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The Art Market at Times of Economic Turbulence and High Inequality.

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1. Introduction

Globalization, the accumulation of large wealth in small elites, the rise of large emerging economies such as China, India, Russia, Brazil and others, the growing use of the internet for trading, the increased orientation of artwork as an investment-class asset, are all trends that are reshaping the art market.

In this context, a high volume of liquid capital is circulating around the globe looking for profitable investment opportunities. A new outlet that is attracting big money is the art market, competing with stocks, bonds, real estate and precious metals. In 2018 it registered annual sales of 67 billion dollars and rising (McAndrew, 2019), boosting a related industry of auction houses, galleries, art advisors, financial institutions and the mass media. Artwork[1] prices can reach extravagant levels. In 2017 a Leonardo Da Vinci painting titled *Salvatore Mundi* sold in New York's Christie's for U$ 450 million, the highest recorded price ever paid for a work of art. In May 2019 the

[1] The notion of artwork comprehends pieces of fine arts, decorative arts, antiques, and collectibles. In regards to fine arts, a dichotomy has traditionally existed between Modern art (including a variety of movements such as Impressionism, post-Impressionism, Fauvism, Expressionism, and Cubism) and Contemporary art, which refers to works created after World War II, and throughout the present. This segment of the art sector accounts for the bulk of the volume and revenues turnover in the market.

painting *Meules* painted in 1890 by Claude Monet was sold at an auction in Sotheby's at U$ 110 million (the pre-sale valuation was at U$ 50 million).[2]In the same month at Christie's Jeff Koons sold a stainless steel rabbit in U$ 91 million, setting a record price for work by a living artist. In turn, in other occasions, pieces of Modern art (Van Gogh, Klimt, Kandinsky, Monet, Leger, and Chagall) have sold in the price range of U$ 11 to U$ 80 million, and those by top Postwar and Contemporary artists, such as Andy Warhol, Jean-Michel Basquiat, Roy Lichtenstein, Mark Rothko, Gerhard Richter, and Cy Twombly sold in the range of U$ 20 million-U$ 110 million (McAndrew, 2018). These prices are affordable by a minuscule portion of the global population that has very large wealth stressing the elitist nature of the upper-end of the art market.

There are multiple motivations for acquiring art. From the aesthetic enjoyment and the quest for beauty from human creativity to the search for monetary return associated with holding artwork in portfolios. More prosaic motivations include also using artwork for money laundering and tax-avoidance purposes, depriving government of resources that can be redirected to finance and support public museums and exhibitions, among other public needs.

Global capitalism is constantly reproducing and expanding the wealth held by rich elites that need an outlet for investing it; these elites, in turn, have growing economic power and political influence as they control a significant portion of world's personal wealth (Solimano, 2014, 2017). The affluence of the elites exerts direct influence over the art industry by purchasing paintings, sculptures, and other forms of art, pushing -up the prices of artworks, making many pieces completely unaffordable to potential buyers from the middle (and working) class and even to public museums and

[2] The sale price of this painting in 1986 was U$ 2.5 million, increasing by 44 times in a period of 33 years.

local governments. In an era of declining public support for the arts and rising private contributions, we observe a growing trend towards the *privatization and financialization* of the art market. The rising importance of private money is leading to increased *segmentation and centralization* in big auction houses and large galleries. Collusive practices regarding minimum prices, commissions, links between sellers, buyers and intermediaries are not uncommon. Episodes of forgery are not rare either, all reinforced by the lack of regulation of the market.

Another relevant issue is the impact of macroeconomic cycles and financial crises (such as the global crisis of 2008-09 and others) on the art market and the sensitivity of the demand and supply for artwork to macro-financial shocks. A related question is to what extent, artwork is a “safe-haven” asset, protecting investors in a world of financial volatility and frequent crises. The paper presents new evidence on the behavior of art prices during cycles to address this question and identify relationships between economic inequality, wealth concentration at the top and the art market.

This chapter is organized in five sections besides this introduction. Section 2 examines transaction costs and liquidity issues, the sensitivity of the art market’s sales to overall macroeconomic cycles, market segmentation and concentration with large galleries and auction houses accounting for the bulk of sales of high-priced artwork, the importance of wealth inequality in shaping the upper-end of the art market and its growing internationalization with the combined US, UK and Chinese markets accounting for near 80 percent of global sales, displacing France, Germany, and Japan in the importance of active trading in artwork. Section 3 studies the behavior of art prices in 1998-2018, a period that includes cycles of boom, crash and recovery (centered around the crash of 2008-09). The evolution of art prices is compared with the path of stock market prices and gold prices over the same period. Section 4 turns to the question of artwork as a "safe-haven asset" that preserves value in recessions. Two pieces of evidence are explored: (i) the behavior of *gold prices* as a safe-haven asset during three main slumps of the last 90 years: the great depression of the 1930s, the stagflation of the 1970s and the global financial crisis of the late 2000s and (ii) correlation analysis between art prices and stock, oil, gold and bitcoin prices. Section 5 concludes.

2. Main Features of the Art Market.[3]

The art market displays at least seven special features that make it different from other markets and that are important to grasp.[4]

(i) Transaction costs and liquidity.

Paintings, sculptures, drawings, prints, artifacts are unique and heterogenous objects. They are affected by indivisibility and lumpiness, their monetary valuation is not obvious as depend on complex taste structures and the availability of artwork; in turn, masterpieces tend to register infrequent sales. Finding buyers and the possibility of forgery imply that *transactions costs* are non-trivial, often requiring the intermediation of auction houses and art galleries that charge significant fees for their services, including the verification of authenticity and provenance of the artwork.

In addition, and related to the above, the ability of a collector or buyer to convert a painting or sculpture into readily available cash at a low cost can be limited.[5] This is a

[3] This section draws, largely, on Solimano and Solimano (2019).
[4] Economic-oriented journal articles of the art market include Baumol (1986), Mei and Moses (2002), Korteweg, Kraussl, and Werjijmeren, (2016). Books of broader dissemination comprise Adam (2014 and 2017) and Robertson and Chong (2018).
[5] Until recently, in the US and other countries, the law does not allow a person to be owner of a portion of an artwork. Nevertheless, this is starting to change. In some countries art investment funds are starting to offer people to own a "piece" of an artwork in similar fashion that a person

market with potential lack of *liquidity,* at least for buyers and sellers that do not have readily available access to art-related credits and guarantees (on these features see table 3 below).[6] In contrast, financial assets such as stocks and bonds, can be bought and sold easily as they are often supported by well established infrastructure that reduces transaction and verification costs of standardized products.

