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PRICES OF PAINTINGS ON POLISH ART MARKET IN YEARS 2007–2010 – HEDONIC PRICE INDEX APPLICATION

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Abstract. Art market in post-communist Poland has been developing for 25 years now although it has been still small with total turnover in 2012 estimated as 0.2% of the world sales of artworks. Therefore the aim of the research is to describe the present state of the art market in Poland and to evaluate prices of paintings produced by 11 Polish artists whose artworks were traded the most often in years 2007–2010. In the research, employing data concerning 750 objects sold on auctions that held in Poland, hedonic index methodology is applied to estimate changes of prices at the paintings market. The results of authors' investigation show that the hedonic quality adjustment essentially influences evaluation of artworks' prices.

Key words: art market, hedonic price index, investment

INTRODUCTION

The art market in Poland is quite small since it has been developing during last two decades when essential changes in the income distribution and the increasing interest on art market in the Polish society have been observed. Therefore here the question arises if purchase of artworks created by Polish artists can be treated as an investment that gives decent return.

Investment in artworks has been considered as an alternative investment opportunity for investors for approximately forty years[1]. Renneboog and Spaenjers [2013] on the basis on more than a million auction trades, that took place in the period 1900–2007, for 10,100 artists show that return for art is only 4% per year while stocks yield a return over 6.5% but art investment is more profitable than government bonds and gold, which

[1]See [Anderson 1974, Frey and Pommerehne 1988, 1989a, 1989b, Pesando 1993, Mei and Moses 2002, Worthington and Higgs 2003, 2004, Campbell 2004, 2008, Hsieh et al. 2010, Higgs 2012, Kraeussl and Wiehenkamp 2012, Sokołowska 2012, Frey and Cueni 2013].

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yield returns 2–3%, and it is comparable to corporate bonds that gave also 4% average annual return. However risk measured by standard deviation is the highest for gold (more than 24%), than for art (10%), equities (16.5%), government bonds (less than 11%) and corporate bonds (9.5%). Regardless above discussed results investment in art seems to be comparatively safe asset class that can serve as hedging instrument against inflation and create possibility to diverse the investment portfolio since art is not correlated with equities or bonds but associated with tangible assets as gold or commodities.

The aim of the paper is to describe the art market in Poland and evaluate the art price index for selected Polish painters whose artworks were sold at auctions. In our research we apply hedonic index methodology to estimate changes of prices at the paintings market in the years 2007–2010. Investigation is conducted using data collected from auction houses concerning 750 paintings created by 11 Polish artists.

SITUATION OF THE ART MARKET IN POLAND

Art market in Poland has been developing since the beginning of political and economic transformation in 1989. New art galleries and foundations together with auction market have been created (see Fig. 1). After deep depression of the Polish economy in the 1990s the level of life of the society has been essentially increasing that causes the increase of the demand for luxury good and art that is visible in Table 1.

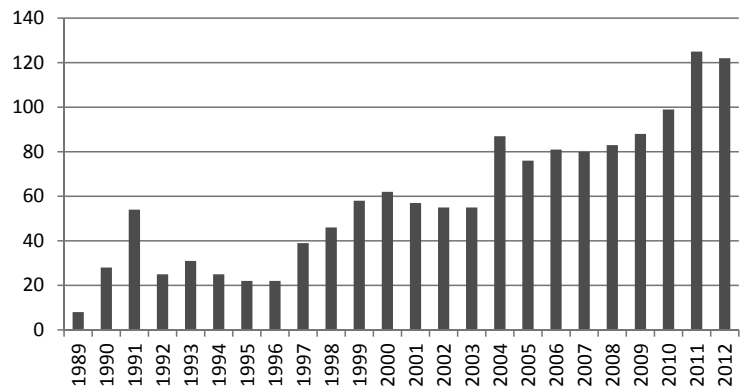

Fig. 1. Number of art auctions in years 1989–2012
Source: Skate's Focus [2013, p. 13].

Table 1. Development of the art market in Poland in recent years

Specification	2005	2009	2010	2011	2012
Art galleries	292	346	370	352	344
Exhibitions	3 640	4 232	4 296	4 406	4 225
of which foreign	291	344	255	334	275
Expositions	4 018	4 537	4 606	5 235	4 427
Visitors (in thous.)	2 955.9	3 990.0	3 967.8	4 173.7	3 684.9

Source: Culture in 2012 [2013, p. 102], http://www.stat.gov.pl/gus/5840_1741_PLK_HTML.htm.

