



War, Inflation, Monetary Reforms and the Art Market

The Belgian Art market (1944 – 1951)

Géraldine David and Kim Oosterlinck

During World War II, the art market experienced a massive boom in occupied countries. The discretion, the inflation proof character, the absence of market intervention and the possibility to resell artworks abroad have been suggested to explain why investing in artworks was one of the most interesting opportunities under the German boot. On basis of an original database of close to 4000 artworks sold between 1944 and 1951 at Giroux, one of the most important Art Gallery in Brussels, this paper analyzes, the price movements on the Belgian art market following the liberation. Market reactions following the war are used to understand which motivations played the most important role in investors' decisions. Prices on the art market experienced a massive drop. This huge price decline is attributed to two elements: fear of prosecution for war profits and the monetary reforms set into place in October 1944.

JEL Classifications: N14, N44, Z11.

Keywords: Art market, Art Investment, WWII, Belgium, Post-war, Monetary reforms.

CEB Working Paper N° 11/055
2011

November 17, 2011

GERALDINE DAVID[#]

KIM OOSTERLINCK[#]

War, Inflation, Monetary Reforms and the Art Market

The Belgian Art market (1944 – 1951)

ABSTRACT

During World War II, the art market experienced a massive boom in occupied countries. The discretion, the inflation proof character, the absence of market intervention and the possibility to resell artworks abroad have been suggested to explain why investing in artworks was one of the most interesting opportunities under the German boot. On basis of an original database of close to 4000 artworks sold between 1944 and 1951 at Giroux, one of the most important Art Gallery in Brussels, this paper analyzes, the price movements on the Belgian art market following the liberation. Market reactions following the war are used to understand which motivations played the most important role in investors' decisions. Prices on the art market experienced a massive drop. This huge price decline is attributed to two elements: fear of prosecution for war profits and the monetary reforms set into place in October 1944.

JEL Codes: N14, N44, Z11.

Keywords: Art market, Art Investment, WWII, Belgium, Post-war, Monetary reforms.

[#] Université Libre de Bruxelles, SBS-EM, 50 av. Roosevelt, CP 114/03, 1050 Brussels, Belgium, Geraldine.David@ulb.ac.be.

[#] Université Libre de Bruxelles, SBS-EM, 50 av. Roosevelt, CP 114/03, 1050 Brussels, Belgium, koosterl@ulb.ac.be.

War, Inflation, Monetary Reforms and the Art Market

The Belgian Art market (1944 – 1947)

Introduction

Art buyers' motives still remain a controversial topic. Are investment or consumption motives at the heart of the buying decisions? A large part of the literature has shown that as an investment artworks were most of the time underperforming (Baumol, 1986, Frey and Pommerehne, 1989, or Pesando, 1993). Ginsburgh and Buelens (1992), Goetzmann (1993), Mei and Mooses (2002) and Renneboog and Spaenjers (2009) have somehow qualified this result by suggesting that art could be an interesting investment if one considered either a given period in time or some specific artistic schools. According to Campbell (2005, 2007), art is a good additional investment in a portfolio because it offers diversification benefits. However Renneboog and Van Houtte (2002) and Worhington and Higgs (2004) found limited diversification potential of art as an investment¹.

Albeit there is not yet only one conclusion about good or bad performances of artworks among the literature, some periods seem rather favourable to art investment. Several authors have pointed out a major boom in the Art market of occupied countries during WWII. Moulin (1967) describes art as an inflation-hedging investment. Many examples of record sales can be given² to illustrate high performances of artworks in occupied France. Nicholas (1995) noted that Drouot, the main French auction house, experienced its best years during the war period. Drouot was not the only auction house succeeding to sell art during the war. Nicholas (1995) argues that

¹ Consumption motives have been less investigated. Baumol (1986) considers that the low financial returns may be compensated by the "aesthetic dividend" received by art owners. Mandel (2009) analyzes the effects of a utility dividend derived from conspicuous art consumption. Goetzmann, Renneboog and Spaenjers (2010) show that art booms are more likely to occur whenever income inequality rises quickly.

² Seurat's *Le Petit paysan bleu* was sold 385.000Ffr. in 1941; Cézanne's *La montagne Sainte Victoire* sold for 5.000.000Ffr. in 1942; Corot's *Bellevue, vue prise en regardant le Mont Valérien* sold for 1.100.000Ffr. in 1943 (Moulin, 1967).

individual dealers, decorators and purveyors of every stripe were doing just as well as Drouot. Oosterlinck (2011) quantifies the price rise in the art market in occupied France. He constructs a price index based on Drouot's sales between 1940 and 1944. This index experienced a massive increase in 1942 and at the beginning of 1943, prices from the end of 1940 being multiplied fivefold. The author points out that it could be the consequence of the French "nouveaux riches" and of German collectors entering the market. When comparing this art index with other sources of investment (Equity, Bond, as well as Gold and Foreign currencies traded on the black market) he shows that the returns on the art market were higher than for all other markets from March 1941 till the Liberation of Paris. Oosterlinck (2011) attributes the remarkable success of the art market to a series of factors. Compared to other assets, artworks were relatively discreet and, as such could help war profiteers to hide illicit war profits. Furthermore, real assets, such as artworks provide a hedge against inflation; which was prevalent during the occupation. Artworks also benefited from the fact that it was legal to buy them and that market interventions from the occupying forces were much less important than on the stock exchange. Eventually, artworks were assets which could be transferred and resold abroad should one have to flee.

The situation in occupied France was no exception as the price patterns observed there are also to be found in other occupied countries. According to the van Waay's index, based on the sales of the auction house located in Amsterdam, the Dutch art market experienced a boom of +2300% between 1940 and 1943 (Eeuwe, 2007). Belgium also experienced a similar situation. Newspapers reported the "abundance of sales", the "firmness of the Art market" and an "intense activity"³. According to the press, auctions reaped "superior to normal"⁴ benefits. *Comoedia*, a weekly art magazine, reported that "the art market was lately characterized by an intense activity". The magazine attributed the success of the Art market to the freshly passed law that restricted the detention of monetary assets⁵. Some outstanding prices are also worth mentioning⁶.

³ *L'Echo de la Bourse*, March and May 1942.

⁴ Id., Ibidem

⁵ *Comoedia*, May 8th, 1942

⁶ In March 1942, « *Jeune femme tenant une coupe* » of an old Master (Maitre de la Madone au perroquet) was sold at 130.000 BEF; « *La Sainte famille aux Anges Musiciens* » of another Old Master was sold at 95.000BEF. In January 1943, "Le pont de Londres" of Emile Courtens was sold at 45.000BEF. In March 1943, Nicolas Pantazis' "Le garçon à la bulle de savon" was sold at 70.000BEF and a Nicolas De Bruyne, "La parabole du riche et du pauvre" was sold at 115,000BEF. In May 1943, Frans Courtens "La Ferme de la Haie Sainte à Waterloo" was sold at 130.000BEF. (Source: *L'Echo de la Bourse*, May 1942, January 1943, March 1943 and May 1943). After the

Elslander (1944, p. 9 and p. 98), a close friend of Georges Giroux, a writer and an art lover reported that “Arts, during these years of War, [...] enjoyed an unprecedented craze [...]. Artists couldn’t supply the demand of buyers, and even feared a shortage of materials”. He further stressed that “during the War period, people were buying a tremendous amount of ugly daubs, just because they hoped that one day, maybe, these daubs would reach really high prices”

Even if there is a consensus regarding the art market boom during the Second World War, no significant research has investigated what happened just after the liberation. How did the art market react once liberation occurred? Where the motivations which had induced people to buy artworks (discretion, hedge against inflation, legality, transportability) still playing a role in liberated countries? Or did the end of the occupation mark a dramatic change in buyers’ motivations? To answer these question, this paper constructs a new art market index on basis of an original database of close to 4000 artworks sold between 1944 and 1951 at Giroux; one of the most important Art Gallery in Brussels. To get a sense of the magnitude of the price evolution, the art market index is set against the evolution of other sources of investment, such as equity and bonds.