(ii) Privatization and Financialization

The growing private ownership of artwork of high-value by private collectors and wealthy families has several implications for the relative position of the art market in society. Nowadays private collectors have an active participation on boards of museums and other non-profit organizations to which they lend and donate pieces from their collections, and contribute with funding. Their presence in arts institutions at a moment when public funding in art is shrinking is affecting the balance between the private and public domains in the art sector.

The art market is increasingly financialized (see Deloitte, 2017)*:* hedge funds, family offices, commercial banks and art investment funds are now actively investing in art, mostly on behalf of their wealthy clients. A basic task of financial analysis is comparing the rates of return, adjusted by risk, across different assets to detect the absence or presence of unexploited arbitrage opportunities. Empirical studies using historical data of prices of works of art (often based on auctions) and changes of valuation of entire collections, such as the Keynes collection [7] show that the *average* rate of return (capital

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can own a fraction of an enterprise by buying equities. These new practices go in line with the increasing financialization of the art market.

[6] Economic-oriented journal articles of the art market include Baumol (1986), Mei and Moses (2002), Korteweg, Kraussl, and Werjijmeren, (2016). Books, with an economic bent, comprise Adam (2014 and 2017) and Robertson and Chong (2018).

[7] The famous British economist John Maynard Keynes had an innate love for the arts, was an active art collector and a member of the Bloomsbury Group, formed by free-minded artists and

gains over acquisition values) from trading in artworks *does not* differ, substantially, from the return of holding stocks or bonds once adjusted by risk premiums, in the medium to long run.[8]

(iii) Concentration and Polarization.

The global art market shows features of a *polarized market* in which the bulk of the number of transactions (volume) is concentrated at the *lower-end* of the market, while the bulk of *sales value* (prices times quantities sold) is concentrated at the *higher-end* of the market (Table 1). The *middle-range* of the market is squeezed by the upper tail (in value) and the bottom tail (in volume). Polarization is reflected, among other ways, in the presence of powerful dealers at international art fairs (an increasingly important way to sell art) that take place in cities like New York City, Miami, Basel, London, that outcompete with middle and small size galleries.

It is important to note that the modalities for meeting buyers and sellers of artworks have changed over time, with visits to galleries having declined in recent years. The *auction segment* of the market (part of the secondary market), an important traditional tool of selling art that dates back to the seventeenth century in London, accounted for almost half of the total fine art sales in 2017—$28.5 billion of $63.7 billion (McAndrew, 2018, 16). This segment is also dominated by very few actors, namely by the houses Christie's, Sotheby's, Poly Auction, China Guardian, and Phillips.[9]

intellectuals in the first three decades of the 20th century. Keynes's art collection, currently valued in around GBP 70 million (he spent near GBP 13,000 in his art portfolio valued at purchasing prices) is located in Kings College and the Fitzwilliam Museum in Cambridge, UK.

[8] Chambers, Dimson and Spaenjers , (2017); Worthington and Higgs, (2004).

[9] The fine art revenue generated by Christie's and Sotheby's represented over 75 percent of the fine art revenue of the five mentioned houses in 2017 (McAndrew, 2018, 106).

The rules of a speculative market dominated by big players and the financial sector have tended to reduce the influence of the artists. Despite having created the value of the artworks in the first place, artists exert limited control on the destiny of their creation, resembling, to a extent, the popular notion of the worker affected by alienation in the modern factory system. Another trend is the growing importance of on-line sales, main vehicles of selling artwork nowadays.

Table 1. Share of Lots Sold and Total Value at Global Fine Art Auctions in 2017 by Price Bracket.

	Value	Volume
Lower-end (Below \$50k)	8.6%	89.8%
Middle Market (\$50k - \$1m)	27.9%	9.4%
High-end (Above \$1m)	63.5%	0.9%
Total	100.0%	100.0%

Source: McAndrew, C. (2018).

The upper-end of the art market is characterized by highly personal relations and rather obscure practices regarding price and fee (buyers and sellers premiums) in auctions; revealing examples of this can be found in Adam (2017; 2014). Information regarding the price at which the pieces are expected to sell, are often subject to manipulation and do not reach to all prospective buyers. Many times, the prices are set unrealistically low, which attracts potential buyers although in other cases, the prices are inflated, detracting buyers from building interest in particular pieces—which are likely to be sold to preferential bidders. Prices of certain artists promoted by galleries can be also inflated. Moreover, the art market is increasingly converging towards a "winners-take- all-market," in which the high prices, profits, and commissions are captured by a small minority of intermediaries and "superstar" artists—either living or dead—dominating the upper- end of the market.[10]

(iv) Sensitivity to macroeconomic cycles

The experience of the art market in the first two decades of the 21st century (explored in more detail in the next section) shows a considerable sensitivity to macroeconomic cycles of expansion and contraction. The *aggregate* evidence suggests the art market tends to behave in a *pro-cyclical way*, with *total* sales/volumes rising in the upswings, and declining in the downturns of the business cycle. As shown in Table 2 and Figure 1, both sales and volumes fell sharply in 2009 at the bottom of the global financial crisis, yet recovered rather forcefully in the first few years after the crisis but this recovery was not steady afterwards. Aggregate sales in the global market of art were U$ 62 billion in 2008, declining to U$ 39 billion in 2009 and recovering to U$ 67 billion dollars in 2018.

Table 2 The Global Art Market: Value and Volume of Transactions, 2008-18.

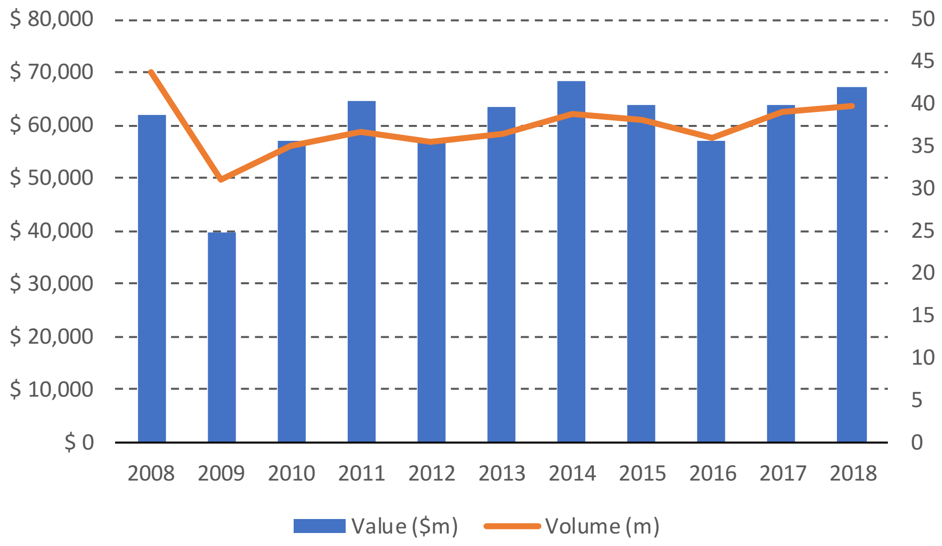
Year	Value ($m)	Volume (m)

