The validity of Islamic art as an investment

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ABSTRACT

This paper investigates the validity of Islamic art as an investment product. We examine the current and future market potential, as well as, performing a hedonic regression analysis on London auction sales from 1998 to 2007. The main findings of the research are; Islamic art returns out performed both the equity and debt markets over the last 10 years; increases in oil prices have a positive effect on art prices, Islamic terrorist attacks on the Western World significantly reduce the value of Islamic art; and that the increase in future buyers means the Islamic art market has the potential to grow very strongly over the coming years. All these indicate the strong potential of this form of art as an investment.

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1. Introduction

“To me art isn’t about Beauty, Truth or Passion; It’s about making Money!”


The demand for and potential of Islamic art perhaps first broke through to world recognition in 2008 with Bonhams’ first sale of contemporary Middle Eastern art in Dubai, breaking three world records in March and both Sotheby’s and Christie’s, in London, selling artworks for over a million
pounds each. The Bonhams auction achieved total sales of US$13 million, which was over three times the estimated value of the art works. Not only did this auction achieve record figures but it also had a 94% sales ratio, demonstrating the large demand for Islamic art (AME, 2008a). With this increase in auction results, and prices rising, it raises the question, could investing in a portfolio of Islamic art be a financially justifiable?

The purpose of this paper is to examine the validity of Islamic art as an investment. In doing so, this paper will investigate; the overall return over the last ten years; how certain key characteristics can influence this return; the market for Islamic art; and the factors and volatility affecting this market. To do this we apply a hedonic regression analysis to the auction sales of Islamic art from 1998 to 2007. This enables us to create price indexes for Islamic art and create shadow values for certain characteristics.

1.1. Definition of Islamic art

Islamic art encompasses the arts produced from the 7th century onwards by people who inhabited the territory that was lived in by culturally predominant Islamic populations. It “refers not only to the art made for Islamic practices and settings but also the art made by and for people who lived or live in lands where the majority were Muslims” (Bloom and Blair, 1997). Unlike many other terms or periods of art, like ‘Renaissance’, ‘Baroque’, ‘Christian’ or ‘Italian’, Islamic art refers to no specific era, genre or method of art. The works produced can include varied fields such as painting, sculpture, embroidery, calligraphy, and ceramics. While the value placed on the Arabic script and its representation in Islamic art gives this class of art a unity of style, the multitude of regions, countries and cultures that have influenced it has led to a diverse and rich selection of art to collect.

While numerous researchers have conducted empirical research dealing with the investment potential of both art and collectibles, research on Islamic art as an investment class is almost non-existent. Papers have looked at the risk and rate of return on such collectibles as coins (Dickie et al., 1994), U.S. postage stamps (Cardell et al., 1995), sculptures (Locatelli-Biey and Zanola, 2002), American paintings (Agnello, 2002), Stradivarius violins (Ross and Zondervan, 1989), baseball cards (O’Brien and Gramling, 1995), Australian art (Higgs and Worthington, 2005), photographs (Pompe, 1996), Beanie Babies (Burton and Jacobsen, 1999), Picasso prints (Pessando and Shum, 1999), wine (Combris et al., 1997; Burton and Jacobsen, 2001) antique furniture (Graeser, 1993), contemporary Dutch art (Rengers and Velthuis, 2002) and paintings in general (Anderson, 1974; Frey and Pommerhne, 1989; Goetzman, 1993; Renneboog and Van Houtte, 2002; Mei and Moses, 2002). Like the collectibles that they are analysing these studies have produced mixed and varying results. Burton and Jacobsen (1999), examining 126 separate studies found that in 67% of the studies collectibles outperformed bonds an 37% outperformed equity. Coins, American Art and Picasso prints were all found to strongly underperform financial assetscoins even yielding a negative nominal return from 1984 to 1991. Stamps, Sculptures and Masterpieces all gave better returns than debt but still produced significantly lower returns than equity.

By comparison, Pompe found that a portfolio of photos from 1980 to 1992 had an annual nominal return of over 30%. Beanie Babies, bought in 1994 and sold in 1999, provided a staggering 176% annual return. These results demonstrate that investment in collectibles does not simply need to be a hobby but can be a viable investment strategy.