In 2012 the Polish art market value was estimated for 300–350 millions PLN while auction sales was 60.5 millions PLN [Deloitte report 2013], and it was the highest result from 1989. The structure of the Polish art market is presented on Figures 2 and 3. The term "ultra-contemporary" is used for young artists (under 40 years old) – 44% of artworks sold with capitalization of 8%. Price relations at the art market are presented on Figure 4.

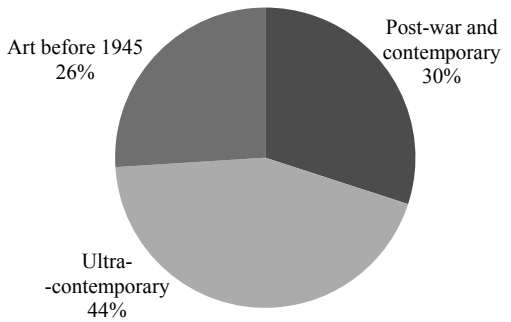

Fig. 2. Polish auction market segments in 2012 by lots
Source: Own elaboration on the basis of data from Skate's Focus [2013, p. 14].

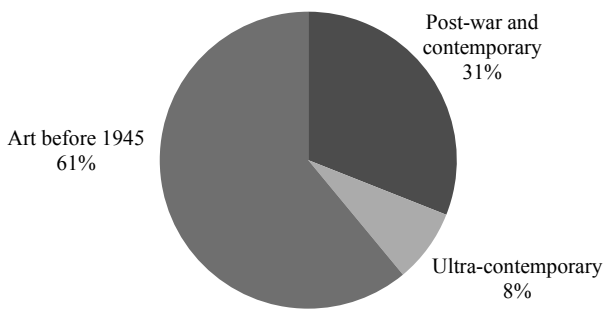

Fig. 3. Polish auction market segments in 2012 by value
Source: Own elaboration on the basis of data from Skate's Focus [2013, p. 14].

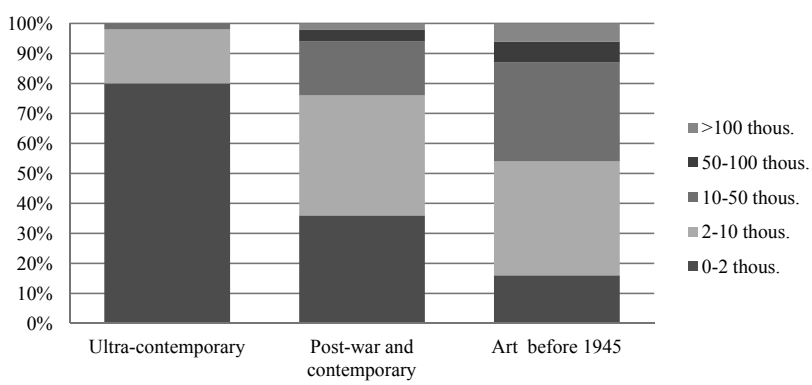

Fig. 4. Average price distribution of Polish Art Market Segments in the first half of the year 2012
Source: Own elaboration on the basis of data from Skate's Focus [2013, p. 15].

There are no individual sales organized for Old Masters and Modern Art in Poland, therefore the main threshold for art market segments is used year 1945 because until 1989 all artworks and crafts, that had been produced before 1945, were treated as national heritage. Therefore it is difficult to compare the structure of Polish to the world art market (Fig. 5) since "modern art" includes artistic works produced during the period extending roughly from the 1860s to the 1970s.

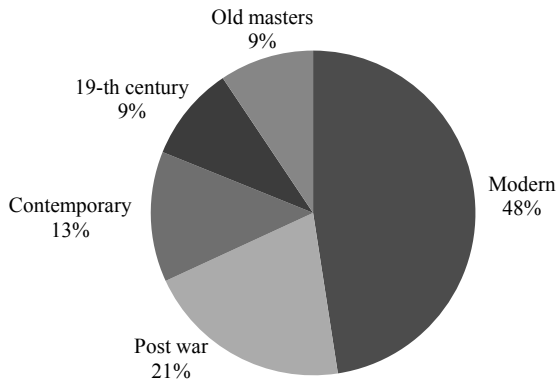

Fig. 5. World art market structure turnover
Source: Contemporary art market [2013, p. 10].

