

# Journal Pre-proof

Bibliometric analysis of the art market: from art price to market efficiency

Mingjun Guo, Xuerong Li, Yunjie Wei

PII: S2666-7649(24)00018-3

DOI: <https://doi.org/10.1016/j.dsm.2024.03.006>

Reference: DSM 98

To appear in: *Data Science and Management*

Received Date: 15 November 2023

Revised Date: 23 March 2024

Accepted Date: 24 March 2024

Please cite this article as: Guo, M., Li, X., Wei, Y., Bibliometric analysis of the art market: from art price to market efficiency, *Data Science and Management*, <https://doi.org/10.1016/j.dsm.2024.03.006>.

This is a PDF file of an article that has undergone enhancements after acceptance, such as the addition of a cover page and metadata, and formatting for readability, but it is not yet the definitive version of record. This version will undergo additional copyediting, typesetting and review before it is published in its final form, but we are providing this version to give early visibility of the article. Please note that, during the production process, errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

© 2024 Xi'an Jiaotong University. Publishing services by Elsevier B.V. on behalf of KeAi Communications Co. Ltd.



## **A bibliometric analysis of the art market: from art price to market efficiency**

### **Mingjun Guo**

School of Economics and Management, University of Chinese Academy of Sciences, Beijing 100190, China

E-mail: guomingjun21@mails.ucas.ac.cn

### **Xuerong Li**

Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Beijing 100190, China

Center for Forecasting Science, Chinese Academy of Sciences, Beijing 100190, China

E-mail: lixuerong@amss.ac.cn

### **Yunjie Wei\***

(Corresponding author)

Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Beijing 100190, China

Center for Forecasting Science, Chinese Academy of Sciences, Beijing 100190, China

E-mail: weiyunjie@amss.ac.cn

---

\*Corresponding author's email: weiyunjie@amss.ac.cn (Yunjie Wei),

Postal Address: Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Zhongguancun East Road, # 55, Haidian District, Beijing, PR China, Tel: +86 10 82541655

Acknowledgements: This research work was partly supported by the National Natural Science Foundation of China under Grants No. 72171223, No. 71901205 and No. 71988101.

# Bibliometric analysis of the art market: from art price to market efficiency

## Abstract

This study addresses a significant gap in the existing literature by conducting a comprehensive systematic review of the art market over the past 50 years, utilizing big data analysis and bibliometric methods. Through descriptive statistical analysis, we gained insights into research trends, influential literature, authors, academic disciplines, journals, institutions, and countries. By utilizing various bibliometric analyses, including co-citation, co-word, burstiness, time-zone, and co-cited author analyses, we unraveled the inherent logic within the literature. One significant discovery was the consistent annual increase in research interest in the art market. Notably, the focus of art market research has shifted from hedonic art prices to areas such as artist brand management, electronic art platforms, anti-money-laundering supervision, and art market efficiency. Moreover, this study highlights the impact of the COVID-19 pandemic, expediting an electronic revolution in the art market in recent years. Notably, our study is the first to comprehensively employ bibliometric methods to analyze the art market, thereby laying the groundwork for researchers interested in this field.

**Keywords** Art market, Bibliometric analysis, Co-citation analysis, Hedonic art price index

**Paper type** Literature review

## 1 Introduction

The art market has a history spanning several centuries. The art market originated in the 17th century in the Netherlands, where artists were both the producers and sellers of art. By the 18th century, art transactions had expanded, propelled by the emergence of art sales agents. In the second half of the 19th century, the industrial revolution facilitated the replacement of traditional painting stores with galleries combining exhibitions, collections, and sales. Governments and major capitalists intervened in the art market in the 20th century by establishing a system of auction houses. Collectors and museums actively participate in this framework by acquiring paintings, antiquities, and contemporary arts. Notably, renowned antique book auction houses entered the art market during this period.

Existing literature on the art market has the following characteristics. First, according to the Web of Science core collection, there is a limited number of literature reviews on art markets. Second, almost all existing literature reviews of the art market rely on hand-selected samples rather than bibliometric methods. Third, the existing research is fragmented and lacks an outline of the art market. Some scholars have concentrated on art marketing (Bradshaw, 2010; Lee JW and Lee SH, 2017), while others have focused on legal issues in the arts market; Massy (2008) summarized the legal and illegal aspects of the antique market. Other scholars advocate the impact of the art market on society; Nemeth (2007) examined the role of art in the evolution of international security.

The art market is significant from both economic and cultural perspectives. On the one hand, the art

market is significant to the economy. David et al. (2013) suggest that the financial crisis of the past decade has led individuals to focus more on alternative investments such as art. As artwork gradually accounts for a larger percentage of alternative investments, art valuation has become increasingly important. Kraeusl and Logher (2010) analyzed the association between various markets. They found that art markets and other emerging financial markets have a substantial long-term relationship rather than a short-term one. On the other hand, the art market is a vehicle for cultural dissemination. Akhmetzianova et al. (2018) believe that the art market is one of the most effective mechanisms for promoting the integration of art into sociocultural domains.

Through the adoption of bibliometric methods, we have the opportunity to thoroughly and objectively summarize the existing literature in the global art market. This approach has the potential to enrich our understanding of the developmental trends and critical issues in this domain, thereby laying a robust methodological foundation for our research. Moreover, by examining the impact on diverse stakeholders, we strive to ensure a more extensive and profound understanding of the study, thereby significantly contributing to the intricate interplay among art, academia, and societal influences.

Our dataset contained 912 pieces of literature on the art market from the Web of Science Core Collection between 1972 and 2021. Our bibliometric analysis focused on the following issues in the art market. (1) What are the most cited literature, influential authors, journals, institutions, and countries? (2) What are the relationships between the literature and author co-citations? How do critical literature or authors in a co-citation networks influence the research field? (3) What are the collaborative relationships between countries, institutions, and authors? (4) Which literature or keywords are significant to the research field? and (5) What research directions are worth exploring in the future?

Therefore, the three main goals of this study were as follows: (1) Use comprehensive descriptive statistics to explore the authors, disciplines, journals, institutions, and countries that are important in art market research. (2) Use the clustering of co-cited literature, co-cited authors, and collaborative networks to analyze research trends in the art market. (3) Use time zone and burst analyses to identify and visualize changes in research hotspots over the past 50 years.

The rest of this paper is organized as follows. Section 2 systematically discusses the research methods, including data collection, processing, and bibliometric research methods. Section 3 presents a descriptive statistical analysis to illustrate the growth trend, highly cited authors, research fields, journals, institutions, etc. Section 4 examines the literature co-citations and keyword co-occurrence clustering using a network map. Section 5 presents concluding remarks.

## **2 Research methods**

### **2.1 Data collection and processing**

Data were collected from the Web of Science Core Collection, a citation database containing several disciplines and international academic journals. The Web of Science Core Collection provides a citation index through which users can find the subsequent progress of papers and trace them back to core papers on a subject.

We began by searching for “art market\*” and “art econom\*” in the Web of Science Core Collection’s

subject column (which includes the title, abstract, author, and keywords). Then we combined the search results of different keywords with “or” and finally refined the document type to the literature. After meticulously identifying redundant files and excluding papers lacking relevance through title and abstract screening, we successfully compiled a dataset comprising 912 records spanning January 1, 1972 to January 16, 2022.

## 2.2 Overview of bibliometric research methods

Bibliometric analysis is an interdisciplinary science that employs mathematical and statistical methods to analyze literature. In contrast to alternative methodologies such as systematic reviews, bibliometric analyses eliminate subjective biases from manual literature sample selection, facilitating an objective exploration of relationships within the literature. Consequently, bibliometric methods are instrumental in objectively and efficiently identifying research frontiers in various fields (Liu et al.,2023; Wan et al.,2023; Zhu et al.,2022). The widespread application of this method underscores its importance in advancing academic research.

Bibliometric analyses have been applied in various fields to identify research hotspots. For instance, in economics and management, Varshneya et al. (2017) assessed experience value using an online database and found that entrepreneurs may increase brand value by incorporating several aspects of experience value into their positioning strategies. Goodell et al. (2023) conducted a systematic review of culture in financial journals and discovered several major themes using bibliometric methods. Patel et al. (2022) conducted a comprehensive review of the literature on financial market integration (FMI) using a bibliometric approach to understand the hotspots and directions of research on FMI.

Co-citation analysis is a research method used to measure the correlations between papers. If two papers are cited by one or more studies simultaneously, they have a co-citation relationship. Through co-citation analysis, we can efficiently and accurately identify research hotspots for a specific topic.

Co-word analysis is a research method used to measure the correlations between keywords. The more frequently two keywords appear in the same literature, the stronger the correlation between them. Through co-word analysis, we can systematically discover the relationships between different topics.