The balance of the paper is organized as follows: Part 1 presents the Belgian context during and just after the occupation. Part 2 presents the dataset, the methodology and the expected price pattern. Part 3 provides the results of the investigation, whereas Part 4 concludes.

1. The Belgian context

On May 10th, 1940 the German troops invaded Belgium. After 18 days of resistance, Leopold III, the Belgian king, declared the capitulation of Belgium. From May 28th, 1940 on, Belgium became an occupied country subject to a military administration ruled by the General von Falkenhausen (Van den Wijngaert, 1975). One of the main objectives of the occupying forces was to make sure that the Belgian economy would be as productive as possible to support the German War effort (Van den Wijngaert, 1990). To face German demands, Alexandre Galopin, the governor of the *Société Générale*, the most important Belgian holding at that time, and several

war, in the Giroux Catalogue, the most expensive Emile Courtens was sold at 10.000BEF, the most expensive Pantazis at 36.000BEF and the most expensive Frans Courtens at 60.000BEF.

other important businessmen and bankers constituted the Galopin Committee. This Committee would in practice decide how the Belgian industry and production had to behave during the Occupation. The Belgian industry kept producing during WWII and an important part of this production went to the enemy serving its War effort. It remained unclear to which extent this decision could be considered as economic collaboration. Since the War was total, every single gram of coal brought to the enemy was helping him in its war effort and could thus be considered as collaboration. However, Galopin justified its decision on several grounds. First, the country had to create a counter-value to import food, which Belgium did not produce in large enough quantities to feed its population. Second, keeping the industries running during the War could avoid forced labour and a massive deportation of the workforce to Germany (Van den Wijngaert, 1990). Thirdly, it could avoid a destruction of the industrial equipment of the country and consequently facilitate the post-war period.

If the position of the main industrialist was delicate, the position of the head of the administration, the so-called *Secrétaires Généraux*, was probably even worse. With the ministers abroad, the *Secrétaires Généraux* had to take care of the public administration. One of the key elements to deal with was the management of public finance. Belgium had to pay huge occupation costs and was further plundered by the imposition of a “clearing agreement” with Germany. This agreement provided that exporters from each country would be paid with advances from their own national bank. The difference between exports and imports would only be settled after the war. In view of the respective powers in presence, exports from Germany never came close to exports from Belgium, leaving a difference which the state had to finance. To finance the war, the state relied on money emission and bond issues. The money supply did significantly increase during wartime (Banque Nationale de Belgique, 1945, p. 11). The amount of paper and deposit money trebled from 50.610 millions of BEF in May 1940 to 156.457 millions of BEF in October 1944 to face the huge occupation indemnities imposed by the occupying forces. The short term state debt also increased dramatically during the war. The state ended up relying on financial repression to convince investors to hold the bonds (Oosterlinck, 1999, 2010 and 2011a). Willems and Buelens (2006) detail the exact measures set into place to render equities less attractive. Eventually, investors ended up buying state bonds on a massive scale, not because they felt it was a safe investment but rather because of lack of alternative investment

opportunities (Oosterlinck, 1999). Private individuals were indeed seeking investment opportunities during the War. This was especially true for smugglers and shopkeepers active on the black market. As pointed out by G. Jacquemyns (1950, vol. 2, p. 232) in his study of the Belgian Society under German occupation “*The little shopkeeper’s most important problem was to figure out how to invest its 300.000BEF*”. War profits were obviously not well seen by the population: “[a lady talking about shopkeepers] *They all are vagrants, and lout people. They think they won’t have to count on their clients after the War. They are dishonest and rude people*” (Jacquemyns, 1950, vol. 2, pp. 365-366). Shopkeepers and black market dealers needed thus not only an investment protecting their investment from inflation but also a discreet one. For these purposes, artworks perfectly did the job.

On September 3rd, the Allied forces liberated Brussels from the German occupying forces. Since the very beginning of the War Belgian experts wanted at all cost to avoid the disastrous monetary situation which followed World War I (Janssens, 1976). When the Government came back from London, on the 8th of September 1944, Camille Gutt, the Finance Minister had his plan ready to fight inflation. According to Bismans (1992), this plan answered three major questions 1) What exchange rates should the *Franc Belge* adopt?; 2) How should the money supply be reduced?; 3) Which fiscal measures should be taken to drive the clean-up of public finances? The exchange rate of the *Franc Belge* was fixed by the government at the value of 176BEF to the pound. This rate corresponded to a limited devaluation of the currency. Gutt’s plan to address money supply reduction was set up on the 6th of October 1944. The money supply was drastically reduced following these stages: 1) from October 9th, all 100-and-more-franc notes lost their legal tender status; 2) from October the 9th and the 13th, people could convert old notes for an amount equal to 2000BEF per person; 3) bank accounts were totally blocked, except for: either 10% of their total value, or their value at the beginning of the War (May 9th, 1940) or up to the limit of 1000BEF per employee for companies; 4) a first money liberation (3000BEF) would occur during the first month, and the last money liberation happened on January 15th, 1949; 5) in total, 40% of the total bank accounts value were liberated, and 60% declared “Definitely blocked”. These amounts were eventually converted into a “Forced Loan” (Baudhuin, 1958, p. 43).

Moreover when the Pierlot government came back from London in September 1944, it announced the setting up of a special tax aiming to write off the war benefits (Baudhuin, 1958, p. 59). This tax was eventually voted in October 1945 and put into place in January 1946. This tax also aimed to find 63 billions of BEF in order to absorb the money Belgium had advanced to the enemy via the clearing system (Baudhuin, 1958, p. 58). However it did not succeed as well as expected, partly because of the complexity of the tax. It included three measures: a 5%-tax on every capital (as established at the end of the War), a 95%-tax on the special war benefits and a 100%-tax on the transactions with the enemy. The 5%-tax concerned every citizen but exemptions were stipulated (50.000BEF per person) that narrowed the scope of this tax. The set up of the 95%-tax faced two problems: first of all, it was necessary to establish the wealth of a private individual in 1939 in order to evaluate the difference after the War. Second the tax applied to securities prices of the summer of 1944. These securities prices were much higher than when the stock exchanges reopened a few months later. The third tax applied to legal operations and deals concluded with the enemy.

After the war, industrialists as well as people who had managed to earn substantial amounts of money during the war began fearing accusations of economic collaboration. In this respect, the law was crystal clear: any form of economic collaboration was illegal. The arguments at the basis of the Galopin doctrine were deemed as not founded during the first months following the liberation of Brussels (Luyten, 1996, p. 31). The main prosecutor, Walter Ganshof van der Meersch, had a broad interpretation regarding what constituted or not weapons or ammunitions (Luyten, 1996, pp. 34-35) For the early cases (between November 1944 and May 1945), defences based on the Galopin doctrine were not well received (Luyten, 1996, p. 37). Political elements led to a modification of the law on May 25th, 1945. This new law gave some breathing space to people fearing prosecution as it limited the spectrum of deliveries which had to be considered as weapons or ammunition (Van den Wijngaert, 1990, p. 126). Most entrepreneurs had continued working during the War, but the population only blamed the ones who had explicitly worked with the enemy and who had made profits with them. Also small innkeepers and black market dealers suffered the wrath of the angry population. However the heavy phase of attacks gradually faded out after May 1945. As a whole, even though Galopin's

decision was deeply criticized, economic collaboration was far less repressed after the War than political and military collaborations (Luyten, 2008).

2. Data and methodology

The data series used in this paper have been collected from one catalogue (Galerie Georges Giroux, 1951)⁷. The Galerie Georges Giroux was a well-established art gallery. Georges Giroux started its gallery in 1912. Georges Giroux was the first to organize a collective exhibition of some famous-to-be artists, “*Les fauvistes brabançons*” (Paelmer, 2004). Moreover he contractualized, and was the first in doing so, its relationship with the artists, such as Rik Wouters, he was sponsoring (Paelmer, 2004). This was markedly new for Belgian artists who, at that time, were often struggling to live from their art (Elslander, 1954). Even though the Galerie Giroux represented only a fraction of the art market, we believe, in view of its importance at the time, that it was representative of the overall art market in Belgium.