In the main these high returns are attributable to higher risk. There is almost a complete consensus that investment in collectibles is at least as risky as equity investing. For example, Agnello (2002) concluded that American paintings had twice the standard deviation of the SP500 index but yielded only one third the return. For example, Pompe concluded that his portfolio of photographs outperformed the equity market by almost 20%. However, over the same period the equity markets had a standard deviation of 12–15%, whereas the photograph portfolio had a standard deviation of 298%.

2. The market for Islamic art

2.1. Sellers

The art market, like the equity property and debt markets, has suppliers, buyers, indexes, varying liquidity, different asset types, rules, regulations, taxes and risks, but it also has several unique
factors. Due to special features such as resaleability and artists’ reputation, the art market has been characterised by a hierarchy of sub-markets. Based on Gerard-Varet (1995) and Robertson (2008a,b) on the art market, we can divide the Islamic art market into four submarkets:

1) Primary Market  
2) Secondary Alpha Market  
3) Secondary Beta Market  
4) Tertiary Market

The primary market is composed of contemporary artists selling their works directly to the buyers. This is usually the lower price range of most art markets and has many artists competing against each other for recognition. Most artists will never move past this market to sell their work in the larger markets. As most of the Islamic artwork is made up of antiquities this is only a tiny subset of the contemporary portion of the market. The Secondary alpha market is a limited number of art dealers who resell artworks in their galleries. The Arab Art Gallery and the Green Line, who specialise in antiques and contemporary art respectively, are both examples of this in the Islamic market. These galleries often host shows and art displays to promote their art to the public and in doing so indirectly raise the overall prices for that genre. These galleries often keep the values and prices of works sold as commercial secrets, thereby making it particularly difficult to analyse. The Secondary beta market is composed of art fairs. These are generally quite large events consisting of an amalgamation of many galleries and artists selling their works in one location. They are usually based on one area or genre of art, for example the Frieze ‘contemporary art’ fair in London, the Kunst Messe ‘fine art and antique’ fair in Germany, or the PHOTO ‘photographic’ fair in San Francisco. Art fairs allow galleries to display their best works and improve their reputation and image among collectors and competitors. While there are no large fairs that are solely devoted to Islamic art, it can still be found in many contemporary and antique fairs around the world, such as the annual Art Dubai, in the United Arab Emirates. For the galleries and artists this market is not necessarily about profit, once they have ensured that costs are covered, it is essentially about gaining new clients, creating oligoplistic opportunities with other galleries and artists, and building their reputation for future sales (Robertson, 2008a,b). The Tertiary market is composed of the many auction houses, such as Bonhams, Christie’s and Sotheby’s, who sell art works on behalf of others directly to the buyers. Auctions are the visible face of the art trade, and set “benchmarks” in terms of price and genre fads. These artworks tend to be older antiques or the more valuable of the contemporary and modern artworks.

The Tertiary is best of all four markets in terms of obtaining information, whether it be current values of works, the varieties available, demand of buyers or the quality that should be expected. It makes prices transparent by enabling buyers and sellers to refer to past prices of artworks, as well as limiting arbitrage across geographic regions. This market has the ability to create large amounts of publicity, and at times even generating fever and frenzy buying of certain types of art.¹

In most art markets the tertiary markets are only a small proportion of the sales of all four sub-markets and their sales only usually show price fluctuations of art in demand, so that an upward trend is often present (Goetzman, 1993). This is not the case for the Islamic art market, which is mainly dominated by the tertiary market. This is due to the market’s large focus on antiques. While contemporary Arab artworks are one of the fastest growing areas of Islamic art, it is still only a small portion of the overall market globally and consequently, the sales are still focused on selling in the tertiary markets.

