Chapter 2

Review of Literature

Introduction and Literature Review Strategy

The Review of Literature has delved into important research conducted by well-known experts in the field, and has also studied from established Art Market Reports and Publications.

The Review has been conducted with the purpose of studying the history, origin and evolution of miniature painting in India. It then goes on to explore the concept of “Art as an Investment,” and its correlation and relative performance and returns in comparison to other avenues of investment available. Other antiquities and invisibles, like wine, silverware, sculptures, and photographs have also been studied as they form a part of what we call ‘art.’ Art as a tool for diversification of risk and portfolio of investments has formed a part of the study.

The reviewed papers also throw light on the latest trends in the Art Market – both in India and abroad, returns generated by art over a period of time, and variables which have an impact on valuation of works of art. The Review then proceeds to explore studies done for deriving a valuation model for works of art. Various models of valuation, mainly used for valuation of contemporary and modern works of art, including computer programs, have been delved into. Important Literature, which throws light on various Research Techniques like Expert Opinion, Interviews, and exploring methods for designing samples, optimum sample sizes, and saturation points of samples.

The review of literature takes a close look at the Auction Theory, and also explores the various statistical, analytical tools used by experts to calculate the value of art. Finally, the review
has made an attempt to find out whether any similar or related work has been conducted for valuation of Indian Art in general, and Indian Miniature Painting in particular.

The Literature Review has been conducted by studying 152 Research Papers, Thesis, Publications, Reports and Auction Results. Out of the same, 60 papers have been included in this thesis. Some of these papers have been published in reputed Journals and Publications, such as Springer, Emerald Publishing, Sage Publications, SSRN Journal, Journal of Cultural Economics, Journal of Economic Literature, Eastern Economic Journal, Princeton University Press, etc. Care has been taken to include as many papers from diverse geographies and timelines, so as to portray a rounded and holistic representation of markets, methods, and tools involved in the study of art as an investment. The chosen research papers and reports are dated 1989 to 2019, and the authors belong to various countries- including the USA, UK, China, Russia, Canada, Australia, and India. A majority of the papers have been published from 2013 to 2019 which helps us to understand the latest and most recent trends of research being carried out on the subject. The papers have included artworks art from various periods, including Renaissance, Modern and Contemporary Works. Interesting findings from old hand-written manuscripts and court records (“Bahis”) have also been included in the Review of Literature, as they throw a rarer insight into the payment and pricing practices of miniature paintings, as was followed in the Medieval Rajput Courts in India.

**Literature Review**

The two seminal works, i.e., “Indian Miniature Painting” by Chakraverty (1993, ed. 2005), and “Rajput Painting” by Ahluwalia (2008) are renowned for their contribution to miniature paintings in India. These books have helped in understanding the origin, history, the various Schools, technique and significance of miniature paintings in India.
In a survey of 400 top Global Wealth Managers, ‘The Knight Frank Global Wealth Report 2016’ came out with some very interesting takes on art as an Investment. These Wealth Managers together manage more than 45,000 ultra-HNI clients across the globe. According to the respondents, there has been a 26% positive change in asset allocation towards collectibles (Art, Wine, Cars, etc.) in the last 10 years, with a forecast of a positive change of around 36% in the next 10 years. The KF Luxury Investment Index shows a 4%, 28% and 226% growth in a 12 month, 5 year, and 10 year time period respectively for art as an Investment (Table 12).

Table 12: Performance of Different Asset Classes. Source: Knight Frank.

Ye, Wang, and Huang (2016) used a Hedonic Price Regression on auction data from 1995 to 2014 to find out various variables, which have an effect on the Chinese Market for artworks. The study concluded that physical attributes of the artworks- like colour, signatures, and the subject of the painting, as well as place of sale of the works, have significant effect on their prices.
The ‘Deloitte and ArtTactic Art and Finance Report 2016’ mentioned that in spite of economic sluggishness in certain economies, 75% of the top ten art markets globally experienced positive trends, with a large number of experts indicating positive or neutral outlook for 2016, which points towards the continuing importance of Art and Collectibles as an important part of wealth management strategy.

The ‘ArtTactic Indian Art Market Report 2016,’ which was published in March 2016, indicated that almost 95% of experts confirmed the relative strength and positive sentiment for the Indian Art Market for the coming twelve months. It also said that the Indian Art Markets have increased their share from 10% in 2014 to 15% in 2015 of the Global Auction Sales of Modern and Contemporary Art. The report also pointed out towards a 35% rise in Auction Sales in India, propelled by increase in turnover in the domestic auction sales.

David (2016) of Tilburg University studied auction data and tried to reconstruct an Art Index on the basis of data of sale of 3000 artworks for the period 1945-1951. The study used regression to study the impact of various factors on art prices. The paper concluded that the real prices of artworks are positively correlated with the credit to the private sector. Growth in money supply does not seem to have a significant impact on the real prices of artworks. It also concluded that in normal times, black marketers tend to invest in the art markets in order to hide their ill-gotten wealth. However, during demonetization, they tend to stop such investments, thus reducing demand.

Veena (2015) stated that investments such as art, with its low correlation with stocks and bond should form an important part of a portfolio, so as to reduce the systematic risks of the portfolio. She concluded that art should definitely be a part of a portfolio for the purposes of diversification.
Yates (2015) documented the effect of authenticity and provenance on the Value of Antiquities, and how traffickers are increasingly trying to produce copies or introducing stolen works in the market.