The catalogue used here tracks all paintings, drawings, etchings, sculptures sold at Giroux between December 1944 and May 1951. Unfortunately during the war years gallery was closed and there is therefore no available data for this period⁸. The catalogue provides a description of the medium used the size of the artwork and in some cases, the dates of birth and death of the artist and his school. Artworks are classified by artist, in alphabetical order. The date of auction is most of the time given. The catalogue also records auction sales of gold works and silverwares. For consistency reasons, this second part has not been taken into account. In some cases, the date of sale, the price or the size are not mentioned. Once excluded, the sample contains 5390 artworks. The description of the artworks in the catalogue can be itself categorized into seven categories: Cardboard artworks (Cardboard, Paper, Mounted paper), Wooden artworks, Drawings (Drawing, Dessin réhaussé, Charcoal, Red chalk drawing, Sepia), Oil on canvas (Oil on canvas, oil mounted on canvas), Watercolor (Wash drawing, Gouache, Pastel),

⁷ Galerie Georges Giroux, (1951), *Répertoire des prix atteints par les tableaux, aquarelles, gouaches, dessins, eaux-fortes, sculptures ayant passé en vente à la Galerie Georges Giroux de décembre 1944 à mai 1951 et comprenant plus de sept mille numéros répartis dans soixante-dix ventes publiques, suivi d'un répertoire des prix atteints par l'orfèvrerie ancienne pendant la même période*, (Bruxelles), Éditions de la Galerie Georges Giroux, 92p.

⁸ One of the main competitors, the Galerie Moderne remained open during the war but unfortunately there is no surviving archive for the war period.

Engravings (Eaux-fortes réhaussée, Etchings, Etchings in color, Engravings in color, Lithograph, Lithograph in color, Monotypes, Phototypes) and Sculptures. Appendix I provides the proportion of each of these categories. The proportion of cardboards remained constant during the postwar period (5%). Wood experienced a sharp increase during 1945-1946 (from 19% to 28%), Canvasses a sharp decrease during 1949-1950 (from 43% to 33%). The proportion of drawings sold remained constant (around 10%) except in 1945-1946 where it experienced a sharp decrease (4%). Watercolors were very well sold during 1944-1945 and 1948-1949 (18 and 15% versus an average of 11%). Engravings represented a proportion (in average) of 6% but experienced a sharp rise in 1949-1950 (26%). This can be explained by the fact that all of Ensor's etchings were sold that year in Giroux. Proportion of sculptures sold remained around 2%.

Another indicator of the activity at Giroux can be given by the total sales per year and by the number of works sold per year. Table 1 provides these figures. In 1945-1946, total sales experienced a slight increase. Then total sales decreased until 1948-1949 where they encountered a sharp increase until 1949-1950. They decreased again in 1950-1951. Moreover, the number of works sold followed the trend of the sales except for 1946-1947 and 1948-1949 where it followed the opposite move of the sales.

Table 1: Number of paintings, drawings, watercolours, engravings and sculptures and total amount of sales from 1944 to 1951

	1944-1945	1945-1946	1946-1947	1947-1948	1948-1949	1949-1950	1950-1951
Total Sales per year	3,591,710	3,936,625	2,644,735	1,899,525	2,541,120	3,561,790	2,801,505
Total Sales per year real terms⁹	3,591,710	3,747,578	2,443,018	2,006,843	2,605,725	3,612,098	3,118,059
Number of works sold	674	825	877	693	591	1013	725

The art market is a very specific market. Benefits may only be reaped by prices increases since there are no dividends. Even though it tends to become more and more a mass market it is still an opaque one where prices are often not disclosed. Gérard-Varet (1995) highlights the

⁹ Base year 1945. Source: Cassiers I., Scholliers P., (1994), *Le pacte social belge de 1944, les salaires et la croissance économique en perspective internationale*, p. 189

heterogeneous characteristic of artworks: objects of art are produced as differentiated object and are not substitutable one to another. To deal with the particularities of the art market economists rely mainly on two different approaches: the repeated-sales regression and the hedonic regression methods. The repeat-sales regression method uses prices of individual objects traded at two distinct moments in time¹⁰. In view of the limited number of repeated sales observed during our period, the analysis relies on the hedonic regression. In hedonic regressions (HR), the price is regressed on various attributes of the objects. These attributes are the characteristics of the asset. This allows controlling for quality changes by attributing implicit prices to the value-adding characteristics¹¹. A time dummy captures the pure time-effect and is used to compute the price index.

Typically, a HR model takes the following form:

$$\ln p_{kt} = \sum_{m=1}^M \alpha_m X_{mkt} + \sum_{t=0}^T \beta_t \delta_{kt} + \sum_{t=0}^T \sum_{j=1}^n \theta_{jt} \omega_{kjt} + \varepsilon_{kt}$$

where p_{kt} is the price of good k at time t , X_{mkt} is the value of the time-invariant characteristic m of artwork k at time t , δ_{kt} is a time dummy variable which takes one if the artwork k is sold on t and zero otherwise and ω_{kjt} is the value of the time-variant characteristic j of artwork k at time t . The antilogs of the β_t coefficients are then used to construct the hedonic price index.

The key issue when using HR is the specification of the model. Since the price index is constructed on the coefficients of the time-dummies omissions of variables will alter the results. Ginsburgh, Mei and Moses (2006) summarized the main characteristics to be taken into account as dimensions (height, width), medium (oil, collage, pastel, drawing, mixed media, ...), support (canvas, wood panel, Cardboard, paper), signature dummy and a dated dummy. Artist dummy and a dummy capturing the fact that the artist was dead at time of the sale are also really common variables (Renneboog and Spaenjers (2009)). Czujack (1997) focusing on Picasso paintings added a dummy stating the presence of the artwork in the *Catalogue Raisonné Zervos* in which most of Picasso's works are registered. This registration is considered to be a proof of authenticity and assumed to influence prices. Several other dummies were added in this paper: an

¹⁰ See for example: Anderson (1974) Baumol (1986). Pesando (1993) Goetzmann (1993).

¹¹ See, among others, Frey and Pommerehne (1989), Buelens and Ginsburgh (1993) or Renneboog and Spaenjers (2009).

Exhibition-dummy (that takes the value one if works have been exhibited), a Resale-dummy (takes the value one if the work has been resold) and a Gallery-dummy (to assess if there is a premium depending of the gallery the artwork is sold in). A Period-dummy was also added in order to assess if Picasso's periods (Blue, Rose) influenced prices. A Pre-Sale Estimate variable was added too to see whether this estimate has an influence on the final hammer price. Renneboog and Spaenjers (2009) added a Reputation-dummy such as the number of words used to describe the artist in Grove Art Online, a dummy taking the value one if the artist is mentioned in Gardner text book (a classic art history text book), a Documenta Exhibition dummy that captures the fact that the artist has or has not been represented in the prestigious Documenta exhibition in Kassel.

To perform the regression the sample of observations has been restricted. Sculptures were excluded from the sample because of the limited number of sales (2.68% of the database) and the lack of information on their characteristics. Since their size was not mentioned engravings¹² were also excluded. The catalogue description of artworks may be classified into five categories: Cardboard artworks (Cardboard, Paper, Mounted paper), Wooden artworks, Drawings (Drawing, Dessin réhaussé, Charcoal, Red chalk drawing, Sepia), Oil on canvas (Oil on canvas, oil mounted on canvas) and Watercolour (Wash drawing, Gouache, Pastel). Some of the specifications provided in the catalogue (Paintings on glass and posters) were too specific (less than 5 artworks) to be included in the sample. Furthermore on three dates sales only concerned one or two artworks and were thus deleted from the database. Eventually our sample contains 3917 artworks from 557 different artists.

The following variables were used for the regression:

The dependant variable is the logarithm of the price as mentioned in the catalogue¹³.

Artist Dummies: take one if the artwork has been created by the artist in question, zero otherwise.