One unique aspect about Islamic art is that London, a non-Islamic country, has become the centre of the global Islamic art market. This is mainly due to the instability that Islamic world has experienced over the last fifty years, in particular the Middle Eastern region. As a result, large amounts of wealthy immigrants from these regions have settled in both the United Kingdom and more specifically London (Werner, 1995). It was in the late forties after World War II, that the migration substantially began

¹ This type of hype buying frenzy was recently seen in the Chinese contemporary art market where prices went up hundreds of percent annually over the period between 2002 and 2007 (Driscoll, 2007).
Modern & Contemporary Arab & Iranian Hammer Breakdown By Nationality

![Pie chart showing hammer breakdown by nationality.](image)

**Fig. 1.** Buyers of Islamic art. (Lazar, 2008).

as many Egyptian, Moroccan and Pakistanis came to London, both fleeing hardships in their own countries and looking for employment. This influx was later added to in the sixties and seventies by oil rich immigrants from the gulf states wishing to set up business and invest in the UK. Finally in the eighties and nineties the civil war in Lebanon and the troubles in Iraq saw the last large flood of Islamic residents arrive in London (BBC, 2007a,b).

Over this time their influence on London has been hugely significant. With over half a million Muslims and Arabs in London, over one hundred and fifty billion pounds invested into the UK, ten daily newspapers, five satellite stations and tens of thousands of doctors, businessmen, academics, engineers, artists, poets, film makers and writers it is no wonder that London has become the cultural trading hub for Islamic art (Omar Ermes, 2002).

2.2. **Buyers**

According to Burton and Jacobsen, humans are naturally collectors, we are all of course instinctively hunter gatherers at heart. In their paper on measuring the returns on collectibles, they argue that up to two thirds of people have the natural urges to collect things. Generally these collections are to do with their history, culture, upbringing or traditions (Burton and Jacobsen, 1999). In the case of Islamic art this is true, as the majority of buyers are from Islamic countries (Fig. 1).

Historically, Islamic investors did not spend their disposable income on art, choosing instead easily transportable items like jewellery, precious stones, and metals. The history of Islamic culture is filled with political strife, religious persecution, economic volatility, mass movements of populations due to wars, and general instability. These, accompanied with the nomadic traditions of the Middle East are several of the main reasons for purchasing such portable wealth (Frank, 2007) As the Islamic community settled in England both economically and residentially, they began to invest in other items such as equities, debt and art. Even though the Middle East still has a high percentage of luxury income spent on jewelry compared with other regions, this figure is dropping and their percentage spent on art has risen significantly.
It is crucial for regional based art markets to be supported by a domestic market. The huge growth in the Chinese contemporary market was almost entirely supported by international investors, from Europe and the US, which created an unsustainable bubble. The Islamic art market would appear healthy, with almost sixty percent of the buyers from Islamic countries, as well as thirty six percent from the UK, which has a very large Islamic community (Robertson, 2008a,b).

The buyers of Islamic art range from private actors such as individual collectors, art funds, corporate collections, private investors to public actors such as Governments, museums and art foundations. The average individual collectors and private investors earn well above the average income. During both 2005 and 2006 the Middle East was the fastest growing region for millionaires on the planet, and now has over 300,000 (Sharif, 2006). With rising income and expanding demand, private actors will be increasingly active in the market.

“The Muslim world is not short of money, but the world is very short of objects. . . Governments and millionaires in nations from Saudi Arabia to Malaysia, enriched by a doubling of crude oil prices in the last four years, are bidding for a dwindling supply of surviving artifacts from 1400 years of Islamic culture” (Nambiar and Brown, 2007).

Governments allotting budgets for art spending and large museums are still quite new to the Islamic world and are only just beginning to make their mark. Public foundations set up by individuals, like the Khalid Shoman Foundation in Jordan or the Arab Fund for Arts and Culture, are also relatively new but are all actively investing in this area. These are just some of many younger initiatives taking place in the Middle East which are focusing on developing the Islamic art culture (Economic Times, 2007). All of these new initiatives could be educating, encouraging and creating the Islamic art buyers and investors of tomorrow.