Hawkins and Saini (2014) have studied auction data for Indian Paintings for the period 2000-2013, and concluded that art prices are generally volatile in the short run, but tend to give returns in line with bonds and stocks in the longer run. The average returns on Indian Art over this period has been at a range of 5-9% over this period, but may give lower returns if we take a longer time period.

Worthington and Higgs (2014) examined the risk, return and portfolio diversification in major painting markets. The aim was to provide information to collectors and investors. The study took nine indices for major categories of paintings and five financial markets, by obtaining data from the UK-based Art Market Research (AMR) for the period January 1976 to December 2001. Thereafter, analysis was done for art risk, return and portfolio diversification. Finally, combinations of these assets with different risk-return characteristics were constructed by using Markowitz's Portfolio Theory. The authors conclude that while low correlation of art to other investment avenues such as bonds and stocks do point to its diversification potential, yet the risk-return attributes of art are inferior to other established asset classes, and hence its diversification potential cannot be fully supported.

Reneboog and Spaenjers (2013) applied a Hedonic Regression Model on over 1 million works of art to find out factors which determine the prices of artworks, and also returns on art over various time periods. They concluded that returns are generally higher at the top end of the market, and that art does not yield very high returns over long period of times, but could generate significantly higher returns during market booms.
Wealthinsight (2013), in its Luxury Investment Report indicated a faster rate of growth in millionaires and their investments in developing countries than in developed countries. It also stated that art, diamonds and wine remain favourite investment avenues for millionaires.

Jureviciene et al. (2012), have studied the Lithuanian and the world art markets and have used correlation and regression analysis to for a period of 2005-2009, an investment in art and gold can be very profitable for an investment portfolio, whereas an investment in Art and US Treasury Bills would be least risky.

Kiel and Tedesco (2011) studied the theory that the price of an antiquity could well go up if backed by an impeccable Provenance. Using a Hedonic Regression to compare artifacts with strong provenance, and those without, the paper concludes that strong provenance does result in higher prices for Antiquities post 2005.

Kraeussl and Logher (2010) from the VU University Amsterdam studied the performance of three upcoming Art Markets- Russia, China and India for different periods. Based on Hedonic Regression Analysis, they found that the Russian Art Markets (1985-2008) gave an annual return of 10%, whereas the Chinese (1990-2008) and Indian (2002-2008) Auction Markets produced 5.70% and 42.20% returns respectively. The paper also found that Chinese Paintings had maximum hedging prospective during market downturns.

Mamarbachi et al. (2008) agreed that though purchasing different types of art leads to different risks and returns, the importance of art as an alternative investment cannot be undermined.
Mandel (2010) used data of international real art flows and Milton Friedman’s permanent income hypothesis (PIH) to identify consumption and investment of artworks. It also used consumer goods export data of the US and compared the same with the export data for art works. The paper explored the global flows and dynamics of painting, print and sculpture markets. The author concluded that these services most closely resemble consumption services. International art trade varies closely with trade in Consumer Goods, with the income of destination countries.

Campbell (2005) studied the returns on art during extreme stock market movements, and found that even after taking desmoothed AMR Indices, there was very low correlation between art and other asset classes. Therefore, she concluded, that art could be accepted as a potent alternative asset class.

Ashenfelter and Graddy (2002) who wrote in the National Bureau of Economic Research, reviewed the research that has been done on how the art auction system functions and whether it has been able to indicate about price formations. The authors conducted an empirical study of various researches that had been conducted mainly over the period from 1980 to 1995, and concluded that the auction mechanism provided a report on the prices of art objects. The study showed that because of the unique nature of many art objects, the interpretation of art market prices needs to be interpreted cautiously. Also auctions are a source of information on how art works are valued.

In his paper which used international trade data to study the various competing theories of art markets, Mandel (2010) also used permanent income hypothesis to discern which narrative is more useful in analyzing data where visual arts behave like consumer goods
The study of 37605 works of art by 60 Australian Artists over a period of 10 year period was done by Higgs and Worthington (2005) on the Financial Returns and Price Determinants in the Australian Art Market for the period 1973-2003. On the basis of this data, they constructed a hedonic price index, which indicated a return of around 7% in the period of study. It also concluded that collectors are ready to pay more for works of artists who are deceased, and for works executed in certain media like oil and acrylic. Also, art works auctioned by prominent Auction Houses like Christie’s and Sotheby’s tend to fetch higher values.

Mei and Moses (2002) studied the repeat sales of artworks for the period 1875-2000 and tried to estimate an annual index of art prices for the said period. Taking data from New York auctions, the authors used repeat-sales regression (RSR) to calculate the likely fluctuations in value of an average or representative asset over a particular period of time.

The authors found that art outperforms fixed income securities as an investment, though it under-performs stocks by a significant margin in the USA. They also found in art a lower volatility and lower correlation with other assets, thus making it a portfolio diversification tool. It also concluded that masterpieces, or higher value works, have a tendency to underperform the overall art index.