CiteSpace is a visualization tool used for analyzing research hotspots and trends in literature. Using this software, we can determine the critical and turning points of research when studying a particular field. It can also cluster literature samples and label cluster names, including collaboration and cocitation networks (Chen, 2006). Therefore, this study was conducted using CiteSpace for map analysis.

## 3 Descriptive statistical analysis

### 3.1 Overall trend analysis

In recent years, scholars have paid increasing attention to the art market. Fig. 1 presents the number of published papers and their citations. The earliest study in our dataset was (Coggins, 1972); the author calls for a healthy and legal art market to protect such artworks. Until 1995, few researchers conducted research on the art market. The number of studies published in the art market increased dramatically in 2005 and peaked in 2013. Citations increased exponentially, with the number of citations in 2015 almost doubling that

in 2013. In 2020, the number of citations exceeded 500 for the first time. While the early 21st century witnessed the development of art management as a discipline, it is undeniable that the 2010s experienced a boom in art market studies, an academic field that aims to analyze how artworks are supplied, traded, and consumed (Radermecker, 2022). The art market is an emerging research topic. Although it has received sustained academic attention for nearly half a century, there is still extensive scope for research.

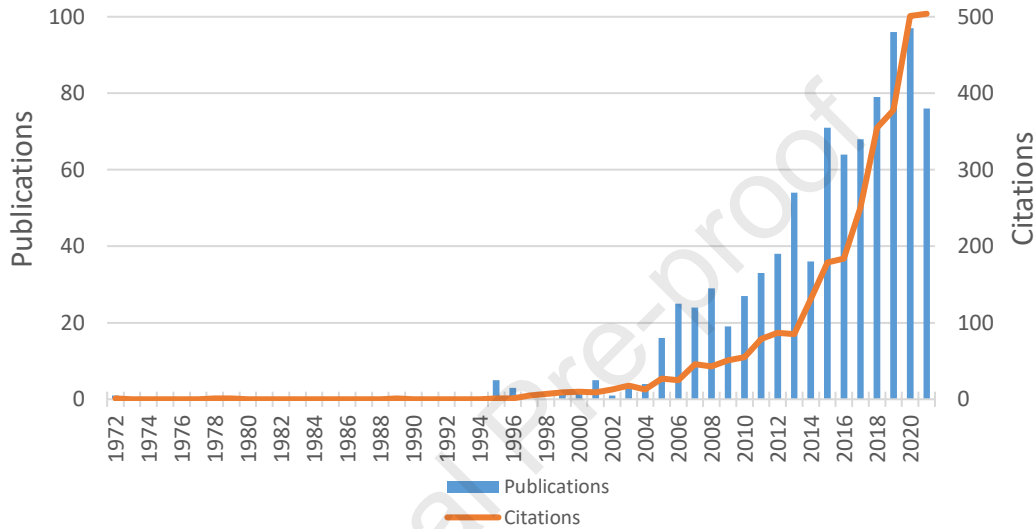


Fig. 1 Overall growth trend of publications and citations

### 3.2 Analysis of influential literature

Table 1 lists the top ten studies cited in the dataset. The primary research focused on the following two aspects: On the one hand, art pricing is widely studied. Chanel (1995) emphasized the importance of the financial market in determining art prices. Renneboog and Spaenjers (2013) constructed an extensive hedonic regression index to study the characteristics of art prices. Beckert and Rossel (2013) examined how the reputation of the artist and artwork determine the price of the artwork. Moulard et al. (2014) believed that artists' brand effects affected artworks' pricing. On the other hand, the cultural attributes of the art market have also received widespread attention. Blaug (2001) extensively discussed the economic history of art and the labor market for artists. Barbieri and Mahoney (2010) studied art performances and cultural tourism in the art market. Lingo and Tepper (2013) studied the employment problems and other challenges faced by artists and art workers in the art market.

Table 1 Top 10 cited studies

Authors	Title	Year	Journal	Citations
Renneboog and Spaenjers	Buying beauty: On prices and returns in the art market	2013	Management Science	105

Lingo and Tepper	Looking back, looking forward: Arts-based careers and creative work	2013	Work and Occupations	80
Blaug	Where are we now on cultural economics?	2001	Journal of Economic Surveys	74
Sgourev	How Paris gave rise to Cubism (and Picasso): Ambiguity and fragmentation in radical innovation	2013	Organization Science	57
Beckert and Roessel	The price of art uncertainty and reputation in the art field	2013	European Societies	52
Moulard et al.	Artist authenticity: How artists' passion and commitment shape consumers' perceptions and behavioral intentions across genders	2014	Psychology & Marketing	51
Chanel	Is art market behavior predictable	1995	European Economic Review	49
Barbieri and Mahoney	Cultural tourism behavior and preferences among the live-performing arts audience: An application of the univorous-omnivorous framework	2010	International Journal of Tourism Research	46
Frey and Eichenberger	On the rate of return in the art market – survey and evaluation	1995	European Economic Review	44
Geismar	What's in a price? An ethnography of tribal art at auction	2001	Journal of Material Culture	44

### 3.3 Analysis of influential authors

Table 2 summarizes the top published authors. The number of studies published by the authors in Table 2 ranged from five to six.

Etro and Federico collaborated closely with Stepanova and Elena. Their research had distinct historical and geographical analysis perspectives. They examined the factors affecting art prices in different regions, including Venice, Amsterdam, the United Kingdom, Spain, and Paris.

Candela, Guido, Castellani and Massimiliano of the University of Bologna collaborated closely. They explored the characteristics of the art market, including art investments, tribal art auctions, and the artists' reputations.

Oosterlinck and Kim studied the art market from a macro perspective, including the effectiveness of the art market, the impact of fake artwork on the art market, and the impact of monetary policy on the art market. Hodgson and Douglas focused on the Canadian art market and added artists' age profiles to a hedonic regression index.

**Table 2** Top 10 published authors

Authors	Institutions	Publications
Etro, Federico	University of Florence	6
Hodgson, Douglas J.	University of Quebec Montreal	6
Oosterlinck, Kim	Universite Libre de Bruxelles	6
Stepanova, Elena	University of Florence	6
Candela, Guido	University of Bologna	5

Castellani, Massimiliano	University of Bologna	5
Charlin, Ventura	V.C. Consultants	5
Cifuentes, Arturo	Clapes UC	5
Helmreich, Anne	Getty Fdn	5
Komarova, Nataliya M.	Moscow Region State University	5

### 3.4 Analysis of research areas

As shown in Fig. 2, art market research is primarily concerned with two aspects: the humanistic and the economic. The humanistic characteristics of the art market mainly include art, multidisciplinary humanities, and sociology. The economic fields of the art market include economics, business, and business finance, which reflect the diversity of research in the art market.

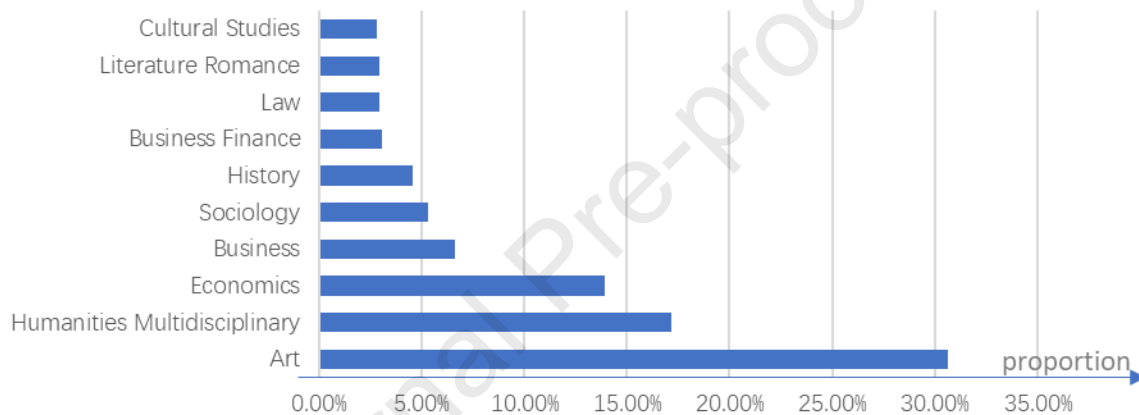


Fig. 2 Distribution of research areas

### 3.5 Influential journal analysis

Table 3 summarizes the top ten published journals. As the art market is an emerging research field, each journal has a modest number of publications and citations.

As shown in Table 3, Journal of Cultural Economics published the most articles in the art market field. Literature on the art market is abundant, with subtopics in this journal. The literature has examined art pricing through the lens of the hedonic price index (Pradier et al., 2016; Oosterlinck, 2017; Radermecker, 2019; Nahm, 2010). Some studies have examined the effect of a painter's signature on the price of artwork (Oosterlinck and Radermecker, 2019; Radermecker, 2019; Scorcu et al., 2021). Other scholars have studied gender discrimination in the art market (Cameron et al., 2019; Leblanc and Sheppard, 2021).