[10] Rosen (1981) presents the economics of superstars in arts, sports, and entertainment, noting that very big differences in earnings coexist with rather small differences in talent among market participants (winners-take-all syndrome). Solimano (2008, 2010) expanded Rosen's and other frameworks to examine the global markets for talent in different fields.

2008	$ 62,020	43.7
2009	$ 39,511	31
2010	$ 57,025	35.1
2011	$ 64,550	36.8
2012	$ 56,698	35.5
2013	$ 63,287	36.5
2014	$ 68,237	38.8
2015	$ 63,751	38.1
2016	$ 56,948	36.1
2017	$ 63,683	39
2018	$ 67,380	39.8
Growth 2017-2018	6%	2%
Growth 2008-2018	9%	–9%

Source: Art Market 2019

Figure 1 The Global Art Market: Value and Volume of Transactions,2008-2018



Source: Table 1, Mac Andrew (2019)

Upward and downward cycles can affect differently the various segments of the market. While downturns and crashes may affect probably all segments of the market the post-crisis recovery favored, mostly, large auction houses and big galleries, with those in the middle-lower end range lagging behind. In fact, galleries with turnover in excess of U$ 50 million had yearly increases of over 10 percent in the post-2009 period, compared with declines in sales for dealers with sales less than U$ 1 million (MacAndrew, 2018). Galleries with annual sales below U$ 250,000 did the worse in the market, confirming that the recent recovery in the art market has benefitted the high-end in detriment to the rest[11].

(v) Lack of Regulation, Tax Avoidance and Tax Elusion

Unlike the market for securities and others, the art market is largely unregulated with buyers of artwork little protected by manipulative practices of certain intermediaries. In

[11] The high end of the market concentrates a very thin segment of artists, while the remaining majority of them supply the middle-range and lower-end of the market through the segment of galleries, dealers, and auction houses.

addition, top collectors are increasingly using artwork as investments to reduce their tax burden. More worrisome is the presumption that some participants use this market to launder money obtained from illicit activities such as drug dealing and informal arms-trade (Adam, 2014).

A mechanism to keep valuable artwork outside public domain and protected from taxation is *freeports.* These are sophisticated physical facilities storing valuable paintings, sculptures, printings and so on besides other luxury items such as expensive cars, wine, gold and diamonds. Historically, freeports arose as tax-free facilities in ports used for storing goods while the merchandise was in transit to other destinations, the reason for which "custom authorities [allowed] duties and taxes to be suspended until goods [reached] their final destination."[12] Now the merchandise "in transit" is artwork that may be stored a long time (several years) waiting for its price to increase. Such storage facilities for art and other luxuries can be found in Geneva, Zurich, Luxembourg, Monaco, Singapore and Beijing. It is worth noting that freeports are located in roughly the same places of tax havens for receiving bank deposits suggesting the existence of a global industry of wealth protection and tax avoidance that employs various vehicles for that end.

[12] Solimano and Solimano (2019).

Table 3 summarizes several features of the art market previously discussed. [13]

Table 3. <u>The Art Market, the Stock Market and Property Markets</u>.

	Type of Market		
	Artwork	Stocks	Property
<u>Feature</u>			
Liquidity	low	high	low
Divisibility	low	high	low
Polarization	high	moderate	moderate
Regulation	low	high	moderate
Transparency	low	high	moderate
Transaction costs	high	low	intermediate
Source: Solimano and Solimano (2019).			

(VI) <u>The art market is increasingly globalized</u>

Another important trend is the *internationalization* of the art market. From the mid nineteen century to the early decades of the 20th century the British and French markets were dominant in the art world but since World War II, the United States started to became the most important art market in the world (particularly located in New York

[13] Understanding the behavior of art prices, including predicting their value determination at auctions, is a complex subject. Traditional quantitative methods are based on hedonic regressions (Renneboog and Spaenjers, 2003 that use specific characteristics of the art work such as date and nationality of the artist, date of painting, size, technique (e.g oil, watercolor, acrylic, drawings, etc) to predict prices. Newer methods are based on big-data and artificial intelligence techniques particularly the machine -learning method that use large amounts of information (including descriptive parameters of each artwork) to detect patterns and human emotions at the time of valuing artwork (see Aubry et.al, 2019).

City). The US market in 2018 comprised 44 percent of the global artwork sales (figure 3). The dominant role of the USA is associated with its large infrastructure of galleries and auction houses, favorable tax and regulatory frameworks. The American hegemony in the art world is also related to the fact that the USA hosts the largest concentration of personal wealth in the world (see table 4).

In the 1970s and 1980s, the Asian regional art market started to rise, dominated by Japan, a country experiencing, at that time, high rates of economic growth, running balance of payments surpluses and having booming stock and real estate markets. In addition, the yen was appreciated against main Western currencies, making it cheaper to Japanese art collectors to buy Western art and favoring the participation of Japan in the global art collecting scene. The Japanese art sector, however, crumbled in the early 1990s, as Japan's stock market collapsed, and the economy entered a long period of stagnation with depressed asset prices that destroyed large amounts of financial wealth. This led to plummeting sales by Japanese art galleries and auction houses.