¹² Engravings include: etchings, etchings in colour, engravings in colour, lithograph, lithograph in colour, monotype, eau-forte réhaussée, phototype. For these media, size is not mentioned.

¹³ Transaction costs were not taken into account since the catalogue specifies that they remained constant on the whole period studied (Giroux (1951), p.4)

Date Dummies: take one if the artwork is sold at the date in question, zero otherwise. Appendix II exhibits the dates of sales and the number of artworks sold at this date. Sales of the same month were grouped together. Two remaining dates contain less than 15 artworks.

Size: Height and Width (measured in cm) as well as the works' surface (in cm²) capture the impact of the object size. The size does not include the frame.

Deceased Dummy: Takes one if the artist was dead at the time of the sale.

Topic Dummies: We use the methodology of Renneboog and Spaenjers (2009) to define artworks' topics. We categorize the artworks on basis of words from the titles. Since our sample is more limited than theirs we check whether the word makes sense for a given painting. We distinguish the following categories: Animals, Landscape, Still life, People, Portrait, Urban. The associated search strings are listed in Appendix III.

Medium Dummies: These dummies are Cardboard, Canvas, Wooden artworks, Watercolors and Drawings. Although this represents a mix between supports and Media, we stick to this specification since it is the one used in the catalogue.

The construction of the index should provide us with first insights regarding the fate of the art market in the aftermath of Brussels' liberation. To precisely identify which elements may explain the price evolution on the art market, we develop a four-step approach in. We first try *ex ante* to identify elements which could play a role and their expected impact on the art market. We then set into perspective major price changes with the dating of these elements. Once this is done, we try to assess on basis of contemporaneous accounts whether changes in supply or demand may explain the changes. Eventually, we compare reactions on the art market with price changes on other markets (bonds and equity).

Several reactions could have been expected on the art market. Table 2 lists reasons which could have affected the art market and their expected impact on supply and demand. If artworks

were bought during the war because it was perceived as a good way to hide war profits then two reactions may be expected at the Liberation. On the one hand, owners of these artworks may have wished to sell these as soon as possible to prevent scrutiny. On the other hand, if prosecution was high on the agenda at the time, keeping the artworks hidden might also have made perfect sense. Prosecution of economic collaboration would thus have an impact on the supply side, even though it is hard to determine in which direction. The monetary reform could also explain patterns in price changes. The Plan Gutt aimed at cleaning-up the money overhang in a fashion close to financial repression¹⁴. The monetary reform of October 1944 brought a drastic cut in liquidity supply. Following the Plan Gutt, the money supply was only allowed to grow gradually. Appendix V shows the evolution of the money supply between 1944 and 1948 and details its evolution for 1946 and 1947. Changes in the supply were most of the time very limited and for some months even negative. This situation led to a scramble for cash among the population during the whole period of 1944 to 1947. On the supply side, if owner of artworks were desperate to get cash, as was the case of a large part of the population at the time, they may have wished to sell their artworks. This would have had a positive impact on the supply of artworks. Regarding the demand side, the monetary reforms could have had a negative impact: low level of money would have made it harder for buyers to acquire artworks. If investors held artworks because of this investment's interesting characteristics in wartime, one would expect investors, once the war was over, to rebalance their portfolio: that is to sell artworks to invest in traditional assets such as equities. This would have a positive impact on the supply side, and at the same time increase the demand for equity.

Table 2: Reasons which could have affected the art market and their expected impact on supply and demand

	Supply	Demand
Prosecution of economic collaborators	Positive: if willingness to sell before getting caught Negative: it makes sense to keep on hiding	
Monetary Reform	Positive: if willingness to sell and scramble for cash	Negative: potential buyers stick to their cash
Rebalancing investments	Positive: willingness to sell	

¹⁴ This kind of approach has been common for a long-time (Reinhart, Sbrancia, 2011).

	Should lead to an increase in investment in alternative assets (stocks)	
--	---	--

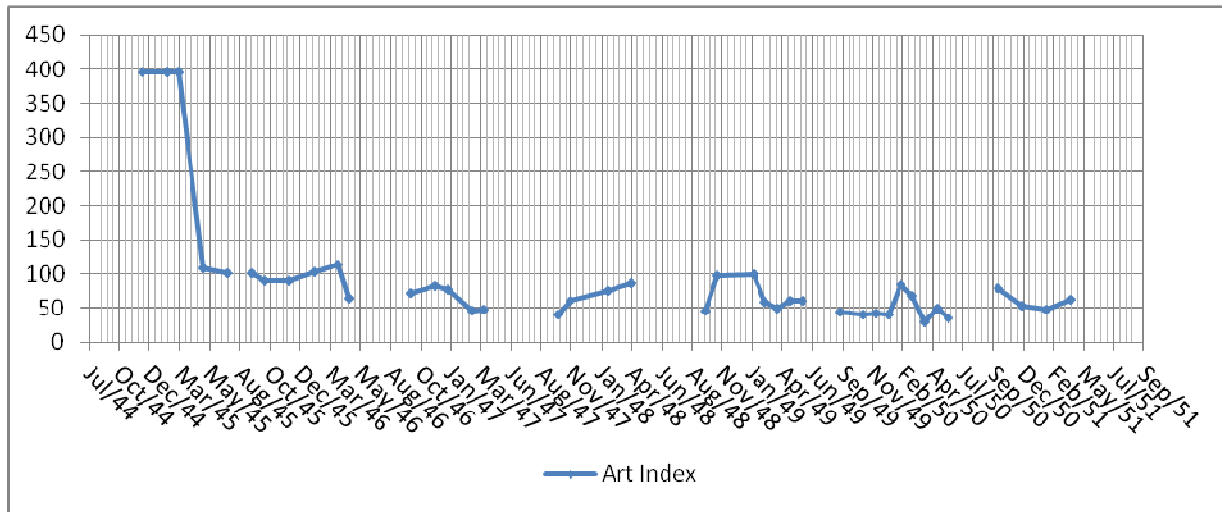
In view of the elements listed in Table 2, one should expect a large price drop following the war. On the supply side many elements tend to indicate an increase in supply, whereas every factor playing on the demand side seems to have a negative impact.

3. Results

Appendix V summarizes the results of the regression and our baseline model. All dummies are included but deceased which had to be removed because of colinearity issues. The adjusted R-square of the model is slightly above 73% and is consistent with the literature (see for instance Renneboog and Spaenjers, 2009). Price is a concave function of the size. In this specification Watercolor is not significant. Oil and Wooden artworks sell at a premium in comparison to the excluded variable (Cardboard). Artworks representing Urban scenes perform greatly, bearing a positive sign. Signs of Portraits and of Landscapes are negative in this specification.

The antilogs of the coefficients of the time dummies allow us to construct a price index. The model used to build our index is the baseline model. Figure 1 depicts the evolution of the art index which may be divided into two significant periods.

Figure 1: Evolution of the artworks' index. Index value is 100 for February 1945¹⁵.



The first period starts in December 1944 and ends in October 1947. During this period the market experienced a massive crash; falling from a value of 400 to 41.08 in just three years. This general trend allows us to conclude that the boom the market encountered during the War was not sustained after the liberation. “Your money will keep all its value” was the pitch of an advertisement for a Belgian gallery on March 10th, 1945¹⁶, our analysis shows how far from the reality this assertion was. After October 1947, the index oscillates between 41 and 85. However no clear trend emerges during this period, the market showing very volatile movements. From October 1947 to February 1948 the index is increasing, reaching the value of 98.40. The October 1948 – May 1949 period is impacted by a major increase from October 1948 to November 1948 (46.43 to 96.77). From January 1950 to February 1950, the art index increased sharply again (40.04 to 85). Between October 1950 and April 1951, the index decreased from 79.39 to 62.98 (reaching a bottom value of 47.28 in February 1951).

