Management, al. Niepodległości 10, 61-875 Poznań, Poland, adrianna.szyszka@ue.poznan.pl, ORCID: https://orcid.org/0000-0002-1389-2365.

[2] Poznań University of Economics and Business, Department of Market Research and Services Management, al. Niepodległości 10; 61-875 Poznań, Poland, ORCID: https://orcid.org/0000-0003-4575-5346.

the information whether the artist was alive or deceased at the time of the auction. The main aim of the study was to examine changes in the prices of works of art depending on the artist's life status during the auction. The research also aimed to estimate whether the death of the artist between the first and the second transaction may involve a greater change in the prices of works of art.

The first section of this paper includes a review of studies conducted so far examining the artist's life status as a factor affecting the prices of works of art as well as the "death effect" in the art market. The remaining part of the paper proceeds as follows. Section 2 provides information about the research methods and dataset. Section 3 presents empirical results regarding the art price changes depending on the artist's living status and at the moment of death. Finally section 4 highlights the main findings as well as discussion with other results and implications of the findings on future research into this area.

1. Literature review

There are three main methods of measuring the returns on investment in collectibles: composites indices, hedonic regression and repeat sale regression (Burton & Jacobsen, 1999). The hedonic regression (HR) method enables a price index to be compiled on the basis of a whole range of attributes of the artwork (provenance, artist, subject matter, etc.). In order to achieve the most correct art index the choice of characteristics that described the artwork in the regression model is crucial (Ginsburgh, Mei, & Moses, 2006). Numerous studies (i.e. Higgs, 2012; Renneboog & Spaenjers, 2013; Taylor & Coleman, 2011) examined the significance of the artist's living status (i.e. information whether the artist did or did not live when the transaction was made) as a variable in hedonic regression models. The pioneering study was conducted by Agnello & Pierce (1996) who questioned whether the death or the artist being alive causes the rise in the art prices. The authors assumed that the increase in the prices of the artworks of the deceased artists may be caused by the fixed supply. The artworks of the living artists, on the other hand, may achieve higher prices because the artist has a possibility to modify the style and to exert influence on the media (Agnello & Pierce, 1996). While Agnello and Pierce investigated the prices of a sample of American artists, in the study conducted by Czujack (1997) the author focused on the prices for Picasso's paintings sold at auctions between 1963 and 1994. The significant conclusion from that study indicates that in the case of artworks auctioned between 1973 and 1976. (e.g. in the period following the artist's death in 1973), there was an increase in the prices for Picasso's artworks while the market prices did not change (Czujack, 1997).

The living status of the artist turned out to be an important factor affecting the prices of works of art e.g. in the study conducted by Higgs and Worthington (2005). The fact that the artist was already deceased during the auction was

associated with an increase in the prices of works of art by 1.13%. In the study by Higgs (2012)—the artist's death was followed by an increase in the prices of the works of art being auctioned by 1.25%. Taylor and Coleman (2011) found that the prices of dead artists' works of art were 12.1% higher than the artworks of living artists. Furthermore the fact that the artist was alive at the time of the auction is connected with 21% increase in the prices according to the study by Agnello (2002). A significant increase in the prices of works of art that were auctioned after the death of the artist was also observed in a study carried out by Renneboog and Spaenjers (2013). According to the research by Kräussl and Schellart (2007), who estimated the annual return on German paintings and calculated what drives that return, the information whether the painter was alive during the sale can exert considerable influence on the prices of the works of art. The authors included that characteristic as a dummy variable (with a value of 1 if the artist was still alive during the sale) in the hedonic regression model. The results indicated that the paintings by deceased artists were sold at a premium of 12.7% over paintings by artists that were alive during the sale.

In the study by Kräussl and Elsland (2008) it was found that when it comes to the prices of the works of art it does not matter whether an artist is dead or alive—the variable "alive" was not a significant factor in the hedonic regression model. However in a smaller number of studies a positive effect on the prices of works of art was observed in the fact that the artist was alive at the time of the sale of artworks. Such results were obtained in the study by Agnello and Pierce (1996). Even so it was assumed that due to the fact that all living artists in the sample were contemporary art artists, this effect could be more a result of style than the fact that the artist was alive at the time of sale.