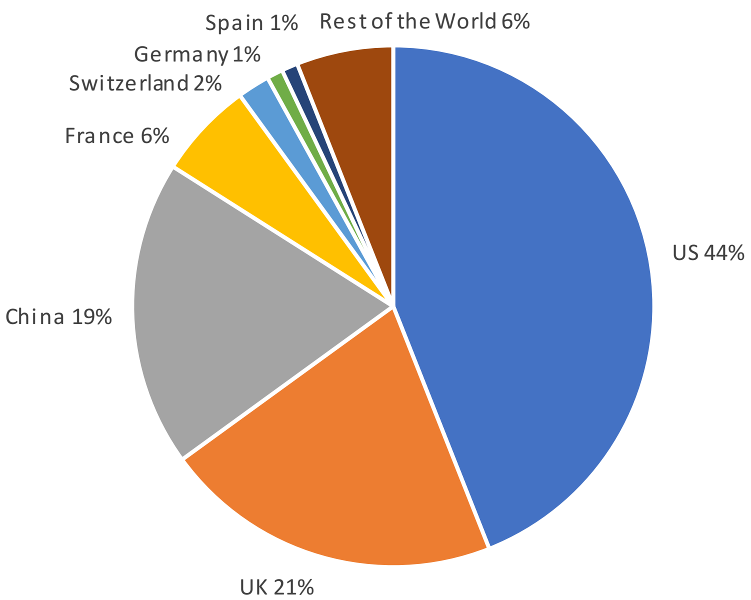
Since the early 2000s, however, China has turned into the main Asian art market following super-rapid Chinese growth a process accompanied by the concentration of wealth at the top of the distribution, in small economic elites of millionaires and billionaires. The Hong Kong market has been particularly active along with the sprawl of galleries and the coming of western auction houses in mainland China.[14]

The share of China in worldwide art sales was second in importance in 2017 (21 percent) but fell to 19 percent in 2018 being surpassed, by two percentage points, by the UK (see figure 2). The combined art market of the USA, UK and China

[14] China's State Administration of Cultural Heritage issued new Management for the Auction of Cultural Relics in late 2016, in which some regulations concerning selling cultural relics were relaxed and procedures for applying for auction licenses in the art market were simplified. As a result of this, the country saw a sharp increase in the number of auction houses, with thirteen new houses registering with the Chinese Auctioneers Association in only a year. (McAndrew, 2018, 112).

concentrated 84 percent of total sales in art in 2018 followed by France, Germany and Switzerland.[15]

Figure 2 Global Art Market Share by Value in 2018



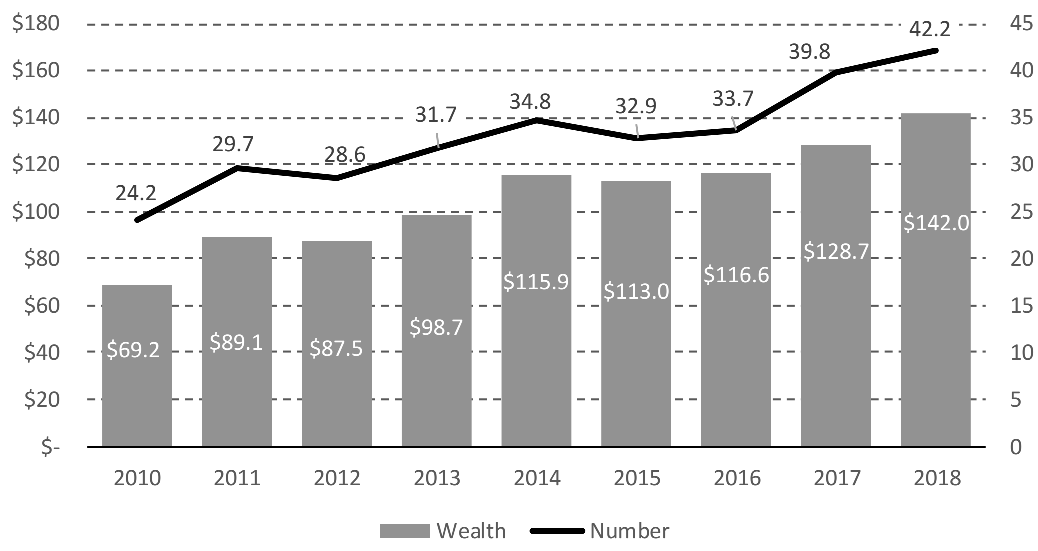
Source: Art Market 2019

(VII) <u>The Art Market is Influenced by Wealth Inequality</u>

The evidence shows the growth of the art market and the predominance of its upper-end has coincided with the rapid increase in the number and assets of wealthy people (from millionaires to billionaires) in their assets in the world economy. As shown in figure 3, from 2010 and 2018 the number of millionaires (individuals with net worth above USD 1 million) has increased from 24.2 million to 42.2 million and their assets have grown from 69.2 trillion to 142 trillion, respectively, almost doubling over a period of nine years.

Figure 3. Number and Wealth of Dollar Millionaires 2010–2018

[15] McAndrew, 2019, and Bossier et. al, 2014.



Source: Art Market 2019

As said the top importance of the US art market is related with the fact that the United States concentrates the largest number of millionaires (43 percent of the world's HNWIs), ultra-millionaires (49 percent of global ultra-HNWI), and billionaires, (32 percent of them), see table 4 for 2017. In turn, China comes third in terms of millionaires (6 percent), and second in terms of ultra-HNWIs (13 percent) and billionaires (26 percent), showing the formation of a powerful wealthy elite in China with very high high-purchasing power.

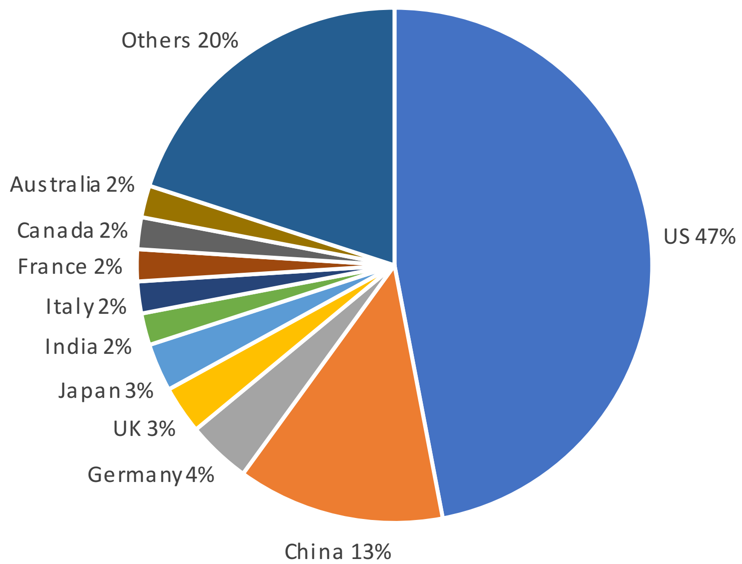
Table 4 Global Share of Millionaires (HNWIs), Ultra-Millionaires (Ultra-HNWIs) and Billionaires in Total Personal Wealth (percent, 2017)

HNWIs (Wealth above U$1m)		Ultra-HNWIs (Wealth above U$50m)		Global Share of Dollar Billionaires in 2017	
	Share		Share		Share
US	43%	US	49%	US	32%

Japan	8%	China	13%	China	26%
China	6%	Germany	5%	Germany	4%
Italy	4%	UK	3%	Russia	3%
France	5%	France	2%	Sweden	2%
UK	6%	Australia	2%	UK	2%
Germany	5%	Canada	2%	Switzerland	2%
Canada	3%	Switzerland	2%	India	2%
Australia	3%	Italy	2%	Turkey	2%
Korea	2%	Japan	1%	Canada	1%
Others	16%	Others	19%	Others	24%
Total	100%	Total	100%	Total	100%

Source: McAndrew, C. (2018) and Credit Suisse (2017a and b).

