

EMAC DOCTORAL COLLOQUIUM 2020

**Price Determinants on the Secondary Art Market:
A Mixed-Method Approach to Improved Estimation at
International Fine Art Auctions**

Submission

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Research Problem

In 2018, the turnover of the global art market amounted for \$67,4 billion (McAndrew, 2019, n.p.). With new records being obtained for works of art at international auction houses over and again, auctions are considered a central pricing mechanism in the capitalized global art industry (Ashenfelter & Graddy, 2003, p. 764). In 2017, the painting «Salvator Mundi» by Da Vinci was sold at Christie's New York for \$450 million – the highest price ever obtained at an art auction worldwide (Mafi, 2017, n.p.). Such prices put the financial value of art in the center of the public discourse. They raise questions regarding the factors that in fact influence such prices. More than that, they challenge the role of marketing in the price formation process.

Art prices are volatile, opaque, and incomparable (Adam, 2014; Ashenfelter & Graddy, 2003; Baumol, 1986; Frey & Pommerehne, 1989; Goetzmann, 1993; Mandel, 2009; Worthington & Higgs, 2004; Worthington & Higgs, 2003). This fact is taken to an extreme on the secondary market for artworks. Despite the financial potential of selling art at auction as well as the public and scientific interest in the value and price of art, knowledge about price determinants on the secondary art market remains scarce. Existing studies largely focus on single price determinants and do not discern between value and price formation. Furthermore, they do not consider the management perspective. At the same time in practice, price estimates often refer to (incomplete and intransparent) data from reference sales. Yet, no study has taken an in-depth mixed-method approach with the goal of 1) deepening the existing knowledge about price determinants and of 2) broadening the research field by identifying additional determinants.

According to the preliminary outline, this thesis comprises four consecutive studies including a systematic literature review, semi-structured expert interviews (n=20), an online survey (n=200) and a random forest regression (n=6.000). It aspires to collate theoretical and practical discourse in order to identify a research gap and inspire further research. As a result, additional price determinants are identified and propositions as well as follow-up questions are defined. Likewise, this thesis provides the basis for subsequent, i.e. experimental studies.

Summarizing, the thesis deals with the issue of price and price management in an atypical market. It contributes to a better understanding of price formation and active price management in the secondary art market. Reducing intransparency in this field is relevant for all stakeholders (Bandle, 2014, p. 30, see also: Angelini & Castellani, 2018, p. 2). Beyond the art market, the issue is relevant for theory and practice relating to similar symbolic goods (i.e. luxury), for marketing and price management (i.e. active price management, added-value, customer experience) and for all other kinds of (online) auctions.

Literature

In its original sense, the value of art is uneconomic (Bourdieu, 1982, p. 194; Findlay, 2012, p. 113; Graw, 2008, p. 13; Hutter, 2010, pp. 260; Velthuis, 2005, p. 129). Accordingly, it has proven advantageous for key players in the art market to express mere uneconomic interest in art. This practice is characteristic for the art market as *Symbolic Economy* (Bourdieu, 2014, p. 187). In the words of Velthuis (2005, p. 79), “denegation [of economic interest] is a precondition for profit”. However according to Gerlis (2014, p. 28), “[...] the moment you take its cultural camouflage away, the art market is an ordinary market, where rational, self-interested, utility-maximizing individuals respond to economic incentives”.

According to the common understanding, a market exists whenever valuation takes place (Bourdieu, 2014, p. 202). In other words, a market forms where utility-oriented individuals cause prices to form at the intersection of a supply and demand function (Velthuis, 2013, pp. 2). Ordinary markets are relatively transparent and prices often objective. Goods on ordinary markets are more or less homogenous, still diversifiable. The liquidity of these markets is guaranteed through strong competition and high trade frequency (Baumol, 1986; Worthington & Higgs, 2003).

