Notes on Sources and Methods
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Due to the complex nature of the art and antiques market, information presented in this report comes from a wide range of sources. All of the data is gathered and analysed directly by Arts Economics from dealers, auction houses, art and antique collectors, art price databases, financial and economic databases, industry experts and others involved in the art trade and its ancillary services.

For the purposes of this research, the art and antiques market includes sales of fine and decorative art and antiques. Fine art includes paintings, sculptures and works on paper (including watercolours, prints, drawings and photographs) and tapestries. Decorative art and antiques covers objects such as furniture and decorations (in glass, wood, stone, ceramic, metal or other material), couture (costumes and jewellery), ephemera, textiles and other antiques.

1. Auction Data
   Even though the results of many auction sales are in the public domain, aggregating data within this part of the market is not without issues, particularly on a global scale, with some companies publishing limited, selective or no results at all. There is no one comprehensive source or database that covers the entire auction market for fine and decorative art and antiques. Auction data used in this report therefore comes from four main sources:

   1. Collectrium
      Global auction data is supplied by Collectrium (www.collectrium.com). Collectrium’s database covers 5,600 auction houses, with consistent auction results gathered annually for 1,300 businesses in 53 countries. The database comprises results from major sales in first and second-tier auction houses around the world, and does not restrict inclusion by final price or estimate value, hence offering coverage of the full range of prices and sales. Any auction houses that do not share their results with Collectrium were either added manually to the analyses in the report, or, in the case of some very small auction houses (where auction sales are, for example, not publicly reported or reported inconsistently), were excluded. However, those excluded represent low value sales only that do not significantly affect aggregate trends in the overall market.

2. AMMA
   Both fine and decorative auction data for the Chinese art market is supplied by AMMA (Art Market Monitor of Artron), which has the most comprehensive and reliable available database on the Chinese art market. The Artron Chinese Artwork Database has recorded 5.3 million results from over 23,000 sales spanning more than 1,000 auction houses since the first art auction in China in 1993, and adds 600,000 results to the database annually.

3. Auction Houses’ Published Results
   Arts Economics collects data directly from the published auction results and press releases of auction houses around the world on an annual basis, with an internal database built up for the last 15 years.

4. Auction House Survey
   Arts Economics distributes two surveys in the auction sector: a comprehensive top-tier survey of the top 10 auction houses worldwide plus a second-tier survey of just over 550 national second-tier auction houses. The auction surveys provide additional sales data as well as a range of other more in-depth information on supply and inventories, employment, buyers, profit margins, debts and other aspects of the auction market which are used in the report.

II. Dealer Data
   Data on dealer sales is more complex to gather due to the private nature of transactions in the sector. Most of the companies in the sector are small to medium sized firms (in terms of turnover and their number of employees) with a tiny fraction of publicly listed companies, therefore listings of their financial results in public and private databases are limited.

   For the last 15 years, Arts Economics has comprehensively analysed and used company and industry data from sources such as Mint Global (an international registry of over 20 million private businesses), Eurostat, the US Bureau of Labour Statistics, the Office of National Statistics in the UK, Companies House, Insee, Infogreffe, the National Bureau of Statistics in China and numerous other national, publicly available sources. However, these private and public sources are limited in scope and coverage, and in some cases publish data with a significant lag and only for a very small proportion of companies relevant to this report.

   For example, the main private global databases, such as Mint Global and Orbis only provide financial information in the UK for companies with turnover in excess of approximately £6.5 million, which excludes a large number of UK dealers. There are also significant differences in reporting between (and within) countries in both public and private databases, with data limited by thresholds...
related to the number of employees, sales, company status and other criteria. Comparisons are also problematic between nations due to differences in the units used, the records required and how they are defined and recorded, and the classification of companies by sector and activity.

To overcome the lack of publicly available data, surveys of this sector are a necessary and critical element of the research process. Industry-wide surveys are common in many sectors of global economy, and national and sectoral surveys feed much of the key data provided in official government databases (including Gross Domestic Product (GDP), Consumer Price Index (CPI) and Consumer Confidence Index (CCI)). However, the effectiveness of surveys in measuring the market depends on various factors including the survey method, the sample used, response rates and, critically, an understanding of the underlying population.

To compile data on the dealer sector, Arts Economics sent an anonymous online survey of approximately 6,500 dealers from the US, Europe, Asia, Africa and South America in 2016. Ideally to analyse the market without bias, a random sample of all businesses would be drawn and surveyed. However due to the private nature of the industry and the potential problem of low response rates from random sampling, a stratified sample was used, based on the populations of dealers belonging to the main art dealers associations around the world, those exhibiting at art fairs, and some lists compiled with the help of experts in particular national markets.

