

The Nature of Returns in Art Investing

by

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ABSTRACT

I have enjoyed and studied both art and finance for years, but I have always been curious as to how my interests relate to one another. Art investing had been an intriguing yet enigmatic concept to me for years, so I wanted to help bring forth a more accessible understanding of how the art market functions. This thesis aims to detail conclusive findings connecting art prices to other assets and the relationship between the art market and the broader market.

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Introduction:

Talk of art as an asset class is not a revolutionary concept; however, burgeoning attention has flourished in the art scene during the upcycle of the market. On November 15th, 2018, David Hockney's *Portrait of an Artist (Pool with two figures)* became the most expensive art piece ever sold in auction by a living artist pricing at \$90.3mm. On October 5th, 2018, Banksy's piece that went up for auction shredded itself right after being sold for over a million dollars but is said to be worth even more now. On October 23rd, 2018, Christie's became the first auction house to sell a piece of work created by an artificial intelligence machine. To some, this increasing media coverage may signal a paramount art investing opportunity, but is it feasible to invest in art? The concept of using art as a financial vehicle is not a novel one. Between 1974 and 1981, the British Rail Pension Fund invested approximately \$70mm into fine art in an attempt to diversify their portfolio; however, it is evident that buying and selling art is fundamentally different from buying and selling equities or bonds. This is because the value of art to the buyer is usually comprised of multiple levels of utility such as aesthetic beauty or the signal of wealth it transmits as a luxury purchase. Ultimately, this combination of monetary and ephemeral value is what makes investing in art appealing to so many buyers, but also causes it to be a money hole for those only looking to make returns. How do these differentiating factors affect the relationship of art as an asset to other financial assets? By studying the auction prices released by Christie's auction house, which is widely accepted as the largest and most prolific auction house of the modern age, conclusions about the correlation (or lack thereof) with traditional financial assets, such as equities or indexes, can be drawn. The relationship of this study to published research

will yield further analysis, support, or antithesis which will grow the body of knowledge in this field.

Much of the work currently available for study in this field quantifies the value of a specific work, whether that's through defining characteristics, historical price trends, or a modified capital asset pricing model. It helps give readers a solid understanding of what the art markets consider valuable and how to pinpoint works that will be successful in terms of return on investment. There is limited research covering the behavior of the art markets, whether there is an existing proxy for their performance, and how they relate to the general economy. This information is critical to understanding the best time to make these significant capital outlays as well as when it is best to sell them. Additionally, it will aid in broadening the comprehension of how different auction houses relate to one another. In the body of this paper I will summarize existing research that laid the framework for my questions and conclusions, elucidate my data analysis and results, discuss what the findings could mean, explain their relevance, and summarize.

Literary review:

There is an increasing amount of research that is being released over the topic of investing in art which is augmenting the understanding of its feasibility as a financial strategy. “The virtual consensus that financial assets dominate less traditional tangible assets as investments is frequently ascribed to the fact that art and other collectibles embody a compensating differential in the form of a ‘user benefit’” (Perrini 27). Most of studies I looked at echoed this sentiment or looked for ways to challenge it. When reading interviews with art collectors and art advisors their most common piece of advice whether someone is looking to make a one-time purchase or become a prominent art collector themselves was to invest in pieces you like. Buy works that you will still be happy to look at on your wall every day even if they end up being worth nothing to market. This is a cornerstone of buying art, and a primary differentiator between art and other asset classes.

Art as an Investment and Conspicuous Consumption Good

Benjamin Mandel has structured his research around the concept of the utility dividend defined by him as “increasing the value of the art with time”. This is expanded upon to include the nonpecuniary as well as the expected monetary gain from owning a piece of art. Mandel asserts that there is value in owning art that is not paralleled in other asset classes. These features primarily being the aesthetic beauty and the function of the work as an outward and flaunt-able symbol of wealth. He notes that in periods with positive spikes in income the demand of the works increases, and this demand is the only driver of return because there is no underlying

claim on a stream of cash flows that exists in a variety of other financial assets. The generally accepted findings in this field show that art is typically outperformed by both stocks and bonds, however there is not a lot of qualitative clarity as to why. The research itself centralizes around building a capital asset pricing model that is specifically geared to predict the dynamic returns and risk premiums of conspicuous consumption goods such as art. The findings presented demonstrate that “Since the covariance of the art assets payoff and marginal utility is increased by the utility dividend, the typically positive consumption-based risk premium for a procyclical asset is offset or even reversed (i.e., art can act as a type of insurance that pays off during times of high marginal utility of consumption)” (Mandel 1654).