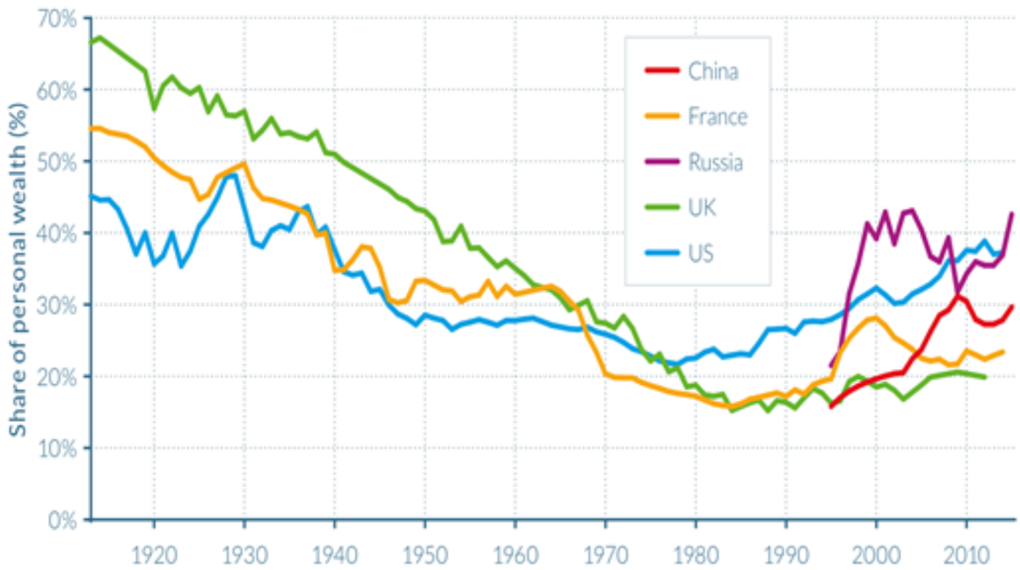
Figure 4. Global Share of Millionaires with Wealth in Excess of $50 Million in 2018



Source: Art Market 2019

Regarding top wealth shares within countries, the data shows since the 1980s a significant increase in the wealth share of the top 1 percent in the USA, China, Russia a trend that was more moderate in France and the UK. Historically, in the 20th century there was a decline in the concentration of wealth at the top between the 1910s and the 1960s in all these countries but since the 1980s this trend has been reversed with growing wealth concentration at the top in the economies.[16]

Figure 5. <u>Top 1% wealth shares in main economies, 1913-2015: the fall and rise of personal wealth inequality (selected countries)</u>



Source: www.WID.world (2018).

[16] As shown in figure 5 the wealth share of the top 1 percent followed a sort of U-pattern in the last century. Around 1913 in the US, UK, France the wealth's share of the top 1 percent was in the range 45-65 percent, declining, over time, to reach to 20-30 percent in the 1970s to increase afterwards coinciding with the onset of globalization and neoliberalism. Since then, the top wealth's share in the USA roughly doubled from close to 20 percent in the late 1970s to near 40 percent in 2013. In the United Kingdom, since the Thatcher conservative government, the wealth's share of the top 1 percent also increased (stabilizing at around 20 percent in the period 1980-2015), reversing its previous downward trend registered since World War I until the 1970s. In France, the top wealth share experienced a rapid surge in the mid 1990s to decline afterwards, stabilizing at a higher level than its historical record of the 1970s and 1980s. See Solimano, (2018a and b).

Although more research is needed on the specific channels through which wealth affects the working of the art market and their prices we can identify some of these channels:

(a) A recession or depression typically reduces asset prices and the value of wealth, thereby affecting the demand for artwork (a recession-induced, negative "wealth effect").

(b) In the case certain artwork (e.g those more valuable, say the Da Vinci, Monet, Koons, Picasso) become "safe-haven" assets, (see next section), the recession-induced effect could be reverted.

(c) The degree of wealth concentration at the top tends to produce segmentation in the art market, as it induces the creation of a niche market (upper-end) for artwork of high value.

(d) The demand for artwork seems to be highly correlated with the number and stock of wealth of millionaires and billionaires.

3. Art Prices in the Cycle 1998-2018 in Comparative Perspective

Returning to the issue of how macroeconomic fluctuations and cycles of boom and bust in economic activity affect the art market in this section we investigate the behavior of *art prices* (taken from Artprice.com) expressed in real terms on a quarterly basis for the period 1998-2018 comparing their evolution with the pattern of stock and gold prices in the same period. We can distinguish four phases in this period for the global art price index in USD:

(i) a long boom — speculative spree?— between 1998 (Q1) to 2008(Q1) say the decade before the onset of the global financial crisis,

(ii) a sharp correction at the time of the crisis in 2008-09,

(ii) a strong rebound in 2009-2011 and

(iii) a new correction, with ups and downs throughout 2018 (see table 5 and figure 4).

Table 5. Global Real Art Price Index, 1998-2018 (in USD, 2015Q4=100)

Pre crisis increase (T/P)	Change, %
(1998Q1-2008Q1)	64.6
Crisis correction (P/T)	
(2008Q1- 2009Q4)	-39.6
Recovery/Boom (T/P)	
(2009Q4- 2011Q3)	77.0
New correction (P/T)	
(2011Q3-2018Q4)	-53.0

Note: T= Trough, P=Peak. Elaboration from series from Artprice.com in real dollars of 2015 Q4, deflated by US CPI.