2.3. Future of the market

Until recently the only city to obtain a wide selection of Islamic art has been London, but the United Arab Emirates (UAE) is emerging as a new collector base in the Middle East. Traditionally Sharjah with over twenty four museums, a biannual art fair and a history of commissioning art has led the rest in terms of art, but this is fast changing (Robson, 2007). Over the last ten years Dubai has not only silenced sceptics by becoming a top global financial centre but has also become one of the fastest growing art hubs anywhere in the world. Since 2006 the world’s three largest auction houses, Chrisites, Bonhams and Sothebys, have all opened there, each achieving record sales. In 2007 Dubai held the first annual Gulf Art Fair which was the largest art fair in the Middle East. After its initial success in 2007, it rebranded its name to the more marketing friendly Art Dubai and came back in 2008 almost twice the size (Moore, 2007; Lucas, 2007).

Dubai’s Emirati neighbour Abu Dhabi has equally large art ambitions. Abu Dhabi, which has almost ten percent of the world’s oil reserves, plans to spend $29 billion on building Saadiyat Island. They want this island to become the new cultural, financial and art centre for the Middle East. With so much money being pumped into it and both the Louvre and Guggenheim, two of the world’s biggest art brands already creating landmark museums there, this aim may be far more realisable than many might think (Kerr, 2007; Chrisafis, 2006).

The UAE’s art ambitions are clearly monumental in scale but they are not the only country with large art plans. Kuwait, Saudi Arabia, Tunisia, Iran and Qatar are all vying to preserve both their natural and religious heritage as well as hugely boost their museum collections (Economic Times, 2007). The Museum of Islamic Art in Qatar is scheduled to open by November 2008. Its head buyer Sheikh Saud bin Mohamed Al Thani, a prominent member of the royal family, is estimated to have spent almost $2 billion so far on Islamic art. The museum has also signed partnerships with the British Museum in London, The Metropolitan Museum in New York, the Royal Collection of Morocco, the Egyptian Islamic Art Museum, and the French Cartier Collection. Being built on an Island outside Doha and costing over $800 million to create it plans to compete with Abu Dhabi’s Saadiyat Island (Mahatani, 2007).

In 1997, Pommerehne and Feld examined how art museums’ purchasing policy could influence the auction prices of artwork. They found that museums on average pay above the estimated prices for artworks, as it is more important to have works in their collection than necessarily to make a return. This was also due to museum grade art being scarcer on the market and the competition among
museums for acquiring good collections. They went on to argue that when significant amounts of museums were buying certain types of art, the competition between them caused an upward trend in auction prices that substantially raised the value of that particular genre (Pommerehne and Feld, 1997). Assuming this is true, and considering the collection of new museums springing up across the Islamic world, we should expect to see a notable increase in Islamic art over the coming years.

Islam itself may also be encouraging Muslims around the world to support and purchase Islamic art. According to the Koran, the holy book of Islam, it is compulsory for Muslims to donate 1/40th of their earnings each year, once their costs of living have been subtracted. This donation is called Zakat. There are eight possible areas to which they can give this money to and one of these areas is entitled “for bringing hearts together in Islam”. While there are many different interpretations of this condition, bringing people together through promoting Islamic culture and arts could be considered a viable donation. As the Middle East opens up as an art market and the popularity of art as part of the Islamic culture is increasing, it could lead to huge sums of money being donated, through Zakat, to Islamic art which would not have been given otherwise. This could help support museum spending and raise Islamic art prices into the future.

3. Data, methodology and functional forms

3.1. Data

The data set consists of 4047 observations, which covers Islamic auctions held in London from April 1998 to October 2007. It is taken from auctions at Christie’s, Sotheby’s and Bonhams. The data used was compiled using past auction records kept at the National Art Library in London and online sales results held by the large auction houses. Each observation consists of the date the article was sold, the auction house of the sale, the era in time it is from, its region of origin, the type of Islamic art work it is and the result it achieved at auction.

Art is not homogenous – each piece is unique. This causes difficulties when measuring returns these and to combat this many researchers either use a repeat sales regression or a hedonic regression. As opposed to using exact repeat sales returns over the ten year period, we will use matching characteristics in the art works and track the price fluctuations of these characteristics over time. Both Chanel et al. (1992) and Gerard-Varet (1995) have argued that using repeat sales regressions can lead to biased inaccuracies. They argue that by relying on all sales instead of simply the repeated ones, researchers will get a superior view of the information the data holds.