In addition to analyzing the prices of the works of art of living and deceased artists the researchers are also interested in the art price level in the period around the artist's death. This is related to the concept of the "death effect" i.e. "a clustered rise in artists' values, immediately preceding, at, or immediately after the date of death" (Ekelund, Ressler, & Watson, 2000, p. 283). To explain the phenomenon the authors used the Coase theory of durable good monopoly. With regard to the art market the artist may be perceived as a durable good monopolist whose death constitutes a confirmation that the artist's oeuvre will reach a final volume. As a result the risk of spoiling the market by creating too many artworks will not exist. The authors focused on the time right before, at and right after the death of the artists. The anticipation of a near death affects the prices because of the certainty that the supply rate will not increase. The probability of the artist being dead (based on the artist's age or health) is included in the prices of the artworks. On the other hand, in case of the change in the art prices occurring at or after the artist's death, the finite supply is captured in the artist's demand (Ekelund Jr., Jackson, & Tollison, 2017; Ekelund et al., 2000).

Another study supporting the hypothesis of durable goods monopoly as an explanation of the "death effect" was conducted by Maddison and Pedersen (2008). The aim of the analysis was to examine the art price changes in the period following the artist's death. The authors focused on the supply side of the phenomenon, introducing the concept of "conditional life expectancy". The variable was constructed on the basis of the date of the artist's birth, the date of the sale and demographic statistics.[3] They considered that conditional life expectancy at the time of sale of the artwork could be an appropriate measure of collectors' expectations towards the artist's output (the supply conditions) and may be reflected in the price. From the perspective of the buyer the older the artist the greater the size of his artistic output and is closer to that expected—the supply conditions are then more favourable. The idea of durable good monopoly was supported in the study since the conditional life expectancy turned out to be a significant variable in the model (Maddison & Pedersen, 2008).

Itaya and Ursprung (2016) aimed to investigate the problem from a microeconomic perspective and created a model of the "death effect" by referring to the Stackelberg differential game. As in the pioneering studies of Ekelund and others (2000), the starting point for the authors was the monopoly theory. In line with the concept of the (piecewise) open-loop Stackelberg equilibrium (OLSE), the authors considered the artist as a leader and the collectors as the individual actors who follow the leader without having an influence on its payoff. The theory captures the possible impact of unexpected events on the expectations of art prices. Furthermore the study indicated that there is a negative relationship between the "death effect" and the final size of the artist's output. The authors assumed that—due to the fact that the number of artworks created by the artist increases with age—the "death effect" decreases with the artist's age at the moment of death (Itaya & Ursprung, 2016).

An alternative explanation of the phenomenon of the "death effect" in the auction market is the increased activity of the media following the artist's death connected with the phenomenon of a "nostalgia effect". Matheson and Baade (2004) examined the role of media interest in relation to the increase in the prices of the memorabilia which is observed after the death of a famous person. The observed dependence was described as the phenomenon of "nostalgia effect" which reflects the impact of increased media activity in the period following the death of a recognizable public figure. It is assumed that the information in the media about the death of a famous person (such as an outstanding artist) arouses greater interest in the individual's life and achievements. It is also assumed that the effect of the "nostalgia effect" phenomenon is an increase in the demand for souvenirs of well-known personalities and as a result an increase in their prices. However if media interest is short-lived only a sharp increase in

[3] In the study Danish demographic statistics were used since the dataset consists of the prices of oil paintings by contemporary Danish artists who died between 1983 and 2003.

prices immediately after an individual's death can be observed and over time prices decline to pre-mortem levels (Matheson & Baade, 2004).

