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The Master of …":
Creating Names for Art History and the Art Market

Kim Oosterlinck and Anne-Sophie Radermecker

The value of a painting is influenced above all by the artist who created it and his reputation. Painters nowadays are easy to identify and are used to signing their artworks. But what about those whose names have not survived the test of time? This paper focuses on a particular subset of anonymous artists labelled with so-called provisional names ("Master of …"). After considering the origins and reception of the practice of creating names for unrecorded artists, we empirically investigate the market behavior of this niche segment. Based on comparative price indexes and hedonic regressions, we show that masters with provisional names have not only become autonomous brand names that are highly valued by the art market; they also outperformed named artists between 1955 and 2015. In the second phase, we analyze the provisional-name linked elements valued by the market. We find that art market participants pay attention to the creator of the provisional name, its long-term recognition and market visibility, and the typology of the names.

Keywords: Meta-accuracy; hireability; metaperception; job interview; résumé

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Abstract

The value of a painting is influenced above all by the artist who created it and his reputation. Painters nowadays are easy to identify and are used to signing their artworks. But what about those whose names have not survived the test of time? This paper focuses on a particular subset of anonymous artists labelled with so-called provisional names ("Master of …"). After considering the origins and reception of the practice of creating names for unrecorded artists, we empirically investigate the market behavior of this niche segment. Based on comparative price indexes and hedonic regressions, we show that masters with provisional names have not only become autonomous brand names that are highly valued by the art market; they also outperformed named artists between 1955 and 2015. In the second phase, we analyze the provisional-name linked elements valued by the market. We find that art market participants pay attention to the creator of the provisional name, its long-term recognition and market visibility, and the typology of the names.

Keywords: Market for Old Master Paintings – Masters with Provisional Names – Market Value – Brand Names – Price Indexes – Hedonic Pricing Model

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Introduction

As recently as 2014, a painting entitled *The Virgin and Child with Saints Dominic, Augustine, Margaret and Barbara*, attributed to a painter with the witty sobriquet of "The Master of the Plump-Cheeked Madonnas", sold for USD 941,000 at Christie's.[1] Previously ascribed to Gérard David by Galerie Georges Petit in 1889, the painting had not reappeared on the art market for more than a century before it was auctioned under this new attribution. Despite the unusual provenance, this sale is one example among many others of "Master of" paintings trading for six figures.

Markets dealing with informational and experiential goods are characterized by strong asymmetry of information and a high level of uncertainty surrounding their quality (Akerlof 1970; Smallwood and Conlisk 1979; Karpik 2010; Becker and Rössel 2013). This statement applies perfectly to the market for fine arts since artistic goods are unique and singular, and they need reliable information to guarantee authenticity and reduce uncertainty (Coffman 1991; Goetzmann 1995; Frey and Eichenberger 1995; Ashenfelter and Graddy 2003). On the Old Master segment in particular, information about authorship provided by scholars and experts is of paramount importance. This market segment –approximately covering the period 1350-1830 – is characterized by a high proportion of unsigned paintings and workshop output. According to Nash (2008 p. 123), it was not until 1420 that Flemish artists progressively started signing their works. This practice was adopted only very gradually and was not systematic before the 19th century (Chastel 1974). Even though advances in art history have facilitated artists' identification, the attribution process remains challenging for earlier works. As a result,

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[1] See The Master of the Plump-Cheeked Madonna (active in Bruges, first quarter of the 16th century), *The Virgin and Child with Saints Dominic, Augustine, Margaret and Barbara*, Christie's Rockefeller Plaza (New York), *Renaissance* (sale 2819), 29 January 2014, lot 105. Presale estimate: USD 400,000 – USD 600,000.

potential buyers are exposed to a higher risk regarding the exact identity of the artist who conceived and executed the work.