Analysis of the Polish art market in terms of medium is visible on Figures 6 and 7, and one can see that paintings are the most popular in comparison to other forms of art both in terms of number of lots (56%) and value of transactions (72%).

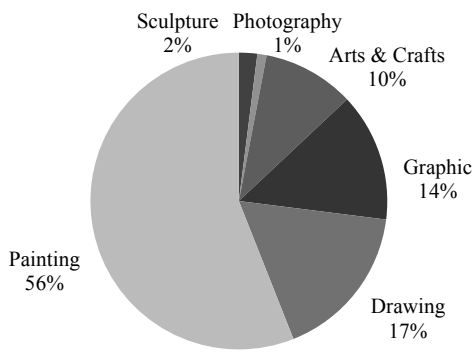

Fig. 6. Mediums on the Polish auction market in the first half of the year 2012 by lots
Source: Own elaboration on the basis of data from Skate's Focus [2013, p. 18].

At present there are nearly 800 museums (87% of them are public) and about 350 art galleries in Poland regardless private collections, art dealers, and antique shops (see Fig. 8). One should also notice that Polish market is geographically centralized with the greatest part of auction turnover coming from the auctions that take place in Warsaw, although large sales are also held in some other cities (Łódź, Kraków, Katowice, Poznań,

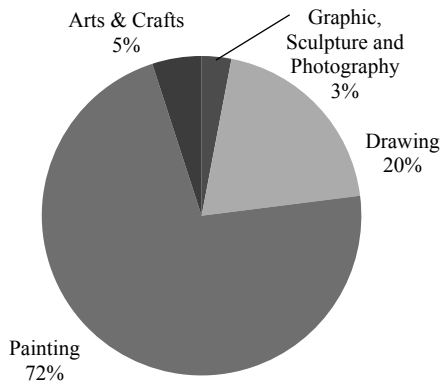

Fig. 7. Mediums on the Polish auction market in the first half of the year 2012 by value
Source: Skate's Focus [2013, p. 19].

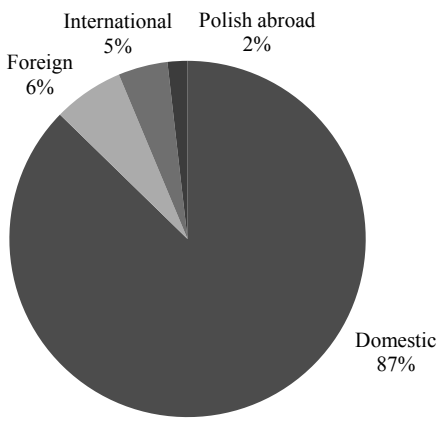

Fig. 8. Structure of exhibitions in art galleries in 2012
Source: Culture in 2012 [2013, p. 129], http://www.stat.gov.pl/gus/5840_1741_PLK_HTML.htm.

Toruń and Częstochowa). However in Warsaw the value of sales was 62 millions USD in 2000 and 105 millions USD in 2010 while in other cities it was 6.3 and 6.8 millions USD in the years 2000 and 2010 respectively [Culture in 2012, 2013, p. 102, http://www.stat.gov.pl/gus/5840_1741_PLK_HTML.htm].

There are also several auction houses and one Art Fund – Abbey Art Fund established in 2011. According to the Deloitte report from 2013, average annual return from 800 repeat sales that took place in Poland during last 20 years was 25.7% while in the same time equity returns measured by Warsaw Stock Exchange Index WIG20 was only 8.7% [Skate's Focus 2013]. Annual return from artworks hold longer than 15 years was 46.6% while investments with the horizon shorter than 5 years gave only 0.2% profit. Therefore the time span of investments is crucial in obtained returns.