We focus on auction prices for two reasons. First, as noted earlier this greatly facilitates data collection. Second, Coffman (1991) has shown that the risks, i.e. standard deviation, of the rates of return are very high for all art objects that are not traded in auction markets. In consequence, from a financial perspective an investor in Islamic art would do best to solely build a portfolio from auction.

We excluded two types of art from this study, rare items and works that are ‘bought in’. ‘Bought in’ items are those which do not sell at auction. Rare items come in two forms. The first occur once or twice each auction and often achieve disproportionately large results compared to other similar pieces. This is due to some particular feature of the artwork which has some religious, political, social, or personal significance. For example in October 2007, Sotheby’s held their biannual Arts of the Islamic World auction, the average price of a Koran was roughly £20,000, where as one sold for £750,000. This was because it was signed by a famous Islamic scribe. The second types of pieces excluded from the data set are artworks which occur in most auctions but the same type of piece may not appear at auction again or for several years, due to the fact that they are a non typical, irregular or odd Islamic art. An Indian turban carved out of marble was an example of this, seen in Bonhams’ Islamic and Indian Art auction in October 2007. Jewelry and weaponry were also excluded from the data, as they are not sold sufficiently often.

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2 These matching characteristics shall be discussed in greater detail in the functional forms section below.
3.2. Methodology

The method used to generate a price index is a hedonic regression analysis. This technique involves the estimation of the implicit prices for each characteristic included in the equation by making it possible to control for any non-temporal determinants of price fluctuations.

Following the methods of Locatelli-Biey and Zanola, when “a set of j-characteristics, \( x_{jk} \), with \( j = 1, \ldots, n \), is identified for a regression of the price of the [art] \( k \), with \( k = 1, \ldots, m_t \), sold in year \( t \), with \( t = 0, \ldots, T \), on its j-characteristics, we estimate Eq. (1).

\[
\ln(P_{kt}) = \beta_0 + \sum \beta_j x_{jk} + \epsilon_{kt}
\]

where \( \ln(P_{kt}) \) is the log of the price of the art ‘k’ sold in year ‘t’, \( \beta_0 \) and \( \beta_j \) are coefficients to be estimated and \( \epsilon_{kt} \) is the random error term.

3.3. Functional forms

The hedonic regression framework allows this study to take account of the effect of heterogeneity on prices by controlling for a number of differences in characteristics of Islamic art works over the given period of time. The dependant variable is the logarithm of the sale price. From the literature and from discussions with art experts, we identified five specific qualitative characteristics with which to analyse. These are the Medium of the art, the Era the art was created in, the Auction House and Period the art was sold in, and the Region of Origin of the art. As well as these five specific characteristics, I have also included two indirect variables, which are Oil Prices and Terrorist Attacks. These seven will be the independent variables. In hedonic regressions of this sort each characteristic (e.g. type or medium of art) is represented by a dummy variable that takes the value 1 when the art is of that type and zero otherwise. To prevent perfect multicollinarity, for each characteristic a reference type is chosen whose values are excluded. The coefficients on the remaining characteristics are then interpretable references to that base or reference type.

3.4. Mediums

Bloom and Blair divide Islamic art into four separate mediums. These are: ‘Arts of the Book’, ‘Arts of the Loom’, ‘Decorative Arts’, and ‘Painting’ (Bloom and Blair, 1997).

3.4.1. Arts of the Book

Arts of the Book consists of works of art based around the use of written language and calligraphy, such as parchments, manuscripts, Korans, calligraphic leaves, and scrolls. The written art is one of the most important areas of Islamic culture. According to the Koran, God gifted humans with the ability to write so they could gain knowledge. For this reason, while European artists focused hugely on painting for religious art, Islamic artists focused more on calligraphic works. While arts of the book were the most important area of Islamic art throughout history as time evolved, calligraphic artists began to use their skills in paintings, and buildings and the book took a more practical and religious role. The vast majority of contemporary calligraphers create their works on canvas and in sculptural form and so the focus on the art of the books has faded.