The cycle in stock market prices (Standard&Poor 500) differed from the cycle of art prices (table 6). The increase in S&P500 *before* the crisis was relatively modest with the index increasing by 14 percent between 1998 and 2007(trough to peak) compared with the 65 percent increase in art prices over a similar period. The S&P500 correction of 2008-09 in was, however, substantial with a decline in the index of 47 percent between 2007 Q3- and 2009 Q1, in real terms. Then *after* the crisis there was a very strong rebound in stock prices: an increase of near 200 percent in the S&P 500 from the bottom of the crisis in 2009 (Q1) and the last quarter of 2018 (see table 6). The relatively steady upward trajectory of the S&P 500 in the post-crisis decade contrasts with the more volatile recovery in global art prices over the same period (see figure 6 below).

Table 6. Real Stock Market Prices (S&P 500), 1998-2018 (2015Q4=100).

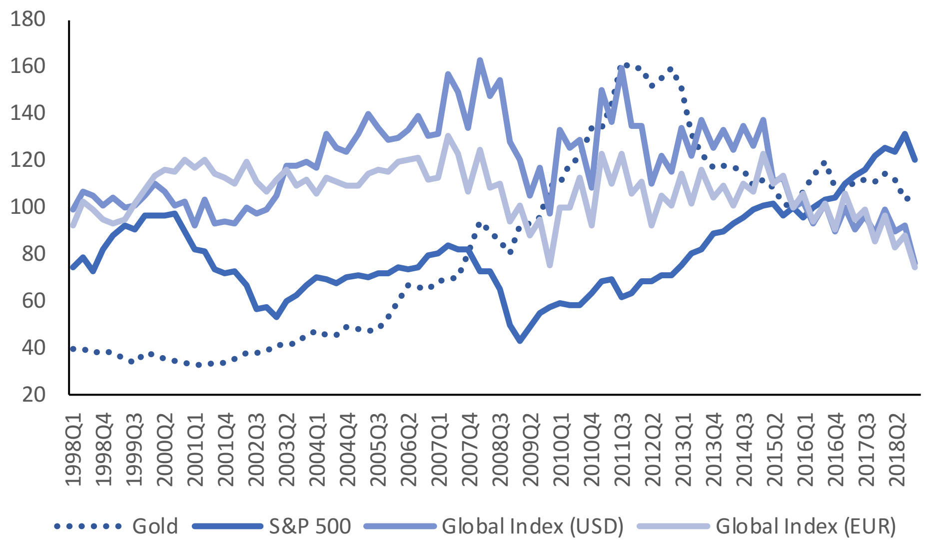
Pre-crisis increase (T/P)	**Change, %**
1998(Q1)- -2007(Q3)	14.2
Crisis correction (P/T)	
2007(Q3)- 2009(Q1)	-47.0
Post-crisis recovery/boom (T/P)	
2009(Q1) – 2018(Q3)	197.0

In turn, if we compare the behavior of art prices with real gold prices (gold being considered as traditional, safe-haven asset) we note that they experienced, between 2001 and 2011, a long upward cycle of 11 years entailing a 400 percent increase in that period. It is noteworthy that *no decline* in gold prices occurred *during* the crisis of 2008-09 —confirming its safe-haven quality. A price correction, however, took place four years after the irruption of the crisis. The correction was sharp, with a decline of -60 percent —between 2011 and 2015 — in the real price of gold followed later by a slight increase of 3.5 percent between 2015 and 2018 (table 7).

Table 7. Real Gold Prices, 2001-2018.(2015Q4=100)

Upward cycle (T/P).	**Change, %**
2001(Q3)- 2011(Q3).	401.0
Correction (P/T).	
2011(Q3)- 2015(Q4).	-61.0
Recovery (T/P)	
2015(Q4)- 2018(Q3).	3.5

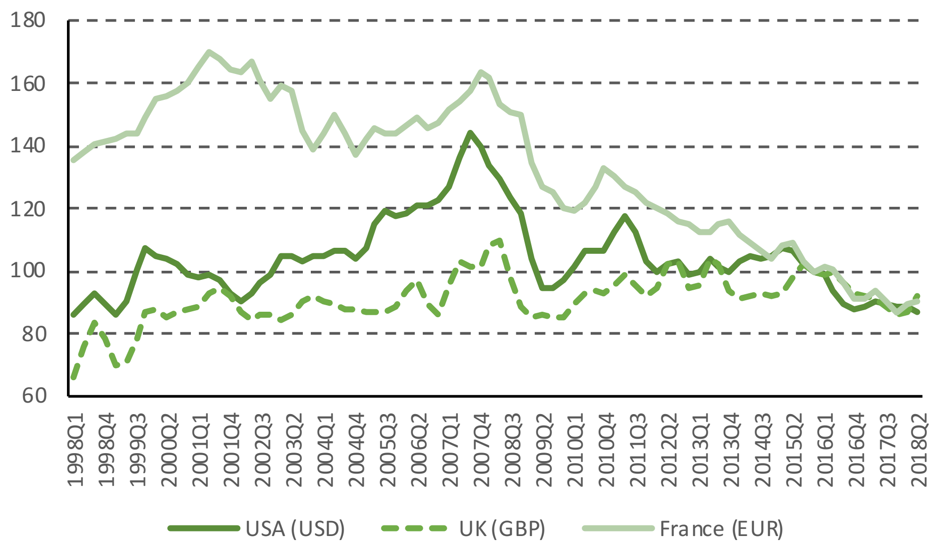
Figure 6. Quarterly Real Global Prices of Assets and Commodities: S&P 500, Gold and Art Price (real prices, 2015Q4=100, 1998 Q1 to 2018 Q4)



Source: Own Elaboration ArtPrice.com, Pink sheet (World Bank) and Yahoo Finance

If we want to know the evolution of art prices in the markets of the USA, UK and France we may look at figure 7 that display differences in intensity and duration of the pre-crisis boom with sharper increases in prices between 2002 and 2007 in the USA than in France and the UK. In addition, in the post-crisis period art prices in France have remained more depressed than in the USA and UK after 2011-12.

Figure 7. Quarterly Real Art Market Price by country: US, UK and France (1998Q1-2018Q2, Base 2015Q4=100)



Source: ArtPrice.com

Box 1. Volatility in Art Prices, Financial Assets and Commodities

Box 1 presents for the period 2004-2015 the mean, standard deviation and coefficient of variation of: (i) various indicators of art prices: in USD, Euro, by type of artwork and artistic current, (ii) stock market price indices such as Standard and Poor, NASDAQ and FTSE China A50, MSC index, (iii) gold, (iv) oil and (v) Bitcoin.