Polish artists have been also present at the international scene although their representation is pretty narrow (Fig. 9). There are five Polish artists whose works exceeded

a threshold price of 1 million USD: Tamara de Lempicka, Henryk Siemiradzki, Roman Opałka, Max Weber and Piotr Uklański. Together they achieved a total capitalization of 99.3 million USD (for 35 lots), while Tamara de Lempicka alone achieved 87.2 million USD obtained for 26 artworks [Skate's Focus 2013, p. 5]. It is also worth mentioning that among Top 500 Contemporary Artists 2012/2013 two Polish artists are mentioned: Piotr Uklański (born in 1969) on the 314-th position, and Wilhelm Sasnal (born in 1972) on the 401-st position in the ranking.

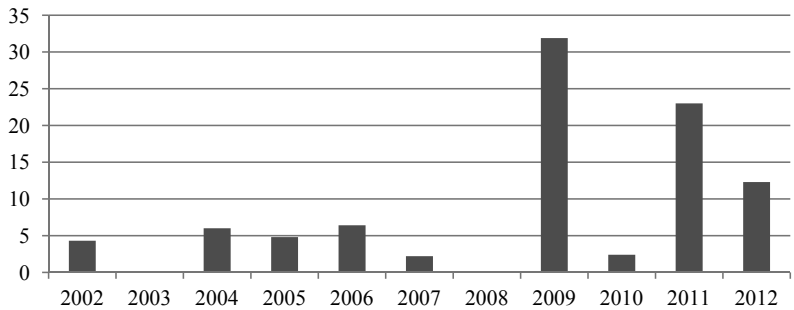

Fig. 9. Total trading value of Polish artists at global auctions (millions USD)
Source: Skate's Focus [2013, p. 5].

CONSTRUCTION OF HEDONIC INDEX

Artworks are heterogeneous assets, with a variety of physical and non-physical characteristics that make them unique, including artist reputation, materials used, the period of production and subjective traits like quality. Therefore the price of an artwork depends on these characteristics. The hedonic approach let us estimate the value attached to each one of the attributes that are deemed to be significant in the determination of the price and evaluate the price index with the hedonic quality adjustment (*HQA*). Thus hedonic price index (*HI*) can be written as follows[2]:

$$HI_{t+1} = \frac{\prod_{i=1}^{n}(P_{i,t+1})^{1/n} \Big/ \prod_{i=1}^{m}(P_{i,t})^{1/m}}{HQA_{t+1}} \tag{1}$$

where: $P_{i,t}$ – price of artwork i at time t;

[2]Hedonic price indexes are discussed by Dziechciarz [2004, 2005], Nesheim [2006], Triplett [2006] and Widak [2010], while their application on the art market by Candela et al. [2004], Kraeussl and van Elsland [2008], Kraeussl and Wiehenkamp [2012] to mention some research provided for developed art markets. However the first attempt to construct hedonic art price indexes for emerging markets was made by Kraeussl and Logher [2010] who consider art markets in China, Russia and India. The attempt to evaluate hedonic price index for Polish paintings is made by Kompa and Witkowska [2013].

$$HQA_{t+1} = \exp\left[\sum_{j=1}^{k}\hat{\alpha}_j\left(\sum_{i=1}^{n}\frac{X_{ij,t+1}}{n} - \sum_{i=1}^{m}\frac{X_{ij,t}}{m}\right)\right] \tag{2}$$

where: $X_{ij,t}$ – j-th characteristic of the artwork i at time t;
m, n – numbers of lots (i.e. artworks) sold in the period t and $t + 1$ respectively;
$\hat{\alpha}_j$ – parameter estimate standing by the j-th variable in hedonic regression (pooled regression).

Hedonic regression in this case usually takes the following form:

$$\ln P_{i,t} = \alpha_0 + \sum_{j=1}^{k}\alpha_j X_{ij,t} + \sum_{t=1}^{\tau}\beta_t Z_{i,t} + \varepsilon_{i,t} \tag{3}$$

where: α_j, β_t – regression parameters;
Z_t – time dummy variable, which takes the value 1 if painting i is sold in period t, and takes the value 0 otherwise;
$\varepsilon_{i,t}$ – disturbance term.

