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Pi-eX: A new approach to art data analysis

Shifting the focus from the artwork to the collectors

At a time when Big Data has become a buzz phrase for many industries, providing new opportunities to analyze data and understand market trends, the art market continues to struggle with data. This was clearly demonstrated earlier this year when simply sizing the art market proved a challenge, as shown by the wide discrepancies between the 2017 TEFAF report and the 2017 Art Basel report.

The discrepancies not only highlighted the lack of transparency in the fine art market, but also the absence of widely established methodologies and analytical standards on the research side of the fine art industry.

Does this mean that the art market should remain forever a world where all that matters is emotions and feelings as opposed to quantitative, objective data and rational analysis? Not necessarily, but it clearly shows that art is a unique asset class that requires a new approach to data analysis and communication.

Over the past four years, Pi-eX has focused on building analytical and financial tools that help fine art collectors better understand and manage risk and volatility in the fine art market. In the process of developing the first derivative instrument

based on fine art, Pi-eX built a proprietary database of auction sales results and developed a systematic methodology for analyzing liquidity, performance, volatility, and volatility hedges. As in the traditional finance world, especially when dealing with risk assessment and management, Pi-eX uses a behavioral analysis approach to gain insightful information on the dynamics of the fine art market. By focusing on the behavioral trends of art buyers and sellers rather than specific artworks or styles, Pi-eX strives to provide valuable market-focused information to those interested in better understanding liquidity, performance and volatility in the fine art market.

Here is some of the rationale behind Pi-eX's new approach to art data analysis.

Why, in the era of Big Data, is the fine art market still struggling with data?

Various elements contribute to this struggle: a lack of trade transparency, lack of industry standards, the multiple distribution channels, and—of course—the unique nature of the trade of fine art in which each item is unique and non fungible, making it extremely difficult to truly compare like for like. Even the same exact item sold at different times after belonging to different collectors can hardly be used as a point of comparison.

Is Big Data analytics the solution for the fine art market?

While it would be easy today to browse through millions of art sales records, the reality of analyzing art data is often very similar to comparing apples to oranges. In fact, when looking at the historical trends for a particular artwork, the researcher rarely finds more than three or four relevant data points. We can therefore forget any correlation or regression analysis, variance calculation, Sharpe Ratio, etc. With only three dots, it is often challenging to discern any historical trends. As for predictions of the future based on these historical trends, one might as well resort to Paul Klee's creative definition that "a line is a dot that went on a walk."

Recognizing and accepting that art is a particular asset class, for which standard analytical solutions do not perfectly apply, is an important step. In this regard, we at Pi-eX strongly believe that the solution for fine art does not reside in Big Data, but rather in Smart Data.

What is Smart Data?