Art as an Investment and the Underperformance of Masterpieces

The research put forth by Jianping Mei and Michael Moses on this topic addresses the problems faced by other analysis studies over art investing through the use of data that gives key insights into repeated sales auction prices. This allows the author to have a more comprehensive perspective on the change in the value of a specific art piece over time. Many papers over similar topics have to make assumptions that try to normalize for different pieces of art, but each work will most likely have its own unique return. Using repeat sales data enables the Mei to accurately measure ROI over time and then take aggregated measurements from the data. Additionally, with data ranging from 1875-2000 Mei is able to construct an annual art index and sub-indices for American, Old Master, Impressionist, and Modern paintings. The paper tests “...two propositions frequently advanced by art dealers and economists. The first one states that art

investors should buy only the top works of established artists (masterpieces) or buy the most expensive artwork they can afford... The second proposition states that prices realized for identical paintings at different locations at the same time should be the same.” (Mei 1656) The research resulted in the following discoveries. First, while many previous studies have reported that art is the worst asset class in terms of performance this study finds that it actually outperforms some fixed-income securities, but not stocks. However, this could be a premium paid for the minute volatility of the generated art index and the arts low correlation with other assets classes. This makes it an attractive option for diversification of risk within a portfolio. The second finding is that expensive paintings or “masterpieces” seem to underperform compared to the art index. Third, there is mixed evidence to support the ‘law of one price’ (under which an identical art piece sold at the same time at two different auctions in different locations will go for the same price). This finding is specific to the New York art market for differences between Old Master paintings offered at Sotheby’s compared to works auctioned at Christie’s. The findings largely suggest that if an investor is looking to use art as a way to diversify their portfolio they should not focus on masterpieces and should avoid overbid works.

Asset pricing theory and the valuation of Canadian paintings

Historically, art valuation has been narrowly focused around a few key components: the visual aspects of the art itself, the artist, and the price it goes for in auction. These are the traits primarily associated with the works’ value as perceived by wider society. This research aims to take a hedonic regression to measure the importance of specific variables such as painter

identity, auction house, size of the painting, medium, and support on the value of the art. The team used "...standard asset pricing theory, as incorporated in the capital asset pricing model (CAPM), to the analysis of price movements in the market..." (Hodgson 629). Although paintings can be thought of as an exchange of money for an immediate good, they are often marketed additionally as investments. Because paintings are typically capable for lasting centuries, it is easy to view the purchase price as the discounted present value of the potential future sale price. However, this is not an easily attainable quantitative number due to the uncertainty of future preferences and tastes regarding the aesthetic value of the art. While most studies are done using American or European paintings, this research focuses on Canadian works. Additionally, the researchers create a capital asset pricing model (CAPM) for their data and also test the CAPM created other respected researchers in the field. This is "...the first paper in paper in the art pricing literature adaptively estimate a hedonic regression..." (Hodgson 650). The conclusion of the analysis lent itself to support the existing literature on American and European art investing that art underperforms compared to stocks but has similar variance and that their betas are small and positive.

Auctions and the price of art

The value of art can only be estimated until sale at an auction; however, because there are multiple factors that play into a specific work's success at auction and many are hard to quantify valuing art prior to sale is highly uncertain. Examples of factors that contribute to this phenomenon are an individual buyer's preference for the visual appeal of the piece and that specific buyer's access to capital, the presence or lack of competition in the purchase, and the

previous prices and estimated increase in value since that last date. These factors make how the auction system works critical to determining the "...how public preferences are translated into the evaluation of an artistic work..." (Ashenfelter 763). The efficiency of the auction houses also plays a role in the cost of creating and distributing art pieces. This paper aims to analyze how the art auction system functions, if it is efficient, and what that indicates about the formation of a price. These answers will be used to determine how the auction prices can help to predict larger movements in the broader art markets. Because each art work is unique, calculating trends in the art scene requires a lot of tailored and granular data. Time series data allows the measurement of specific works over time and is used in this research to test claims commonly made in the literature on art investing. The first being the underperformance of art compared to equities, and the second being that art has a low correlation to the broader market and most factors making it a potentially beneficial choice for diversifying. Additionally, they bring into question the 'law of one price' asserting that there is evidence to show that differing locations and auction houses effect the sale price of a work. Ultimately, the authors view auctions as having two purposes. One being that they represent the value of the art and show the preferences of art in society. The other is serving as a proxy for studying and understanding complex economic behaviors.

Financialization of art

Andy Warhol declared in 1975, "Business art is the step that comes after Art." Wealth and art have been intertwined since the inception of the first art piece. For millennia, only wealthy societies created art and only the wealthy possessed it. Only in the past several decades though

has art transformed into a financial instrument. This shift to capitalization introduces three fundamental changes to art: commodification, corporatization, and financialization. These three changes directly contradict "... the principles and values that have guided artists for more than two centuries" (Taylor 13). Some artists actively work against this such as Andy Goldsworthy, James Turrell, or even Banksy by creating works that are specifically unmarketable. "In recent years the value of art assets has risen at least as fast as, and often faster than, real estate or financial assets" (Taylor 10). The art market has displayed demand from the hyper wealthy as a store of value and for prestige. This increasing demand has developed artists like Damien Hirst who cater to this market and subsequently dealers who seek out the artists looking for pecuniary gain and work with them to inflate the prices of their works for a cut of the profits.