The numerator in (1) can be treated as the naive price index (*NI*), since it describes the so-called average painting [Candela et al. 1997] from the aggregation of all artworks that create the sample representing the art market or it's segment:

$$NI_{t+1} = \frac{\prod_{i=1}^{n}(P_{i,t+1})^{1/n}}{\prod_{i=1}^{m}(P_{i,t})^{1/m}} \tag{4}$$

The explanatory variables are either intrinsic characteristics of the artwork, such as the artist, size, format, technique, materials, period, signature and artist's living status or related to the sale, including the auctioneer, location and date of sale. The dependent variable in the model is usually represented by the natural logarithm of the sales price. All auctions relating to an artist are included in the estimation in order to avoid selection bias. The time dummy variables can be annual, semi-annual, quarterly or even monthly depending on the frequency of trading.

Having price indexes describing price relation in two neighbouring periods t (t = 1, 2, …, T), i.e. I_1, I_2, ..., I_t, we may calculate the price index (TI_t) concerning price changes in comparison to the first (t = 0) period of analysis:

$$TI_t = I_1 \cdot I_2 \cdot \ldots \cdot I_t \tag{5}$$

Therefore the total index (TI_T) informs about price movements during the whole period of investigation since it is the relation of prices in the last period $t = T$ in comparison to the first period t = 0. Then changes of prices from period to period equal $C_t = (I_t - 1) \cdot 100\%$, while price movements in every moment in comparison to the first period of

analysis equal $TC_t = (TI_t - 1) \cdot 100\%$. In other words C_t informs about returns for every single period while TC_t – about returns obtained in the period from $t = 0$ to t, and TC_T is the cumulative return in the whole period. It is also possible to evaluate the average return for the single period taking into account the total returns from the whole period of investigation, employing geometric mean:

$$GM = \sqrt[T]{\prod_{t=1}^{T} I_t} = \sqrt[T]{TI_T} \tag{6}$$

In such a case average return in the single period equals: $G = (GM - 1) \cdot 100\%$.

DESCRIPTION OF DATA AND VARIABLES

Hedonic models are estimated employing data[3] from auctions of paintings held by auction houses and foundations in Poland in the years 2007–2010. In these years number of transactions was comparable although the highest value of transactions was observed in the year 2008 (Table 2). The whole database contains 10,400 objects produced by nearly 3,000 artists who represent different periods and styles. As a result, also the range of prices is huge from 20 PLN for a piece produced by Justyna Jakóbowska (born in 1984) to 1.1 million PLN for an artwork by Władysław Czachórski (1850–1911), with average price for a single lot 8,691 PLN and standard deviation 33,698 PLN. Therefore to analyze prices authors construct the sample of artworks, painted by the artists who are selected according to the biggest number of lots sold in the investigated period (Table 3). The biggest number of lots sold in analyzed period are produced by Jerzy Kossak (91) while the highest value of transactions concerns artworks by Malczewski (more than 1 million PLN). In authors' sample, the lowest average value for the single artwork obtained paintings by Nikifor (2,486 PLN). The selected sample covers 7.2% of all lots and 16.2% of the turnover registered in the database.

In authors' investigation several explanatory variables were used that are usually used in hedonic models constructed for the art price that describe artist and exhibitor reputa-

Table 2. Transactions in years 2007–2010

Year	Number of lots (pcs)	Value (PLN)	Average value of one transaction (PLN)
2007	2 493	39 217 845	15 731
2008	2 548	58 707 150	23 040
2009	2 427	36 713 800	15 127
2010	2 932	25 675 900	8 757
Total	10 400	160 314 695	15 415

Source: Own elaboration.

[3]The basic data base was constructed by Lucińska [2012].

Table 3. List of Polish painters whose artworks created the sample

Variable artist	Year of		Artworks sold in 2007–2010			Standard deviation	Variability coefficient
	birth	death	count (pcs)	value (PLN)	average value (PLN)		
Chmieliński Stachowicz Władysław	1911	1979	55	648 200	11 785	6 425.22	0.55
Dominik Tadeusz	1928	–	46	608 000	13 217	7 498.63	0.57
Dwurnik Edward	1943	–	63	431 300	6 846	5 823.47	0.85
Erb Erno	1890	1943	58	816 500	14 078	6 581.61	0.47
Kossak Wojciech	1856	1942	60	2 027 500	21 377	17 286.18	0.81
Wyczółkowski Leon	1852	1936	61	3 848 300	13 857	11 050.24	0.80
Hofman Wlastimil	1881	1970	85	1 817 050	33 792	38 702.58	1.15
Kossak Jerzy	1886	1955	91	1 261 000	132 413	156 276.36	1.18
Malczewski Jacek	1854	1929	71	9 401 300	2 486	1 021.37	0.41
Nikifor Krynicki	1895	1968	79	196 400	70 453	65 808.64	0.93
Nowosielski Jerzy	1923	2011	81	5 706 700	63 087	108 969.00	1.73
Sum	×	×	750	26 762 250	×	×	×