The journal with the highest impact factor was Management Science. The three articles published in this journal were as follows: Highly cited literature (Renneboog and Spaenjers, 2013) examining the art market's price volatility and investment returns. The literature (Whitaker and Kraussl, 2020) introduced the ownership structure into the art income model and found that income is significantly higher than market performance. Penasse and Renneboog (2021) studied bubbles in the post-war art market.

Table 3 Top 10 published journals



Publication titles	Publications	Citations	Impact factor
Journal of Cultural Economics	24	111	2.315
Poetics	9	60	1.678
Economics Letters	6	49	2.097
European Societies	5	83	2.923
European Economic Review	5	149	2.146
Cultural Sociology	4	14	1.792
Empirical Economics	4	26	1.713
Management Science	3	114	4.883
Emerging Markets Review	3	39	4.073
Economic Modelling	3	15	3.127

### 3.6 Influential institutional analysis

The top ten research institutions in terms of publications are listed in Table 4. The University of London has the largest number of publications with research focusing on the elements of the artwork's economic value. Many scholars have studied the value formation of artworks in the contexts of political, cultural, legal, and other factors. The literature (Preece et al., 2016; Rodner and Preece, 2016) stated that the value of art cannot be separated from social value. Factors such as historical backgrounds, social relations, political systems, and ideology can affect artwork value.

**Table 4** Top 10 published institutions

Institutions	Countries	Publications	Citations	Average citations
University Of London	England	21	140	6.67
University Of Amsterdam	Netherlands	19	149	7.84
University Of Bologna	Italy	16	31	1.94
Universite Libre De Bruxelles	Beigium	13	99	7.62
University Of California	the United States	10	29	2.9
Centre National De La Recherche Scientifique Cnrs	France	9	43	4.78
University Of Melbourne	Australia	9	79	8.78
Complutense University Of Madrid	Spain	8	7	0.88
Erasmus University Rotterdam	Netherlands	8	21	2.63
Tilburg University	Netherlands	8	187	23.38

Tilburg University in the Netherlands, where experts analyze general price trends in the art market, has the most significant average number of citations. The art market is inefficient, as David et al. (2013) demonstrate. According to Pownall et al. (2019), the art and stock prices exhibit stochastic, elastic, and dynamic relationships. Additionally, scholars at this institution have analyzed the influence of investor attitudes and confidence levels on artwork prices (De Silva et al., 2012; Penasse et al., 2014).

### 3.7 Influential country analysis

Table 5 summarizes influential countries in the art market research field. The United States, the United Kingdom, and Italy ranked first, second, and third, with 150, 92, and 65 publications, respectively. The Netherlands, Australia, and France have the highest average number of citations, implying a greater global impact. The United States has the highest volume of literature, indicating that researchers place a higher priority on this field there.

Fig. 3 depicts the collaboration networks among several countries. The larger the circle, the more literature the nation has published, and the more lines surrounding the circle, the more closely the country cooperates with other countries. In recent years, the United States literature (Fedderke and Li, 2020) has examined the South African art market using the hedonic price index and determined that art prices fluctuate countercyclically with Gross Domestic Product (GDP) and domestic equity, citing studies by researchers from various nations. Another example is the literature by scholars from the Yale School of Management in the United States (Cameron et al., 2019), which cites a substantial amount of international literature on the auction price of artworks sold under the artist's name and the gender effect. The results show almost no discrimination based on gender in the sale of artwork on the market. Russian scholars primarily have citation relationships with countries such as the United States, Japan, Germany, and Belgium. Academics in Australia and France rarely cited each other.

**Table 5** Top 10 published countries

Countries/regions	Publications	Citations	Average citations
the United States	150	851	5.67
England	92	339	3.68
Italy	65	110	1.69
Spain	62	127	2.05
France	59	423	7.17
Netherlands	45	405	9.00
Germany	38	198	5.21
Australia	35	274	7.83
Belgium	27	167	6.19
Russia	26	16	0.62

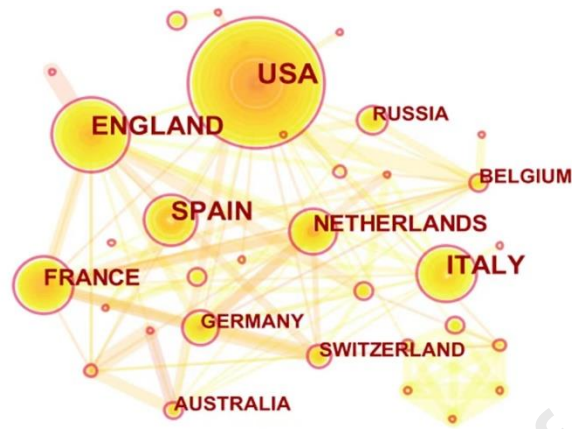


Fig. 3 Cooperation network of countries

## 4 Bibliometric map analysis

### 4.1 Cluster analysis of co-cited literature: five hot topics in the art market

We used the CiteSpace software to display the co-citation relationship of the literature in the form of a map. The map was clustered using the subject words of the cited literature, which were derived from their titles, keywords, and abstracts of the cited literature. Fig. 4 shows the clustering results, including cluster names and typical papers. Table 6 summarizes the cluster analysis of co-cited papers. From the clustering results, we identified hot topics in the art market.

CiteSpace generates a cluster ID based on cluster size. Larger the cluster size, smaller the cluster ID. The largest clusters were anonymous paintings and artistic brands, whereas the smallest cluster was market efficiency. The silhouette column indicates the homogeneity of each cluster (given a comparable cluster scale, the closer the silhouette value is to 1, the more valid the clustering effect), and all five clusters displayed were ideal. The year column indicates each cluster member's average publication year, which generally corresponds to the emergence of a hot topic. Table 6 presents the most prevalent themes between 2012 and 2017.

The top three popular topics were anonymous painting and artistic branding, construction of a hedonic art price index, and anti-money laundering regulation. The clusters consisted of 40, 39, and 37 members in 2015, 2012, and 2017, respectively.

We now use the time of clustering as a clue to study the changes in hot topics in the art market.

- Cluster #1 Constructing hedonic art price index 2012

Since 2002, scholars have constructed hedonic price indices for artworks and have tended to use massive datasets. Representative literature (Higgs and Worthington, 2005) construct a hedonic price index using 37,605 paintings in the Australian art market from 1973 to 2003. The model includes factors such as the artist's name and living status, size and medium of the painting, auction house, and year of sale. Kraeussl and Logher (2010) constructed three hedonic regression index models with a sample size of 24,524: Russia

(1985–2008), China (1990–2008), and India (2002–2008), all of which ultimately showed strong growth in artwork prices. Demir et al. (2018) constructed a hedonic price index using a Turkish art market dataset with 32,391 samples. They studied the interaction among art, domestic stock, and world stock markets. Other scholars optimized the basic hedonic price index model. For example, Galbraith and Hodgson (2012) used two methods—model averaging and dimensionality reduction—to solve the problem of insufficient degrees of freedom in the model.

Table 7 lists the representative literature of this cluster, showing how the researchers of this cluster collect data, process data, and build models according to the year of publication.

Some scholars obtain their data through open-access art indices, whereas others manually analyze the data provided by auction houses. Regarding data processing, researchers often restrict the artwork categories, compile artist lists, and eliminate incomplete data.

Feature selection is critical when constructing a hedonic regression model. In general, there are three characteristic categories: artist, work, and sales. In artist characteristics, the specific factors used by scholars in this field are artist name, age, nationality, year of birth, year of death, deconstruction, textbooks, and exhibitions, which primarily reflect the artists' basic identity information, popularity, and the existence of a death effect. Work characteristics, including size, surface, attribution, medium, title, year of creation, support, technique, size, authentication, and gender, primarily reflect the basic information about an artwork. Sale characteristics include auction houses, dates, months, years, lot numbers, covers, exhibited, illustrated, and literature, which mainly reflect the time and place when the art was sold and whether there was any special publicity.

Generally, authors studying the hedonic price index use extensive datasets and optimize the choice of characteristics to build more reasonable models.

- Cluster #0      Anonymous painting and artistic brand      2015

Cluster #0 was the largest cluster. Scholars have primarily investigated the effect of an artist's reputation on the value of the artwork, which is subdivided into the valuation of anonymous paintings and artist brands.

The representative literature on anonymous paintings (Radermecker, 2019) uses a dataset of anonymous paintings to construct a hedonic price model and study the formation of anonymous painting prices. The conclusion was that the pricing of anonymous paintings could be significantly affected by other factors (time and place of the painting, physical state of the painting, and expert's oral or written appraisal). Oosterlinck and Radermecker (2019) argued that when an anonymous painting is given a temporary author name (such as "Master"), the painting will be more valuable in the market.