Investment Returns and Risk for Art: Evidence from Auctions of American Paintings

Information on profitability will contribute to the knowledge base for an investment position. This paper hopes to build on the existing research but also to add to the understanding of how this field of study relates to risk. The author implements a hedonic log price model to find a relationship of specific characteristics on risks and returns, and quality levels. "The findings show significant sensitivity of both returns and risk to the particular the painting market" (Agnello 443). The research supported previous assertions that art investing underperforms stocks and poses a higher risk to the buyer, however the benefit of art as an asset class is diversification. The data used yielded a 4.2% nominal return per annum which lagged the

S&P500 (11.6%) and bonds (8.5%). It was even below inflation (5.4%). The standard deviation of the data revealed the risk is substantially higher for paintings. “Thus, the overall consumption costs associated with U.S. paintings substantially making their purchase for pure investment unattractive in general” (Agnello 460). Additionally, the buyer and seller both incur fees to the auction house, reducing their margin even more (not to mention that the costs incurred are higher than most transaction costs found in financial markets). However, this is not to say that significant return cannot be achieved in the art investing realm. If the buyer is knowledgeable, lucky, and can afford high quality works their returns can approach 9.9% without any increase in the risk they are exposed to. In summation, “buy the very afford, so long as you can afford to buy the very best” (Agnello 461).

Investing in Art Movements: The Case of the Surrealist Painting

Authentic art is a sought after good because people see it as not only a possession, but also as an investment. “However, empirical examination of the attractiveness of non-capital tangible assets relative to financial assets has shown that art and other collectibles are not sound investments” (Perrini 27). Art has fundamentally different features than other financial vehicles. These traits include the invisibility of the works price which tends to be far higher than the cost per unit of purchasing a different financial asset. Additionally, there is no way to standardize the value of works with similar qualities (like how shares from the same company trade at the same price). Another key difference is the illiquidity of the artwork as compared to a stock or a bond. The author asserts that for these reasons, it makes more logical sense to compare the art market to the

real estate market. They have similar uncertainty around valuation (which is strongly influenced by preference), high transaction costs, and illiquidity. The research aims to “consider whether investing in a highly specialized art movement is a viable alternative to investing in stocks and other asset classes” (Perrini 27). After analyzing the data, it appears as though these highly specialized movements tend to be profitable. Specifically, with regards to surrealist paintings, the rate of return actually outperforms the stock market. However, the volatility of this space would make it unappealing to the typical investor. The risk-return profile of investing in these specialized movements mimics that of small-cap stocks and real estate. This is a valuable finding because it presents evidence contrary to the generally accepted notion that art investing is not worthwhile from a financial perspective.

Methods and Results:

To reach a conclusion constructive in the conversation of understanding and quantifying art investing, I used the data I had access to in a way that was inspired by but different from the prior research that was available to me and is documented in the literary review. Comparing this data against the broader market and against a similar asset, I hoped to discover a proxy for the art market and an underlying trend between the proxy and the U.S. economy.

The majority of my findings are centralized around data from Christie's auction house, which is one of (if not the) primary auction houses in the world. Christie's shifted from a publicly traded company back to being private in 2006. Following this, the auction house began releasing all the prices of the art work sold in any of their auctions. The Christie's data used in this paper is comprised of every price for every art piece sold at a Christie's fine art auction in New York from 2006 to 2018. While there is auction data available for every piece ever sold at any Christie's auction since 2006, I decided to use more granular data for a few specific reasons. The reason I choose to specify the auction prices I used for fine art specifically is because there is a long-standing debate in the art world as to what qualifies as art. This is a can of worms many have attempted tackle, but it does not fit the purpose of this paper and I personally believe it is up to each individual to build that definition for themselves through experience and opinion. Fine art however is an area I can be confident fits into rational people's definition of what art is (hence it's in the name). Additionally, most of the compelling research I read studied some form of fine art (typically paintings or master paintings). Therefore, in an attempt to make an apples to

apples comparison with the conclusions commonly accepted in this field of study I specified similar works. Christie's has auction houses all over the world. I narrowed my study to pieces sold in New York for multiple reasons as well. One being that the majority of high-end art sold in auction in the United States occurs in New York. Additionally, as reasoned above, I wanted the data to be congruent to the benchmark I would be measuring the results against: The S&P500. Comparing the trend of the auction data to the S&P500 to gauge the relationship of the prices to the economy as a whole was most aligned with auction data from the United States. I felt confident building these parameters into my data due to the massive amount of information still available in the newly limited pool. Primarily, I used this data in an attempt to uncover a correlation between the prices and the general moves in the market (the S&P500). To give color to another major art auction house, Sotheby's, I will compare their stock chart to the S&P500 and the Christie's findings as they are publicly held. This should give some perspective to the findings from Christie's. Both the S&P500 index and Sotheby's stock price data was collected from Bloomberg. I used the price at the last trading day of the month to compare linearly to the monthly auction data.