Issues in properly identifying the artist who created a given artwork should have a marked impact on its price. Indeed, many studies have shown that the name of the artist is one of the most critical determinants of prices on the art market (e.g. Ginsburgh and Schwed 1992; Onofri 2009; Renneboog and Spaenjers 2013; Oosterlinck 2017). The importance given to a name as a signal of reputation also results from the natural assumption that unbranded and unlabeled commodities do not satisfy a market that typically places a lower value on these goods (Dubin 1998). The art market is no exception, with artworks that need to be named or labelled to allow rapid and easy identification of the artist as a signal of quality (Grampp 1989, pp. 131-132). To overcome the problem of anonymity, market players can rely on the work of art historians and experts. Frequently faced with anonymous pictures in their research, they identify artists on basis of three distinct methods:

- *i)* Authentication of the painting as "by the artist" when archival records, material, formal and stylistic evidence support the thesis of autography
- *ii)* Use of attribution qualifiers ('attributed to', 'studio of', 'circle of', 'school of', 'follower of', 'manner of'/'style of'/'genre of', 'group of'), which indirectly link an anonymous painting to a named artist, on the basis of proximity of style between the anonymous picture and the autograph work of the master
- *iii)* Creation of a provisional name ("Master of") if art historians are able to single out a particular artistic personality in several paintings but cannot provide a name or biographical information because of a lack of surviving documentary records (contracts, inventories, biographies, correspondences, etc.).

When none of the conditions required by these methods is met, a painting should be theoretically considered anonymous[2]; otherwise consumers may feel manipulated by an unconvincing brand that lacks credibility (Thompson 2006). In this case, art historians and the market employ generic formulas referring to the national or regional school (Flemish, Antwerp, etc.) which the unknown artist is thought to belong to. In other terms, when autography cannot be irrevocably corroborated, two authentication procedures are used. The first consists in

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[2] According to Grove (1996, p. 611), anonymous masters should not be confused with named artist with the prefixed title 'Master' and no surname, as in Master Bertram.

positioning a work in relation to a preexisting name in order to create indirect connections with a recorded personality. The second procedure implies a cognitive process that aims at creating a new nominal identity that is expected to become a substitute of the artist's name. This typology of designations matters on the art market, since it sends signals about the nature of the good and affects buyers' willingness to pay (Biglaiser 1993, p. 221). The "Master's concept" is likely to be a system of independent and credible signaling that facilitates reputation-building for these artists in the market segment for Old Masters (Larceneux 2001, p. 62).

Masters with provisional names (hereafter MPN) have, to the best of our knowledge, never been considered specifically in art market studies. It is actually unclear whether the literature systematically takes these artists into account. Usually, research exploring the art trade considers large and heterogeneous panels of artists, all periods and artistic movements included, and, for Old Masters, does not specify whether they include the MPN category, or at least does not distinguish it from named artists. By contrast our study focuses exclusively on this subgroup of artists.

Creating provisional names for anonymous painters became common practice at a time when connoisseurship reached its climax, championed by eminent connoisseurs such as Bernard Berenson and Max J. Friedländer for early modern art (Ebitz 1988; Ainsworth 2006) and Sir John D. Beazley for attic vases (Rouet 2001). Interestingly, the same period corresponds to the progressive internationalization of the art market (Moulin 1967), which rapidly retrieved these artificial names to assign identities to unbranded pictures and provide historical content in sales catalogues. Provisional names are therefore likely to be real brand substitutes that reduce information asymmetry. This would be in line with Muñiz et al. (2014, p. 83), who assert that the concept of branding is not limited to contemporary art. As recently created artists, MPNs have to establish their place in art history and build up their market credibility. Indeed, several studies have shown that establishing a name in the art market is crucial for an artist's financial success (Schroeder 2005; Schroeder and Salzer-Mörling 2006; O'Reilly and Kerrigan 2010). In the case of artists who die before their reputation is fully established, the market for their works may disappear completely (Ursprung and Wiermann 2008).

To analyze the role of provisional names on price formation, we focus on the market behavior of 15th and 16th-century Flemish MPNs auctioned between 1955 and 2015. We analyze original price indexes for each group of artists and find that, as a group, MPNs

outperform named and anonymous artists. To explain the market behavior of the MPN segment, we test whether some variables directly linked to the MPN affect this specific segment. We find evidence that the value assigned to these masters is strengthened by the creator of the name, its long-term recognition by art history (and indirectly the legitimization of the name through reference books), as well as market visibility and the typology used by scholars to invent these names.

The paper is structured as follows. We first retrace the origins of the MPN practice, and its reception throughout the 20th century, with a special focus on Flemish Masters and an emphasis on the pioneering role played by Max J. Friedländer. Decisive historiographical events (publications, exhibitions, etc.) are developed to identify the specificities that differentiate MPNs from named artists. Section 2 details the data set and the econometric methodologies used for the empirical analysis. Section 3 exposes and discusses our main results. The last section concludes.