Ursprung and Wiermann (2011) investigated the significance of age at the moment of death and reputation of the artist for the occurrence of the "death effect" in the art market. The study indicates that there is an inversely U-shaped relationship between the artist's age at the moment of death and the phenomenon of "death effect". According to the authors the "death effect" is negative (i.e. the artist's death is followed by a fall in the price of the artworks) for artists dying prematurely and is positive for the artist dying at an older age—apart from the oldest artist (in their case the effect disappears). The authors distinguished two components determining the phenomenon: scarcity effect (connected with the cessation of supply) and reputation effect. Furthermore, the study indicated that the "death effect" is larger for top-quality artworks (Ursprung & Wiermann, 2011). The "death effect" was also the subject of a study conducted by Etro and Stepanova (2015). The authors reviewed the hypothesis tested by Ursprung and Wiermann (2011) that the "death effect" reaches its maximum level for artists deceased at an intermediate age (due to the fact that the artist has an established position in the art market and collectors gain confidence in a certain artistic level of the artist's works of art). The results suggested that there is a non-linear, inversely U-shaped relationship between the estimated "death effect" and the age of the artist at the moment of death. The results of a hedonic regression analysis indicated that artworks sold in the period 1-2 years after the artist's death recorded a significant increase (this effect was not obtained for artworks auctioned 3-5 and 6-10 years after death). It turned out that the greatest increase in the prices of works of art was recorded when the artist died at the age of 70. The results seemed to be consistent with the study previously conducted by Ursprung and Wiermann (2011) (Etro & Stepanova, 2015).

Several studies (Kompa & Witkowska, 2014; Witkowska, 2014) have been conducted to examine the influence of the artist's living status on the prices of works of art with reference to the Polish art market. Kompa and Witkowska (2014) selected the "death/decease" variable as one of the explanatory variables while constructing hedonic price models. This variable indicated whether the artist was alive at the time the painting was put up for sale or whether the auction was held posthumously. The authors constructed sixteen hedonic models with a different selection of variables, while the "death/decease" variable was included in eleven models. The study showed that the variable statistically significantly influenced the prices of the works of art being analyzed—the fact that the painter was dead when the transaction was made had a positive impact on the prices (Kompa & Witkowska, 2014). Different results were obtained in the study carried out by Witkowska (2014) who found that the artist's living status influenced positively and significantly the prices of the works of art in all regression models.

The characteristics of the Polish art market—which differs from the models specific to developed countries—should be taken into consideration whilst analyzing the changes in the prices of the works of art of living and deceased artists. This is due to the fact that the perception of art as an investment is not yet widespread (Białowąs, Potocki, & Rogozińska, 2018). However, a growing interest in the investment aspects of purchasing works of art is noticeable—the awareness of the investment opportunities offered by works of art is increasing among investors (Regmunt, Brożyna, & Michalski, 2017). The political and economic changes following 1989, in particular concerning the freedom to conduct business activity, which resulted in the establishment of auction houses were of key importance for the development of the art market in Poland (Białynicka-Birula, 2009). The art market in Poland is undoubtedly a developing market—therefore the observed dependencies in the previous research are worth examining in relation to the Polish art market in order to verify if the "death effect" is an universal phenomenon.

The above-mentioned effects were examined through hedonic regression. However, investigating the changes in the prices of the artworks while using the database of repeated sales may also contribute to the findings regarding the analyzed phenomenon. It enables the transactions held before and after the artist's death to be easily distinguished. Although the results of the studies both about the artist's living status as well as about the "death effect" are not fully consistent the main hypothesis of the paper states that the biggest changes in the prices of the works of art should be observed in relation to the artworks whose authors died between the first and second transaction. Since the rise in the prices in the period following death is highly expected it is assumed that in the group of artists who died in the analyzed period, death may constitute the factor implicating the change in price. Given the fact that the artist's living status has not changed between the first and second sale in case of transactions made before and after the artist's death the changes in the prices for those groups are expected to be lower.

2. Research method

For the purposes of analysis three groups of works of art were distinguished—the works of artists living at the time of the first auction and deceased at the time of the second auction, the works by artists deceased at the time of both transactions and the works by artists alive at the time of both transactions. Table 1 summarizes the information about the number of artworks sold in those years in the remaining groups i.e. by artists living and deceased during both sales.