Agnelo and Pierce (1996) studied the auction prices of 66 American Artists for the period 1971-1992, and found that the average returns on these paintings were 9% and 3% respectively in terms of nominal and real returns. The paper also tried to study various determinants, which affect the returns on paintings.
VALUATION OF ART AS AN INVESTMENT

As per the ArtTactic South East Asian Art Report 2018, the introduction of a draft of the Antiquities and Art Treasures Regulation (Export and Import) Bill, 2017 may pave the way for seamless sale and purchase of antiquities and collectibles in India. The passing of such a Bill will increase the interest amongst collectors and galleries in Classical Indian Art forms, including miniature paintings.

Newman and Bloom (2011) conducted 5 separate experiments and the participants were given hypothetical settings in which they were asked to compare and rate original object vs a duplicate. The authors used a mixed-model analysis of variance (ANOVA) using the domain (art vs. artifact) as a variable and contagion. The objective of the study was to understand whether the value of original art is more than that of a duplicate or forgery. They concluded that original artworks are significantly more valuable than duplicate ones, and that the same may be applicable to other goods as well, only the degree may vary.

Ashenfelter (1989) studied the auction process for wines and paintings in various European Markets and the US. The author studies the complete auction process, and analyses whether a true value for a wine/artwork is found through the same. The author concludes that auctions in general help in deriving a genuine price for wine and art works. However, chances of arbitrage do exist in some cases, especially between different auction markets.

A study which takes into cognizance various variables to predict a valuation model for artworks was developed by Vig (1999). The invention has worked on a method for valuation and appraisal of artworks based on a computer programme. It builds the model on the basis of a "normal" value of an artist’s art work, which is derived by calculating the averages of all previous artworks sold by the artist.
Brieber, Nadal and Lederb (2014) studied whether people give more value to real life and original exhibits of art, or to online or virtual exhibits. The authors used 137 students of psychology from the University of Vienna. The participants were divided into three groups, and where allowed to view the exhibits at the museum and the laboratory at certain intervals. They were to evaluate 25 artworks, which included photographs, paintings and collages. Post viewing the exhibits, they were asked to rate their experience on a 6 point Likert Scale for Interest, Arousal, Liking, Valence and Understanding. The study concluded that viewing an original work in a museum always results in better understanding, value add and satisfaction, than seeing virtual images of a work of art.

A paper which tried to understand two sociological norms for pricing of artworks- one which prevents art dealers from reducing the prices, and the other which propagates them to consider size of the works while setting prices of artworks was conducted by Olav (2003). The author worked on the sociological analysis of how the prices of contemporary art move by carrying out extensive interviews with Industry Experts- i.e. dealers of art in Amsterdam and New York. The study found that that art prices, changes in prices and divergences, also point at the quality of the works being sold, social standing of the sellers and dealers, and artists and their reputation.

Hodgson and Vorkink (2003) empirically analyzed the valuation of 152 Canadian Artists and their paintings by taking a sample of prices from major auctions for well-known Canadian artists in the period 1968-2001. This analysis and index was later used to analyze the properties in Canadian art and artists which are viewed as investible assets. The authors used hedonic regression analysis to analyse the influence of factors such as identity of the painter and prices in auctions to build a market index for price of paintings. They study found price movements of Canadian Paintings are affected by the asset pricing theory, as has been laid down in the Capital Asset Pricing
Model (CAPM). Using the Art Price Index prepared earlier, the authors generated returns on these works of art. The study showed a return of 8.5% p.a. on Canadian Art with a standard deviation of 17%. The study also concluded that art does provide a diversification tool in respect to equity investments.

A study on the sociological evaluation of the secondary art market through an Auction House was conducted by Pardo-Guerra (2011). He studied how the aesthetic value of art is converted into a commodity by determining its valuation. The author concluded that the process of arriving at a valuation at an auction is through past experiences, their customs and aesthetics, as much as through databases and economic analysis.

Robinson (2014) studied an approach to sampling by identifying the universe for sampling, determining an ideal sample size, working on an effective sampling strategy, matters pertaining to sample sourcing. He also mentions that as per earlier studies (Smith and others 2009) a sample size of 3-16 can be effective when following an interview based approach to research. This smaller sample size would allow the researcher to focus on each expert, and would save him from getting burdened by too much data. The author also found that a certain degree of flexibility is required in the sample size, as it may vary as the research progresses.

Guest, Bunce and Johnson (2006) studied the ideal sample size needed for non-probabilistic research by conducting sixty thorough interviews in two West African countries with women. They were able to conclude that data saturation was evident after twelve interviews, though the first six interviews came out with basic ideas for metathemes.

In their study to determine ideal sample sizes in qualitative research, Crouch and McKenzie (2006) studied a group of respondents who had been diagnosed with cancer in the past, and had
received treatment for the same. They concluded that where in-depth information and a close relationship with the respondent may be required, interview based research can be successful even with smaller sample sizes which are less than twenty.

Baker, Lovell and Harris (2006) draw from methodological research literature to understand who can be termed as an “expert.” They have taken the Delphi Panel Technique of Healthcare Research, and suggest a rigorous method to be followed for selecting experts for research. They have prepared a suggested Table of Questions, which may help in determining and selecting an expert. They have, however, concluded that while it is difficult to lay down exact guidelines for defining an “expert,” however, it is responsibility of each researcher to identify and justify the selection of such experts in their respective fields of research.