1. Creating Provisional Names: Story of a Connoisseurship Practice

The concept of the provisional name, also known as a necessity name, name of convenience or emergency name, is borrowed from the German term *Notname,* which designates artists whose identity has not yet been established by art historians (Reynaud 1978). Artworks labelled with conventional names are more specifically called namepieces (Moore 2006). At first glance, the definition of provisional names matches that of a "brand", since they aim to identify a homogeneous set of goods and differentiate them from other, similar products (Kotler 1991, p. 441). Obviously, this inability to name an artist does not result from a deliberate choice to work anonymously; it is often the consequence of the artistic context of the late Medieval and Early Modern periods. According to Lorentz (2007, p. 132), the unprecedented boom in the Flemish market during the 16th century explains the proliferation of unknown artists and anonymous paintings. In most cases, provisional names concern second-rank artists known as *petits maîtres* (De Vos 1969; Lille 2005; Gombert and Martens, 2007). The life-time status of these painters, who worked in the shadow of eminent masters or as their followers,

prevented them from being viewed as noteworthy artists.[3] Because of their presumed lack of originality and inventiveness, they failed the crucial test of time that allows creators to enter the canons of art history (Haskell 1976; Ginsburgh and Weyers 2010). Their lives and works were not judged significant enough to be of interest, with damaging consequences on their later reception. As a result of this lack of interest, documentary records for these artists are elusive.

The first use of the term *"Meister mit Notname"* has been traced by Reynaud (1978) back to 1820, with the Master of the Lyverberge Passion. The development of the Master's concept may be linked to the growing importance attached in the early 19th century to taxonomy in the natural sciences (Henderiks 2016, p. 96). The human need to give names to unknown things may be viewed as a consequence of an epistemological context in which unspecified items are studied less intensively and suffer from academic neglect (Leary 1995; Nash 2008, p. 22). The need for alternative terminology to inventory an extensive corpus of unrecorded paintings consequently led scholars to adopt methods from exact sciences to get an organized view of this corpus and enable scientific investigations.

The motivations for the creation of a name are based on the intuition that, behind at least two or (ideally) several distinct artworks, there is one single and discernable hand that betrays an artistic individuality. The *modus operandi* of art historians consists in grouping paintings around a very characteristic work, on the basis of stylistic, formal and compositional similarities considered as auctorial evidence of this single hand (Syfer-d'Olne 2006, p. 11). Obviously, a similar connoisseurial procedure applies for named artists but, in this case, archival evidence is expected to certify the identity of the painter. This crucial step is more problematic for MPNs since, as mentioned above, archival records are not sufficient to identify the artist's name. The Master's concept therefore offers a useful alternative to single out a particular artist and his work from a flow of unidentified pictures. Traditionally, art historians refer to five identification strategies when conceiving a new name (De Vos 1969, p. 19; Born 2007, p. 12). Most provisional names are defined on the basis of:

- a prototypical composition used as reference work (i.e. Master of the Legend of Saint Barbara, Master of the Prodigal Son),

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[3] Note that the concept of *petit maîtres* remains debated since it is unclear whether their anonymity is due to their poor skills or to our current misunderstanding of their art (Bücken and Steyaert 2013, p. 6.).

- a location (generally a city) where the artist was active or major works are preserved (e.g. Master of Alkmaar, Master of Frankfurt, Master of Delft),
- easily-identifiable formal or stylistic characteristics (e.g. Master of the Parrot, Master of the Female Half Length, Master of the Embroidered Foliage, Master of the View of Saint Gudule, Master of the Plump-Cheeked Madonnas),
- a date inscribed on the reference work (e.g. Master of 1518, Master of 1499),
- a reference to the family name of a previous collector who owned the reference work (e.g. Master of the Khanenko Adoration, Master of the Von Groote Adoration).

Despite the convenience of these designations, they are temporary solutions employed to allow art historians to conduct further research with the hope of finally finding out the exact identity of the artist (Syfer-d'Olne 2006, p. 11). This initial aim has however partly failed.