Key characteristics of the art market are segmentation, intransparency and volatility (Adam, 2014, p. 162; Ashenfelter & Graddy, 2003; Baumol, 1986; Frey & Pommerehne, 1989; Goetzmann, 1993;

Karpik, 2011, p. 27; Mandel, 2009; Worthington & Higgs, 2004; Worthington & Higgs, 2003). Most artworks traded at auctions are inelastic to supply (Baumol, 1986; Frey & Pommerehne, 1989). This is because a majority of art at auction stems from deceased artists: once their demand increases, so do their prices (Velthuis, 2013, p. 97, see also: Baumol, 1986; Campbell, 2008; Goetzmann, 1993).

The singularity of artworks is often expressed in features such as heterogeneous, unique, indivisible or incomparable (Adam, 2014, p. 180; Karpik, 2011, p. 21; Bourdieu, 2014, p. 13; see also: Ashenfelter & Baumol, 1986; Bourdieu, 1983; Findlay, 2012, Frey & Pommerehne 1989; Gerlis, 2014; Mei & Moses, 2002; Velthuis, 2005; Worthington & Higgs, 2003). Naturally, due to their difference, each artwork possesses different qualities. Consequently, the principle of marginal utility does not perfectly apply. This principle describes the diminishing utility of additional consumed units of the same good (Hutter, 2010, p. 248). Following Bianchi (1997, p. 284), the utility of additional artworks is constant or even increasing.

The academic interest in art prices is increasing along with record-breaking auction results. Currently, a variety of researchers from diverging disciplines are investigating aspects such as colour intensity (i.a. Pownall & Graddy, 2016), status and networks (i.a. Dass, Reddy & Iacobucci, 2014; Shin, Lee & Lee, 2014), physical arousal (i.a. Adam, Ku & Lux, 2019; Kliger, Raviv, Rosett, Bayer & Page, 2015; Ku, Malhotra & Murnighan), time pressure, competition and gaming (i.a. Adam, Krämer & Müller, 2015; De Silva, Pownall & Wolk, 2012; Erhart, Ott & Abele, 2015; Malhotra, 2010), online auctions (Goldberg, Hartline & Wright, 2001; Lee, Kim & Fairhurst, 2009) and investment (i.a. Etro & Stepanova, 2016; Galenson, 2018; Marinelli & Palomba, 2011; McQuillan & Lucey, 2016).

The literature body about art prices is large (Ashenfelter & Graddy, 2003; Campbell, 2008; Kuspit 2007; Mandel, 2009; Mei & Moses, 2002; Melnik & Plaut, 2008; Veire, 2012; Velthuis, 2005; Vanderbeeken et al., 2011). Many of them examine the nature and eligibility of art as asset (Gerlis, 2014, p. 20; Velthuis, 2005, p. 129; see studies by i.a. Ashenfelter & Graddy, 2003; Baumol, 1986; Campbell, 2008; Frey & Pommerehne, 1989; Goetzmann, 1993; Mandel, 2009; Mei & Moses, 2002; Melnik, 2008; Melnik & Plaut, 2008; Worthington & Higgs, 2003; Worthington & Higgs, 2004). More precisely, they calculate the returns of art or analyse the particularities of art as asset. Art returns are either calculated by “hedonic” or “repeat-sale models” (Ashenfelter & Graddy, 2003, pp. 766). Depending on the methods and data used, studies disagree regarding the percentage of return as well as its profitability (Worthington & Higgs, 2004; Worthington & Higgs, 2003). However, they agree on associated risks like insurance costs, attribution and destruction risk as well as theft and forgery (Ashenfelter & Graddy, 2003; Baumol, 1986; Frey & Pommerehne, 1989; Mei & Moses, 2002; Worthington & Higgs, 2004). Further correspondence prevails with regards to benefits such as tax advantages (i.a. Frey & Pommerehne 1989; Melnik 2008), additional consumption benefits (Bianchi, 1997, p. 282; Frey & Pommerehne, 1989, p. 401) and potential risk minimization due to portfolio diversification (i.e. Gerlis, 2014, p. 20; see also Campbell, 2008; Mandel, 2009; Worthington & Higgs, 2003; Mei & Moses, 2002).