According to representative research on artistic brand value (Preece and Kerrigan, 2015; Hernando and Campo, 2017), the branding impact of an artist's name may add value to the artwork.

- Cluster #3      Digital art platform      2015

Scholars in the art market have extensively studied electronic artwork platforms. Dela-Poza-Plaza et al. (2009) proposed that artwork information on the Internet affects the turnover of artwork auction houses. More representative literature in this cluster was generated in 2018. For example, Lee and Lee (2019) argue that user participation on digital art platforms can help break down the physical barriers formed by traditional galleries, generate more art collectors, and help digital art platforms achieve marketing purposes. According

to the literature (Fernandes and Afonso, 2020), the art market's total online sales have been expanding annually. In the case of the two largest auction houses in Portugal, the author demonstrates that creating an online art platform facilitates an auction house's ability to expand its client base and thus capture the market. Wang (2022) tests the volatility spillover relationship between NFT (Non-Fungible Token) artwork and financial markets on NFTs trading platforms and finds that NFTs are volatility spillover receivers, indicating the vulnerability of digital platform artwork to the volatility of other financial assets.

- Cluster #2 Anti-money laundering regulation 2017

Paul (2018) believed that with the auxiliary of modern technology, such as untraceable Bitcoin and fake identity software, the phenomenon of criminal gangs using the art and antique market to launder money has intensified. The author presents evidence of illegal antique trade on the dark web and encourages more attention to this problem. Hufnagel and King (2020) indicated that criminal activities, such as money laundering and financing terrorist organizations, exist in the art market. They examined the relevant the European Union and the United States laws, analyzed the application of "anti-money laundering" and preventive measures in the United Kingdom, and concluded that the "anti-money laundering" system was not justified.

- Cluster #10 Market efficiency 2017

Scholars have focused on the efficiency of the art market. Owing to the asymmetric information of buyers and sellers in the auction process, there is a random walk effect and weak efficiency in the American art market (Erdos and Ormos, 2010; David et al., 2013). Botha et al. (2016) focused on the African art market and found that market inefficiency aggravated the risk of art investment. Aye et al. (2018) used 15 art price indices and concluded that the United Kingdom and the United States markets were inefficient. Assaf et al. (2021) consider information asymmetry, gallery influence, and talent differentiation in the art market as explanations for art market inefficiency. Overall, this research suggests that the art market is weakly efficient.

**Table 6** Co-citation clusters

Cluster ID	Cluster label (LLR)	Cluster size	Silhouette	Average year
#0	anonymous painting and artistic brand	40	0.917	2015
#1	constructing hedonic art price index	39	0.963	2012
#2	anti-money laundering regulation	37	0.990	2017
#3	digital art platform	35	0.958	2015
#10	market efficiency	12	1	2017

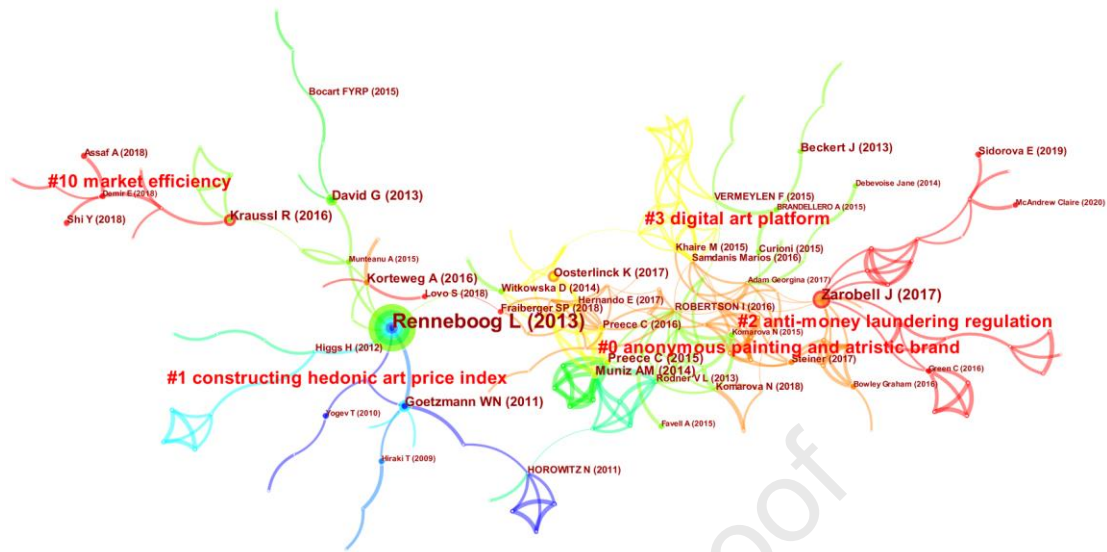


Fig. 4 Clusters of co-cited literature and representative papers

Table 7 Representative literature on the hedonic art price index

Title	Author	Model	Characteristics	Database	Data processing	Samples
Is art market behavior predictable?	Chanel (1995)	hedonic regression	Artist characteristics (Artist name); Work characteristics (Size, Surface, Attribution)	Mayer compendia	Limit the types of artworks (paintings); Compile a list of artists.	25300 sales
Financial Returns and Price Determinants in the Australian Art Market, 1973–2003	Higgs and Worthington (2005)	hedonic regression	Artist characteristics (Artist name, Deceased); Work characteristics (Medium, Size); Sale characteristics (Auction house, Year)	the naive art index	Restrict the artist's location to Australia; Compile a list of artists; Delete missing records.	37605 sales
A call on art investments	Kraeussl and Wiehenkamp (2012)	2-step hedonic regression	Artist characteristics (Artist name, Nationality, Year of birth, Year of death); Work characteristics (Title, Year of creation, Support, Technique, Size, Authenticity); Sale characteristics (Auction house, Date, Lot number)	online database www.artnet.com	Restrict the artist's location to Germany; Delete missing records.	61135 sales
Buying Beauty: On Prices and Returns in the Art Market	Renneboog and Spaenjers (2013)	hedonic regression	Artist characteristics (Textbook, Exhibition, Deceased); Work characteristics (Attribution, Authenticity, Medium, Size, Genre); Sale characteristics (Month, Auction house)	online database Art Sales Index	Limit the types of artworks (oil paintings and works on paper); Compile a list of artists.	1088709 sales

Econometric Fine Art Valuation by Combining Hedonic and Repeat-Sales Information	Galbraith and Hodgson (2018)	hedonic regression and repeat sales method	Artist characteristics (Age); Work characteristics (Size, Area, Medium, Genre);	Auction house(Campbell, Sotheby, Westbridge)	Restrict artist's location to Canada; Compile a list of artists; Delete missing records.	9891 sales
Art in Africa: Hedonic price analysis of the South African fine art auction market, 2009–2014	Fedderke and Li (2019)	hedonic regression	Economic variables(GDP, Dow Jones Index, Johannesburg stock market index, the interest rate); Artist characteristics (Age, Deceased); Work characteristics (Size, Area, Signed, Numbered, Dated, Medium, Theme); Sale characteristics (Cover, Exhibited, Illustrated, literature)	the two largest South African art auction houses (SC and SWC)	Restrict the artist's location to South Africa; Compile a list of artists; Delete missing records.	5329 sales

#### 4.2 Literature co-cited landmark analysis: top 10 representative literature in the art market

Fig. 5 illustrates that the highlighted nodes in the network are landmark nodes or the cluster's most widely referenced literature. Convex hulls of different colors include nodes from all the literature in the cluster.

Specific information on the landmark nodes is presented in Table 8. The research direction of the landmark literature mainly focuses on the following aspects: the hedonic price index, market effectiveness, artistic brand effect, electronic art platforms, and anti-money laundering.

The hedonic art price index is an important research topic in the art market. After establishing an art price index, researchers often compare it with the prices of other assets. Goetzmann et al. (2011) constructed a long-term art price index for the United Kingdom market and regressed art prices with stock market prices. The study concludes that stock market prices affect the pricing of art works. Renneboog and Spaenjers (2013) utilized a large dataset to develop a variety of hedonic regression indices and compared the risk-return of art to that of other assets, concluding that art had a lower risk-return than financial assets. Korteweg et al. (2016) used auction data for more than 30,000 works of art to estimate a model adjusted for endogenous sales in illiquid asset markets. The literature is innovative in that it introduces a nonlinear relationship between returns and sales probability as well as information regarding paintings that have been auctioned but not sold.

Art market efficiency researchers typically use hedonic price indices to build their models. David et al. (2013) used the hedonic price index dataset from the literature (Renneboog and Spaenjers, 2013) to discuss art market efficiency. The author used the Ljung–Box, variance ratio, run, and Bartels tests and believed that the art market was weakly efficient. Kraussl et al. (2016) segmented the model's characteristics (sale date, auction house, and medium) to analyze the elements that affect the price of art and used the hedonic price index to demonstrate the presence of bubbles in the art market. This literature has drawn the attention of subsequent researchers to bubble formation in the art market (Assaf, 2018; Li et al., 2020).