Source: Own elaboration.

tion, type and quality of the artwork as well as conditions of the transaction. Auction house describes the reputation of the auctioneer and this variable is specified as a number of dummies defined name of auctioneer (Table 4). Reference variant of this variable is: other auctioneers. There are 41 auction houses in the whole database, which essentially differ by number and value of transactions. The biggest in value and number of lots sold auctioneers are Rempex and Agra-Art. The former sold the biggest number of lots – 1,558 paintings worth 32.5 million PLN and the latter had the highest value of transactions – 47.9 million PLN for 1,515 paintings sold in years 2007–2010.

Artist reputation is defined by the name of a painter that is represented by the variable artist, and Wyczółkowski is the reference painter (Table 3). Type and quality of the art piece is defined by several variables, such as: signature, technique and surface (of the painting). Technique and materials describe type of work and this variable is specified as a number of dummies that indicate whether the art piece represents certain type of work (Table 4). Reference variant of the variable is: other techniques. Signature is one of the artworks' attributes, it equals 1 if signature is visible. Surface (measured in square centimeters) of the artwork is the most commonly used variable that describes the physical characteristics of paintings. In general the parameters estimates for this variable should be positive however larger works may be difficult to display thus in some models squared surface is applied. Authors use natural logarithms of surface area.

Conditions of the transaction is represented by two variables: *y*ear and price relation. Year of sale is a set of binary variables defined the year of transaction. Reference variant of this variable is: Year_2010. Price relation between reserve and hammer price is represented by the variable equals 1 if the former price is bigger than the latter one since in such a case sale might not take place (so-called conditional sale).

Table 4. List of auction houses and techniques

Variants of variable		Number of observations	Average	Standard deviation	Variability coefficient
Auction house	Agra-Art	220	48 627	111 443.3	2.29
	aukcje on-line	7	3 057	1 513.11	0.49
	Desa	61	23 825	65 895.81	2.77
	Desa Unicum	105	115 866	241 391.1	2.08
	Okna Sztuki	20	44 665	57 486.78	1.29
	Ostoya	50	13 061	11 815.79	0.90
	Polswiss Art	73	87 564	126 193.0	1.44
	Rempex	270	21 948	34 652.96	1.58
	Rynek Sztuki	114	3 385	6 884.65	2.03
	other auctioneers	48	4 044	3 894.39	0.96
Technique	acrylic	53	13 407.55	28 498.5	2.13
	watercolour	148	9 369.932	13 938.5	1.49
	gouache	53	18 055.66	17 645.1	0.98
	oil	596	54 890	135 079.7	2.46
	pencil	15	8 920	8 621.3	0.97
	pastel	33	47 627.27	104 313.6	2.19
	tempera	16	27 431.25	28 519.0	1.04
	drawing ink	9	13 033.33	8 184.1	0.63
	other techniques	45	16 724.67	32 771.7	1.96

Source: Own elaboration on the basis on Sopińska [2013] who used sample containing 968 objects with additional artists.

ART PRICE INDEXES

The aim of this research is to describe how the prices of the paintings changed in the analyzed period. Authors start their investigation from evaluation of the naive price index, that is the numerator in the relation (1). Then, employing information about artworks produced by selected painters and sold on auctions in Poland in the years 2007–2010, they estimate models of art prices (3). Last step of this research is to evaluate the hedonic quality adjustments (2) and art price indexes (1).