Table 1 presents the list of works of art included in the analysis by artists living at the time of the first auction and deceased at the time of the second auction. In order to make the results more easily comparable the group of

the works by artists deceased and living at the time of both sales was limited to those where the first and second sale took place in the same year as in the group of artworks by artists living only during the first auction. As a result, eighteen pairs of works of art have been distinguished where the first sale was held during the lifetime while the second—after the artist's death (these works of art constitute a reference group in the analysis). Subsequently the works of art sold in the same years were selected, out of which 70 were works of art by deceased artists during both transactions and 11 works of art by artists living during both sales. One work of art by an artist deceased only during the second

Table 1. The list of transactions included in the analysis by artists living at the time of the first auction and deceased at the time of the second auction

The works of art by artists living at the time of the first auction and deceased at the time of the second auction			The number of works of art by artists deceased at the time of both transactions	The number of works of art by artists living at the time of both transactions
No.	year of first sale	year of second sale		
1	1991	1995	3	1
2	1991	1998	10	0
3	1997	2004	1	0
4	1998	2012	5	0
5	2001	2005	4	0
6	2001	2009	4	2
7	2002	2007	5	0
8	2002	2008	0	0
9	2002	2010	3	0
10	2002	2012	1	0
11	2003	2008	5	0
12	2003	2011	2	0
13	2003	2011		
14	2005	2007	8	1
15	2006	2010	4	0
16	2006	2011	1	0
17	2008	2010	7	5
18	2008	2012	7	2
SUM			70	11

Source: Own elaboration based on research.

auction was left out of analysis due to the fact that in the sample there were no transactions held in the same year in the group of artists living and deceased at the time of both sales. However with reference to that pair of transactions the 229% increase in the prices was observed between the first and second sale.

In order to investigate the "death effect" among the transactions of the artworks by artists living only during the first sale the two groups were selected on the basis of the time elapsed since the death of the artist and the transaction—the artworks that were auctioned at least three years since the artist's death (ten pairs) and the artworks sold less than three years after that (eight pairs).

Subsequently the average price changes between the first and second sales were calculated for each of the analyzed groups. Then the price changes for each pair of transactions in the case of which only the second sale occurred after the artist's death were compared with the price changes in the group of works of art sold during the lifetime and after the death of the artists.

It was particularly interesting in examining the relationship between the prices of works of art among living and non-living artists was to study the differences between the prices of artworks where the first sale took place during the artist's lifetime while the second—after his death. Afterwards the price changes between the first and second auction were compared to the price changes in the groups of artworks by artists alive at the time of both transactions and dead at the time of both transactions. In order to examine the differences in the prices between first and second sale in different groups a non-parametric test—the Wilcoxon signed-rank test for paired samples—was conducted.

3. Dataset

The initial sample consists of pairs of auction sales in the Polish art market which were sold at least twice from June 25, 1989 to December 15, 2012. The auction records were collected and published by the *Art & Business* magazine.[4] The first sales of the works of art took place from June 25, 1989 to September 25, 2012, while the second was from January 5, 1991 to December 15, 2012. The sample includes 1,142 works of art, of which 848 were paintings, 291 drawings, and 3 collages. The main aim of this paper was to verify the differences in the prices of works of art by living and deceased artists. For this purpose three groups of artworks were distinguished in the sample—works of art in the case of which both sales took place after the death of artist, works of art auctioned during the artist's lifetime and works of art where only the second auction took place after the artist's death.

[4] The database was used for creating the art index for the Polish auction market (see Białowąs et al., 2018).

Taking into account the issue of the artist's living status 1,001 artworks by artists who were already dead during both transactions can be distinguished in the sample, which accounts for 88.2% of all works of art. A smaller group included paintings by artists alive when both auctions were held: 119 works of art that accounted for 10.2% of the dataset. The data consists also of 18 works of art in the case of which the first sale took place when the artist was alive and

Table 2. Descriptive statistics for the auction prices of works distinguished on the basis of the artist's living status