Literature on the artistic brand effect is more likely to consider an artist's career and social environment. Establishing an artist's brand effect is inseparable from the artist and the social environment in which the artist lives (Muniz et al., 2014; Preece and Kerrigan, 2015). In the case of Pablo Picasso, the artist's brand is operated by the artist and multiple stakeholders with characteristics similar to those of corporate, luxury, and

cultural brands. Focusing on specific artists, other authors have discussed prominent art collectors. Oosterlinck (2017) studied the French art market after World War II. During the war, people tended to invest in artworks to preserve their assets or avoid taxes. After a war, a famous work of art may help its purchaser enhance their reputation and social status.

There is little landmark literature on electronic art platforms and anti-money laundering. Beckert and Rossel (2013) used Internet datasets with the artist's surrounding factors (such as gallery owners, curators, critics, art dealers, journalists, and collectors) to evaluate the value of the artwork. The uncertainty in the art market has decreased. Zarobell (2017) analyzed the dramatic developments in the global art market over the last two decades in Art and the Global Economy. With globalization, the art market may face several challenges, such as the use of art for money laundering crimes.

**Table 8** Summary of landmark literature

Landmark	Title	Journal	Cluster
Renneboog (2013)	Buying beauty: On prices and returns in the art market	Management Science	#1 constructing hedonic art price index
Zarobell (2017)	Art and the global economy	Univ of California Press	#2 anti-money laundering regulation
David (2013)	Art market inefficiency	Economics Letters	#1 constructing hedonic art price index
Goetzmann (2011)	Art and money	American Economic Review	#1 constructing hedonic art price index
Kraussl (2016)	Is there a bubble in the art market?	Journal of Empirical Finance	#10 market efficiency
Korteweg (2016)	Does it pay to invest in art? A selection-corrected returns perspective	Review of Financial Studies	#1 constructing hedonic art price index
Muniz (2014)	marketing artistic careers: Pablo Picasso as brand manager	European Journal of Marketing	#0 anonymous painting and artistic brand
Preece (2015)	Multistakeholder brand narratives: an analysis of the construction of artistic brands	Journal of Marketing Management	#0 anonymous painting and artistic brand
Beckert (2013)	The price of art uncertainty and reputation in the art field	European Societies	#3 digital art platform
Oosterlinck (2017)	Art as a wartime investment: Conspicuous consumption and discretion	Economic Journal	#0 anonymous painting and artistic brand



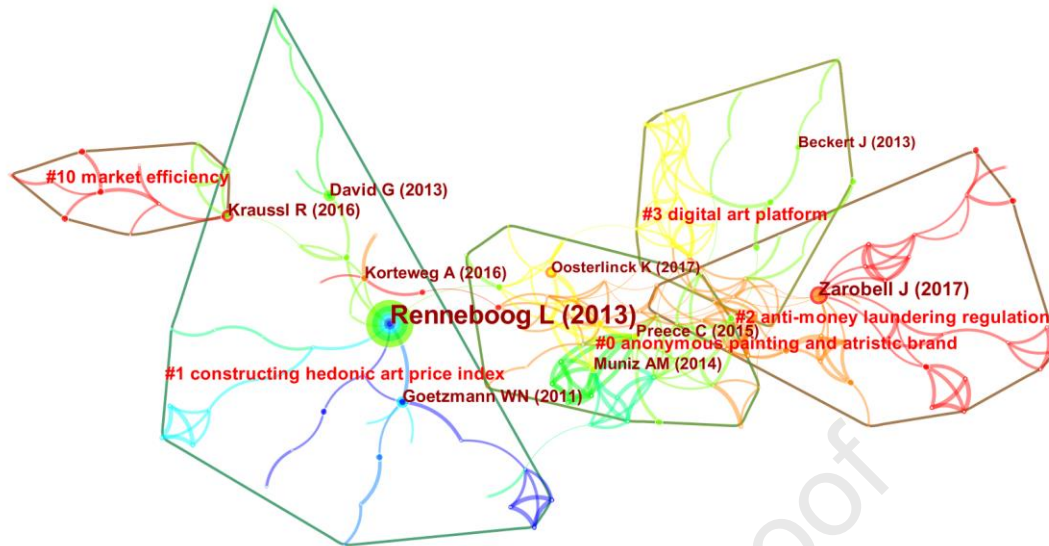


Fig. 5 Landmark nodes of co-cited literature and convex hull of each cluster

### 4.3 Burst analysis of literature co-citations: discovering research frontiers and hot spots

In CiteSpace II, the co-cited burst analysis of literature extracts burst terms from titles, abstracts, descriptors, and literature identifiers, thereby helping researchers discover hot topics (Chen, 2006). The nodes marked in red in Fig. 6 are the co-citation bursts' nodes. Table 9 shows information on the top ten co-cited burst studies. The outburst period for each study is highlighted in red in the timeline from 1972 to 2022. The following conclusions can be drawn from Fig. 6 and Table 9:

First, by observing the burst start time of each study, it can be found that the burst times of studies belonging to the same cluster are gathered. The bursts of literature belonging to different clusters have an apparent order of occurrence that is consistent with the chronological order of the clusters: #1 Constructing hedonic art price index (2012), #0 Anonymous painting and artistic brand (2015), # 3 Digital art platform (2015), #2 Anti-money laundering regulation (2017), and #10 Market efficiency (2017). The order of occurrence shows that the research hotspots of concern for scholars in the art market are trendy and change every two to three years.

Second, although research on the art market appeared in 1972, the research volume did not increase significantly until 2013, which is consistent with the overall research trend shown in Fig. 1. This trend indicates that experts have begun to pay serious attention to the art market only in the last decade. However, there is much more to learn about this topic.

Third, by examining recent studies, we discovered that experts concentrated their efforts on anti-money laundering regulations and art market efficiency. Sidorova (2019) pointed out that with the help of new technologies (cryptocurrency, blockchain, and artificial intelligence), transactions in the contemporary online art market have launched a new situation, such as using virtual currency to trade instead of real currency. Resolving practical problems caused by technological innovations, such as money laundering, has created new challenges for scholars. Shi et al. (2017) studied whether buyers have local preferences in the auction market and revealed that local buyers tend to pay high prices for local artwork. They argued that tariffs and capital flow restrictions are the main reasons for market inefficiencies.

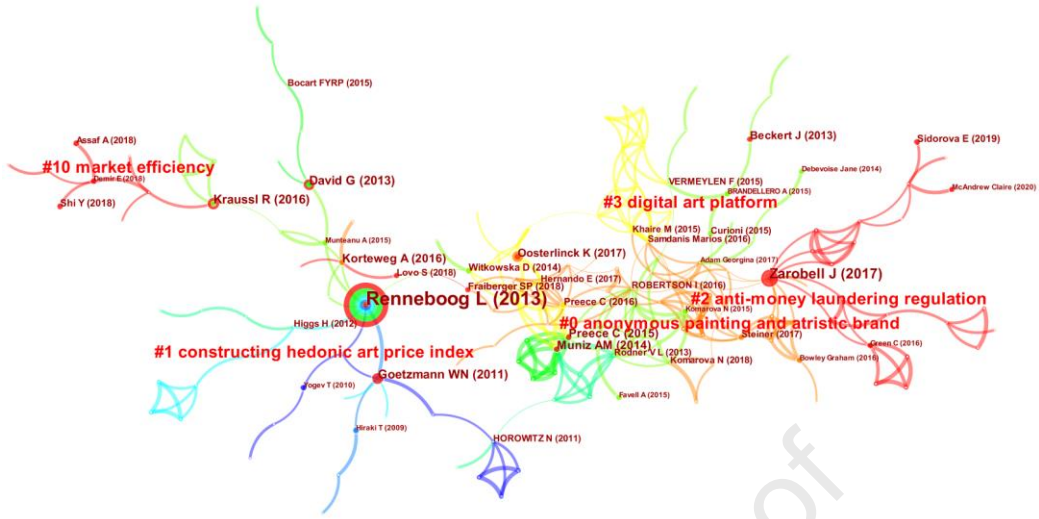


Fig. 6 Literature with citation bursts

Table 9 10 studies with the strongest citation bursts

Author	Title	Journal	Year	Strength	Begin	End	1972–2022	Cluster
Luc Renneboog; Christophe Spaenjers William N. Goetzmann;	Buying beauty: on prices and returns in the art market	Management Science	2013	11.9	2013	2018		#1 constructing hedonic art price index
Luc Renneboog; Christophe Spaenjers Géraldine David; Kim Oosterlinck;	Art and money	American Economic Review	2011	4.6	2013	2015		#1 constructing hedonic art price index
Ariane Szafarz	Art market inefficiency	Economics Letters	2013	3.89	2016	2018		#1 constructing hedonic art price index
Chloe Preece; Finola Kerrigan	Multistakeholder brand narratives: an analysis of the construction of artistic brands	Journal of Marketing Management	2015	3.17	2017	2019		#0 anonymous painting and artistic brand
Jens Beckert; Jörg Rössel	The price of art uncertainty and reputation in the art field	European Societies	2013	3.57	2018	2018		#3 digital art platform
Olav Velthuis; Stefano Baia Curioni	Cosmopolitan canvases: the globalization of markets for contemporary art	Oxford Scholarship Online	2015	3.28	2018	2020		#3 digital art platform
Kim Oosterlinck	Art as a wartime investment: conspicuous consumption and discretion	Economic Journal	2017	3.08	2019	2020		#0 anonymous painting and artistic brand