However, due to flawed documentation, the art market is subject to information asymmetry (Heilbrun & Gray, 2001, pp. 196). Likewise, available data is often incomplete and inconsistent (Baumol, 1986; Campbell, 2008, Karpik, 2011). However, since the emergence of platforms such as artnet and artprice, “[...] art databases and indices [...] both are becoming more sophisticated and accurate at providing objective information” (Campbell, 2008, pp. 6). Technology might further add transparency (Gerlis, 2014, p. 171). Nevertheless, accurate valuation represents a challenge even for the most-experienced experts. This research at hand tackles this problem.

Methodology

In *Study I*, a systematic literature review is conducted based on vom Brocke et al.’s (2009, pp. 9) and Tranfield’s, Denyer’s, and Smart’s (2003, pp. 214) approach, combined with the systematic review by Scaringella and Radziwon (2018, pp. 60), and the meta-narrative approach by Greenhalgh et al.’s (2005, pp. 420). This study is informative of the scope and depth of the existing literature, as well as of its’ theoretical relevance. A draft list of price determinants is created.

Study 2 encompasses 40 semi-structured interviews with auction experts in the GSA-Region. These interviews are conducted by means of *grounded theory* (Charmaz & Belgrave; 2007) and based on the initial literature review. The resulting qualitative data is coded using a *directed qualitative content analysis* according to Mayring (2001, 2008, 2010) and Hsieh & Shannon (2005). The draft list of price determinants created in *Study 1* is extended.

Study 3 connects to the combined list of price determinants from *Study 1* and 2. On this basis, an *Online Survey* is conducted with 200 auction experts in the GSA-Region. Based on their long-standing practical experience, experts are asked to evaluate each price determinant according its' estimated (a) *impact* as well as its potential (b) *controllability*. The survey combines both quantitative and qualitative evaluation by combining Likert Skala ratings with an open question format. Hence, it reveals information about the nature and strength of each price determinant. This survey has two intermediate goals: First, the list from *Study 1* and *Study 2* is transformed to an encompassing matrix in two dimensions – (a) *impact* and (b) *controllability*. Second, this matrix is reduced to the price determinants with the highest theoretical and practical relevance. Likewise, determinants are characterized as practically relevant if they were attributed high impact and controllability by experts. Determinants are characterized as theoretically relevant if they receive little or no consideration in previous research. The latter can be argued on the basis of the systematic literature review.

Study 4 is based on the reduced matrix of highly relevant price determinants from *Study 3*. More precisely, a *Random Forest Regression* is performed on the basis of real auction house data. The sample includes all transactions at the international fine art auction house Christie's in 2019. (n=c. 6.000) The regression discloses information about the (a) *actual impact* of each price determinant as well as the (b) *interrelation* between those determinants. The superordinate goal of this study is a data-based, objective assessment of price determinants. It allows a comparison with the subjective assessment in *Study 3*. Following are two sub-goals: First, *Study 4* produces first knowledge about formerly unrecognized price determinants and is informative about their actual theoretical and practical relevance. On this basis, the author is able to inspire future research and initiate novel research streams by formulating new propositions and research questions. Second, *Study 4* enables a vivid discussion between theoretical and practical perspective in Chapter 4.

Summarizing, this thesis is of high theoretical and high practical relevance. It identifies discrepancies between the current academic discourse and the actual impact of price determinants in practice. Thereby, it extends the scientific discourse relating to auction theory and pricing in art. More precisely, the theoretical contribution lies in extending the scope of price determinants considered on the secondary art market and in deepening the understanding of those factors. It further lies in identifying novel determinants, that have previously been neglected in research and suggest avenues for future research.

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