Francisca et al (2010) studied the ideal sample size for interview based research, and attempted to arrive at the saturation point in sample size. Initially they specified a minimum sample size, and they conducted interviews till they arrived at a point where no new ideas emerged. They conducted two such studies with medical practitioners treating patients with a sore throat and relatives of patients diagnosed with Paget’s disease. The saturation point was arrived at the seventeenth interview.

By carrying out an in-depth analysis of 83 published studies in IS Journals in the US, Marshall, et al. (2013) concluded, among others, that a grounded theory qualitative research should have between twenty to thirty interviews, whereas a single case study method should have around fifteen to thirty interviews.

Bauwens and Ginsburgh (1999) in their paper ‘Art Experts and Auctions: Are Presale Estimates Un-biased & Fully Informative,’ studied the pre-sales price estimates of 1600 lots of Silver
which were auctioned between 1976 and 1991 by Auction Houses – Sotheby’s and Christie’s, to understand whether these pre-sales estimates are able to predict the actual realized prices. By using the Truncated Regression Model, they concluded that the estimates are biased, and that the experts do not make use of all the information available with them to arrive at the price estimates. Hence, they proposed that the pre-sales estimates could be more specifically predicted.

In the paper titled ‘Auction Theory: A Guide to the Literature,’ published in the Journal of Economic Surveys, Klemperer (1999) studies some of the most important papers/publications on Auction Theory, and helps us to understand the basic and fundamental concepts of the auction process. It points out to the importance of the auction process in formulation of numerous economic theories, including ones on price formation and determination, and how the whole auction process impacts various industries – like the oil and exploration, timber, treasury papers, art, antiques, etc. The paper also discusses important concepts, such as the ‘Winner’s Curse,’ in an auction, where the winner invariably ends up paying the more than the actual worth of the object.

Ashenfelter and Graddy (2003) delve into the world of auctions and try to understand how it works. They study how the prices derived in auctions impact overall price movements in the art market. They use this study to understand how to measure prices of art over a period of time. By using time series movement studies, the paper tries to understand art as a separate asset class, and also tries to identify probable anomalies in art market trade and pricing. The study points out to cases where prices in the art market have varied across auction houses and geographies.

The authors also found that art market experts can provide very accurate prices of art works, but the same may not be a factor of information publicly available. There is also adequate empirical proof to point out that auction prices of identical objects tend to go down when more than one such
unit are sold in an auction. This principle applies when the objects are not exactly similar. Finally, the study concludes that auctions provide a playground where key concepts and theories on art prices and behavior may be tested.

Guler et al., (2009), developed a method to compute an optimal reserve price in an auction by using more than one evaluation criteria as specified by the end users. The estimation of the auction like situation is generated by studying past auction data available for bids. The structure is then predicted by calculating the users’ expected payment propensity which is worked out as a function of the estimated reserve price.

The authors found that determination of the Reserve Price is presently left to the auctioneer, with little data to back-up such decisions. The present invention used a structural and data based econometric analysis, and by understanding the elements which affect the environment in an auction, and with very little assumptions involved in the distribution of the random elements which had not been observed. It thus helped a seller and buyer to adjust a reserve price of an article keeping in view the changing auction environment.

In their thesis submitted towards their Masters Degree at the Universiteit Gent, Hanssens and Karuranga (2017) studied how auction prices are determined by analyzing 518 works of art which were auctioned at Sotheby’s, Dorotheum and Christie’s between the years 2003-2017. This data was sourced from the site Artvalue.com.

Their paper titled, “Price Setting in Art Auction Markets,” studied various variables that affect the price of paintings, and conducted an analysis through a Hedonic Regression using a price index based on the above mentioned sample. The variables that were included consisted of the auction house selling the painting, origin, age, size, medium whether the artist was alive or deceased when the auction took place, and the estimated price of the painting.
The authors found that the mentioned auction houses had different pricing strategies, and that effect of various parameters on the prices of paintings was different during various financial conditions of the economy. They also found that during an economic downturn, while the number of artworks sold came down significantly, the overall price realized increased significantly, thereby pointing to the importance of rarity as a major variable which affects prices of art.

One of the major collections of Rajput Art and Heritage is housed in the Mehrangarh Fort Museum in Jodhpur. The Fort, built by the Rao Jodha in around 1460 AD, has now been converted into a museum. Apart from a huge collection of weapons and armour, jewelry, furniture, paintings, manuscripts, etc. the museum also has a fabulous collection of old journals or “Bahis,” which document the day to day life at the royal court of Mewar.

These Bahis are segregated into various categories – like Hakikat Bahis, Hatkharchi Bahi, Sanad Parvana Bahis, etc., based on the type of activity being documented. It is here in one of the Bahis (the ‘Hatkharchi’ Bahi of Rani Toonwar) that we come across an entry which gives us an insight on the price paid by the royalty for paintings executed by court-artists in their royal ateliers.