John Zarobell	The art market in the margins	Art and the Global Economy	2017	5.57	2020	2022		#2 anti-money laundering regulation
Elena Sidorova	The cyber turn of the contemporary art market	Arts	2019	3.04	2021	2022		#2 anti-money laundering regulation
Yang Shi; Hui Xu; Mancang Wang; Paul Conroy	Home bias in domestic art markets: evidence from China	Economics Letters	2017	3.04	2021	2022		#10 market efficiency

#### 4.4 Timezone analysis of co-cited keywords: collective emergence of keywords

The keyword's time zone map shows the time interval between the keyword's appearance and the co-occurrence relationship of the keywords. Fig. 7 shows the time zones of keywords in the art market. The earliest keywords in the field of art market research were mainly “art market,” “investment,” “model,” and “art price.” Then, “hedonic regression” was conducted for some time. The initial research hotspot was the use of hedonic regression to study art pricing and assist the market to invest in art.

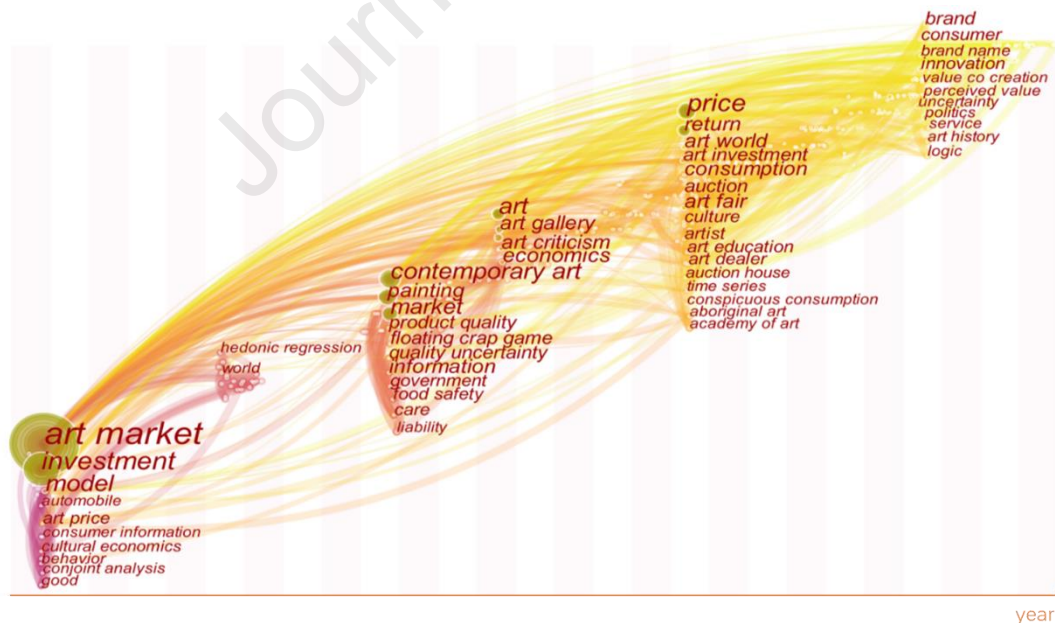


Fig. 7 Time zone map of keywords

Subsequently, the research hotspot shifted to “contemporary art,” and keywords such as “painting,” “art criticism,” “information,” and “art gallery,” attracted the attention of scholars. These keywords were related

to the specific information of the artwork and corresponded with research themes, such as electronic artwork platforms, anonymous artwork, and brand effects that appeared in the same period.

Subsequently, the research focus returned to the topics of “price,” “return,” “art investment,” etc., with a vast number of keywords. An increasing number of scholars have paid attention to previous research and the research focus has returned to artwork pricing. Simultaneously, many scholars are concerned about the participants in the art market, such as “art fair”, “auction house”, and “art dealer.” Some scholars have studied the role and function of art fairs in the art market from a cultural perspective (Morgner, 2014; Jones et al., 2016; Villaria, 2019); whereas others have studied the role of art dealers in the art market through case studies (Baetens, 2014; Smith, 2017).

Finally, the research hot spot has come to “brand,” “consumer,” “brand name,” etc., which shows that researchers have begun to pay attention to the brand effect and marketing of art in recent years. From a marketing perspective, the literature (Gursen, 2020; Moslehpour et al., 2021) examined the interaction between art brands and customers.

It can be found that the occurrence time of the keywords in art market research is the same as that of co-citation clustering. Other research subdivision paths can be investigated using keywords that are beneficial for studying the segmentation fields inside the clusters.

#### 4.5 Node analysis of co-cited authors: find closely related authors

Table 10 shows the top 10 most-cited authors, their institutions, and fields of study. To study the citation relationships among highly cited authors, we created a cocitation network of authors. Fig. 8 shows how scholars from the same group are cited together.

Within the art market, the co-citation relationship between Bourdieu, Velthuis, and Moulin is strong, indicating that these authors are frequently co-cited. This is because they are committed to studying the influence of sociocultural backgrounds, social mechanisms, historical periods, and other sociological content on the art market.

The remaining authors, Goetzmann, Baumol, Renneboog, Mei, and Chanel, had strong co-citation relationships. These authors’ literature has been co-cited because they studied art pricing. Additionally, highly cited literature (Renneboog and Spaenjers, 2013) also cites the literature of Chanel, Mei, and Pesando et al., while Kraussl et al. (2016) cite Baumol and Chanel’s literature on art as a financial asset and art pricing, and study the high prices in the art market in different regions owing to speculative bubbles. Lovo and Spaenjers (2018) cite Ashenfelter, Goetzmann, Mei, and Renneboog and construct an infinite-horizon model based on auction prices and auctioneer characteristics in the auction market. Penasse and Renneboog (2021) cite Ashenfelter, Goetzmann, Mei, and Pesando to study price bubbles in the postwar art market.

**Table 10** Top 10 cited authors

Author	Institution	Citation frequency	Research area
Pierre Bourdieu	College de France	91	Sociology

Olav Velthuis	University of Amsterdam	82	Economic sociology; Cultural Sociology; Sociology of the Arts
William Goetzmann	Yale University	77	Finance & Management Studies
Baumol, William J.	Tomas Bata University	75	Macroeconomics; Financial Economics; Digital Economy
Luc Renneboog	Tilburg University	73	Corporate finance; Corporate Governance; Art Markets
Mei, JP	Cheung Kong Graduate School of Business	66	Asset Pricing; Real Estate; Art Market
Chanel Olivier	Aix-Marseille University	63	Applied Microeconometrics
Orley Ashenfelter	Princeton University	62	Financial Economics; Art Market
Bruno S. Frey	University of Basel	58	Economics and Social Science
James E. Pesando	University of Toronto	56	Macroeconomics; Art Market

Note: The citation frequency is the total citation in our dataset.



Fig. 8 Co-citation network of authors

## 5 Conclusion

This study uses CiteSpace to conduct descriptive statistical, co-citation, and co-word analyses of a sample of art market literature from 1972 to 2022. Research institutions in the art market are mainly concentrated in European countries and the United States, which may be related to the fact that the

development of the Western art market has taken the lead in the world since the second half of the 19th century. The co-citation and co-word analysis results reveal that art market research has always focused on using hedonic regression to construct an art price index. Over the last 50 years, the research focus has shifted from pleasure to art pricing, artist brand management, electronic art platforms, anti-money laundering supervision, and art market efficiency.

Based on our empirical results, we propose three valuable areas for future research.

(1) Electronic artwork platforms. The maturity of concepts such as blockchain and cryptocurrency has made electronic artwork platforms intermediaries between exhibitions and sales (Ahmadi and Rahbarnia, 2023; Huang et al., 2023; Schwiderowski et al., 2023). The popularity of NFT and metaverse concepts has also brought research on electronic art platforms to researchers; vision. Bourron (2021) noted that the COVID-19 outbreak has facilitated the growth of online art auctions. Valera et al. (2021) analyzed the characteristics and problems of digital art and the potential risks of cryptographic certificates in the production, dissemination, and preservation of works of art.