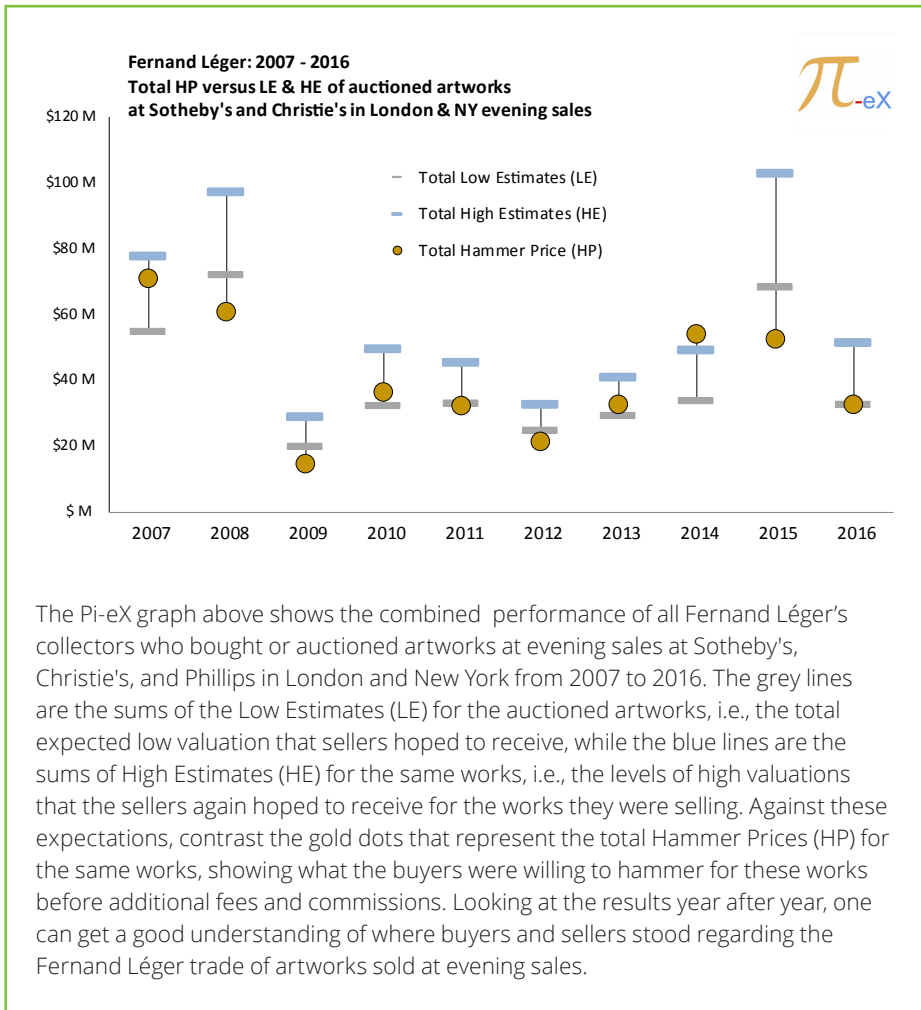
Smart Data is about finding creative ways to deal with the unique challenges presented by the fine art market. A Smart Data analysis starts by recognizing that any analysis can only be based on a small dataset. Consequently, it is not meaningful to look at the data exclusively through averages or indices, as any type of aggregation could be disproportionately influenced by the fate of just a single artwork and thereby minimize the importance of others. The other important thing to recognize is that the small dataset cannot easily be extended by adding

multiple comparable items. By mixing too many loosely related items, one may lose track of the particularities of the original analysis. Does this mean that no data analysis can be done? Not at all, but it certainly means that the analysis should always link back to specific works of art to allow the reader to see and understand the impact of every single artwork involved in the analysis.

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Shifting from an artwork-focused analysis to a collector-focused analysis

In a Smart Data analysis, one way to overcome the challenge of a small data set at the artwork level is to switch the focus from the artwork to the collectors. Specifically, rather than trying to analyze repeat sales for one particular artwork, the focus should be on the collectors of artworks, thus analyzing behavioral trends between sellers and buyers. While data for collectors' behaviors is not available across all art distribution channels, there is one channel where there is a profusion of data: public auction sales. In fact, this channel offers all the prerequisites for systematic behavioral analysis of art buyers and sellers.



The Pi-eX graph above shows the combined performance of all Fernand Léger's collectors who bought or auctioned artworks at evening sales at Sotheby's, Christie's, and Phillips in London and New York from 2007 to 2016. The grey lines are the sums of the Low Estimates (LE) for the auctioned artworks, i.e., the total expected low valuation that sellers hoped to receive, while the blue lines are the sums of High Estimates (HE) for the same works, i.e., the levels of high valuations that the sellers again hoped to receive for the works they were selling. Against these expectations, contrast the gold dots that represent the total Hammer Prices (HP) for the same works, showing what the buyers were willing to hammer for these works before additional fees and commissions. Looking at the results year after year, one can get a good understanding of where buyers and sellers stood regarding the Fernand Léger trade of artworks sold at evening sales.