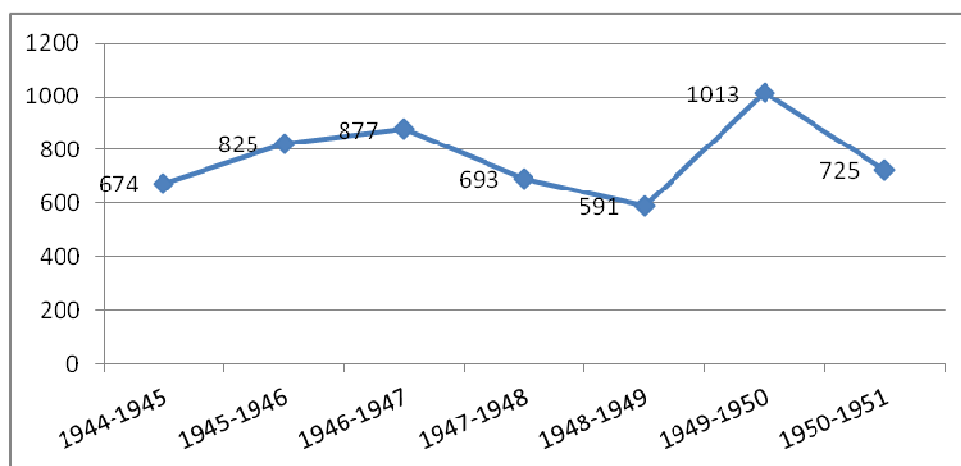
To determine the respective role of each of the previously mentioned factors which could have played a role on artworks prices, we first look at the timing of the price changes. The most dramatic price decline occurred between February and May 1945, suggesting that events which took place during this time period played a preeminent role.

¹⁵ The index is in real terms and has been corrected by a retail index created by Baudhuin F., “Prix, consommation et revenus” in *Bulletin de l’Institut de Recherches économiques et sociales*, Mai 1951, XVII^{ème} année, 3

¹⁶ *L’Echo de la Bourse* (March 9 and 10th, 1945), Advertisement for the “Galerie Athéna”

First of all, the fear of prosecution for economic collaboration would fit perfectly well in terms of timing. Indeed, up till May 1945 the prosecution took a very hard stance in this respect. Luyten (2008) assesses that there were two periods during which public reactions against these collaborators were more important. The first one happened right after the Liberation. We have unfortunately no information about it in our art index. The second period of strong repression took place during the spring of 1945. Dealers and small shopkeepers who took advantage of the occupation might have been scared of these repressions. In the absence of data on the proportion of artworks which were proposed at auction but did not find a buyer (bought-in artworks), it is particularly hard to determine the state of supply and demand. To be sure, sales volumes at the Giroux Gallery, reported in Figure 2, show an increase in the volumes on the three first years. Furthermore, the number of artworks sold at auctions increased between February 1945 (128 sales) and May 1945 (164 sales)¹⁷. Even if the increase in supply was relatively limited, it seems to indicate that people were willing to get rid of their artworks.

Figure 2: Number of artworks sold at Giroux



The demand on the market might on the other hand have been very little. Indeed, the monetary reform which occurred in October 1944 brought a drastic cut in liquidity supply. The

¹⁷ See Appendix II

first weeks of 1945 are characterized by a reduction of the money supply¹⁸. Belgium is still helping the Allies to fight the Nazis and has to encourage their war effort. In March 1945, the war is not yet over for Belgium and people still fear a German attack. The conjunction of these two factors points out that the demand was probably low. In an article dated, October 13-14th 1944, a journalist from *l'Echo de la Bourse* indicated that following the monetary reforms, the activity on the art market had been inexistent¹⁹. He further feared that it would not be possible to conduct the few announced sales as planned²⁰. This suggests that there were no buyers on the market. The combination of an increasing supply and probably a low demand might have led the prices to the dramatic crash we know.

The impacts of the monetary reform are not limited to 1945. The liberation of money occurred very slowly. In 1946 and 1947, the amount of liquidities in the economy was very unstable. The expansion of the money supply was even negative on some months. The value of our art index decreases by close to 50% between April and May 1946 and between December 1946 and March 1947. Both these periods correspond to a reduction of the paper money supply in the economy²¹, which might have led to a feeling of money scarcity among the population. In its 1947 report, the National Bank attributed the weakness of the stock markets by the scarcity of money. Individuals as well as large corporations were keeping cash to reconstitute liquid reserves. The slow liberation of money on the market explains the joint movement between the art and the Equity indices (see below).

To rule out alternative explanations, we analyze whether the price decrease might not be attributed to investors rebalancing their portfolios. If indeed buyers were holding artworks for investment purposes and because of the characteristics of arts' investment during the war, then the war's end should lead them to rebalance their portfolio. In a sense, the war's end may be viewed as a natural experiment allowing discriminating the motives of art buyers. This approach has been used by Kang and Rockoff (2006) to determine whether American investors bought

¹⁸ Rapport de la Banque Nationale de Belgique, 1945

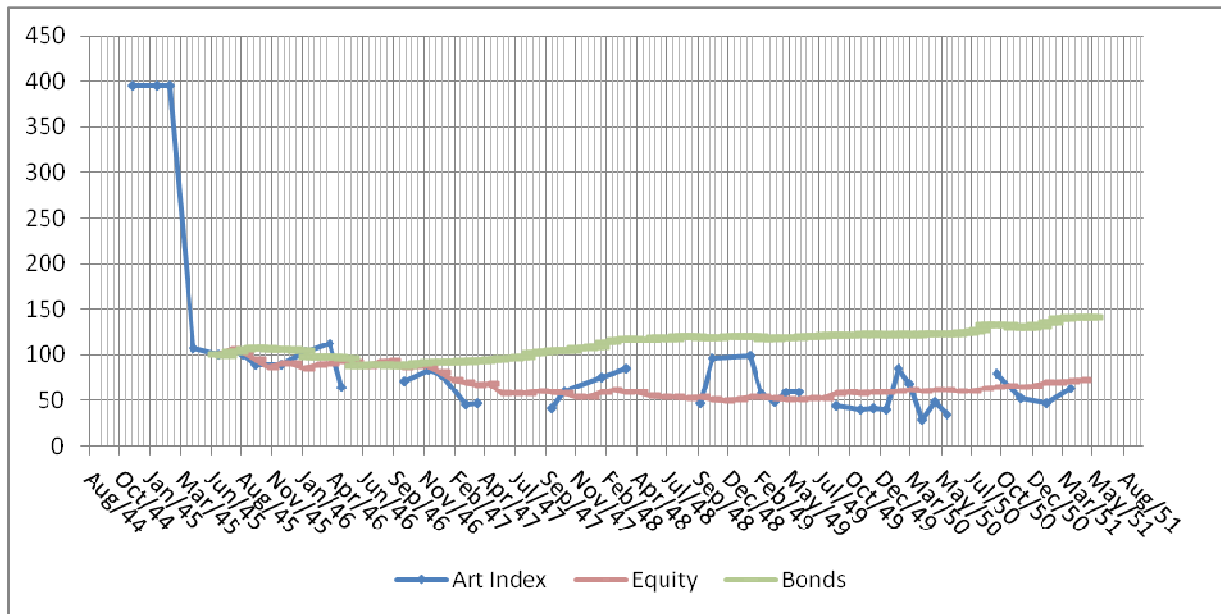
¹⁹ "Par suite des récentes mesures monétaires, l'activité sur le marché de l'art a été absolument nulle pendant ces derniers jours », *L'Echo de la Bourse*, 13-14th October 1944.

²⁰ « il semble même problématique que les rares ventes qui ont été annoncées puissent avoir un dénouement normal. », *L'Echo de la Bourse*, 13-14th October 1944.

²¹ See Appendix IV

bonds for patriotic reasons during the First World War. For comparison's sake, Figure 3 plots the art index, an equity index and a bond index²². The comparison starts in June 1945 since the Stock Exchange remained closed until June 4th 1945. All indices are normalized at 100 in June 1945.