In Table 5 parameter estimates of selected models[4] is presented, estimated by OLS. Models H1 and H2 contain all distinguished variables, however the size of the artwork in H1 is described by squared surface. While in the model H3 variable: price relation is omitted. Model H1 is characterized by the highest adjusted R^2. In all models variables: signature and price relation are not significant. Name of the painter affects significantly price of the artwork, and for all authors except Malczewski this influence is negative because Wyczółkowski's paintings take the second place (after Malczewski) among the most expensive ones in average. Surface (of the paintings) influences positively and significantly the artworks' price. Variants of technique and materials used for the art piece production are significant in presented models, except watercolor and gouache (although not in all of them). While auction houses, except Desa, are significant in majority of models, and time dummies for years 2007 and 2010 are not significant in all models.

[4]In this research about 60 variants of models describing prices of Polish paintings were estimated, see Kompa and Witkowska [2013], Witkowska [2014], Witkowska and Kompa [2014]. Presented models are selected as the best ones from the group of models containing different variable sets.

Table 5. Estimated models

Model		H1		H2		H3	
Variables		Parameter estimates		Parameter estimates		Parameter estimates	
Constant		5.0405	***	2.7877	***	2.7934	***
Year	YEAR_2007	0.0067		0.0934		0.0971	
	YEAR_2008	0.0007		0.0758	**	0.0768	**
	YEAR_2009	0.0019		0.0145		0.0154	
Auction house	Agra-Art	0.0834	**	0.2945	**	0.2989	**
	Desa	0.0844		0.1990		0.2013	
	Desa Unicum	0.0550	***	0.4084	***	0.4026	***
	Okna Sztuki	0.0701	**	0.4798	***	0.4816	***
	Ostoya	0.0642	***	0.0998		0.1032	
	Polswiss	0.0717	***	0.8052	***	0.7968	***
	Rempex	0.0606	***	0.0895		0.0807	
	Rynek Sztuki	0.0504	**	0.0172		0.0080	
Author	Kossak J.	–0.0566	***	–1.5906	***	–1.5896	***
	Kossak W.	–0.0318		–0.8769	***	–0.8780	***
	Chmieliski	–0.0601	***	–1.2274	***	–1.2266	***
	Dwurnik	–0.1413	***	–2.2824	***	–2.2810	***
	Erb	–0.0420	**	–1.0908	***	–1.0864	***
	Hofman	–0.0484	**	–1.0883	***	–1.0862	***
	Malczewski	–0.1007	***	0.3115	***	0.3125	***
	Nikifor	–0.2556	***	–1.3326	***	–1.3319	***
	Nowosielski	–0.0471	***	–0.1185		–0.1186	
	Dominik	–0.0594	***	–1.9053	***	–1.9050	***
Signature		–0.0038		–0.0435		–0.0457	
Technique	watercolour	–0.0155		0.1968		0.1991	
	acrylic	0.0448		0.6975	***	0.6998	***
	gouache	–0.0038		0.2849		0.2918	
	oil	0.0561	**	0.8856	***	0.8869	***
	pencil	–0.0704	**	–0.2460		–0.2453	
	pastel	0.0336		0.4502	**	0.4525	**
	tempera	0.0296		0.6350	***	0.6377	***
	drawing ink	–0.0171		–0.5984	**	–0.5986	**
Price relation		–0.0065		–0.0273			
Surface area				0.5646	***	0.5636	***
Squared surface area		0.0484	***				
Parameters describing quality of the hedonic model							
Adjusted R^2		0.9953		0.8114		0.8115	
F statistics		4910.11	***	101.68	***	105.07	***
Degrees of freedom		(32; 717)		(32; 717)		(31; 718)	
Akaike information criterion		–1 492.91		1 269.1		1 267.3	
Autocorrelation coefficient		0.2588		0.0330		0.0306	
Durbin-Watson statistics		1.4808		1.9311		1.9359	

Stars denote significance level of explanatory variables* – 0.1, ** – 0.05, *** – 0.01.
Source: Own elaboration.

Parameter estimates of the models (3) are used to evaluate hedonic quality adjustments (2), and, finally, price indexes. Having the value of the price index we may evaluate returns from the investment in art (Table 6). Analyzing naive indexes calculated for 11 artists, one can notice that in the years 2007–2010 prices of art were changing. We notice the essential increase of prices (nearly 50%) in 2008 in comparison to 2007, while in 2009 prices decreased by 38% in comparison to the previous year, and they declined again in 2010 by 5.6%. Thus as a result art prices dropped in 2010 in comparison to 2007 by 12.8%. Investment in Polish paintings made in 2007 generated annual average losses 4.5% due to naive index, and slightly more than 3% if hedonic indexes based on the models H2 and H3 are used. While hedonic index constructed on the basis of the model H1 shows positive annual returns equal about 2%.