In this Bahi No. 137, Rani Toonwar is mentioned as having commissioned a painting of Jallindarnath (an ascetic and Guru of the Nath sect). The painting was completed by one of the court artists Dana, for which he was paid Rs 5 by the queen. Figures 24 and 25.
The painting was commissioned somewhere around 1838 AD, which is around 180 years back. If we assume an average rate of inflation at 7% per annum, the approximate cost of this painting would be Rs. 9.72 lakhs today.
In an article written for the Journal of Finance, Mei and Moses (2004) studied auction data for 6114 paintings from Sotheby’s and Christie’s for the period 1950 to 2002. They used the Repeat Sales Regression Model to find the impact of prices estimates made by auction houses. They found
that estimates of high value paintings were consistently kept higher by the auction houses, and that the bias continued for over a thirty year period. This study points towards the fact that auction houses have this perpetual predicament between getting higher prices, and customer retention and maintaining reputation of their institution. The study finds that such pricing estimates may indicate that some investors may be gullible enough higher prices for such paintings. The study also tries to explain the relative underperformance of high value assets over a period of time, because the sellers may create undue hype around the sale of such assets, a phenomenon often observed in underperformance of certain IPOs in the Financial Markets too.

Velthuis (2005) examines the thought which goes behind pricing of contemporary art by dealers from the sociological point of view. By conducting wide ranging interviews with art experts, dealers, gallery owners in Amsterdam and New York, and with the help of quantitative and qualitative data, the author has tried to decipher the logic used by dealers for arriving at prices where well laid down and objective criteria seem to be missing. The author finds that high prices of artworks may indicate the identity of the collectors apart from the quality of the work. It may denote status for some, but fraud for others. The author concludes that dealers attach a lot of moral and sociological value to artworks apart from their pure economic value, which also forms an unspoken language and meaning to the players in the world of art.

D'Souza and Prentice (2002) in their study on Strategy and Pricing of the Auctioneer have explored the strategy employed by auctioneers to determine art prices in auctions. The authors use Hedonic Regression on data from an auction held by one of the well-known Australian Auction Houses. The auction consisted of a collection European and Australian paintings, jewelry, furniture, books and other collectibles. The study was conducted to determine the connection between the pre-sales estimates made by auctioneers and the final prices realized for these paintings. The
study concluded that the auctioneers tend to consistently provide estimates which are biased downward so as to lure more customers. That more advertising and information regarding paintings tend to result in higher realized prices. The study also found that paintings are arranged according to their quality in an auction, and that the market and the auctioneer prices the various different features of the paintings almost similarly. The authors also concluded that well known artists, generally those which are household names, tend to command higher prices.

Hernando and Campo (2017) in their study, analyzed the importance by collectors to the brand equity of an artist and his name when they assess or purchase an art-work. They used a 2 x 2 experiment on collectors for paintings of two Spanish Artists, José Manuel Broto, a relatively well-known artist, and Nico Munuera, a young and relatively obscure artist. The works contained the names of the artists, with other variables, like artistic style, size, colour, and exhibit locations were kept equal. The study found that collectors were willing to pay more for the works of the known artist than for the works of the relatively lesser-known artist.

Kose, Burmaoglu and Kabak (2013) studied the relationship of energy consumption with economic growth in the form of GDP of Turkey. The purpose of the study was to impact of energy consumption on the GDP of Turkey. They also study as to which of these components have a comparatively greater contribution to GDP. The authors use two methods to derive the importance of energy consumption on economic growth. They first use GRA-Grey Relational Analysis to find out the most important energy types which have an impact on GDP. The outcomes derived from the GRA are then compared by using a Regression Analysis. The authors conclude that Oil and then Renewables are the two most important energy sources that impact GDP. This analysis helps in finding the causality between the two parameters.

Writing for Quality Engineering, Wu (2002) used Grey Relational Analysis (GRA) for MADM (Multi Attribute Decision Making) problems. The purpose of the paper was to conduct a comparative study between various MADM analysis models.
The author compared many methods and techniques for MADM- including Simple Additive Weighting Method (SAW), Technique for Order Preference by Similarity to Ideal Solution (TOPSIS), Operational Competitiveness Rating (OCRA) and Analytical Hierarchy Process.

The study uses the QFD example used by Chan and Wu (1998) to demonstrate that the use of the GRA Model, and then the same is compared with the other above-mentioned models. The study concludes that the GRA Method is the most flexible, simplest and the easiest to implement method.

Zhang et al., (2018) attempted to study the attitude of Chinese patients towards the pricing of medical services in five areas of Liaoning, Tianjin, Shandong, Beijing, and Hebei to understand the issues involved in the present policy, so as to help in formulating a revised mechanism for arriving at medical pricing.

The authors designed a questionnaire for the purpose of expert interviews on the basis of literature review. Based on the responses of the questionnaire and on the basis of expert interviews, with a sample size of 600 patients selected from the above mentioned five areas, the authors use Grey Relational Analysis to find the difference in outlooks of these patients towards the pricing of medical services as mentioned above.

The purpose of this paper is to understand the attitude of patients towards the current medical service price and the effect of policy implementation, and explore the existing problems of the current medical service price policy in the region in order to provide a research basis for the dynamic adjustment mechanism of the medical service price. The analysis also helps in finding a
correlation between the overall scores and the attitude of patients towards health service pricing. Thus, the study would help in undertaking health service reforms.

Ilker, Coskun, and Birdogan (2013) explored the various Business Schools in Turkey in respect of their Teaching Performances, and attempted to determine the degree of significance of the main factors which affect the performances of these Business Schools.

