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Discoveries of fakes: their impact on the art market

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ABSTRACT

Despite the dramatic surge in the production of fakes, their impact on the art market remains unexplored. This paper investigates the overall impact that the discovery of a fake painting, for example a fake Gauguin, has on the market for paintings from the same artist (Gauguin's artworks). Before the fake's discovery, artworks are less likely to be sold through Sotheby's or Christie's suggesting that sellers may wish to avoid their extensive scrutiny. However, when fakes have been discovered sellers rely more often on these auction houses, probably because they are viewed as providing a credible form of certification. Surprisingly, fake discoveries have almost no impact on the probability to sell an artwork. Prices only react negatively with a lag, suggesting that sellers try to postpone their sales as long as possible. Eventually, close to a year after fakes have been made public, prices increase indicating that buyers view the market as purged.

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Introduction

A large literature has attempted to determine whether art could provide an interesting investment opportunity[1]. Even though according to a former director of the MOMA up to 40% of the high end art market consists of forged art (Thompson, 2008, p. 220), the impact of fakes and copies on the art market has only been assessed in an indirect way. In most hedonic regressions, authenticity dummies carry positive signs whereas indications that the artworks are not from the master himself carry negative signs. According to Renneboog and Spaenjers (2009) "whenever an attribution dummy comes into play, the average price level drops by more than 50%". Once fakes are discovered they are usually immediately removed from the market. If there are doubts about a painting's originality, but no legal proofs of its fake nature, it might be sold but at a severe discount. The impact of the discovery on the forged paintings' fate is thus straightforward but its influence on other paintings from the copied artist remains unknown. This paper analyzes whether:

- Prior to their discovery, paintings of a copied artist (whether fake or not) are more likely to be sold in a major auction houses or not.
- The likelihood to sell one of these paintings is directly affected by the fakes' discovery.
- Prices of these paintings react before (and after) it is made public that fakes have been discovered

In other words, the paper aims at understanding the overall impact that the existence and the discovery of say, a fake Gauguin, has (or has had) on the market for Gauguin's artworks.

1. Data and methodology

The database consists of all mentions of fake discoveries[2] for which the fraudulent character

[1] See Ginsburgh et al., 2006 for a recent methodological review.
[2] For paintings and aquarelles.

of the painting has been clearly established by a judge or a criminal investigation. The "fake" is considered discovered on the date when it is first mentioned in the press. Three leading sources are considered: *The Art Newspaper* and the *Journal des arts* for the period 1997-2006 and the online review of arts available on *Artsjournal.com* for the period 2002-2006. Since the impact is likely to exist only for fakes of expensive artworks, the database only takes into account paintings and aquarelles for which the estimated value is above 100 000$[3]. As a whole, fifteen articles were found between June 1996 and June 2006. Once stories representing follow-ons of previous cases were excluded eight articles remained related to twelve artists[4]. Information related to the sales of paintings from these artists has been extracted from the Artprice database. After eliminating paintings with incomplete data, 926 observations were left in the database, of which 707 were sold.

In order to determine fakes' impact on the market, we rely on hedonic regressions and use variables traditionally found in these such as: the hammer price, dummies for the auction houses, size (width, and height in cm) and the logarithm of its squared value, dummy variables for each artist, dummy variables for the date of sale, for the month of sales, attribution dummies (signature, initials), a dummy taking the value 1 if the painting is dated, sale location dummies (New York and London), dummy variables related to the support[5] and to the theme[6], and a provenance variable equal to the sum of the number of sources cited for authentication in the sale's catalogue and the number of past exhibitions. Since unsold paintings represent a fair share of our data they should not be discarded. We follow Collins et al. (2009) who suggest using a sample selection procedure[7] to include these in our analysis.

There is no way to *a priori* assess the timing of the impact of the fake discovery. However, it is reasonable to assume that some people are aware of the existence of an ongoing investigation before it is made public. There may thus be an impact before the official announcement. Since auctions are not held on a continuous basis, the impact may take a lag to materialize. To take these elements into account, we construct a 180-days dummy variable taking the value of 1, if the date is comprised in the 180 days window and zero otherwise. For all regressions, we then use a sliding window approach: that is we run the regressions 720 times, beginning 360 days before the discovery, and sliding day by day to 360 days[8] after the case.

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[3] The price as stated in the text or based on values of similar paintings sold at the time.
[4] Caracci, Cassat, De Kooning, Gauguin, Kisseljoff, Klee, Klimt, O'Keefe, Pollock, Reni, Schischkin and von Jawlensky.
[5] Paper, Board, Canvas or Cardboard.
[6] We control for seven themes: portraits, religion, still life, agriculture, nudes, women and landscapes.
[7] See Heckman, (1979).
[8] Results remain robust if one uses 90, 120 or 360 days windows.