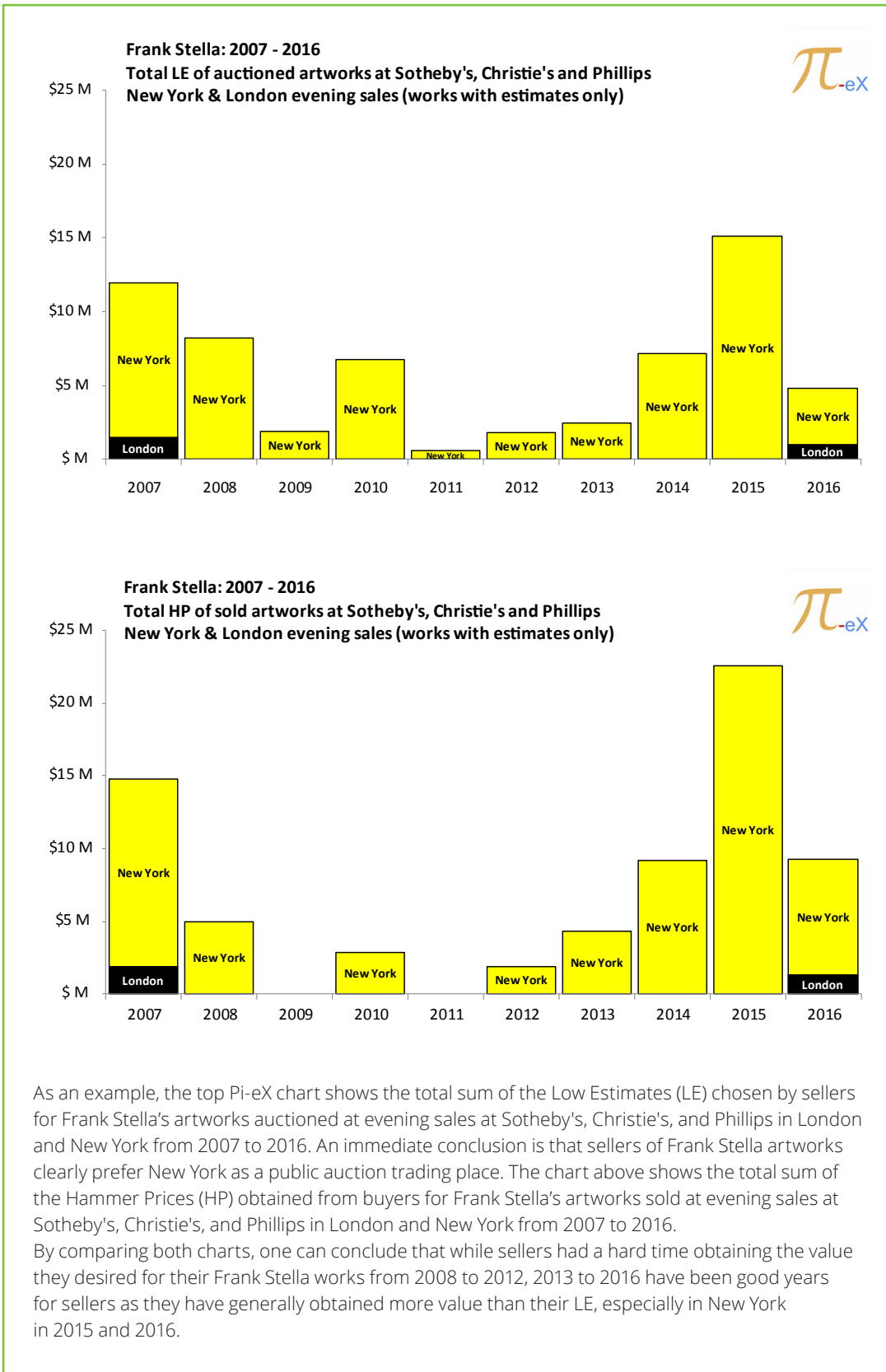
Source: Pi-eX Ltd

Why is behavioral analysis relevant to the fine art market?