While working with the Christie's data, it became evident that the company hosted flagship auctions twice a year; one in May and the other in November. Realizing this, I was able to draw some conclusions about why the firm decided to leave the public markets. Stockholders value steady earnings, but Christie's was not basing the layout of auctions around the expected return on each artwork and trying to flatten the volatility of profit made during each one. Instead, they

were creating auctions around a theme (such as a particular artist or time period). Some auctions would generate a few thousand dollars in profit and others would generate multimillions. Upon this realization I knew I would have to make adjustments to my data if I wanted to compare it to either Sotheby's stock price or the S&P. While performing regressions on the data, I normalized for the months like May and November as well as August (which historically has no auctions). One of the ways this was done was by comparing YoY returns from May and November for all the data sets and then comparing the results using both regressions and graphical depictions of the correlations which will be shown below with further explanation of each metric measured. The metrics I tracked on each month of Christie's data were: Number of works sold, total revenue for all the auctions in that month, median price, minimum price, and maximum price.

When analyzing the regression results, I focused my analysis around a statistically significant P-value and R squared. Due to the variety of data points, regressions, and analyses I planned to conduct, I had multiple hypotheses about what my data would show. My initial hypothesis was centralized on the Christie's data. I hypothesized that there would be a clear correlation between the number of pieces sold in a month and the revenue brought in; however, I did take into consideration that there is a large amount of volatility in art prices. Therefore, if there was a particular piece that sold for far more than the median price during an auction that had limited supply it could skew the results. Looking from the perspective of an auction house in particular, I thought it could be likely that organizing an event around a specific famous artist could result in a shortage of supply but result in a high revenue. Ultimately, I thought that the average show

would not fall into this category and instead revenue would be largely influenced by the number of pieces purchased. Secondly, I expected there to be a correlation between the Christie's revenue and the Sotheby's returns. These two auction houses have many similarities and I would expect them to behave monetarily similarly. Additionally, I viewed both of these companies as gauges for the art market as a whole, and thus show similar movement over time to map the changing trends in art buying and selling. Another hypothesis was that there would be some similarity between the Sotheby's stock price data and the larger movements of the market tracked by the S&P500.

<i>Regression Statistics</i>	
Multiple R	0.570624106
R Square	0.325611871
Adjusted R Square	0.321232727
Standard Error	294468984.9
Observations	156

<i>ANOVA</i>					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	6.44748E+18	6.44748E+18	74.35514637	7.44046E-15
Residual	154	1.33536E+19	8.6712E+16		
Total	155	1.98011E+19			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	-56309985.44	33623460.87	-1.674723065	0.096018128	-122732730.9	10112759.99	-122732730.9	10112759.99
X Variable 1	473853.0547	54952.59025	8.622943023	7.44046E-15	365294.8689	582411.2405	365294.8689	582411.2405

Above are the results of the regression conducted on the Christie's data for revenue as it relates to the number of works sold in a particular auction. The P-value is notably lower than half a percent which indicates clear statistical significance. The correlation depicted by the R squared value states that 32.56% of the revenue can be explained by the number of art works sold. The finding supports my hypothesis with a P-value that allows us to reject the null (that there is not a

relationship between revenue and volume sold), but the correlation does not give as direct of an answer. This is likely due to an amalgamation of multiple factors; the volatility of prices within the art markets, the organization of auctions, and general outliers in the data. The art price volatility can skew this data by having a single highly valued work sold in a smaller auction. This would inflate the revenue while having minimal effect of the quantity of work sold. The way auctions are generally organized could also have an effect on this correlation. More specifically, an auction organized around a historically prominent artist or a current trending artist may have few pieces available for sale due to popularity but the laws of supply and demand cause prices to skyrocket. Again, this scenario would skew the results by having a low quantity all sold for higher prices. In order to give more color to the relationship, I decided to look at it in the context of the annual auction events.

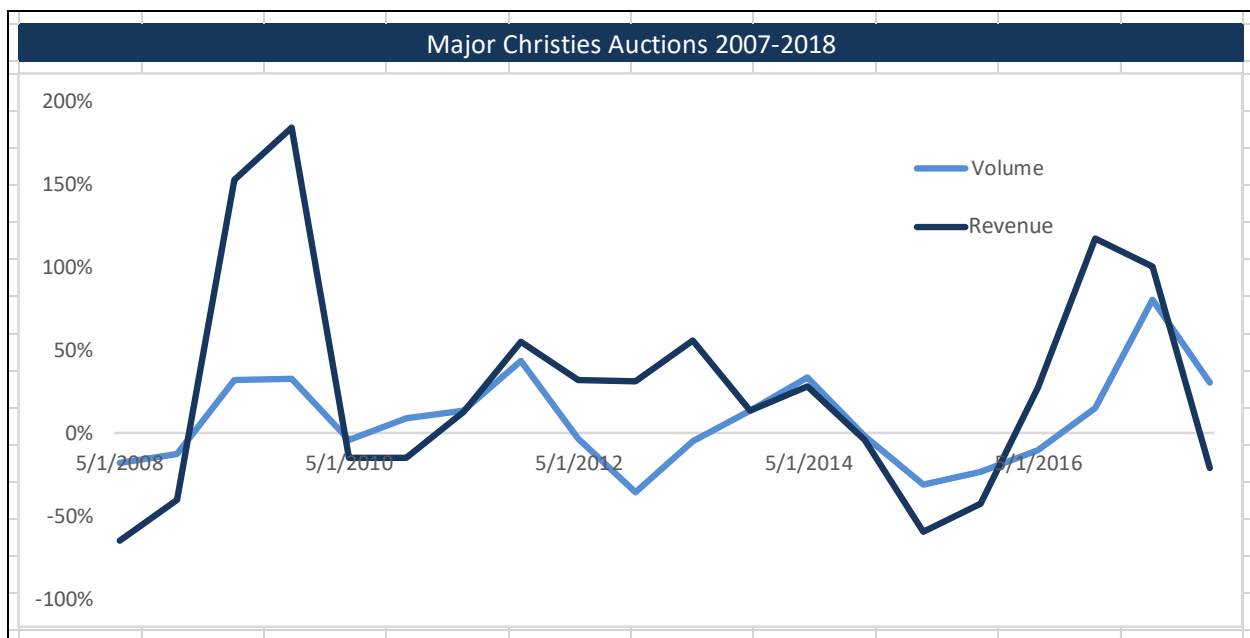
<i>Regression Statistics</i>	
Multiple R	0.936904299
R Square	0.877789666
Adjusted R Square	0.87223465
Standard Error	0.238064137
Observations	24