Table B1 Volatility in Real Prices of Art Assets and Commodities: (fourth quarter of 2004 to second quarter of 2018, Real prices, 2015Q4=100)

	Mean	Standard Deviation	Coef. Of Variation
Art Price Global Index (USD)	125.36	19.48	0.16
Art Price Global Index (EUR)	108.43	12.24	0.11
Paintings	132.88	28.93	0.22
Prints	119.90	18.77	0.16
Sculptures	126.42	24.48	0.19
Photographs	114.39	20.29	0.18
Drawings	107.15	22.56	0.21
Old Masters	150.08	39.14	0.26
19th Century	135.99	41.82	0.31
Modern	143.10	34.34	0.24
Post-War	117.91	18.43	0.16
Contemporary	133.17	23.54	0.18
USA (USD)	107.27	13.83	0.13
UK (GBP)	94.13	6.10	0.06
France (EUR)	122.93	21.58	0.18
NASDAQ Composite	71.87	27.02	0.38
Nikkei 225	80.70	21.37	0.26
S&P 500	80.93	20.07	0.25
Gold	104.31	31.33	0.30
Oil	188.28	59.78	0.32
FTSE China A50	130.50	42.50	0.33
MSCI World Historical Data	91.26	15.14	0.17
Bitcoin*	350.32	744.51	2.13
Average (Without Bitcoin)	117.59	25.58	0.22
Average	127.71	56.84	0.30

Source: Own Elaboration*Data from 2010Q3

Source: Federal Reserve Economic Data, Yahoo Finance, Investing.com, CoinDesk.com, Pink Sheet from World Bank and ArtPrice.com

In general the results show that volatility indices (standard deviation and coefficient of variation) for global art prices and their various components are lower than the average for the whole group of assets and commodities considered in the table. Within the group of art prices, volatility is higher for the global index in USD and for the indices of paintings and modern artwork prices. Items with the high price volatility are the NASDAQ composite and FTSE China A 50 and oil prices. Particularly high is the volatility in the price index of a crypto-asset such as Bitcoin (see Solimano, 2018c).

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4. Is Art a Safe-Haven Asset? A Comparison with Gold and other Assets

At times of market turbulence and frequent financial crises an important question is the degree to which certain assets can hedge against market risk, playing the role of a "safe-haven" when there is a correction in the prices of stocks, real estate and commodities. Historically, asset price corrections often precede downturns and recessions (Solimano, 2019).

A statistical definition of a *safe haven asset/investment* is one in which its price (or rate of return) is either *uncorrelated or negatively correlated* with other assets of a portfolio. An asset that holds a zero or negative correlation contributes to *diversify* a portfolio. In contrast, adding an asset with a *positive* correlation to the price/return of assets of an existing portfolio will *not* reduce the average risk of the portfolio.

As shown before, art prices behaved in a pro-cyclical way during the cycle of the global financial crisis of 2008-09. This suggests the art market, as a whole, *failed* to serve as a safe haven/counter-cyclical asset from the perspective of artwork as an investment oriented to diversify portfolios. Of course, some individual items of famous artists may not be affected by downturns and recessions and their price can even increase in these circumstances. Our evidence points to the average aggregate price indices.

To explore further the issue of safe havens let is look the behavior of gold during recessive episodes and then explore correlations between art prices and other assets.

Evidence I: the behavior of real gold prices in three main slumps

As shown in table 7, real gold prices *increased* in three main economic slumps of the last 90 years: the Great Depression of the 1930s, the stagflation of the 1970s and the global financial crisis of 2008-09. In fact, while gold prices increased modestly between 1920-29, they surged from 282 dollars per ounce in 1929 (12) to 618 dollars per ounce in 1934 (3) representing an increase of 118 percent, not a bad investment for a depression period.

Table 7. Real Gold Price in Three Slumps (USD per ounce deflated by US-CPI, ratio peak/trough and percentage change)

	Real Price (USD per ounce)	Ratio peak/trough and percent change
Great Depression of the 1930s		
1920 (6)	235.15	1.19 (19%)
1929 (9)	281.23	
1929 (12)	282.87	2.18 (118%)
1934 (2)	617.93	
Stagflation of the 1970s		
1970 (12)	215.7	9.48 (848%)
1980 (1)	2,046.0	
Global Financial Crisis of 2008-09		
2001 (3)	350.5	5.39 (440%)
2005 (8)	523.58	
2008 (3)	1,064.96	
2011 (8)	1,891.60	
2014 (11)	1,176.04	

Source: Own Elaboration based on Solimano (2017) and The London Bullion Market Association.

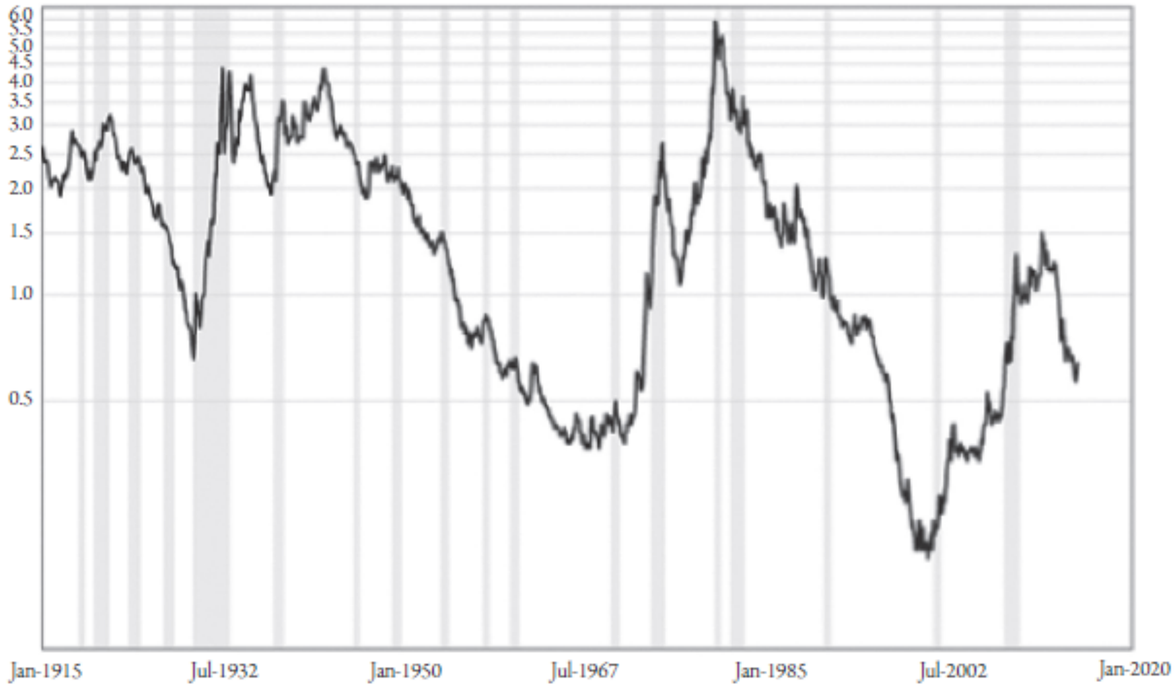
The stagflation of the 1970s affecting mostly advanced economies through an acceleration of inflation, oil price shocks, slower economic growth, monetary and exchange rate instability and geopolitical shocks is another historical episode to test the demand for gold as a safe asset. As shown in table 7, there was an 850 percent increase in the real price increase between the trough of 1970 (12) and the peak of 1980 (1), a highly profitable investment for such a turbulent decade.