3.4.2. Arts of the Loom

Arts of the Loom represents all artworks and antiquities made from the loom. They consist of textiles; wall hangings, velvets, carpets and clothes. Where arts of the book had a largely religious background to their creation, arts of the loom were more based on practicality. Textiles were a crucial part of living in the hot and arid land of the early Islamic culture. They provided protection from the searing sun and warmth from the cold desert nights. Textiles were also used in the home. Unlike Western Europe, where furniture was created to elevate human activities away from the cold floor, textiles such as rugs allowed Islamic society to stay close to the cool ground. During the rise of Islam textiles were also used over furniture because of the nomadic traditions of the region. A rug, unlike furniture could easily be packed away, perfect for constant travel (Bloom and Blair, 1997). By 900AD
arts of the loom were no longer just a practicality for Islamic life. They were the most important export of the Muslim world. The importance of textiles such as clothes in society changed hugely as well. Clothes distinguished not only men from women but rich from poor, Muslims from non-Muslims and nomads from city dwellers. As time passed sumptuous textiles were created for homes and palaces with the aim of creating earthly paradises for the rich and powerful members of society. It was during this period that the artistic value and importance came to its fullest as rugs and carpets became the quintessential piece of decoration for Islamic homes.

### 3.4.3. The Decorative Arts

The decorative arts, or sometimes called ‘arts of the fire’, were both practical and luxurious items. They encompass; bowls, cups, plates, ewers, jugs, tiles, glassware, metalware, etc. The discovery of fire as a method for the transformation of earth to pottery, glass and metal utensils was an important step in Islamic civilisation. They were used for storage, cooking, serving food, lighting, weapons, tools jewelry and coins (Bloom and Blair, 1997).

Islamic decorative arts were hugely influenced by the Chinese but during the early period Islamic artists lacked both the know how and materials to copy these exactly. This leads the Islamic artists to try different methods and techniques of decoration, thus creating the uniqueness of the pieces. During the years period between 1200AD to 1600AD Islamic decorative arts were at their most impressive, both visually and technically and were a large export to both Asia and Europe. From the 16th century onwards, Islamic artists faced increased competition from skilled European and Asian artists and with the exception of some ‘Iznik’ pottery in Ottoman Turkey, the Islamic decorative arts saw a large decline in their quality and popularity.

### 3.4.4. Painting

Painting is a relatively new form of art to Islam compared to the other three mediums. This is due to the story in Islam where the Prophet Muhammad is supposed to have said that those who attempt to recreate the works of God, such as humans, animals, plants or God himself, would be severely punished on judgement day. Unlike many other religions where artists paid homage and respect to gods with sculptures and paintings, in Islam this was considered against the will of God. It was not until the late Persia and Ottoman eras of Islam did this slowly change. Influenced hugely by the artistic talents that Europe produced during the Renaissance, Islamic leaders started commissioning paintings of themselves, their families, their court, their victorious battles etc. This was still not fully accepted and so was only a minor form of Islamic art. The popularity of Islamic paintings has seen a large increase over the last ten years, particularly since some of the large auction houses have started to include contemporary art in their Islamic sales.

### 3.5. Eras

#### 3.5.1. Rise of Islam

The rise of Islam was incredibly swift. The Islamic leaders and armies began in Arabia by conquering Palestine, Syria and Egypt from the Byzantine Empire. Iran and Iraq were taken from the Persians and within the 300 years after the death of Muhammad, Islamic Armies had already conquered all of Arabia, most of North Africa, Spain, Portugal and large areas of Central Asia and parts of India.

#### 3.5.2. Local powers

The period between 900AD and 1500AD was represented by large divisions in the Islamic world. Many of those Islamic leaders who had conquered lands during the previous era split both religiously and politically. Some large victories in this period for Islam was the conquest of the Byzantine Empire and the conversion of Genghis Khan, the leader of the Mongols to Islam. Although the Islamic world did face many threats, by the end of this period, Islam had expanded substantially to cover almost all of North Africa, Turkey, most of Central Asia, Eastern Europe, India and large portions of South East Asia as well.
3.5.3. Great empires
The many smaller powers seen in the previous period were almost all taken over by four large empires that dominated this era. These were the Ottomans, the Sharifs of Morocco, the Safavids, and the Moguls. As well as expanding their control of South Asia and Central Asia, Islamic armies also enlarged their control in Europe reaching the walls of Vienna.