<i>ANOVA</i>					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	8.955568581	8.955568581	158.0175091	1.62106E-11
Residual	22	1.246839733	0.056674533		
Total	23	10.20240831			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	0.020766506	0.050119592	0.414339084	0.68263787	-0.083175166	0.124708178	-0.083175166	0.124708178
X Variable 1	0.110293616	0.008774003	12.57050155	1.62106E-11	0.092097448	0.128489784	0.092097448	0.128489784

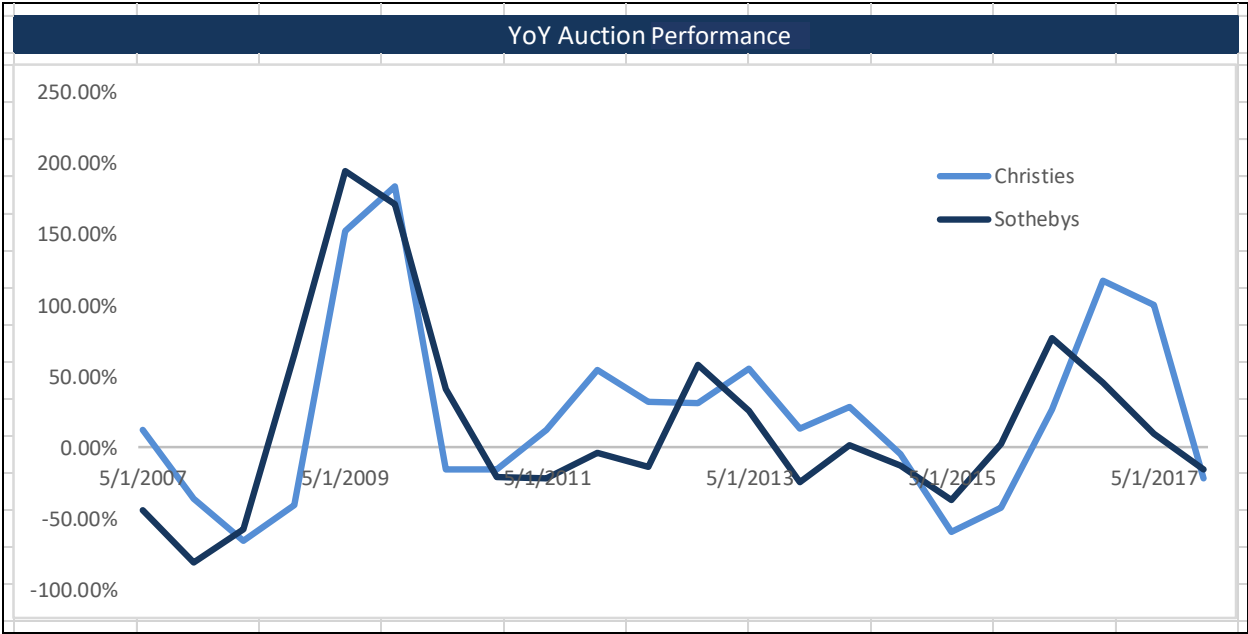
In contrast to the results of the initial regression, this regression surveyed only the flagship auctions in May and November. Highlighted figures relay the statistical significance through the

low P-value and the R squared that qualifies 87.78% of the revenue being correlated to the number of pieces sold. This correlation is remarkably higher than that of the full data. This is most likely due to the nature of the auctions held in these months. Due to the size of the event, the auction house strives to have a large body of works available for sale for premium prices. This means that the relationship between the price per piece is typically higher during these auctions which allows more flexibility for extreme relative prices.