The practice of creating provisional names reached its peak during the last years of the 19th century and the decades preceding World War II. One of the very first cases of provisional naming in early Flemish art is the well-known Master of Flémalle, christened by Hugo von Tschudi in 1898, and identified with Robert Campin by Georges Hulin de Loo in 1909. It is with the great connoisseur Max Jakob Friedländer (1867-1958) that the Master's concept took a radically new turn. In his essay *On Art and Connoisseurship* (1942, p.161), Friedländer defines anonymity as "a symptom of deficient knowledge", declaring that "the ultimate, the most fruitful question, even if it cannot be answered, is and remains that which concerns personality". In 1903, Friedländer published a critical review of the 1902 Bruges exhibition dedicated to the Flemish Primitives, introducing for the first time several provisional names such as the Master of the Legend of Saint Catherine or the Master of the Legend of Saint Lucy. In 1915, *Die Antwerpener Manieristen von 1520* (Friedländer 1915) was published for similar purposes with the first references to the Master of 1518, the Master of the Antwerp Adoration and the Master of the Von Groot Adoration. Friedländer dedicated several scientific papers to other MPNs, before publishing his major work, *Die Altniederländische Malerei* ("Early Netherlandish Paintings"), between 1924 and 1937. This ambitious critical catalogue, summarizing many years of intensive research and subdivided in 14 volumes, records 79 MPNs alongside other named artists. Interestingly, the same years correspond to the publication of other reference books relying on the Master's concept (Beazley 1925; Stange 1934-1961; Sterling 1941; Berenson 1957-1968).

The art trade rapidly gave credit to these names, with presumably a faster market reception for Flemish paintings than for Greek vases.[4] Prior to the pioneering publications mentioned previously, most paintings were traded in salesrooms and galleries as anonymous pictures or under misattributed names.[5] As the director of the Gemäldegalerie (Berlin), Friedländer maintained constant relationships with auctioneers and art dealers, and undoubtedly, his international reputation and credibility contributed to widespread use of his discoveries. Table 1 offers some evidence of early appearances of provisional names in sales catalogues.[6]

Table 1. Early Appearances of Masters with Provisional Names on the Art Market

MPN	Year of creation	Appearance on the art market
Master of the Female Half-Lengths	1901	Muller (2 May 1907, lots 12-16)
Master of the Magdalen Legend	1900	Muller (26 May 1914, lot 2)
Master of the Death of Mary identified with Joos van Cleve the Elder	1902 (Hulin de Loo)	American Art Galleries (18 January 1918, lot 56)
Master of Frankfurt	1900 (Weizsäcker) / 1917 (Friedländer)	American Art Galleries (18 January 1918, lot 70)
Master of Flémalle	1898 (Von Tschudi)/ 1909 (Hulin de Loo)	Fievez (10 December 1928)
Master of Saint Giles	1912	Fievez (10 December 1928)
Master of Alkmaar	1919	Lempertz (14 December 1926, lot 6)
Der Meister von Güstrow	1930	Lepke (31 May 1938, lot 154)
Master of Hoogstraeten	1929	Graupe (14 April 1934, lot 854a)
Master of the View of Saint Gudule	1922	Lange (29 September 1930, lot 39)
Master of the Antwerp Adoration	1915	Ball & Graupe (16 May 1931, lot 443)
Master of the Antwerp Crucifixion	1915	Dorotheum (1 December 1930, lot 30)
Master of the Parrot	1906	Fischer (25 August 1932, lot 153)
Master of the Holy Blood	1902	Wertheim (30 April 1930, lot 4)
Master of the Legend of Saint Catherine	1926	Dorotheum (1 June 1932, lot 25)
Master of the Legend of Saint Lucy	1903	Helbing (2 November 1933, lot 59)
Master of the Mansi Magdalen	1915	Muller (26 November 1940)
Master of Delft	1913	Lange (3 December 1940, lot 55)
Master of the Morrison Triptych	1915	Fischer (5 September 1942, lot 1251)
Master of Orsoy	1926	Dorotheum (16 March 1943, lot 105)

[4] One of the main reasons is that Beazley's system of attribution was highly criticized by one of his colleagues and rivals, Edmond Pottier, curator at the Louvre (Rouet 2001). On the contrary, Friedländer's provisional names did not face such radical opposition.