In the early 21st century, the price of gold was at U$ 350 per ounce in 2001(3) giving rise to the 11 year boom we showed before (investors took refuge in gold as market participants were entertaining doubts on the sustainability of the booming real estate market that preceded the crash of 2008-09). Early in the crisis, the real price of gold had increased to US$ 1064.96 in 2008 (3) reaching a peak of US$ 1891.6 in 2011(8). The cumulative increase between the low of 2001(3) and the high of 2011(8) was near 450 percent.

This evidence points that gold did behave as a *counter-cyclical asset* in the three main slumps (great depression, stagflation and global financial crisis), playing the role of an effective hedge against turbulence and crises when other assets were experience losses in their economic value. In a sense, adding gold to a portfolio holding stocks adds a degree of diversification (reduces overall variance).

Another way to see this is looking at the ratio between gold prices and stock market prices (S&P 500) over a long period of time, the century running from 1914 to 2014. From figure 8 it is clear that the ratio *increased in recessions and periods of economic volatility and uncertainty* (the early 1930s, the 1970s and 2008-09 and other milder recessions) and *fell in periods of economic expansion and relative stability* such as the post -World War II expansion up to the 1960s (golden-age of capitalism period) and the long bull stock market that took place between the mid-1980s up to the late 1990s (neoliberal speculative phase).

Figure 8. Ratio of the Price of Gold to Stock Market Prices (S&P 500), 1915– 2014



Source: Solimano (2017)

Evidence II: Price correlations

We can see also the potential for artwork to become a safe-haven asset through a matrix of correlation between global art prices and various stock market price indices, gold, oil and bitcoin. The evidence is not entirely conclusive for all indices but we can detect a *negative correlation* (significant at 99 percent) between the real global art price index in USD and two stock market indices: the real Nikkei 225 and the real S&P 500. In addition, the correlation with the MCSI index is also negative and significant but the value of the coefficient is small. At the same time the global art market price index (in USD) has a *positive correlation with gold prices*. As gold is clearly a safe-haven asset, art prices may somewhere share this feature, although the direct evidence shows procyclicality between art market sales/ prices in response to macroeconomic cycles of expansion and contraction.[17]

Table 5. Correlation Matrix between Art Prices, Financial Assets and Commodities (real prices, first quarter of 1998 to second quarter of 2018)

	Nikkei 225	S&P 500	Gold	Oil	Art Price Global Index (USD)	Art Price Global Index (EUR)	FTSE China A50 ᴬ	MSCI World Historical Data ᴬ	Bitcoin ᴮ
Nikkei 225	1								
S&P 500	0.71 ***	1							
Gold	-0.44 ***	0.1	1						
Oil	-0.5 ***	-0.19 *	0.74 ***	1					
Art Price Global Index (USD)	-0.33 ***	-0.37 ***	0.29 ***	0.7 ***	1				
Art Price Global Index (EUR)	-0.01	-0.15	-0.24 **	0.1	0.54 ***	1			
FTSE China A50 ᴬ	0.14	-0.04	0.04	0.21	0.19	0.19	1		
MSCI World Historical Data ᴬ	0.88 ***	0.91 ***	-0.14	-0.24 *	-0.24 *	0.09	0.1	1	
Bitcoin ᴮ	0.59 ***	0.68 ***	-0.3 *	-0.33 *	-0.11	-0.51 ***	-0.54 ***	0.69 ***	1

Significance (99%)*** p<0.01, signficance (95%) ** p<0.05, * significance 90%(p<0.1).

[A] : Correlation are calculated from 2004Q4

[B] : Correlations are calculated from 2010Q3

Finally, the correlation between the global art price indices in USD and Euro with oil prices is negative and the correlation with the China stock market index is positive but not large. The correlation with bitcoin prices is negative for the art price index in both USD and Euro and relatively sizable. This could reflect some competition between artwork and bitcoin in investor's portfolio.

[17] The art price index in Euros is also negatively correlated with S& P 500 but the correlation with Nikkei 225 is very small (both are statistical insignificant). In turn, the correlation between art prices in Euros and gold is negative.

5. Concluding Remarks

Important features of global capitalism such as frequent economic and financial crises, high wealth concentration at the top, increasing influence of the financial sector, industry concentration and polarization, and the internationalization of markets exert direct influence on the art sector. The bulk of art market sales is concentrated in a few countries (mainly USA, UK and China followed by France, Switzerland and Germany) and in a handful of big international galleries and auction houses.

The paper underscores the pro-cyclical nature of the art market and its sensitivity to macroeconomic cycles and financial volatility. Global art market prices increased substantially in the decade preceding the global financial crisis of 2008-09, experienced a big correction in 2008-09, recovered fast between 2009 and 2012 but then in an erratic way. In the post-crisis the recovery and boom in stock prices far surpassed the evolution of art prices. Gold prices, a safe-have, were unaffected by the crisis of 2008-09 reaching a peak in 2011; after a correction gains have been modest. Historical evidence of slumps and periods of uncertainty and correlation analysis suggest that artwork may not be yet a counter-cyclical/safe- haven asset.

Finally, the art market (particularly its upper-end) is strongly influenced by trends of wealth-concentration at the top within countries and internationally. In addition, sales, number of private collectors, and top- selling living artists tend to concentrate in countries with large global shares of personal wealth.

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