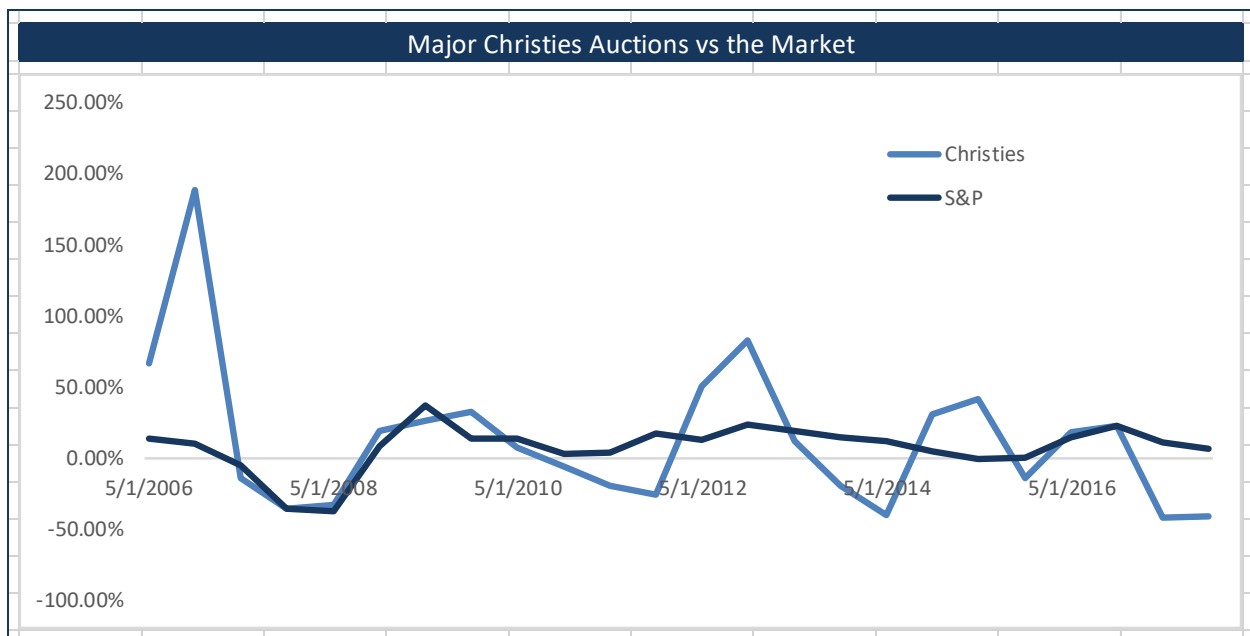
This graph depicts the data from the previously mentioned regression over time. As you can see, the variables generally move together, but revenue tends to act more volatile as compared to volume. This makes sense due to the overall success of the auction events. If an auction is booming and many pieces are being sold, that will drive up demand and prices for the remaining

pieces, while if an auction is struggling the pieces are likely going to be sold for less than the median price on a strong sale.



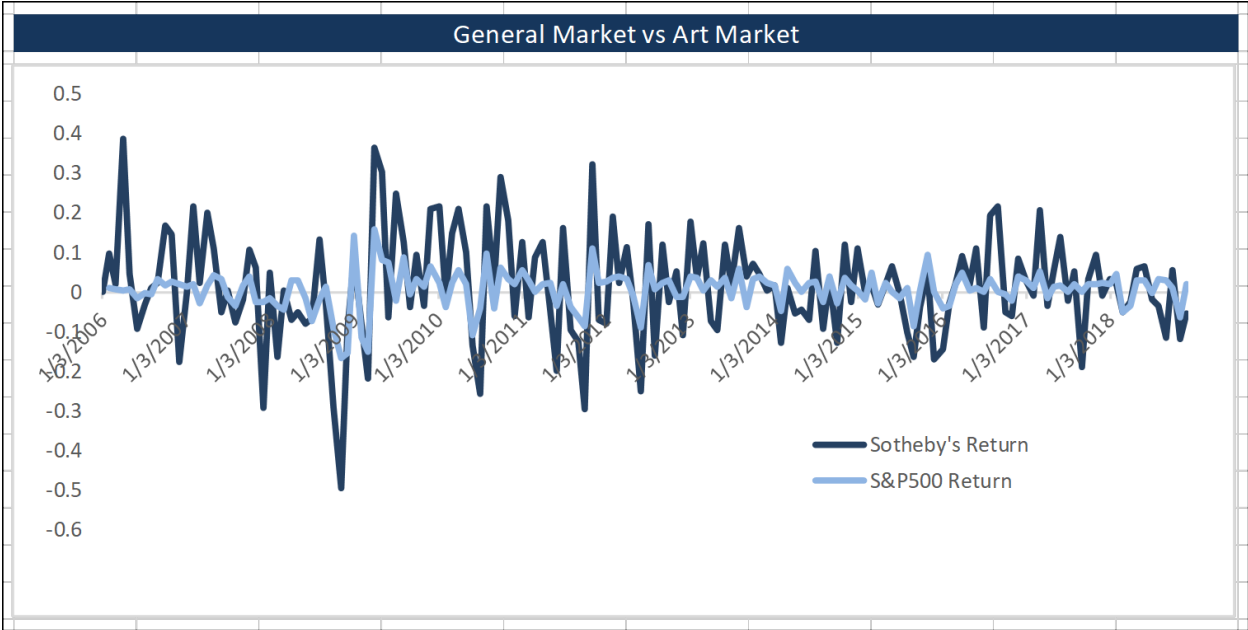
In order to get a sense for the art market overall, to see if a connection exists between the monetary performance of the world’s two largest auction houses, and to gauge a proxy for the art market as a whole, I compared the Christie’s change in revenue to the Sotheby’s stock returns. In order to normalize for the flagship auctions at Christie’s, the data is the year over year change during May and November for both the revenue and return. In comparing the two auction houses to each other it is clear to see a trend in the broader art market that at least transcends the different auction houses. It is significant that the performance for both companies correlate so well because it allows us to assume that this is the general movement of the art market and there must exist some larger market predictors that cause both auction houses to be affected somewhat equally by them. This is especially noteworthy because this is not measuring the same metric