Equations thus take the generic form:

$$Y = g(\gamma_i X + \beta_i W_i) + \varepsilon \quad i = 1,...,720$$

Where Y is a dependent variable, $g(.)$ is the regression function (in our case, either a probit, or a sample selection regression), W_i is a vector corresponding to the ith window out of 720 and β_i is its corresponding coefficient. X and γ_i are respectively a matrix containing all other independent variables and the vector of their corresponding coefficients. The impact of the fake discovery will thus be captured by W_i and as consequence the analysis will mostly focus on the value of β_i and its significance.

The exogenous variables used to build the models are selected as follow: all time dummies are included first in order to get rid of time effects. The variables are then included, one after the other, following a forward inclusion methodology. The variables in the model are kept if significant at a 10% level. Once selected, the same explanatory variables are kept throughout the 720 regressions. In cases of colinearity between two significant variables, the variable bringing the biggest contribution to the model's adjusted R-square is favoured. Since we are mostly interested in the impact of the fakes' discoveries, for all the regressions, we only report the p-values and the coefficients for the sliding windows dummy[9].

2. Results and Discussion

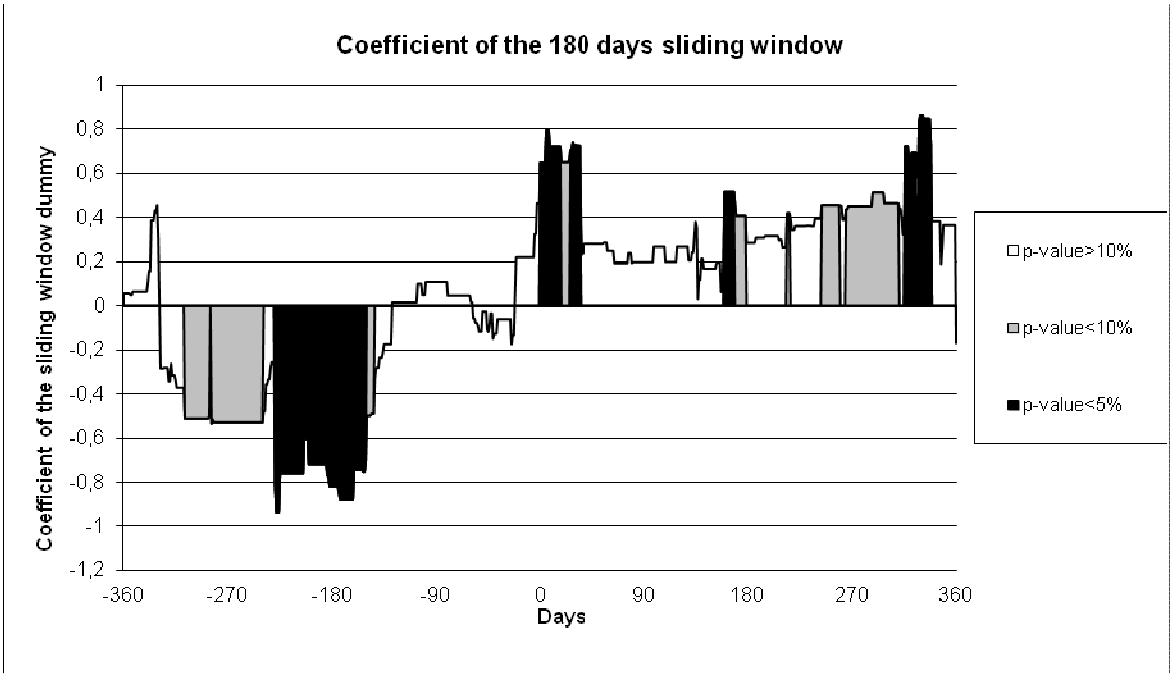
When fakes are known to exist sellers may consider using alternative channels to sell their paintings. Going through one of the two main auction houses may be used as a way to signal to the market that their painting is genuine. On the other hand, owner of fakes may wish to avoid the screening of the two main houses and sell their paintings through lesser known auction houses[10]. Buyers may consider that the two main auction houses have a better procedure to assess the originality of the artwork and may thus be less likely to let a fake get to the market. Also, the larger the auction house, the lower the likelihood of default on the guarantee. If the two main auction houses are indeed perceived as providing a better screening service, then one would expect more artworks to be sold through minor auction houses before the fakes are exposed.

[9] Full regression results are available upon request.

[10] The main auction houses have a bigger incentive to act diligently. They have a reputation to preserve and they would have to pay the guarantee if they let a fake get through. Smaller auction houses have a less well established reputation and some of them might know that in case of problem they will anyways be unable to service the guarantee.