The paper uses the Grey Relational Analysis or GRA through the ranking method. The authors pick up data of 19 Turkish Business Schools. They use five main areas, Number of members in the Faculty, OSS Scores, Number of Students for every Faculty Member, the Mean and the Standard Deviation respectively of the KPSS Scores. The GRA used three weighted method to weigh these various criteria.

The study concludes that OSS Score is the most important factor in the ranking order for Turkish Business Schools, which would greatly help the stake holders in decision making.

The most significant outcome from this study using GRA is that instead of using bibliometric pointers used earlier, the study has used actual scores from examination data and weighted methods.

In his study used for selection of Project Managers for an Energy Company for a Software Project, Çelikbilek (2017) uses the Grey Analytical Hierarchy Process. He evaluates six engineers on twenty five different criteria through results of examinations and from personal information furnished. Also, factor weights are derived from comparisons done on a pair basis by three top level managers of the company. The Score, Year and Assessment are included in the application.
The final weighted scores are arrived at and evaluation is done through the Grey Analytical Hierarchy Process, and the results so obtained are compared with the Grey VIKOR results for validation purposes. Finally, the applicants are ranked for comparison and evaluation.

Chen and Moses (2018) use a hierarchical method for evaluating the reputation of Chinese Universities. Five Universities are evaluated on the basis of sample data of 1565 students from the Province of Shaanxi in China. This study of University Reputation is done on the basis of the perception of these surveyed students.

The Rankings derived from this study shows consistency with the most reputed of these five universities evaluated. The study approaches this problem as a Multi Criteria Decision Making problem (MCDM). The universities in question are compared pairwise.

This study derives two main results firstly, it derives a hierarchical method or model for calculating the reputation of these universities, and the Integral Linear Programming which uses the Grey Possibility (ILP-GP) methodology derives an optimization method which can be used for resolving MCDM related problems by using the Grey Relational Analysis. This method does not need the Grey Distinguishing Co-efficient ($\zeta$), which is quite difficult to evaluate.

Srivastava and Satchell (2012), in their paper titled, “Are There Bubbles in the Art Market? The Detection of Bubbles when Fair Value is Unobservable,” studied the bubbles in the Market for Art by using a structure which was based on the steady state results of TAR models and the appropriate definitions of bubbles which were recently put forward by authors Knight, Satchell and Srivastava (2011). The authors take data of the Art100 Index from Art Market Research
(AMR), and analyze the data using the generalized Blanchard Model, which requires the use of an external switching variable.

While the normal method for examining bubbles is by measuring deviations of the prices from their fair value, the authors analyze whether it is actually meaningful to define some fair value of works of art, and they conclude that it is indeed very challenging to empirically implement and assign any definition of fair value. The authors then take the fair value of art as zero in one of the instances, and unobservable in another instance, and in both cases notice evidence of a bubble in the market for art.

In their paper titled, Modeling Online Art Auction Dynamics Using Functional Data Analysis, Reddy and Das (2006) study the price dynamics of Modern Art in India, using Functional data analysis. They studied price movements during the auction process, and tried to determine the final prices of the art being sold in the auctions. They found variables, such as prior sales record, size, medium, type of artist, number of bidders and bids, the position of that particular lot in that auction, influence the prices of the art objects in an online auction.

They also found that price of an artwork may change during the course of the auction. Some of these changes depend on the opening bids based on historical prices. Sometimes, the velocity of the price change increases towards the end of the auction. They also found that the prices tend to taper off towards the end of the auction, or in other words, the order of the lot numbers is inversely proportional to their price levels.

The data used for the study is taken from saffronart.com from their Auction conducted in December 2004. It included 107 lots of 48 artists, which comprised of paintings, sculptures, drawings, etc.
In their study of 2817 paintings of 21 Contemporary Italian Artists, Marinelli and Palomba (2008) tried to conduct an empirical analysis of the determinants of Price of Contemporary Italian paintings which were auctioned between 1998 and 2002. It analyzed the variables which contribute to unsold lots and price levels of lots that are sold.

They used the Heckit Model which helps in finding out the “buying” risk in auctions. The variables used include the following, including characteristics of the artist, his name, living status, year of birth. Physical characteristics of the artwork, including- Medium, Size. Some artistic characteristics like, authentication done by the artist, previous Publications in catalogues or monographs, date, recognition done by experts, citations in artistic literature, signature, title, exhibitions, number of the previous owners, provenance, etc. Sale characteristics, including - Auction house selling the work, marketplace, previous sale date, Pre-sale estimates, etc.

The authors concluded that artistic qualities have less effect on the marketability of the paintings, but they do have a strong effect on the price levels. Similarly, some variables like the auction house where the transaction is taking place, affects the auction prices.

Powell, Gelich and Ras (2019) worked on deriving a Pricing Model for Artworks for Online Sales by using Text Analytics. The paper explores and utilizes a slew of features, along with text analytics, and similar tools and attempts to predict the prices of artworks. The study found that rudimentary metrics, such as length of description of the text, and the social-media link of the artist are attributes which help in predicting prices of the works of art. The authors also employ the Paragraph2Vec Algorithm along with Clustering for categorizing artworks according to their prices.
Findings from the Review of Literature

The Review of Literature throws up the following main findings.