Figure 3: Price Evolution of the three Indices (since June 1945 for Stocks and Bonds; All in real terms)



the other. Chanel (1995) and Ginsburgh and Jeanfils (1995) found evidence of a short run impact of stock markets on the art market. Chanel (1995) found evidence of a one year-lagged relationship of stock markets on the art market and explained it by the size difference between both markets. Figure 3 shows that both indices are varying simultaneously. Consequently it is unlikely that one market would drive the other. In any case, since both equities and art prices follow a similar trend, this would tend to indicate that investors did not resell their artworks to invest in equities. Investors did not rebalance their portfolios with Bonds because the index does not show a significant increase before 1949.

4. Conclusion

During the Second World War, the Art market experienced a massive boom in occupied countries. The lack of other sources of investments and the increase in the money supply played an important role in this evolution. During the war artworks presented unique investment characteristics. They were inflation proof, it was legal to buy them and their market was not directly controlled by the occupation forces. Furthermore artworks could be resold abroad if one had to leave the country. Last but not least, artworks were a particularly discreet form of investment.

The performances of the Art market from December 1944 to April 1951 in Belgium is measured by constructing an artworks price index for the considered period. It shows that the market faced a massive crash from December 1944 to October 1947. The crash experienced by the art market was mostly due to two elements: the fear of prosecution for economic collaboration and the monetary reforms of October 1944. The first element reduced the supply of artworks. War profiteers who had invested in artworks to hide their illegal profits refrained from selling any artwork as long as the prosecution was taking a very hard stance on economic collaboration (from September 1944 to May 1945). Monetary reforms played an even bigger role since only an even larger reduction in demand could account for the observed price decline if supply was reduced. Following the freeze of bank accounts, the main concern for the population became to manage to get cash for food not for paintings.

Most empirical studies show that investing in artworks leads to poor returns in view of the risk taken. Research on occupied countries during the Second World War have however shown artworks to outperform traditional investment and even investments in illegal goods (gold or foreign currencies) traded on the black market. Only analyses focusing on the immediate postwar period allow understanding the link between these contradictory observations. On basis of data from a leading Belgian gallery, this paper shows that the liberation marked an end to the art market boom. Following the liberation, the art market lost some of the appealing characteristics that had made it a very popular investment during the Second World War. Shopkeepers and smugglers which had invested in artworks to hide illegal profits made during the war, preferred to remain quiet at the Liberation. Monetary reforms, needed to purge the money overhang, dealt a severe blow to the art market. By contracting the monetary base in an extreme way, demand for non-essential goods all but disappeared.

APPENDIX I: Descriptive statistics

Table 1: Proportion in terms of number of artworks sold per year per medium

	1944-1945	1945-1946	1946-1947	1947-1948	1948-1949	1949-1950	1950-1951
Cardboard	7%	4%	5%	5%	6%	4%	4%
Wood	19%	28%	22%	19%	19%	13%	15%
Canvas	42%	43%	46%	43%	43%	33%	45%
Drawing	7%	4%	8%	12%	9%	8%	13%
Watercolor	18%	12%	11%	10%	15%	12%	11%
Engravings	6%	7%	4%	8%	5%	26%	11%
Sculptures	2%	2%	5%	2%	3%	4%	1%

Table 2: Proportion in terms of Sales

	1944-1945	1945-1946	1946-1947	1947-1948	1948-1949	1949-1950	1950-1951
Cardboard	6%	1%	5%	2%	2%	8%	4%
Wood	19%	32%	19%	14%	15%	10%	14%
Canvas	58%	57%	66%	74%	69%	62%	72%
Drawing	5%	1%	2%	3%	3%	3%	2%
Watercolor	10%	4%	4%	4%	7%	7%	6%
Engravings	1%	1%	1%	1%	0%	5%	1%
Sculptures	2%	2%	3%	2%	4%	6%	1%

Table 3: Total sales (BEF) per year and number of artworks sold per year

	1944-1945	1945-1946	1946-1947	1947-1948	1948-1949	1949-1950	1950-1951
Total Sales per year	3,591,710	3,936,625	2,644,735	1,899,525	2,541,120	3,561,790	2,801,505
Total Sales per year real terms²³	3,591,710	3,747,578	2,443,018	2,006,843	2,605,725	3,612,098	3,118,059
Number of works sold	674	825	877	693	591	1013	725

²³ Base year 1945. Source: Cassiers I., Scholliers P., (1994), *Le pacte social belge de 1944, les salaires et la croissance économique en perspective internationale*, p. 189

Table 4: Average price (BEF) per year per medium

	1944-1945	1945-1946	1946-1947	1947-1948	1948-1949	1949-1950	1950-1951
Cardboard	4,231	1,546	3,006	1,350	1,667	6,933	3,292
Wood	5,555	5,449	2,655	2,025	3,351	2,798	3,648
Canvas	7,367	6,425	4,302	4,678	6,940	6,622	6,094
Drawing	3,626	1,335	820	661	1,259	1,164	750
Watercolor	2,975	1,707	1,071	1,083	1,900	1,990	2,217
Engravings	495	869	519	205	192	642	230
Sculptures	4,295	5,163	1,929	2,427	6,237	5,609	6,030

Table 5: Most expensive artworks sold

1	Ensor James	<i>Les poissardes mélancoliques</i>	Toile	400,000
2	De Braekeleer Henri	<i>Le savetier</i>	Bois	240,000
3	Stevens Alfred	<i>La visite</i>	Toile	210,000
4	Boulenger Hippolyte	<i>L'aube (le labour)</i>	Toile	200,000
5	Renoir Auguste	<i>L'épaule nue</i>	Toile	200,000
6	Laermans Eugène	<i>Le soir</i>	Toile	170,000
7	Ensor James	<i>Poissons et coquillages</i>	Toile	160,000
8	Boulenger Hippolyte	<i>Le retour à la ferme</i>	Toile	155,000
9	Utrillo Maurice	<i>Derrière la maison de Mimi Pinson</i>	Carton	150,000
10	Matisse Henri	<i>Collioures</i>	Toile	150,000
11	De Braekeleer Henri	<i>La couturière</i>	Toile	145,000
12	Utrillo Maurice	<i>Le plant de vignes</i>	Toile	135,000
13	Evenepoel Henri	<i>Le petit Charles au berceau</i>	Toile	130,000
14	Evenepoel Henri	<i>La foire des invalides, le dimanche</i>	Toile	120,000
15	Laermans Eugène	<i>Les réprouvés</i>	Toile	110,000
16	Wouters Rik	<i>Par la fenêtre (Boitsfort)</i>	Toile	100,000
17	Stobbaerts Jan	<i>La porte verte</i>	Toile	100,000
18	Edouard Manet	<i>Le grand-duc</i>	Toile	100,000
19	Leys Henri	<i>Les femmes catholiques</i>	Bois	90,000
20	Evenepoel Henri	<i>Le trottin</i>	Toile	82,000

Table 6: Most sold artists

1	Ensor James	181
2	De Bruycker Jules	88
3	Smits Jakob	73
4	Rops Félicien	73
5	Verheyden Isidore	60
6	Thevenet Louis	57
7	Permeke Constant	51
8	Madou Jean-Baptiste	49
9	Frederic Léon	49
10	Courtens Frans	48
11	De Braeकेleer Henri	48
12	Laermans Eugène	47
13	Meunier Constantin	47
14	Boulenger Hippolyte	46
15	Baron Théodore	46
16	Heymans Adrien-Joseph	45
17	Wouters Rik	44
18	Vogels Guillaume	43
19	Smits Eugène	43
20	Schirren Ferdinand	42

APPENDIX II: Dates of sales and number of artworks sold

Date of sale	# of artworks sold
déc-44	13
févr-45	128
mars-45	171
mai-45	164
juil-45	71
sept-45	59
oct-45	31
déc-45	211
févr-46	99
avr-46	118
mai-46	99
oct-46	142
déc-46	152
janv-47	73
mars-47	152
avr-47	147
oct-47	150
nov-47	132
févr-48	112
avr-48	105
oct-48	131
nov-48	127
févr-49	43
mars-49	80
avr-49	43
mai-49	32
juin-49	7
sept-49	61
nov-49	23
déc-49	20
janv-50	20
févr-50	37
mars-50	255
avr-50	65
mai-50	57
juin-50	51
oct-50	120
déc-50	130
févr-51	174
avr-51	112