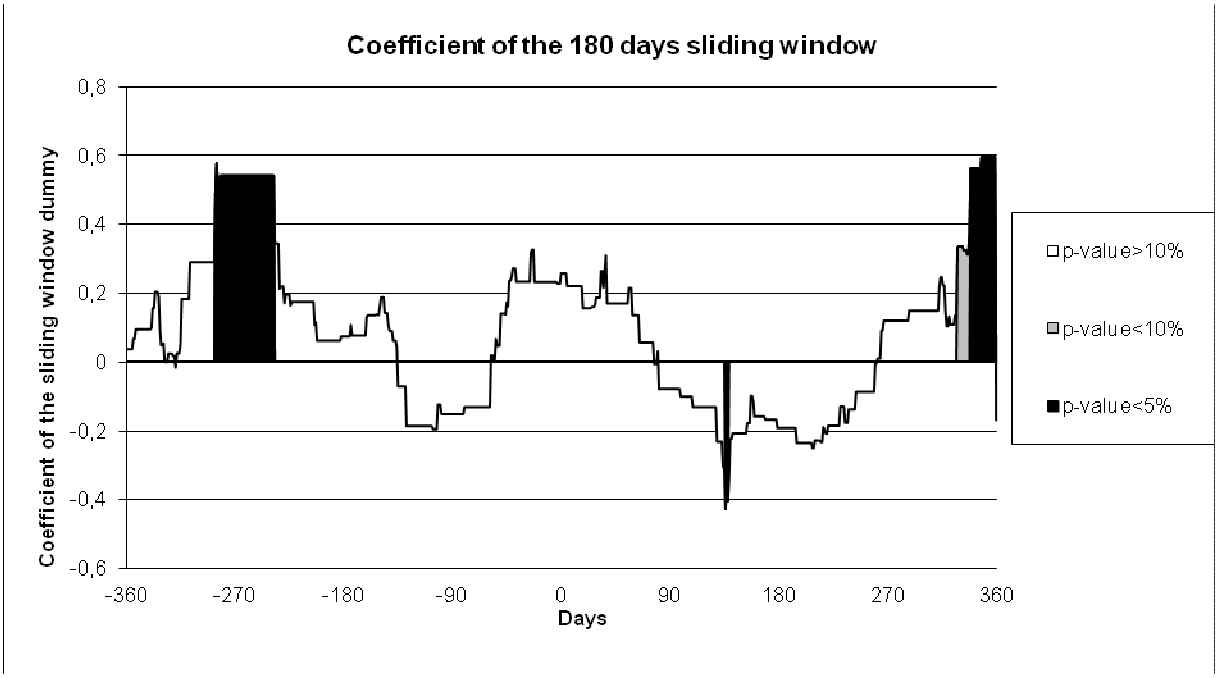
To test this hypothesis, a probit model is used with as dependant variable a dummy variable equal to 1 if a given artwork is sold through Christie's or Sotheby's and zero otherwise. Figure 1 reports the p-values and the coefficients for the sliding windows dummy (β_i). The coefficients' values are reported on the y Axis, the x Axis represents the first days of the sliding windows, the p-values are given by a color code. Results confirm the hypothesis: the likelihood that an artwork be sold via one of the two main auction houses is actually lower during the period preceding the fakes' discoveries (as testified by the negative sign for the first windows). Unsurprisingly, the reverse is found up to one year after publications mention the existence of fakes (as shown by the positive sign for the windows starting after the announcement).

Figure 1. Values and significance of β_i (Length of the window: 180 days). Probit Model, Dependant variable: Auction House.



The discovery of fakes may also play a role regarding prices and the ability to sell a painting. We run a probit model, with as dependant variable the sold/unsold dummy to assess the impact of fake discoveries on the probability to sell a painting. Surprisingly, the results (not reported) show that fake discoveries have almost no impact on the probability to sell an artwork. The likelihood to sell depends obviously on the price asked. Paintings may be easier to sell after fakes have been discovered if their price is much lower. In order to determine fakes' impact on prices, we run a sample selection estimation with the logarithm of the price as the outcome equation's dependant variable. Figure 2 provides the p-values and the coefficients for the sliding windows dummy.

Figure 2. Values and significance of β_i (Length of the window: 180 days). Dependant variable: LOGPrice. Model: maximum likelihood sample selection performed through R: Package sampleSelection (Henningen, Toomet, 2008).



Prior to the fakes' discoveries, coefficients tend to be positive. They are significant at the 5% level for the windows starting between dates -282 to -237, which might indicate that price increases lead more forgers to enter the market. Prices do not directly react when the existence of fakes is made public. The first negative coefficient appears for a window starting 136 days after the discovery. This might be due to sellers' willingness to postpone the sales following the news that fakes may come to the market. It seems quite reasonable to assume that in many cases sales cannot be postponed indefinitely. Some sellers are then forced to take the risk of a lower price. In this case, the lagged impact makes perfect sense. Eventually, close to a year after fakes have been made public, prices increase indicating that buyers view the market as purged.

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