		First auction prices	Second auction prices
The artist was dead at the time of both sales	*N*	1001	1001
	Mean [PLN]	32,593.27	46,852.18
	Standard deviation [PLN]	65,763.29	95,971.07
	Median [PLN]	13,000.00	18,000.00
	Maximum[PLN]	1,200,000.00	1,580,000.00
	Minimum [PLN]	34.00	60.00
	Skewness	8.08	7.24
	Kurtosis	110.97	83.09
The artist was alive at the time of the first sale and dead at the time of the second sale	*N*	18	18
	Mean [PLN]	22,065.83	35,083.33
	Standard deviation[PLN]	25,369.44	34,041.71
	Median [PLN]	20,500.00	25,250.00
	Maximum[PLN]	110,000.00	110,000.00
	Minimum [PLN]	1,500.00	2,400.00
	Skewness	2.60	1.32
	Kurtosis	8.69	0.84
The artist was alive at the time of both sales	*N*	119	119
	Mean [PLN]	16,350.91	22,287.82
	Standard deviation[PLN]	36,443.88	46,776.70
	Median [PLN]	4,800.00	6,500.00
	Maximum [PLN]	255,000.00	295,000.00
	Minimum [PLN]	40.00	70.00
	Skewness	4.38	3.66
	Kurtosis	22.26	14.64

Source: Own elaboration based on research.

the second after their death. In the case of the sales of two pairs of works of art no information about the date of birth and death of the artists was obtained—these pairs of transactions were excluded from the analysis.

Table 2 presents the summary statistics for the prices of the works of art in the group of dead artists during both transactions, artists living only during the first sale and artists living during both sales. The average price of the first sale in the case of the works of art by artists alive when the first auction took place and deceased at the time of the second sale was about 59% lower in comparison with the second auction. The prices of the first sale deviated from the average by PLN 25,369.44 and the second auction prices—by PLN 34,041.71. The maximum price in that group was PLN 110,000.00 for the painting *Plaża tybetańska* by Jerzy Nowosielski for both auctions. The minimum price paid for the work of art during the first auction was PLN 1,500.00 (*Kury* by Teresa Roszkowska) while during the second—PLN 2,400.00 (*Malarka* by Eugeniusz Waniek). The difference between the most expensive and the cheapest work of art auctioned during the first auction was PLN 108,500.00 while in the case of the second auction PLN 107,600.00. Such a remarkable difference results from the presence of an extreme value—the work of art with a maximum price that was sold for a notably higher price.

The average price from the first auction for the artworks sold after the artist's death amounted to PLN 32,593.27. The highest price was paid for the painting *Próba czwórki* by Józef Chełmoński that was sold for PLN 1,200,000.00 in 2001. The cheapest artwork sold whose author was deceased during both auctions was the painting *Sanie* by Adam Setkowicz, which reached the value of PLN 34.00. The average price of the works of art of the group discussed during the second auction amounted to PLN 46,852.18 and was higher by almost 44%. As in the case of the first auction the painting *Próba czwórki* by Józef Chełmoński, whose price reached PLN 1,580,000.00, was also the most highly priced. The lowest recorded price was *Dyskobol* by Jan Kaczmarkiewicz sold in 1992 for PLN 60.00. When considered in relationship with the artworks auctioned during the lifetime of the artist the average price of the first sale was PLN 16,350.91. The most expensive work of art was *The Kidnap* by Jerzy Nowosielski which was sold in 2008 for PLN 255,000.00. The lowest price was for the picture of Urszula Markiewicz *Kwiaty* sold in 1991 for PLN 40.00. As for the second auction of the works of artists alive at the time of both sales the prices increased to an average of PLN 22,287.82. The highest priced work auctioned was *The Kidnap* by Jerzy Nowosielski sold for PLN 295,000.00 and the cheapest was—as in the case of the first auction—the painting by Urszula Markiewicz valued at PLN 70.00. The distribution of the prices in the case of every group of artists was right-skewed, indicating that the majority of the works had prices below the average. Notably with respect to the works of art by artists dead at the time of both sales the distribution was strongly right-skewed, which means that the small group of artworks auctioned at a high price affected the average price.