The anonymous online survey was distributed directly by dealers associations such as CINOA, SLAD, CPGA, ADAA and other key national associations. It was also distributed by Art Basel directly to over 500 individual galleries who participated in its shows in Basel, Miami Beach and Hong Kong in 2016. The survey was distributed between one and three times via these channels at the end of 2016 between November to the end of December.

Response rates varied between countries and sectors, but on aggregate for the survey overall was 17% (or just over 1,100 dealers) the highest rate and number of surveys achieved for the global research to date and up 30% on similar surveys conducted by Arts Economics in 2015. This sample of respondents gives a margin of error of +/- 3% when applied to the wider population of dealers (of 296,300 in 2016) at the 95% confidence level.

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While the survey revealed dealers with a wide range of levels of turnover, by the nature of the sampling process via vetted entry to associations and fairs, it is skewed towards the middle to higher end of the market and does not cover many of the very small businesses, consultants and other agents in the market which do not belong to associations or exhibit at fairs.

When using a broad definition of dealers and galleries, and deriving estimates from a range of official national government statistics and private directories, there were in the region of 296,300 dealers worldwide selling fine and decorative art and antiques and collectibles in 2016. In terms of the representativeness of the sample to the wider population, the 6,500 dealers who were sent the survey account for a small share of the number of individual businesses. However, these dealers represent over 80% of the value of sales in the sector.

Therefore, the survey allows us to estimate the value and changes in this core 80% of the market, while the addition to sales from the remaining small businesses are very conservatively estimated based on official statistics and censuses which report sales by industry, business or sector. As some of the highest selling dealers may not answer surveys, the survey results are also checked against the reported turnover of the highest selling galleries and dealers as reported in Mint Global, Companies House, and other databases of company records.
As has been the case for the last three years, in 2016 the survey was conducted in Mainland China both through the online survey and through in person interviews with more than 30 art galleries in Shanghai and Beijing with the assistance of the Shanghai Culture and Research Institute. A series of supplementary interviews were also conducted with dealers around the world. The survey was supplemented by a series of interviews with dealers in different sectors and countries conducted from October to December 2016 to gain in-depth insights on the art market which were used to inform the analysis in the report and help interpret the findings.

The data on exhibitions was sourced from Artfacts.net. The ArtFacts database is the largest of its kind, containing over 37 million data points covering exhibitions from 192 countries, from the beginning of the 1860s to the present. The database contains information from 750,000 exhibitions, and over 30,000 galleries, museums, and art fairs providing an authoritative record of exhibition histories.

The research on the online sector was informed in part by a survey of around 50 online businesses selling art and antiques in 2016. This was supplemented by a series of interviews with those working in the online art space, collectors and other experts. Several companies also provide aggregate results to Arts Economics on an anonymous basis for the purposes of this research.

The two main databases used for web analytics were Alexa and Similar Web. There are many sources available and these two are commonly used and have amongst the widest coverage. There are weak spots in all of the web analytics databases due mainly to lack of coverage in certain areas, and small samples which lead to various limitations and inaccuracies. The data should therefore be only treated as a relative view of the companies presented at a point in time. Other data was taken directly from social media sites, including Facebook, Instagram and Twitter.

Arts Economics partnered with UBS to conduct a survey of 2,205 HNWIs in the US in 2016. The survey used the largest online affluent panel in the world, which was provided by Research Now for the survey. The core sample all had household investable assets in excess of $1 million, excluding real estate and business assets. This included 20% who had assets in excess of $5 million. The majority were based in suburban or urban areas (85%) with 15% from rural areas.

The descriptive profile of the panel included the following features:

a. Generation: 67% Baby Boomers, 24% WWII, 8% Gen X, 2% Millennials

b. Gender: 72% male and 28% female

c. Current employment status: 49% employed, 49% retired, 2% student, homemaker or unemployed

d. Of those employed: 45% were business owners, 17% were professionals, 12% senior executives, 11% middle management, and 14% employees.
Respondents were screened to ensure that they were active in the art and collectibles market over the last two years, which included nearly 40% of the sample. These 787 active buyers/collectors were then asked a series of questions on their preferences and activities in the market.

VI. Secondary Sources
The report uses a large number of secondary sources (that are cited throughout the report). Some key sources used for data in the report on a regular basis include:

– The IMF World Economic Outlook (Database)

– Merrill Lynch and Capgemini World Wealth Reports (Various years)

– Credit Suisse Global Wealth Databooks (Various years)

– ARTNews Top 200 Collectors