(2) Anti-money laundering regulations in the art market. Hufnagel and King (2020) argued that the art market is at risk of being used for criminal money laundering and terrorist financing. Based on the characteristics of money laundering activities, the author examines the types of supervision applicable to the art market.

(3) Study the efficiency of the art market using big data Martinez et al. (2020) use artificial intelligence models and natural language processing algorithms to predict IBEX (Índice Bursátil Español) trends based on investor sentiment. This conclusion demonstrates that the Spanish financial market does not conform to the efficient market hypothesis.

The COVID-19 pandemic has undoubtedly posed considerable challenges to the global economy. The impact of the COVID-19 pandemic on the art market has attracted the attention of many scholars. Scholars have studied the negative influence of COVID-19 on the art market. The impact of COVID-19 on the primary gallery market is more significant than that on the secondary auction market because the former emphasizes face-to-face communication and the mutual recognition of artworks (Buchholz et al., 2020). Zanatta and Roy (2021) examine the impact of COVID-19 on the art market in West Bengal and provide an outlook for folk artists.

Another group of scholars has studied the opportunities brought by COVID-19 to the art market. Brown (2021) used Sotheby's auction house as an example to demonstrate that COVID-19 can help auction houses carry out technological innovation and expand their sales channels. Habelsberger and Bhansing (2021) believed that COVID-19 will help art galleries innovate and expand their electronic sales channels. The authors believe that despite the limitations of digital galleries, their development is still worth anticipating. COVID-19, according to the literature (Gerlieb, 2021; Saint-Raymond, 2021), may facilitate the digital transformation of the art market.

We believe that the art market provides an ample opportunity for research. Against the distinctive background of the new era and with the advancement of research theories and methods, art market research will continue to be enriched.

## **Declaration of competing interest**

The authors declare that they have no competing financial interests or personal relationships that may have influenced the work reported in this study.

Journal Pre-proof



## References

- Ahmadi, G., & Rahbarnia, Z., 2023. *CryptoArt; A Fusion Between Art and Blockchain Technology*. *Bagh-E Nazar*, 20(122), 59-72.
- Akhmetzianova, Z. F., Dolakova, M. I., & Akhmetova, A. R., 2018. Art-market's development tendencies in Russia in the 1990s. *Dilemas Contemp.-Educ. Polit. Valores*, 6.
- Assaf, A., 2018. Testing for bubbles in the art markets: an empirical investigation. *Econ. Model.*, 68, 340-355.
- Assaf, A., Kristoufek, L., Demir, E., et al., 2021. Market efficiency in the art markets using a combination of long memory, fractal dimension, and approximate entropy measures. *J. Int. Financ. Markets Institutions & Money*, 71.
- Aye, G. C., Chang, T. Y., Chen, W. Y., et al., 2018. Testing the efficiency of the art market using quantile-based unit root tests with sharp and smooth breaks. *Manchester Sch.*, 86(4), 488-511.
- Baetens, J. D., 2014. The Belgian brand: Ernest Gambart and the British market for modern Belgian art, c. 1850-1870. *Rev. Belge Philol. Hist.*, 92(4), 1277-1310.
- Barbieri, C., & Mahoney, E., 2010. Cultural tourism behaviour and preferences among the live-performing arts audience: an application of the univorous-omnivorous framework. *Int. J. Tour. Res.*, 12(5), 481-496.
- Beckert, J., & Rossel, J., 2013. The price of art uncertainty and reputation in the art field. *Eur. Soc.*, 15(2), 178-195.
- Blaug, M., 2001. Where are we now on cultural economics? *J. Econ. Surv.*, 15(2), 123-143.
- Botha, F., Snowball, J., & Scott, B., 2016. Art investment in South Africa: portfolio diversification and art market efficiency. *S. Afr. J. Econ. Manag. Sci.*, 19(3), 358-368.
- Bourron, C., 2021. How has COVID-19 affected the public auction market? *Arts*, 10(4).
- Bradshaw, A., 2010. Before method: axiomatic review of arts marketing. *Int. J. Cult. Tour. Hosp. Res.*, 4(1), 8-19.
- Brown, K., 2021. Screen culture, online auctions, and art market spectacle. *Visual Stud.*
- Buchholz, L., Fine, G. A., & Wohl, H., 2020. Art markets in crisis: how personal bonds and market subcultures mediate the effects of COVID-19. *Am. J. Cult. Sociol.*, 8(3), 462-476.
- Cameron, L., Goetzmann, W. N., & Nozari, M., 2019. Art and gender: market bias or selection bias? *J. Cult. Econ.*, 43(2), 279-307.
- Chanel, O., 1995. Is art-market behavior predictable. *Eur. Econ. Rev.*, 39(3-4), 519-527.
- Chen, C. M., 2006. CiteSpace II: detecting and visualizing emerging trends and transient patterns in scientific literature. *J. Am. Soc. Inf. Sci. Technol.*, 57(3), 359-377.
- Coggins, C., 1972. Archeology and art market. *Science*, 175(4019), 263-&.
- David, G., Oosterlinck, K., & Szafarz, A., 2013. Art market inefficiency. *Econ. Lett.*, 121(1), 23-25.
- De-la-Poza-Plaza, E., Guadalajara-Olmeda, N., & Moya-Clemente, I., 2009. The role of the digital information sources in the art market prices. *Prof. De La Inf.*, 18(4), 382-388.
- De Silva, D. G., Pownall, R. A. J., & Wolk, L., 2012. Does the sun 'shine' on art prices? *J. Econ. Behav. & Organ.*, 82(1), 167-178.
- Demir, E., Gozgor, G., & Sari, E., 2018. Dynamics of the Turkish paintings market: a comprehensive empirical study. *Emerg. Markets Rev.*, 36, 180-194.
- DeQuero-Navarro, B., Stanton, J., & Klein, T. A., 2021. A panoramic review of the macromarketing literature. *J. Macromarketing*, 41(1), 48-64.
- Erdos, P., & Ormos, M., 2010. Random walk theory and the weak-form efficiency of the US art auction prices. *J. Banking & Finance*, 34(5), 1062-1076.
- Etro, F., Marchesi, S., & Stepanova, E., 2020. Liberalizing art. Evidence on the impressionists at the end of the Paris

- salon. *Eur. J. Polit. Econ.*, 62.
- Etro, F., & Pagani, L., 2013. The market for paintings in the Venetian Republic from Renaissance to Rococo. *J. Cult. Econ.*, 37(4), 391-415.
- Etro, F., & Stepanova, E., 2016. Entry of painters in the Amsterdam market of the Golden Age. *J. Evol. Econ.*, 26(2), 317-348.
- Etro, F., & Stepanova, E., 2017a. Art auctions and art investment in the Golden Age of British painting. *Scott. J. Polit. Econ.*, 64(2), 191-225.
- Etro, F., & Stepanova, E., 2017b. Art collections and taste in the Spanish Siglo de Oro. *J. Cult. Econ.*, 41(3), 309-335.
- Fedderke, J.W., Li, K.N., 2020. Art in Africa: hedonic price analysis of the South African fine art auction market, 2009-2014. *Econ. Model.* 84, 88–101.
- Fernandes, A., Afonso, L.U., 2020. Online sales and business model innovation in art markets: a case study. *Soc. Sci.-Basel* 9(2).
- Galbraith, J.W., Hodgson, D.J., 2012. Dimension reduction and model averaging for estimation of artists' age-valuation profiles. *Eur. Econ. Rev.* 56(3), 422–435.
- Galbraith, J.W., Hodgson, D.J., 2018. Econometric fine art valuation by combining hedonic and repeat-sales information. *Econometrics* 6(3).
- Geismar, H., 2001. What's in a price? An ethnography of tribal art at auction. *J. Mater. Cult.* 6(1), 25–47.
- Gerlieb, A., 2021. TikTok as a new player in the contemporary arts market: a study with special consideration of feminist artists and a new generation of art collectors. *Arts* 10(3).
- Goetzmann, W.N., Renneboog, L., Spaenjers, C., 2011. Art and money. *Am. Econ. Rev.* 101(3), 222–226.
- Goodell, J.W., Kumar, S., Lahmar, O., Pandey, N., 2023. A bibliometric analysis of cultural finance. *Int. Rev. Financ. Anal.* 85.
- Gursen, A.E., 2020. Art marketing as an emerging area in an emerging market. *Arts Mark.* 10(1), 34–52.
- Habelsberger, B.E.M., Bhansing, P.V., 2021. Art galleries in transformation: is COVID-19 driving digitisation? *Arts* 10(3).
- Hernando, E., Campo, S., 2017. Does the artist's name influence the perceived value of an art work? *Int. J. Arts Manag.* 19(2), 46–58.
- Higgs, H., Worthington, A., 2005. Financial returns and price determinants in the Australian art market, 1973-2003. *Econ. Rec.* 81(253), 113–123.
- Huang, D.C., Liu, L.C., Deng, Y.Y., Chen, C.L., 2023. An Artwork Rental System Based on Blockchain Technology. *Symmetry-Basel* 15(2).
- Hufnagel, S., & King, C. (2020). Anti-money laundering regulation and the art market. *Legal Stud.*, 40(1), 131-150.
- Korteweg, A., Kraussl, R., & Verwijmeren, P. (2016). Does it pay to invest in art? A selection-corrected returns perspective. *Rev. Financ. Stud.*, 29(4), 1007-1038.
- Kraeussl, R., & Logher, R. (2010). Emerging art markets. *Emerg. Mark. Rev.*, 11(4), 301-318.
- Kraeussl, R., & Wiehenkamp, C. (2012). A call on art investments. *Rev. Deriv. Res.*, 15(1), 1-23.
- Kraussl, R., Lehnert, T., & Martelin, N. (2016). Is there a bubble in the art market? *J. Empir. Finance*, 35, 99-109.
- LeBlanc, A., & Sheppard, S. (2021). Women artists: Gender, ethnicity, origin and contemporary prices. *J. Cult. Econ.*
- Lee, J. W., & Lee, S. H. (2017). "Marketing from the art world": A critical review of American research. *J. Arts Manag. Law Soc.*, 47(1), 17-33.
- Lee, J. W., & Lee, S. H. (2019). User participation and valuation in digital art platforms: The case of Saatchi Art. *Eur. J. Mark.*, 53(6), 1125-1151.