4. Empirical results

The results of the comparison of percentage price changes of the works of art in the analyzed groups are presented in Table 3. The increase in the prices of the works of art between the first and second sale was observed in 14 out of the 18 (77.78%) pairs of transactions from the reference group. There was no change

Table 3. Changes in the prices of the works of art between the first and second sale by living and deceased artists compared to artists living only at the time of the first sale

	Average price change between the first and second sale			Positive or negative price change if compared to the works of art by artists living at the time of first sale and deceased at the time of second sale		Differences in price changes if compared to the of works of art by artists living at the time of the first sale and deceased at the time of the second sale	
	DD* (%)	AD (%)	AA (%)	DD (%)	AA (%)	DD (%)	AA (%)
1	96	273	75	+	+	177	198
2	653	529		–		–125	
3	7	22		+		15	
4	23	300		+		277	
5	30	25		–		–5	
6	27	155	231	+	–	128	–76
7	50	–43		–		–93	
8	117	35		–		–81	
9	77	–21		–		–98	
10	67	2		–		–65	
11	112	29		–		–84	
12	42	173	167	+	+	131	6
13	2	196		+		194	
14	24	–9		–		–33	
15	–12	103	–10	+	+	115	113
16	–13	4	27	+	–	17	–23
SUM						29	44

* DD (*deceased-deceased*): the works of art auctioned after the artist's death; AD (*alive-deceased*): the works of art in the case of which only second sale was held after the artist's death; AA (*alive--alive*): the works of art auctioned when the artist was alive.

Source: Own elaboration based on research.

in price in the case of one work—a decline in prices occurred in relation to three works. In the group of works of art sold after the death of the artist the prices increased in 48 out of 70 (68.57%) cases, decreased in 21 cases and there was no change in one case. When it comes to the living artists among eleven pair of transactions there were 8 price rises (72.73%) and three decreases. The average price change between the first and second sale for the works of art by artists living only during the first sale (111%) was notably higher than in the group of works of art auctioned after the artist's death (81%) and before the artist's death (98%). However, in comparison with the group of artworks by artists deceased at the time of both transactions in the case of 8 pairs of transactions the price change was higher and for the remaining 8 pairs the price change was lower. In relation to the works of art by living artists a greater change in the prices was observed for 3 pairs of transactions and a smaller one for 2 pairs.

Interestingly a separate analysis of the years of increase and decrease in the prices indicates that the rise in price of works of art was higher in the reference group (142%) in comparison with the group of artworks by artists deceased when both transactions were made (95%). Taking into account the differences in price changes in each group it appeared that for the artworks by artists living only at the time of the first transaction the average difference of the price changes (in percentage points) was greater in relation to the remaining groups of works of art.

Interesting findings were obtained while focusing only on the pairs of transactions of which the first was held before and the second—after the artist's death. The percentage price change for the artworks sold less than three years after death (148%) was almost twice as high as the price change for the works of art sold more than three years after death (85%). The results of the research support the idea that there is a rise in the prices of the artworks in the period following the artist's death. This also accords with earlier observations by Ekelund and others (2000), Etro and Stepanova (2015) or Ursprung and Wiermann (2011) which showed that generally prices increase around the artist's death.

To test the hypothesis concerning the impact of the artist's death on the prices the difference in prices of the first and second sale were examined in the group of artworks sold before (first transaction) and after (second transaction) the death of the artist. The results were compared with price changes of transactions involving the works of art whose authors lived and did not live at the time of both transactions. The results of the test are shown in Table 4. The tested hypothesis assumed that the prices obtained during the second sale of the works of art (i.e. after the death of the artist) would be significantly higher than the prices of the first auction. However, in the group of works of art by living artists the change in the prices between the first and second sale was not proven. The significance level ($p = 0.009$; $Z = -2.63$), allows the rejection of the null hypothesis that there are no price differences between the auction prices in the case of works of art by artists living during first sale and deceased

during second sale. The prices of the second auction were significantly higher than the prices of the first sale—an average increase was about 58.99%. The differences between average prices were also checked for the works of art of non-living artists. For the works of art that were sold after the artist's death the differences between the prices of the first and second sale proved to be statistically significant ($p < 0.001$; $Z = 3.46$). The artworks sold during the second sale were on average more expensive than the prices from the first sale—the prices rose about 31.61%. On the other hand, in relation to the works of art by artists alive at the time of both auctions, no significant differences were found between the prices of the first and second sale ($p = 0.155$; $Z = -1.42$). The evidence presented in this section suggests that death of the artist may constitute the factor influencing the rise in the prices since a significant price change was observed only for the group of artists deceased at the time of both transactions or at the time of the second transaction. The findings seem to be consistent with other research regarding the significance of the artist's living status in art price formation according to which death positively influenced the prices of the artworks (i.e. Higgs, 2012; Higgs & Worthington, 2005; Taylor & Coleman, 2011).