3.5.4. Modern
This period, from 1800AD to 1945AD, is dominated by the break up of the Ottoman Empire. As many of their European counterparts advanced both academically and technologically most of the Islamic countries were left behind.

3.5.5. Contemporary
The contemporary era has been dominated by instability in the Muslim world. With two Iranian revolutions, conflict between the Palestinians and Israelis, the Partition of Pakistan, among many other issues, the importance of art declined. It was not till the last 10 years that Islamic and Middle Eastern Contemporary art has received much recognition.

3.6. Auction houses
The three auction houses used in this data are Sotheby's, Christie's, and Bonhams. They are the world’s three largest auction houses and the biggest sellers of Islamic art. By including them we can see if art can achieve higher prices depending on the auction house.

3.7. Regions of origin
The Islamic empire has had no one fixed area. Some countries that were at one time Islamic later became Christian, or nomadic. This makes it extremely hard to pin point what exact area or country many of the older art works originated. So, instead of including every single area they are divided into them four Ottoman, Central and South East Asia (CSEA), North Africa, and Persia. These divisions are not prefect as several regions have had overlap at certain periods throughout time but they should allow us to simplify the Islamic world into four regions.

3.8. Year
By including the year as a variable we can establish if a pricing trend has occurred over the 10-year sample period.

3.9. Period
In London, Islamic art is usually sold twice a year, in Spring and Autumn. The spring sales are held in mid April and the Autumn sale in early October. By including period as a variable any differences in sale results between the two shall be seen.

3.10. Oil prices
As previously mentioned the current main buyers of Islamic art are those situated in Islamic countries, and currently these are mostly located in the Middle East. Since the majority of the wealth in the Middle East is derived from oil, we account of every year where the previous year had at least a 15% increase in the price of oil. This will hopefully allow us to determine if the fluctuating price of oil has an affect on Islamic art.
3.11. Terrorist attacks

Domestic and international political instability and the growth of fundamentalist paramilitary organisations have led to a number of Islamic Terrorist attacks against the Western World. It is possible that these attacks could tarnish the reputation of Islam in the west and therefore lower the price buyers are willing to pay for Islamic artworks. So by taking note of the year following a major terrorist attack on the Western World, the regression should be able to show us how correlated it is to prices.

We can therefore more fully outline the estimating equation as in Eq. (2)

\[
\ln(\text{price}) = B_0 + B_1 \text{year} + B_2 \text{period} + B_3 \text{oil} + B_4 \text{terror} + B_5 \text{book} + B_6 \text{loom} + \\
B_5 \text{dec.arts} + B_6 \text{painting} + B_7 \text{rise} + B_8 \text{local} + B_9 \text{great} + B_{10} \text{modern} + B_{11} \text{contemp} + \\
B_{12} \text{soth} + B_{13} \text{christ} + B_{14} \text{bomb} + B_{15} \text{north.afr} + B_{16} \text{CSEA} + B_{17} \text{ottoman} + B_{18} \text{persian} \\
+ \varepsilon \ldots
\]  

4. Results

The overall results of OLS estimate of the hedonic price Eq. (2) is displayed in Table 1. Following similar research by Locatelli-Biey and Zanola (2002), and due to heteroskedasticity, the variance-covariance matrices and the standard errors of the coefficients have been calculated using the White heteroskedasticity-robust procedure.

4.1. R-Squared

An R-Squared of 39.5% indicates that the seven different variables chosen account for roughly 40% of all the fluctuations in Islamic art prices. This compares very favourably with the previous findings of $R^2$ 20–40% (Locatelli-Biey and Zanola, 2002; Renneboog and Van Houtte, 2002).

4.2. Overall returns

Chart 1 (Below) graphs the annual change in the average price for Islamic art. A trendline was added to this graph to show the progression of prices over the 10 year period more clearly. While there is
definitely volatility in prices over the 10 years, there is no doubt from the trend line that the prices of Islamic art are raising. The regression indicated that on average, an investor would make a 13% annual return on Islamic art. This is an extremely profitable return and is not just higher than the returns an investor would have earned on a T-Bill or Government Bond but greater than equities, proxied by the S&p500 index, which only averaged 8.49% over the same period (Gannon, 2007).