Appendix III: Topics dummies search strings

ANIMALS: « chat»; « homard»; « Mouton»; « taureau »; «Ane »; «Animaux»; «basse-cour»; «Bétail »; «boa»; «bœuf »; « lion»; «canard»; «Caniche»; «Chats»; «Cheval »; «Chevaux »; «chèvre »; «chien»; «Coqs »; «Coquillages»; «corbeaux »; «épagneul»; «étalon »; «Huitres»; «lévrier »; «lièvre»; «mulets»; «Oies »; «ours»; «Pigeons»; «Poisson»; «poulain»; «singé»; «Vache»

LANDSCAPE: «paysage»; «marine»; «étang»; «rivière»; «mer»; «cascade»; «lac»; «clairière»; «pâturage»; «Polders»; «Provence»; «côte»; «forêt»; «bois»; «champ»; «verger»; «dune»; «plage»; «rivière»; «ruisseau»; «torrent»; «Dyle»; «Escaut»; «Alpes»; «Apennins»; «rochers»; «sous-bois»

PEOPLE : «Accoudée»; «Acteur»; «Artiste»; «Baigneuse»; «Blessé»; «Bohémienne»; «Belles de»; «Cavalier»; «Capitaine»; «Clochard»; «Commères»; «Endormie»; «Enfant»; «Femme»; «Fillette»; «Grenadier»; «Hiercheuse»; «Homme»; «Fille»; «Garçon»; «Dame»; «Couturière»; «Glaneuse»; «Mère»; «Marchand»; «Métisse»; «Peintre»; «Paysan»; «Pêcheur»

PORTRAIT : «portrait» and named people

STILL_LIFE : «Nature morte»; «Fleurs et fruits» and classification of the catalogue

URBAN : «Avignon»; «Marken»; «Tanger»; «Venise»; «Alexandrie»; «Amsterdam»; «Anseremme»; «Béguinage»; «Avenue»; «Rue»; «Boulevard»; «Marché»; «Ruelle»; «Bruges»; «Malines»; «Gand»; «Anvers»; «Beffroi»; «Cathédrale»; «Eglise»; «Port»; «Bruxelles»; «Ville»; «Foire»; «Namur»; «Paris»; «Palais»; «Pont»; «Quai»; «Toit»

APPENDIX IV : Money supply evolution

Evolution of monetary supply (in Billions of BEF)

	Monnaie du Trésor	Banknotes	Current accounts at B.N.B	Comptes chèques postaux	Banks deposits	Total
1936-1938	1.6	22	3.7	2.9	12.8	43
May 1940	1.6	29.8	0.9	4.7	13.5	50.5
October 6 th , 1944	6.4	100.9	3.6	11	42.7	164.6
Monetary Reform October 1944	6.4	25.3	3.6	6.7	15.4	57.4
End 1944	6.3	38.8	3.8	10.7	14.6	74.2
End 1945	6.8	69.9	3.5	16.5	34.8	131.5
End 1946	5.5	72.2	6.3	18.3	43.3	145.6
End 1947	4.4	78.3	5.9	20.2	42.5	151.3
June 1948	4.5	78.6	7.1	19.2	38.1	147.5

Source: Janssens V., *Le franc belge, Un siècle et demi d'histoire monétaire*

Evolution of the money supply
(1946)

	Banknotes	Billets et monnaie du Trésor	Circulation fiduciaire)	Current Accounts BNB	Comptes chèques postaux	Assets in Banks	Total
January	71,975	6,840	78,815	3,120	17,716	35,137	134,797
February	73,062	6,768	79,830	3,152	20,826	36,027	139,835
March	73,570	6,683	80,253	2,910	21,420	36,233	140,825
April	73,673	6,568	80,241	3,200	18,503	36,767	138,711
May	73,122	6,452	79,574	3,153	21,096	38,369	142,192
June	73,226	6,475	79,701	2,859	18,740	39,350	140,650
July	73,205	6,298	79,503	4,330	20,597	39,777	144,236
August	72,480	6,290	78,770	4,498	20,122	39,917	143,307
September	72,254	6,306	78,560	4,990	19,266	40,942	143,758
October	72,273	6,207	78,480	4,797	20,397	41,716	145,390
November	72,382	6,102	78,484	4,954	20,540	43,337	147,315
December	72,502	5,856	78,358	5,868	21,183	43,895	149,304

Source: Rapport BNB 1946

Evolution of the money supply
(1947)

	Banknotes	Billets et monnaie du Trésor	Circulation fiduciaire	Current Accounts BNB	Comptes chèques postaux	Assets in Banks	Total
January	73,858	5,480	79,338	5,376	22,887	44,225	151,826
February	74,417	5,273	79,690	5,109	21,651	46,786	158,236
March	75,848	5,101	80,449	5,241	20,186	44,773	150,650
April	75,793	4,738	80,531	4,806	21,504	44,061	150,902
May	76,249	4,755	80,998	4,611	21,323	44,461	151,394
June	76,555	4,553	81,108	4,199	21,034	44,519	150,860
July	76,711	4,475	81,186	4,179	22,088	45,093	152,646
August	78,228	4,440	82,668	4,132	22,181	45,452	154,434
September	79,185	4,392	83,577	3,928	21,119	44,943	153,567
October	79,750	4,384	84,134	3,874	22,960	45,875	156,843
November	79,588	4,338	83,926	4,011	22,328	47,264	157,529
December	78,891	4,349	83,240	4,375	21,637	45,803	155,055

Source : Rapport BNB 1947

APPENDIX V: Table Results of hedonic regression

The model is estimated using OLS. The dependant variable is the natural logarithm of the prices (in real terms). The model is estimated using heteroskedasticity consistent errors (White's errors).

Variables	Model
Monthly Dum.	Incl. ²⁴
Artist Dum.	Incl. ²⁵
Deceased	Not incl.
Height	0.021387***
Width	0.019937***
Height²	-0.0001***
Width²	-4.60E-05***
Cardboard	<i>Omitted for colinearity</i>
Wood	0.561365***
Canvas	0.428779***
Drawing	-0.83807***
Watercolor	-0.11418
Landscape	-0.06438**
People	0.051579
Portrait	-0.28178**
Still-Life	0.212806
Urban	0.050489***
Numb. of obs.	3917
Numb. of variables	608
Adjusted R²	73.3%

²⁴ Omitted month for colinearity issues is month2 (February 1945); month3 (March 1945), month6 (September 1945), month8 (December 1945), month27 (June 1949) are not significant; month4 (May 1945), month5 (July 1945) and month10 (April 1946) are significant at the 5%-level; all other months are significant at the 1%-level.

²⁵ Omitted artist for colinearity issues is Artist557; All significant at a 1%-level.

References

Banque Nationale de Belgique, (1945), *Rapport présenté par le Gouverneur au nom du conseil de Régence sur les opérations des années 1940 à 1944 et rapport du Collège des Censeurs*, (Bruxelles), Imprimerie de la Banque Nationale de Belgique

Banque Nationale de Belgique, (1946), *Rapport présenté par le Gouverneur au nom du conseil de Régence sur les opérations de l'année 1945 et rapport du Collège des Censeurs*, (Bruxelles), Imprimerie de la Banque Nationale de Belgique

Banque Nationale de Belgique, (1947), *Rapport présenté par le Gouverneur au nom du conseil de Régence sur les opérations de l'année 1946 et rapport du Collège des Censeurs*, (Bruxelles), Imprimerie de la Banque Nationale de Belgique

Banque Nationale de Belgique, (1948), *Rapport présenté par le Gouverneur au nom du conseil de Régence sur les opérations de l'année 1947 et rapport du Collège des Censeurs*, (Bruxelles), Imprimerie de la Banque Nationale de Belgique

Banque Nationale de Belgique, (1949), *Rapport présenté par le Gouverneur au nom du conseil de Régence sur les opérations de l'année 1948 et rapport du Collège des Censeurs*, (Bruxelles), Imprimerie de la Banque Nationale de Belgique

Banque Nationale de Belgique, (1950), *Rapport présenté par le Gouverneur au nom du conseil de Régence sur les opérations de l'année 1949 et rapport du Collège des Censeurs*, (Bruxelles), Imprimerie de la Banque Nationale de Belgique

Banque Nationale de Belgique, (1951), *Rapport présenté par le Gouverneur au nom du conseil de Régence sur les opérations de l'année 1950 et rapport du Collège des Censeurs*, (Bruxelles), Imprimerie de la Banque Nationale de Belgique

Baudhuin F., (1958), *Histoire économique de la Belgique, 1945-1956*, (Bruxelles), Editions Emile Bruylant, 440p.