Table 4. The differences between the average prices of the works of art between the first and second sale in the groups based on the artist's living status

	N	Mean price—first sale	Mean price—second sale	Significance	*Z* value	Effect size (*r*)
The artist was dead at the time of both sales	70	42,142.14	55,461.43	0.001	–3.46	0.29
The artist was alive at the time of the first sale and was dead at the time of the second sale	18	22,065.83	35,083.33	0.009	–2.63	0.44
The artist was alive at the time of both sales	11	31,658.18	38,251.82	0.155	–1.42	-

Source: Own elaboration based on the conducted research.

The effect size (*r*) of price increases between the first and second auction in each group, was calculated by dividing the *Z* value by the square root of *N* (where *N* states for the number of observations over the two time points—not the number of cases) (Pallant, 2011). According to Cohen's (1988) criteria of effect sizes which is 0.1 (small effect), 0.3 (moderate effect) and 0.5 and above (large effect), $r = 0.44$ in the case of prices of the works of art by artists dead only at the time of the second sale indicates a moderate effect. On the other

hand, in the case of works of art auctioned after the death of the artist, the size of the price increase at the level of $r = 0.29$ indicates a small difference in prices between the first and second auction.

Conclusions

The present study provides additional evidence with respect to the discussion regarding the significance of the artist's life status (i.e. information whether the artist was dead or alive at the time of the transaction) on the prices of the works of art being auctioned. Significant differences in the prices between the first and second sale were found in the case of the works of art by artists dead only at the time of the second sale and dead at the time of both auctions—the average prices of the second transaction were notably higher. The average prices of the works of art by living artists did not significantly change between both transactions.

The study has shown that the largest percentage of the works of art, whose prices increased, were those of artists who died between the first and the second sale. Furthermore the average percentage change in the prices is also higher when the first sale was held during the artist's lifetime and the second sale—when the artist was dead. Although the prices of the works of art sold after the artist's death were higher in comparison to the prices from the reference group the average percentage increase between the first and second sale was greater in relation to the works of art by artists alive at the time of the first transaction and deceased at the time of the second transaction. The effect size in the case of auction prices of artists who are alive only at the time of the first sale is higher than in the case of the auction prices for dead artists.

Therefore, the study makes several noteworthy contributions to the research on the "death effect" in the art market. The study found that the higher price change is observed in relation to the works of art sold in the period following the artist's death (less than three years since death) in comparison with those sold more than three years since death.

These findings support the idea that the death of the artist affects the prices of the works of art. However, in a small number of cases, particularly of the works of art auctioned when the artist was alive, caution must be applied. It should be borne in mind that the study is based on the repeated sales database—the dependencies could be verified for the larger number of transactions. Moreover the study did not distinguished the works of art e.g. in terms of the technique used, the art segment to which the work of art belongs or the year in which it was created—the reasons for the differences in prices between the analyzed groups should, therefore, be sought not only in relation to the artist's living status. Furthermore, the works of art by deceased artists have achieved higher prices. A possible explanation for these results may be the fact that the

group of works of art by deceased artists include the paintings of their creators living in different time—whose artworks may achieve higher prices than the artworks by contemporary artists. The solution would be to limit the sample to the artists deceased in the period of analysis.

Future investigations should be focused not only on the differences between the prices of works of art depending on whether the artist was alive or dead when the transaction was held but also on the change in the prices of works of art in the period immediately after the artist's death. The inclusion in hedonic models of prices of artworks as a factor related to the "death effect" is also worthy of consideration.

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