Table 6. Hedonic art price indexes

Year	Type of index	HQA	Price index for basic period		Changes (%) according to		Average annual changes	
			previous year	year 2007	previous year	year 2007	geometric mean	%
2008		naive	1.4984	1.4984	49.84	49.84		
2009			0.6163	0.9235	–38.37	–7.65		
2010			0.9441	0.8718	–5.59	–12.82	0.9553	–4.47
2008	hedonic H1	1.1029	1.3586	1.3586	35.86	35.86		
2009		0.6596	0.9344	1.2695	–6.56	26.95		
2010		1.1313	0.8345	1.0594	–16.55	5.94	1.0194	1.94
2008	hedonic H2	1.4137	1.0599	1.0599	5.99	5.99		
2009		0.6867	0.8975	0.9513	–10.25	–4.87		
2010		0.9860	0.9575	0.9108	–4.25	–8.92	0.9693	–3.07
2008	hedonic H3	1.4160	1.0582	1.0582	5.82	5.82		
2009		0.6862	0.8981	0.9504	–10.19	–4.96		
2010		0.9887	0.9549	0.9075	–4.51	–9.25	0.9682	–3.18

Source: Own elaboration.

Hedonic quality adjustment essentially affected price indexes – when evaluated on the basis of the models, does not change the general direction of price movements represented by naive indexes year by year. However observed changes, represented by hedonic indexes, seem to be smoother than the ones given by the naive indexes. Also taking into account price changes in the whole four-year period one may notice that indexes, evaluated on the basis of the model H1, show the increase of prices by 5.9% in 2010 in comparison to 2007 (average annual change is positive and equals 1.9%), while indexes obtained for the models H2 and H3 show losses, i.e. the similar results as naive indexes.

CONCLUSIONS

Investment in art becomes more and more popular in Poland that is proved by comparison of number of art auctions that took place in years 1989–2012. Also number of art galleries and exhibitions has been increasing although financial crises influenced also

art market and caused reduction of art prices. In Poland paintings are the most popular medium both in lots and value of transactions. Therefore in authors' investigation only this segment of the art market was considered, constructing the research sample from the artworks produced by artists who are characterized by the biggest number of sold paintings on auctions in years 2007–2010. Employing this sample authors evaluate naive and hedonic indexes that are to represent the general tendency at the Polish market of paintings.

Comparing situation on the art market one may notice that decline of art prices became visible in 2009, while the main index of the Warsaw Stock Exchange – WIG decreased by 51% (in 2008 in comparison to the previous year). As a result of financial crisis in 2010 the decline of WIG was by 15% in comparison to the year 2007. In that period the decrease of art prices was less than 13% for the naive index, and less than 10% due to hedonic indexes evaluated on the basis of the models H2 and H3.

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CENY MALARSTWA NA RYNKU SZTUKI W POLSCE W LATACH 2007–2010 – ZASTOSOWANIE INDEKSÓW HEDONICZNYCH

Streszczenie. Rynek sztuki w postkomunistycznej Polsce rozwija się już od 25 lat, chociaż jest to wciąż rynek mały, którego obroty w 2012 roku stanowiły 0,2% światowego rynku. W związku z tym celem badań jest opis aktualnego stanu rynku sztuki w Polsce oraz oszacowanie indeksu cen malarstwa na podstawie prac 11 artystów, których dzieła najczęściej znajdowały nabywców na aukcjach, które odbyły się w Polsce w latach 2007–2010. W artykule zbudowano indeksy hedoniczne, wykorzystując dane dotyczące 750 sprzedanych obrazów, które pozwoliły oszacować zmiany cen na rynku polskiego malarstwa. Wyniki analiz pokazały, że hedoniczna korekta jakościowa istotnie wpływa na ocenę cen dzieł.

Słowa kluczowe: rynek sztuki, hedoniczny indeks cen, inwestowanie

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