Baudhuin F., (1951) "Prix, consommation et revenus" in *Bulletin de l'Institut de Recherches économiques et sociales*, Mai 1951, XVIIème année, 3

Baumol W. J., (1986), "Unnatural Value: Or Art Investment as Floating crap Game", *The American Economic Review*, 76, 2, pp. 10-14

Bismans F., (1992), "Croissance et régulation, La Belgique 1944-1974" in Lebrun P. (Ed.), *"Histoire quantitative et développement de la Belgique et de ses régions"*, 2ème série XXème siècle (Tome 10, Volume 1), (Bruxelles), Editions du Palais des Académies

- Buelens F., (2003), “Price and Return Indices on the Brussels Stock Exchange for the period 1832-2003: Database structure, methodology and data collection”, Discussion paper University of Antwerp (14/4/2003)
- Buelens N. and Ginsburgh V., (1993), “Revisiting Baumol’s art as floating crap game”, *European Economic Review*, No. 37, pp. 1351-1371
- Campbell R., (2005), “Art as an alternative asset class”, working paper of the University of Maastricht
- Campbell R., (2007), “Art as a financial investment”, working paper of the University of Maastricht/Erasmus University Rotterdam
- Cassiers I., (1994), “Belgium’s post-war growth and the catch-up hypothesis”, *European Economic Review*, 1994, No. 38, pp. 899-911
- Chanel O., (1995), “Is art market behavior predictable?”, *European Economic Review*, No. 39, pp. 519-527
- Czujack C., (1997), “Picasso Paintings at Auction, 1963-1994”, *Journal of Cultural Economics*, No. 21, pp. 229 – 247
- Elslander J.-F., (1954), *Figures et Souvenirs d’une Belle Époque*, (Bruxelles), La Renaissance du Livre, 104p.
- Euwe J., (2007), *De Nederlandse kunstmarkt 1940-1945*, (Amsterdam), Editions Boom, 180p.
- Frey B.S., Pommerehne W.W., (1989), “Art Investment: An Empirical Inquiry”, *Southern Economic Journal*, Vol. 56, No. 2, pp. 396-409
- Galerie Georges Giroux, (1951), *Répertoire des prix atteints par les tableaux, aquarelles, gouaches, dessins, eaux-fortes, sculptures ayant passé en vente à la Galerie Georges Giroux de décembre 1944 à mai 1951 et comprenant plus de sept mille numéros répartis dans soixante-dix ventes publiques, suivi d’un répertoire des prix atteints par l’orfèvrerie ancienne pendant la même période*, (Bruxelles), Éditions de la Galerie Georges Giroux, 92p.
- Ghinsburg V., Jeanfils P., (1995) “Long-term comovements in international markets for paintings”, *European Economic Review*, 39, pp. 538-548
- Ginsburgh V., Mei J., Moses M., (2006), “The computation of Price Indices”, in Ginsburgh V. and Throsby D. (ed.), *Handbook of the Economics of Arts and Culture*, North Holland
- Goetzmann W., (1993), “Accounting for Taste: Art and the Financial Markets Over Three Centuries”, *The American Economic Review*, Vol. 83, No. 5, pp. 1370-1376
- Goetzmann W., Renneboog L., Spaenjers C., (2011), “Art and Money”, *American Economic Review*, Vol. 101, No. 3 (AEA Papers and Proceedings)

Jacquemyns G., (1950), *La société belge sous l'occupation allemande, 1940-1944*, (Bruxelles), Editions Nicholson & Watson, 3 vol.

Janssens V., (1976), *Le Franc Belge, un siècle et demi d'histoire monétaire*, (Bruxelles), Editions Dewincklear.

Kang S. W., Rockhoff H., (2006), "Capitalizing patriotism: The liberty loans of World War I", *NBER working paper*, N° 11919, 55p.

L'Echo de la Bourse, 1940 – 1951

Le Moniteur Belge, 5 août 1944

Luyten D., (1996), *Burgers boven elke verdenking? Vervolging van economische collaboratie in België na de Tweede Wereldoorlog*, (Brussel), VUBPress, 272p.

Luyten D., (2008), "L'épuration économique en Belgique" in Bergère M. (dir.) (2008), *L'épuration économique en France à la Libération*, (Rennes), Presses Universitaires de Rennes, pp. 203 – 213

Mandel B. R., (2009), "Art as an Investment and Conspicuous Consumption Good", *American Economic Review*, Vol. 99, No 4, pp. 1653-63

Mei J., Moses M. (2002), "Art as an Investment and the Underperformance of Masterpieces", *The American Economic Review*, Vol. 92, No. 5, pp. 1656-1668

Mei J., Moses M., (2005), "Vested Interest and Biased Price Estimates: Evidence from an Auction Market", *The Journal of Finance*, Vol. 60, No. 5, pp. 2409-2435

Moulin R., (1967), *Le marché de la peinture en France*, (Paris), Le sens commun, Les éditions de Minuit, 616p.

Nicholas L. H., (1995), *The rape of Europa: The fate of Europe's Treasures in the Third Reich and the Second World War*, (New York), Vintage books, 499p.

Occhino F., Oosterlinck K., White E., (2007), "How occupied France financed its own exploitation during WW2", *The American Economic Review*, Papers and Proceedings, 97, 2, pp. 295-299.

Occhino F., Oosterlinck K., White E., (2008), "How much can a Victor force the Vanquished to Pay?", *Journal of Economic History*, 68,1, pp. 1-45.

Oosterlinck K., (1999), "Les anticipations des marchés obligataires belges 1939-1944, Contribution à l'étude des acteurs économiques en temps de guerre", *Cahiers d'Histoire du Temps Présent*, 6, pp. 151-182.

Oosterlinck K., (2010), "French Stock Exchanges and Regulation during World War II", *Financial History Review*, 17, 2, pp. 211-237.

Oosterlinck K., (2011), "The Price of Degenerate Art", Centre Emile Bernheim Working paper N°09/031

Oosterlinck K., (2011a), "Sovereign debts and war finance in occupied countries", in Buchheim C. editor, *Europäische Volkswirtschaften unter deutscher Hegemonie 1938-1945*, Schriften des Historischen Kollegs, Oldenbourg Verlag, forthcoming.

Pesando J., (1993), "Art as an Investment: The Market for Modern Prints", *The American Economic Review*, Vol. 83, No. 5, pp. 1075-1089.

Reinhart C. M., Sbrancia B. M., (2011), "The Liquidation of Government Debt", *NBER Working Paper* 16893, 66 p.

Renneboog L., Spaenjers C., (2009), "Buying Beauty: on Prices and Returns in the Art Market", Tilburg Center Discussion Paper, 2009-15.

Renneboog L., Van Houtte T. (2002), "The Monetary appreciation for paintings, From realism to Magritte", Working paper Tilburg University.

Willems H. and Buelens F., (2006), "The Second World War and the Belgian Stock Exchanges", *The Journal of European Economic History*, Vol. 32. No.2, Fall 2006, pp. 315-348.

Worhington A. C., Higgs H., (2004), "Art as an investment: risk, return and portfolio diversification in major paintings markets", *Accounting and Finance*, No. 44, pp. 257-271