The value of a work of fine art goes far beyond its intrinsic value: the cost of the canvas, the oil, or the time spent by the artist creating the artwork represent a mere fraction of the price eventually paid. What mostly drives the value of an artwork is at which price sellers are willing to sell their works and buyers are willing to pay. In the end, the sale price of an artwork is a fragile equilibrium between the expectations of both sides. If no common ground is found between the two sides, the artwork does not reach the reserve price and it is unsold or "bought-in". Behavioral analysis of buyers and sellers deals with understanding this critical price point at which sellers and buyers may or may not meet. It is the analysis of where this price point has been historically and where it could be in the future.

How does behavioral analysis help with the small dataset challenge?

While historical sales for a particular artwork generate very little data, behavioral analysis of buyers and sellers can be based on abundant data across many years, different locations, and numerous artworks, especially when dealing with collectors buying at public auctions. Thanks to the annual regularity of public auction sales, one can systematically analyze year after year what collectors like to buy or sell, where they prefer to do so, how their tastes evolve, what their critical price points are, which artists they are confident in or not, etc.



As an example, the top Pi-eX chart shows the total sum of the Low Estimates (LE) chosen by sellers for Frank Stella's artworks auctioned at evening sales at Sotheby's, Christie's, and Phillips in London and New York from 2007 to 2016. An immediate conclusion is that sellers of Frank Stella artworks clearly prefer New York as a public auction trading place. The chart above shows the total sum of the Hammer Prices (HP) obtained from buyers for Frank Stella's artworks sold at evening sales at Sotheby's, Christie's, and Phillips in London and New York from 2007 to 2016. By comparing both charts, one can conclude that while sellers had a hard time obtaining the value they desired for their Frank Stella works from 2008 to 2012, 2013 to 2016 have been good years for sellers as they have generally obtained more value than their LE, especially in New York in 2015 and 2016.