1. Most of the studies conducted in the field of art as an investment have been related to external markets and art works. Very little research has been conducted on the Art Market in India;

2. The studies have focused mainly on Auction Data and Past Sales Reports. Very few studies have made an attempt to derive the intrinsic value of the paintings. Also, the studies have focused on mainly contemporary and modern works of art. Antiquities and Ancient works of art have not been touched upon by the researchers;

3. There has been no study till date on the valuation of ancient Indian Antiquities in general, and Miniature Paintings in Particular;

4. Expert Opinion and Personal Interviews play a major and significant part in working out a model for valuation of items which do not have clearly defined values;

5. A sample saturation point is reached at a sample size of between 16 to 25 when Exploratory Research is involved.

6. Out of the various statistical tools being used for undertaking a comparison and arriving at weighted scores of various variables, the GRA Model is the most suitable and accurate method of application.

As mentioned during the submission of our Research Proposal, while various works have been conducted on Art as an Investment, yet the question of arriving at a true valuation for Indian
Art in general, and Miniature Paintings in particular, have not been undertaken till now. That leaves us with a research gap, which we are attempting to address in our proposed research. The following section has discussed the research gap existing in present literature on the related field which mandates further thought by researchers for future research.

**Research Gap/Problem Statement**

The Indian Art Market has witnessed limited research till now on its structure, development, performance and future scope. While certain Annual Reports are being published by established houses like Arttactic and The Art Trust, etc., their focus has been mainly been on the Contemporary and Modern Art Markets in India. Very little work has been initiated on the Traditional Forms of Art and Antiquities.

The stark and arbitrary approximation used in arriving at the Lower and Higher Estimates in an Auction has been a matter of discussion/debate for quite some time now. One such example was Lot No. 334 (A Ruler, Possibly Rao Indrajit of Orcha (1733-1762) which was displayed by Bonham’s in their Auction of “Islamic and Indian Art including South Asian Art” on April 24, 2018 in London, where the Lower and Higher Estimates of the said work was GBP 2000 and 3000 respectively. However, in their Auction titled “Islamic and Indian Art Including Sikh Treasures and Arts of the Punjab, which was held in London on Oct 23, 2018, Bonhams reduced the Lower and Higher estimates of the same painting (Lot No. 151) to GBP 1500 and 2000 respectively, which was almost a 25% drop over the previous Lower and Higher Estimates set just six months back. Please refer to Figures 26 and 27.
Figure 26. A ruler, possibly Rao Indrajit Of Orccha. Lot 334. Source Bonham’s

Figure 27. A ruler, possibly Rao Indrajit Of Orccha. Lot 151. Source Bonham’s
Accordingly, the following research gaps have been identified from the review of literature discussed above.

1. There has been very little research conducted on the Indian Art Market especially on Miniature Art and Antiquities;

2. There needs to be a proper regulatory framework be built for art, to make art investment more transparent and regulated; the setting up of a full-fledged art exchange shall make art more affordable and within reach. There is a need for an Agency for Authentication of Art works be established?

3. And most importantly, we need a pricing model for the valuation of art works and antiquities, so as to bring about greater parity and transparency in the sale and purchase of art works.

**Research Questions**

The proposed study will address the first and third research gap identified in the previous section. The second research gap identified above is more concerned with the policy guidelines of the regulators. Therefore, the following research question will be considered for determining the statement of objective of the proposed study.

1. What are the determinants of valuation of miniature paintings in India with special reference to miniature paintings in Rajasthan and North India for the period of Sixteenth Century to the Twentieth Century?

2. Is there any difference in the valuation criteria of various categories (Art Galleries, Artisans, Investors, and Museums, etc.) of experts in the form of determinants?

The researcher has chosen the period from Sixteenth to the Twentieth Century as the period of study because the focus of the study is on antiquities and paintings which have antique value.
(It may be pointed out, that as per the Antiquities and Art Treasures Act, 1972, any painting which is more than 100 years old, is considered as an Indian Art Treasure. Secondly, most of the miniature paintings started getting a definite path and direction with the advent of the Mughals in India, and hence a significant portion of court paintings were executed in the period mentioned above, it has been decided to focus on the said period for conducting this study.

**Theoretical Framework, Proposed Model and Identification of Variables which Affect the Valuation of Miniature Paintings**

One of the reasons for such great disparity in valuation, and challenges faced in arriving at a reasonable valuation for Miniature Paintings is the fact that each work is unique in itself. With very little research conducted on the subject, and with lack of proper documentation, chronology, and record keeping, it indeed is a great challenge to arrive at realistic valuation for such works of art.

The Valuemystuff and Arttactic Valuations and Appraisals -Market Report, 2018 has indicated to some factors which have impact on Indian, Middle East and Islamic Art (of which miniature paintings is a part). The same is depicted in Figure 28 below.