4.3. Oil price increases

Art prices are roughly 34% greater following a year where there has been more than a 15% increase in oil prices. A large proportion of the wealth of the current Islamic world is strongly connected to oil wealth. This is true for much of North Africa, the Middle East and the Islamic South East Asian countries such as Malaysia and Indonesia. If their wealth increases due to the positive change in oil then they would have more disposable income to spend on luxury goods such as art.

4.4. Islamic terrorist attacks

One of the most interesting results is the effect terrorist attacks have on Islamic art. The year following a major Islamic Terrorist attack on Europe and the U.S. Islamic art prices drop by just over 58%. This is a significant drop and must be associated an increased negative image of things Islamic through these attacks. The effects of the two highest profile attacks, are shown in Chart 2 below.

4.5. Medium

Arts of the Loom are the highest prices at auction, achieving 77% above the benchmark (Decorative Arts). This is probably due the practicality and traditions of using rugs as home furniture. Paintings performed almost 50% above the benchmark. The rise in popularity of contemporary art over the last 5–10 years is clearly the cause of this increase, as will be reinforced in the results for art 'Era'. While Book performed almost on par with Decorative Arts, its results were statistically insignificant.
4.6. Period

It appears that Islamic art sold in the Autumn sales achieves 24% higher prices over Spring sales. This could be due to the large proportion of wealthy Middle Easterner families and investors that move to London for the Summer and early Autumn to avoid the excessive heat in their home countries. As already mentioned they are the largest buyers of Islamic art and it would be fair to assume that the if there are more buyers in London for the Autumn sales, demand would be greater, leading to this increase in prices.

4.7. Era

Rise of Islam, Local Powers, Great Empires, and Contemporary all achieved significantly higher returns than the benchmark (Modern), each outperforming by 100%, 76%, 56%, and 82%, respectively. The low result for artwork from the Modern era is most likely due to the gradual fall in power and the reduction of trade of the Islamic empire over this period. The age, rarity, historical and religious significance of art from the Rise of Islam may well be the cause of its unusually high prices. As mentioned, there has been a large rise in the popularity of all kinds of contemporary art throughout the world. Art collectors have seen the large returns investors have made on contemporary Chinese and Indian artworks and have started buying Islamic and Middle Eastern art in the hope it shall do the same.

4.8. Auction house

Sotheby achieve the highest results for Islamic art at auction, followed by Christie’s. Both outperform the benchmark (Bonhams) by 170% and 93% respectively. These results do not necessarily mean that Sotheby’s is able to get better results at auction than Bonhams, just simply that the prices paid are higher. While this could be due to their ability to get a better results for an equal work, it is more likely due to the initial value of the pieces being higher to start with. So with this in mind either Sotheby’s are superior at selling or it would seem they sell higher value or better quality art works.
4.9. Region

Using North Africa as the benchmark, the regression indicated that works produced in Central and South East Asia was on par with North African pieces. Art originating from the Persian region out performed these on average by 20%. This would be the logical result as this region would have been considered more skilled in their Islamic art skills. Ottoman was statistically insignificant.

5. Conclusions

Using hedonic regression analysis this paper has uncovered some important results for investors in Islamic art. Over the last 10 years its returns have beaten both the debt and the equity market returns. The best time for investors to buy art is in spring sales, and if possible the year following an Islamic terrorist attack, and the best time for them to sell it is in the autumn sales, preferably the year following an large increase in oil prices. While this research has found large returns for Islamic art, investors must be aware of the equally large risks involved and that there are many factors, such as tax and insurance, that can significantly alter the returns of their investments.

In Islam it is forbidden to gamble, but for those Muslims, or any art investors, who like to take risks, investing in Islamic art provides an enjoyable method for sustained betting that is definitely more socially acceptable than bookmakers or casinos, and in almost all cases, the beauty and significance of the Islamic art, will yield returns far greater than substantial earnings investors could make.

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