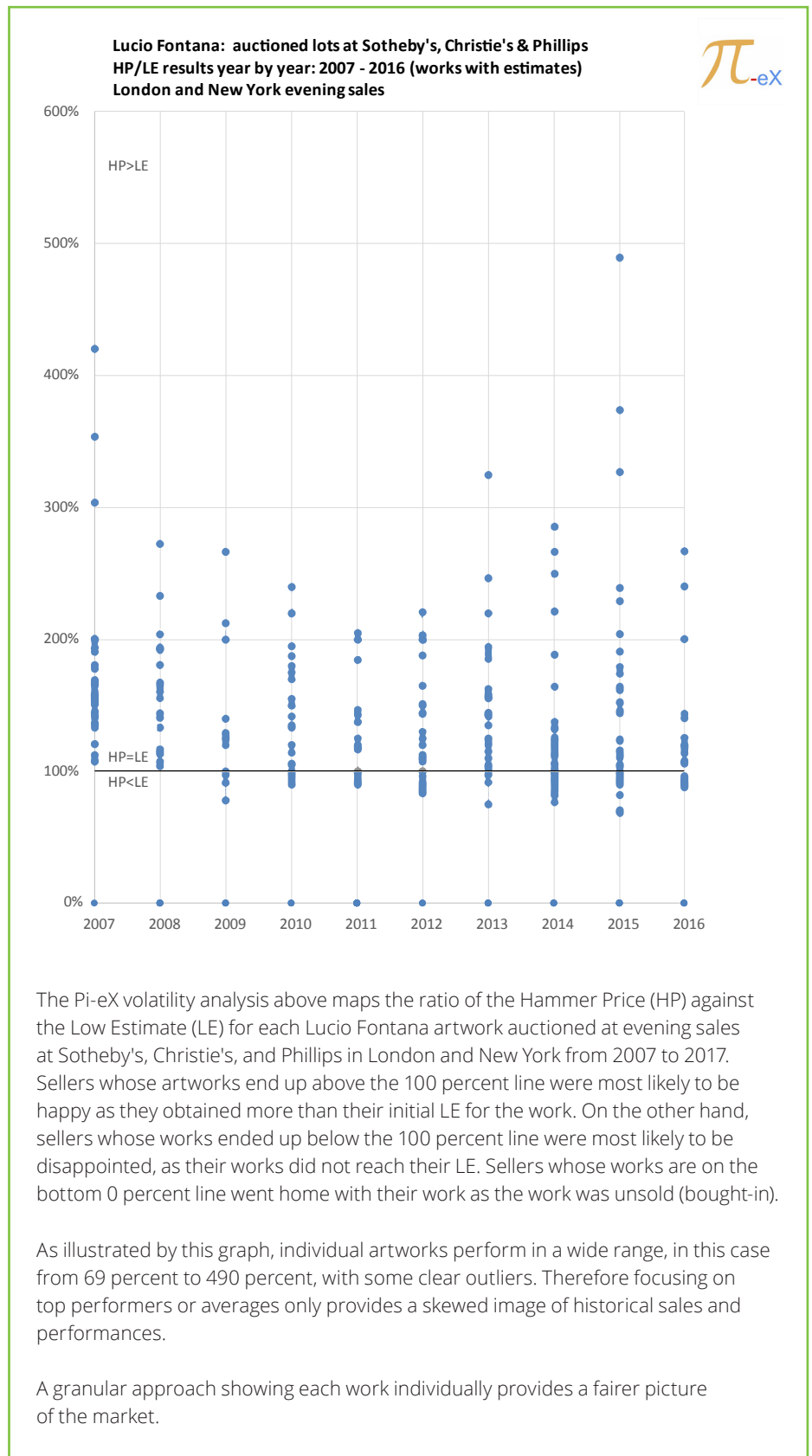
Source: Pi-eX Ltd

What else can be done to make data more relevant to the fine art market?

When looking at the behavioral analysis of art collectors, one should never forget that these collectors are buying unique artworks. Therefore, while there certainly are some trends that can be identified, there will always be a few outliers that will not and cannot fit the trends because they are so unique. How to identify and showcase these outliers is critical in a Smart Data analysis. A successful way to do so is through granularity and visuals.

1. Granularity

Instead of just producing indices or averages, a granular approach makes sure to always represent the various components of the market. Specifically, for art, the analysis should map specific artworks according to the criteria chosen for the analysis.



The Pi-eX volatility analysis above maps the ratio of the Hammer Price (HP) against the Low Estimate (LE) for each Lucio Fontana artwork auctioned at evening sales at Sotheby's, Christie's, and Phillips in London and New York from 2007 to 2017. Sellers whose artworks end up above the 100 percent line were most likely to be happy as they obtained more than their initial LE for the work. On the other hand, sellers whose works ended up below the 100 percent line were most likely to be disappointed, as their works did not reach their LE. Sellers whose works are on the bottom 0 percent line went home with their work as the work was unsold (bought-in).

As illustrated by this graph, individual artworks perform in a wide range, in this case from 69 percent to 490 percent, with some clear outliers. Therefore focusing on top performers or averages only provides a skewed image of historical sales and performances.

A granular approach showing each work individually provides a fairer picture of the market.