- Li, X., Su, C. W., Qin, M., & Zhao, F. H. (2020). Testing for bubbles in the Chinese art market. *Sage Open*, 10(1).
- Lingo, E. L., & Tepper, S. J. (2013). Looking back, looking forward: Arts-based careers and creative work. *Work Occup.*, 40(4), 337-363.
- Liu, M., Guo, J., & Bi, D. (2023). Comparison of administrative and regulatory green technologies development between China and the US based on patent analysis. *Data Sci. Manag.*, 6(1), 34-45.
- Lovo, S., & Spaenjers, C. (2018). A model of trading in the art market. *Am. Econ. Rev.*, 108(3), 744-774.
- Martinez, R. G., Casado, P. P., & Roman, M. P. (2020). Market efficiency analysis using AI models based on investors' mood. *Rev. Perspect. Empres.*, 7(2), 10-23.
- Massy, L. (2008). The antiquity art market: Between legality and illegality. *Int. J. Soc. Econ.*, 35(10), 729-+.
- Morgner, C. (2014). The art fair as network. *J. Arts Manag. Law Soc.*, 44(1), 33-46.
- Moslehpour, M., Song, C. H., Tran, A. T., Wong, W. K., & Enkhtaivan, O. (2021). The invigorating influence of relationship marketing on purchase intention in fine arts sector. *Asia-Pac. J. Bus. Admin.*
- Moulard, J. G., Rice, D. H., Garrity, C. P., & Mangus, S. M. (2014). Artist authenticity: How artists' passion and commitment shape consumers' perceptions and behavioral intentions across genders. *Psychol. Mark.*, 31(8), 576-590.
- Muniz, A. M., Norris, T., & Fine, G. A. (2014). Marketing artistic careers: Pablo Picasso as brand manager. *Eur. J. Mark.*, 48(1-2), 68-88.
- Nahm, J. (2010). Price determinants and genre effects in the Korean art market: A partial linear analysis of size effect. *J. Cult. Econ.*, 34(4), 281-297.
- Nemeth, E. (2007). Cultural security: The evolving role of art in international security. *Terrorism Polit. Violence*, 19(1), 19-42.
- Oosterlinck, K. (2017). Art as a wartime investment: conspicuous consumption and discretion. *Econ. J.*, 127(607), 2665-2701.
- Oosterlinck, K., & Radermecker, A. S. (2019). "The master of ...": creating names for art history and the art market. *J. Cult. Econ.*, 43(1), 57-95.
- Patel, R., Goodell, J. W., Oriani, M. E., Paltrinieri, A., et al. (2022). A bibliometric review of financial market integration literature. *Int. Rev. Financ. Anal.*, 80, 18.
- Paul, K. A. (2018). Ancient artifacts vs. digital artifacts: new tools for unmasking the sale of illicit antiquities on the dark web. *Arts*, 7(2).
- Penasse, J., & Renneboog, L. (2021). Speculative trading and bubbles: evidence from the art market. *Manag. Sci.*
- Penasse, J., Renneboog, L., & Spaenjers, C. (2014). Sentiment and art prices. *Econ. Lett.*, 122(3), 432-434.
- Pownall, R. A. J., Satchell, S., & Srivastava, N. (2019). A random walk through Mayfair: art as a luxury good and evidence from dynamic models. *J. Int. Money Finance*, 95, 112-127.
- Pradier, P. C., Gardes, F., Greffe, X., & Mendoza, I. M. (2016). Autographs and the global art market: the case of hedonic prices for French autographs (1960-2005). *J. Cult. Econ.*, 40(4), 453-485.
- Preece, C., & Kerrigan, F. (2015). Multi-stakeholder brand narratives: an analysis of the construction of artistic brands. *J. Mark. Manag.*, 31(11-12), 1207-1230.
- Preece, C., Kerrigan, F., & O'Reilly, D. (2016). Framing the work: the composition of value in the visual arts. *Eur. J. Mark.*, 50(7-8), 1377-1398.
- Radermecker, A. (2019). Artworks without names: an insight into the market for anonymous paintings. *J. Cult. Econ.*, 43(3), 443-483.

- Radermecker, A. S. V. (2022). Researching art markets: past, present and tools for the future. *J. Cult. Econ.*, 46(1), 199-203.
- Renneboog, L., & Spaenjers, C. (2013). Buying beauty: on prices and returns in the art market. *Manag. Sci.*, 59(1), 36-53.
- Rodner, V. L., & Preece, C. (2016). Painting the nation: examining the intersection between politics and the visual arts market in emerging economies. *J. Macromarketing*, 36(2), 128-148.
- Saint-Raymond, L. (2021). "The show must go on": ethnography of the art market facing the COVID-19 pandemic. *Arts*, 10(3).
- Schwiderowski, J., Pedersen, A. B., Jensen, J. K., & Beck, R. (2023). Value creation and capture in decentralized finance markets: non-fungible tokens as a class of digital assets. *Electron. Mark.*, 33(1).
- Scorcu, A. E., Vici, L., & Zanola, R. (2021). To fake or not to fake: an empirical investigation on the fine art market. *J. Cult. Econ.*, 45(1), 143-152.
- Shi, Y., Xu, H., Wang, M. C., & Conroy, P. (2017). Home bias in domestic art markets: evidence from China. *Econ. Lett.*, 159, 201-203.
- Sidorova, E. (2019). The cyber turn of the contemporary art market. *Arts*, 8(3).
- Smith, G. (2017). Bruno Alfieri, Leo Castelli and Robert Rauschenberg: metro and the introduction of Rauschenberg into Italy. *Vis. Resour.*, 33(3-4), 295-331.
- Valera, S. C., Valdes, P. F., & Vinas, S. M. (2021). NET and digital art: new possibilities for the consumption, dissemination, and preservation of contemporary works of art. *Artnodes*(28).
- Varshneya, G., Das, G., & Khare, A. (2017). Experiential value: a review and future research directions. *Mark. Intell. Plan.*, 35(3), 339-357.
- Wan, G., Dawod, A. Y., Chanaim, S., & Ramasamy, S. S. (2023). Hotspots and trends of environmental, social, and governance (ESG) research: A bibliometric analysis. *Data Sci. Manag.*, 6(2), 65-75.
- Wang, Y. Z. (2022). Volatility spillovers across NFTs news attention and financial markets. *Int. Rev. Financ. Anal.*, 83, 24.
- Whitaker, A., & Kraussl, R. (2020). Fractional equity, blockchain, and the future of creative work. *Manag. Sci.*, 66(10), 4594-4611.
- Zanatta, M., & Roy, A. G. (2021). Facing the pandemic: a perspective on patachitra artists of West Bengal. *Arts*, 10(3).
- Zarobell, J. (2017). *Art and the global economy*. Univ of California Press.
- Zhu, Q., Ruan, Y., Liu, S., Yang, S.-B., Wang, L., & Che, J. (2022). Cross-border electronic commerce's new path: from literature review to AI text generation. *Data Sci. Manag.*

**Declaration of interests**

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

The author is an Editorial Board Member/Editor-in-Chief/Associate Editor/Guest Editor for [Journal name] and was not involved in the editorial review or the decision to publish this article.

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:

Journal Pre-proof