![Figure 28: Factors Impacting Price and Valuation of Middle Eastern, Islamic and Indian Art. Source: Valuemystuff and Arttactic.](image-url)
The researcher has pursued a course on Art as an Alternative Investment from the Sotheby’s Institute of Art, where some of the parameters which affect the valuation of art have been discussed. Accordingly, as per previous studies conducted, reports published, and basis the opinion of experts in this field, some factors which do affect the valuation of miniature paintings are tabled below:

a. **Provenance**: The source of the painting is extremely an aspect which drastically affects the value of a miniature painting. With most of the antiquities and paintings having almost no past records, it is extremely rare when some of them are exhibited which come from royal collections, or from the collections of well-known collectors. One such example is the recent time was the March 2017 Auction held by Saffronart, where works from the well-known Motichand Khajanchi Collection was put up for sale. Because of their impeccable Provenance, the works were priced significantly higher than previously sold works of the same genre and type.

b. **Authenticity**: One of the biggest menaces being faced by the art world today is the concern regarding the authenticity and genuineness of the art works. With prices skyrocketing, the practice of forgery, theft, etc. have become rampant. In such circumstances, the authentic works of art definitely fetch better valuations. In India, one of the ways a work could be certified as genuine is getting it registered with the ASI under the Antiquities and Art Treasures Act, 1972.

c. **Published/Previously Exhibited Works**: When a work has been published in some reputed journal, publication or magazine, or has been exhibited by some renowned galleries or museums in the past, it tends to bestow a semblance of authenticity and recognition. Its valuation therefore is positively impacted.

d. **School**: There are various schools of miniature painting which flourished under the various princely states in North India. Their rulers were big patrons of art and culture. Some of these
Schools gained prominence due to the craftsmanship of the artists, and the refined tastes of their patrons. Hence, the Schools were named as Mughal, Mewar, Marwar, Amer, Uniara, Bikaner, Bundi, Kota, Kishangarh, Kangra, Chamba, Basholi, Nurpur, Guler, etc. The valuation of a painting may change basis the school and the ruler under whom the particular work may have been executed.

**e. Period:** The period of a painting plays a major role in determining its valuation. In general, we see that the older the painting, higher the valuation. However, this may not always be the case. For instance, works executed under the atelier of Jahangir and Shahjahan are said to have greater value than those executed under the tutelage of Akbar. Similarly, portraits or figurative works under the reign of Aurangzeb, which were generally prohibited under his rule, may have a greater value than those under some of his predecessors.

**f. Size:** While the size of a painting has significant effect on its valuation in the case of Modern and Contemporary Works, the same may not always be true in the case of miniature paintings. This is because most of these works were small in size, and intricacy and craftsmanship had a greater effect on the valuation of a work, than its size.

**g. Medium and Type of Work:** The process of making a miniature painting involved the preparation of the paper, the initial sketch, the final drawing, basic colouring, and finally embellishing the painting with gold or silver works. Sometime, even precious stones were also used to decorate or embellish the work. It is therefore natural that paintings generally have a higher valuation in comparison to drawings. However, sketches and drawings by some very famous artists –like Nainsukh, his brother Mankau, Sahibdin, Basavan, Manohar, Mahesh, Miskin, Bichitr, Goverdhan, Ustad Mansur, etc. may fetch higher valuations than full-fledged paintings by some lesser known or anonymous artists.
h. **Condition of the Work:** Because of the age and period of the paintings, most of them are either badly damaged, or have been retouched/restored at a later date. Under such circumstances, works which are in undamaged and pristine condition may fetch higher valuation than those which are damaged or have been retouched or restored.

i. **Rarity:** Some of these court artists worked prolifically, and had a large number of works done by them during their tenure. However, some others have a very small body of work executed by them during their productive years. In the same way, some rulers reigned for quite an extended period of time, whereas some ruled for a few days or years. It is therefore this rarity of such works, which may significantly affect their valuations.

j. **Artist:** As mentioned above in Point (g), certain miniature artists where legends in themselves—both in their lifetime, as well as after. Their works were not only intricate and proficient, they also help us in stitching together the lives and times of the patron ruler and his reign. Works of such artists would definitely fetch higher valuations.

k. **Signed/Unsigned or Attributed/Ascribed Works:** Out of the hundreds of miniature paintings executed during the 16th to 20th Centuries, only a handful of them are actually signed by the artists themselves. This is partially because the artists considered themselves only as mere instruments in the hands of the Almighty, and were executing only His wishes and commands. In quite a few cases, the names of the artists have been mentioned at a later stage either by the royal treasury (while making the payment to the artist), or at the royal library (while cataloguing the work in the royal collection). Hence, a majority of the works which come up for display and sale are either unnamed, or are attributed/ascribed to certain artists. Under such circumstances, works which are clearly signed by the artists tend to have significantly higher valuations.
1. **Subject matter of the Painting:** While most of the paintings concerned mythological themes, Raga mala paintings, Baramasa, and mundane life, some of the paintings were commissioned on special occasions. Hence, paintings made on the occasion of coronations, victory celebrations, childbirth, marriage of the patrons may command better valuations.

**m. Previous Sale Record:** The previous sale record of miniature painting, like other works of art, may also have an impact of valuation. Over the years, the market forces have come to an agreement regarding the significance of some artists, schools, etc. Previous sale/purchase records may help in reinforcing the valuation or help in comparison between two or more set of works.

**Research Objectives**

In view of the research questions mentioned earlier, the proposed study will focus on following three objectives.

1. To study the determinants of valuation of miniature paintings in India with special reference to miniature paintings in Rajasthan and North India.

2. To study the difference in the valuation criteria of various categories (Art Galleries, Artisans, Investors, and Museums, etc.) of experts in the form of determinants.

3. To arrive at a Valuation Model for Miniature Paintings in Rajasthan and North India for the Period 16th Century to the 20th Century.