Source: Pi-eX Ltd

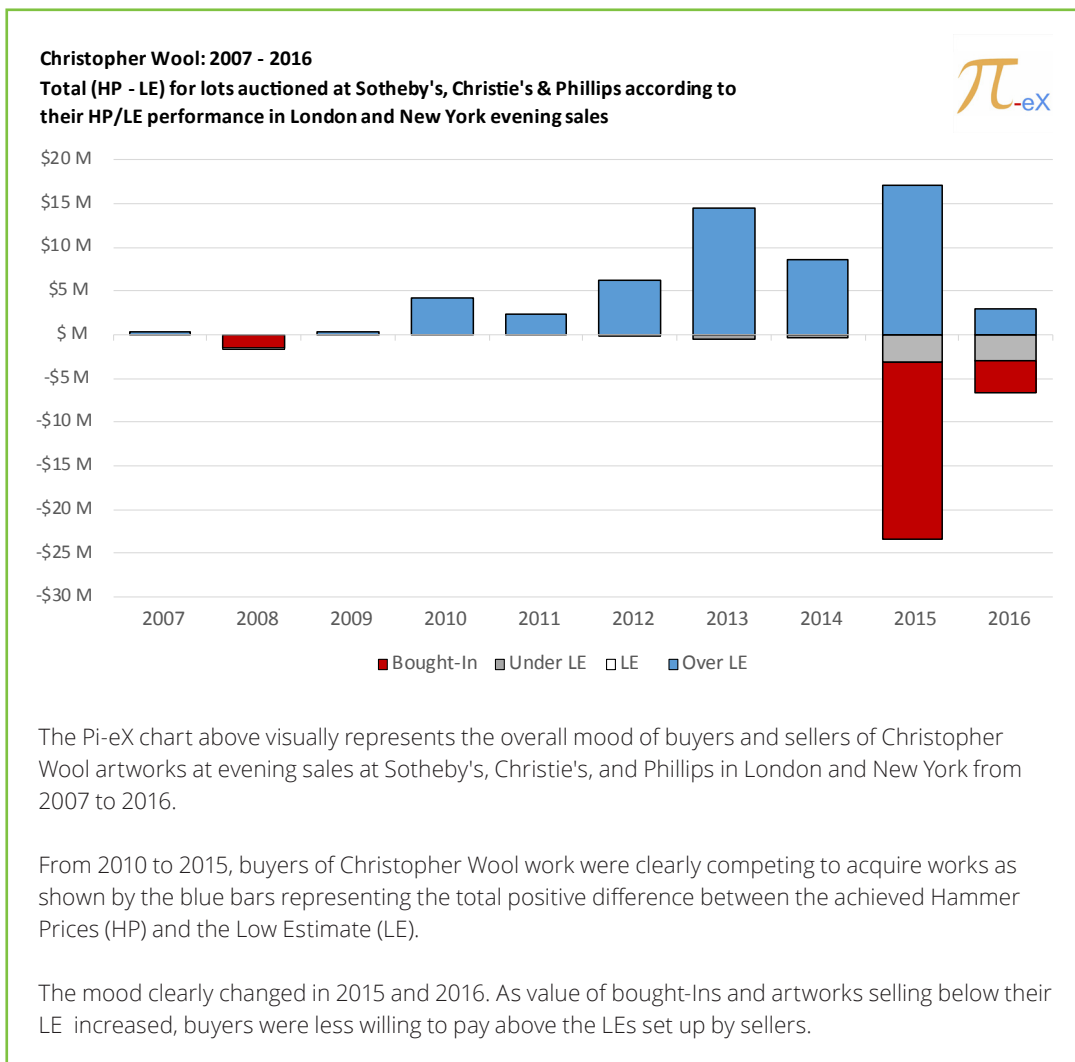
2. Visuals

While art is considered by many as an alternative investment opportunity, it certainly cannot be reduced to a number or an index. Along the same line, art analysis could not just be a ratio. It requires its own visual representation that talks both to the left and right parts of our brain.

Pi-eX was shortlisted for the Best Innovation in the Data category for the 2017 UK Financial Innovation Awards. The company was selected for the work it has done developing a new methodology to analyze trends and opportunities in fine art as described here.

Conclusion

Traditional analytical tools available to fine art collectors usually offer limited value-add to the risk assessment and investment decision process when buying art. As interest in art as an asset class has grown recently, a new analytical approach to the fine art market based on a Smart Data approach and the behavioral analysis of art buyers and sellers not only makes sense, but also offers a completely new perspective on the market, especially in regards to risk analysis and assessment during the investment decision process.



Source: Pi-eX Ltd