(even though each denotes monetary gain) and they still behave so similarly. It is interesting to note that the stock price seems to lead the revenue. I would have expected the revenue to lead the stock performance. I have not yet come up with what I find to be a valid explanation for the timing difference. Now that we can point to an existing art market trend and use the Sotheby's return or the Christie's revenue data as a proxy for that general movement, the question becomes; How does this compare to the broader market?



When selecting data to study this research topic, one of the striking elements that caught my attention about the Christie's data was that it dated back to 2006. This meant that I would be able to observe how it reacted during the 2008 financial crisis. I expected this to have undeniable significance toward the performance of the art markets as well as on any other luxury good. The data used to create this chart is the year over year revenue normalized for flagship auction

months against the year over year return of the S&P500 index price over the same time periods. As is made evident in the graph above, both the S&P and Christie's drop down to similar levels of about 50% losses; however, it is notable that the art market fell from much higher revenue to bottom out at that level. Interestingly, following the downturn, the recovery occurred at similar rates. Though 2008 showed paralleled movements, in the decades following that the S&P is far less volatile than the art market.



To get a fuller picture of the long-term relationship between the art market and the broader economy I compared the returns of Sotheby's against the S&P500. The graphical depiction above illustrates both the volatility and similarity of the two lines. The peaks and troughs of Sotheby's replicate actions in the broader market but with increased sway. Putting art into the category of luxury purchases makes sense of the evident relationship. Relative to the market, the behavior of art acts far more like a discretionary than an asset class.

Discussion Section:

Through the results of the studies made on the data from Christie's, Sotheby's, and the S&P500, there are multiple conclusion that can be drawn:

- There is a correlation between the quantity of works sold and the revenue generated
- Trends in the art market transcend auction houses
- The art market moves in unison with, but is more volatile than the general market

The first finding is a conclusion drawn from the Christie's data alone. The relationship between the number of pieces sold in an auction and the revenue from that same auction existed in both the study of the flagship auctions as well as the study of all the available data points.

Interestingly, the data from the flagship auctions showed a much higher correlation than that of the general months. I have a theory as to why this is the case; The volatility of prices within the art markets, the organization of auctions, and general outliers in the data. The volatility in art prices is derived from the uncertainty of the value of a work until it is sold for that much and even then, the work can be over or undervalued in the eyes of other prominent figures in the art markets. The possibility of a single work being sold at an unprecedented price could skew the revenue up while having a marginal effect of the quantity of work sold. The pattern in which auction houses organize their shows and sales could also be yielding this difference. Moreover, the laws of supply and demand work in tangent to, for example, a sale showcasing a specific prominent artist. Due to said artists' current popularity, it may be difficult to get a large supply

for the show and it could increase the perceived value of the works. Again, this scenario would skew the results by having a low quantity all sold for higher prices.

The second conclusion was drawn by comparing the performance of Christie's in terms of revenue to the performance of Sotheby's in terms of return. Upon analysis of the data, it is clear that there is a uniformity to the behavior of the two lines, meaning there is an art trend that transcends the difference in auction house. Not only does this enable the assumption that these figures can function as proxies for the art market, but also that there are variable factors that are moving the market and causing different metrics of performance in the field to act accordingly.

The graph did enlighten me to a peculiarity in the data. It seemed unusual and unexpected that the stock price seemed to lead the revenue. Because revenue is a primary driver to changes in stock price, chronologically, revenue movement occurs first. This could mean that Sotheby's is seeing a change in their revenue prior to Christie's and therefore it is reflected in their revenues first. But a more likely theory is that the driver of the change effects stock prices before sales. Potentially, the driving factor could be the economic outlook that can be more quickly built into a stock price through trades than into a private company through reduced revenues.

The final conclusion is constructed off both the relationship between the Christie's data compared to the S&P500 and the Sotheby's data compared to the S&P500. A critical point of analysis while working with this data was visualizing and mapping the relationship between the 2008 financial crisis and the art data. The performance of the art market in relation to the

economic trends mimicked that of consumer discretionary type products. These luxury items are acting more as an expensive product than a potential investment relative to the general market. This is critical to note because the consumer discretionary trends are far more researched and understood than the art market. If they act in parallel compared to the broader economy, analyst strategies that have historically worked for investment timing decisions could carry forward to the art industry. There was a clear parallel in positive and negative shifts in the returns; however, the Sotheby's data had increased volatility with each swing. Further emphasizing the behavior of art as a luxury good rather than an asset class.

This research has limiting factors that should be accounted for by the reader before deciding to accept the results or conclusions as fact. A primary limitation that effected all the data was the time frame the Christie's data was available for. Because the data was only available for the most recent 12 years, but the art markets and the general market have both been around far longer, the results and conclusions may indicate a current trend in the data rather than a long-term pattern. Another limitation of the data is its comparability to outside data. Because the Christie's data is comprised of prices for art works, and that kind of data isn't available for either the S&P or Sotheby's it is not an apples to apples comparison and could lead to a misunderstanding of the relationship between the variables. Another factor potentially limiting the findings of this research is the limited variables tested in reference to the art market. If there was a possibility to use another publicly traded auction house or some other more unique representation of the art

market that would improve the reliability of the conclusions. Moreover, this research does not include the work of lesser known artists in its analysis of the art markets.

Further studies could potentially be done to find the relationship of the art markets to the consumer discretionary industry and some consumer discretionary stocks. This could help investors to have a more well-defined proxy for the art markets and could influence similar investing strategies as used by analysts for that industry. Another continuation of this study could compare the art market to U.S. bond prices for more color on how the art markets relate to the broader economic landscape. Additionally, this study focuses almost exclusively on the United States. It would be interesting to see this study done with foreign equivalents to see if the art market behaves similarly compared to every market or if its relationship is influenced by the culture of the country it's in. Finally, having a study that looked at art from less popular artists and from smaller galleries would be informative to understand the broader scope of the market.

Implications Section:

The findings of this research pose many advantages to not only the academic viewing this from the perspective of a student, but also to any existing or potential investors into the art markets.

This research may sway a current collector to look at their buying strategy differently, or it could entice or dissuade someone from trying to use art investing solely as a means of gaining return.

The importance of these findings to art collectors, dealers, auction houses, and investors varies with respect to their needs. For art collectors, the most significant insight may come from understanding the implications false scarcity has on their initial outlay to purchase a piece. The illusion of scarcity in an auction due to the lack of available works by a specific artist can cause prices to balloon above their resale value especially if the supply exists at a different auction house or a collector or the artist floods the market. The number of works sold at higher prices increases during the flagship auctions at Christie's. Dealers may find this useful when selling works to galleries and auction houses. The dealer may want to create the illusion of scarcity themselves rather than allowing the auction house to reap the increased profit margins by storing works away for later auctions. They may ask the artist to work more slowly creating less stand-alone pieces in a year but potentially in larger sizes. Additionally, it is useful for both of these parties to know that at least when it comes to Christie's and Sotheby's, there is no significant difference between the prices the works are sold for at the auctions. This is explained by the correlation between performance for these two players. Auction houses would primarily benefit from scheduling auctions around the economic landscape. Because the art market is an intensified version of the general market, the best times to schedule the most profitable auctions

are months where the market is on the upcycle. Finally, investors can benefit from all of the findings in this paper. In order to create a comprehensive understanding of the market they need to be able to view it from the perspective of every party involved and see who has the most influence on changes in valuation. It is critical to have an investment strategy that addresses the main contributors to variation within the market.

Conclusion:

In summation, there has been a heightened interest to enter the art markets from the perspective of a financial analyst in recent years due to the explosive stories that have been emerging from the art scene and the increase of technology allowing for both wider spread knowledge and communication of this industry and the ability to analyze a seemingly enigmatic market with data analytics. While conducting this research, there was a question I was met with by almost every person who inquired about it; Can I make money through art investing? After receiving this question many times and trying to explain ad nauseum the intricacies of the art markets, the difficulty in valuing a piece of work, and the excessively high barriers to entry, my short answer became “Yes, but you probably won’t” (or at least not as an isolated individual). Though there are an increasing number of ways to get some upside from the art markets while avoiding all the factors I named (one of them being an art fund), most works return rate is lower than those of traditional financial assets.

For many current collectors, their top piece of advice to anyone looking to invest in an expensive work or become a regular buyer themselves is to never buy a work unless you actually like it.

Don’t depend on your analysis to get you to purchase the art work with the paramount return.

One of the greatest benefits to investing in art is the utility it has compared to other assets. The aesthetic and status it should propagate in the buyer should be worth at least the value potentially sacrificed by locking up liquidity in it. Ultimately, the amalgamation of pecuniary and abstract value appeals to many investors and high wealth individuals.

For anyone already invested or determined to invest in the art markets including collectors, dealers, and auction houses, the following principles should be considered to enrich understanding of the functionality of the sector and how it relates to broader economic trends:

- There is a correlation between the quantity of works sold and the revenue generated
- Trends in the art market transcend auction houses
- The art market moves in unison with, but is more volatile than the general market

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