[5] Provenance information affords evidence of previous appearances of these paintings on the art market (see for example, De Vos 1969, pp. 219-301).

[6] Based on a sample of 200 sales catalogues recorded in the Rijksbureau voor Kunst Documentie's collection (The Hague), the INHA (Institut Nationale d'Histoire de l'art, Paris), and the Getty Provenance Index database.

The designation 'Master of the Female Half-Lengths' appears at Muller (Amsterdam) only a couple of years after its creation, with a total of five lots put up for sale. In 1918, a sale held by the American Art Galleries in New York[7] offered a *Portrait of Quentin Matsys* by 'The Master of the Death of Mary identified with Joos van Cleve the Elder'. Here the double attribution reveals not only the quick uptake by the market of the name proposed by Hulin de Loo (1902), but also the necessity to keep both attributions as a marketing strategy. It is likely that Joos van Cleve was not yet a familiar name in 1918. The provisional name may thus have been used to introduce the real name of the painter and create linkages between both identities. In the 1920s, 'The Master of the Death of Mary' still reappears in our sample but without any comments about the identification with Joos van Cleve. This suggests either that the information was far from being widely known or that salesrooms were unwilling to adhere to this new name. The situation is similar for the 'Master of Flémalle', still sold under this conventional name by the Brussels-based Galerie Fievez in 1928. By the middle of the century, the *Allgemeines Lexikon der Bildenden Künstler* (1950), a German biographical dictionary of artists edited by Ulrich Thieme and Felix Becker, devoted its 37th volume to MPNs, recording more than a thousand names. According to Castelnuovo (1968, p. 781), this publication was a decisive step in recognizing these names, which were far less commonplace in past dictionaries. Alongside named names, MPNs gained in legitimacy in entering art history. The pattern launched by Thieme-Becker has been followed by other reference dictionaries, such as The Grove Dictionary of Art (1996, vol. 20), which devoted entire volumes to MPNs.

The English version of Friedländer's book, released between 1967 and 1976, boosted the international spread of information, giving international auction houses the opportunity to consult a comprehensive database dedicated to Flemish art and support their attributions. However, it was not until 1969 that a first retrospective was dedicated to MPNs (*Primitifs flamands anonymes. Maîtres aux noms d'emprunt des Pays-Bas méridionaux du XVe siècle et du début du XVIe siècle,* De Vos 1969). Putting together a selection of works mostly held in public museums, the exhibition offered an overview of the production of these masters. Despite a couple of reattributions, the authors still insisted on the relevance of Friedländer's practice, without deep critical reassessment. But the output of MPNs was far from being unanimously approved in the academic field. Wilenski (1960, p. XI;12) criticizes the use of provisional

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[7] American Art Galleries, *Highly Important Collection of Ancient Painting*, 18 January 1918 (lots 70 and 56).

names based on style ascription, claiming that they confuse rather than clarify, and recommends maintaining the anonymity of unrecorded artists.

In 2005, a monographic exhibition focused for the first time on a Flemish MPN, the Master of the Embroidered Foliage (Lille 2005). Unlike the 1969 Bruges exhibition, academics involved in this research project seriously put into perspective the practice of creating names, judging that Friedländer's method had sustainably determined the discipline and caused neglect in art scholarship. During a colloquium held alongside the exhibition, the Master's concept was completely rethought in the light of recent advances in art history and new archival evidence. Participants stressed the need to take some distance from this method to avoid attribution issues. Scholars drew the crucial conclusion that the Master of the Embroidered Foliage was not likely to be a single individual but a larger group of artists sharing similar idioms and repertory of patterns that were particularly sought-after at that time (Gombert and Martens 2007, p. 23). Paradoxically however, the Master of the Embroidered Foliage gave birth to two new subordinate identities: The Master of the Grog Madonna and the Master of the Madonna van Gelder (Lille 2005, pp. 56-60). These new creations show that opinions remain divided on this issue and that the practice of creating names is far from over. Likewise, most of the names created by Friedländer are still in use in the 21st century.

The histogram displayed in Figure 1 illustrates the evolution of the number of provisional names created for early Flemish masters since the end of the 19th century. Dark grey columns report the number of names identified in the academic literature, while light grey columns total those identified in our sample of sales.

Figure 1. Evolution of Provisional Names Created by Scholarship and their Market Reception
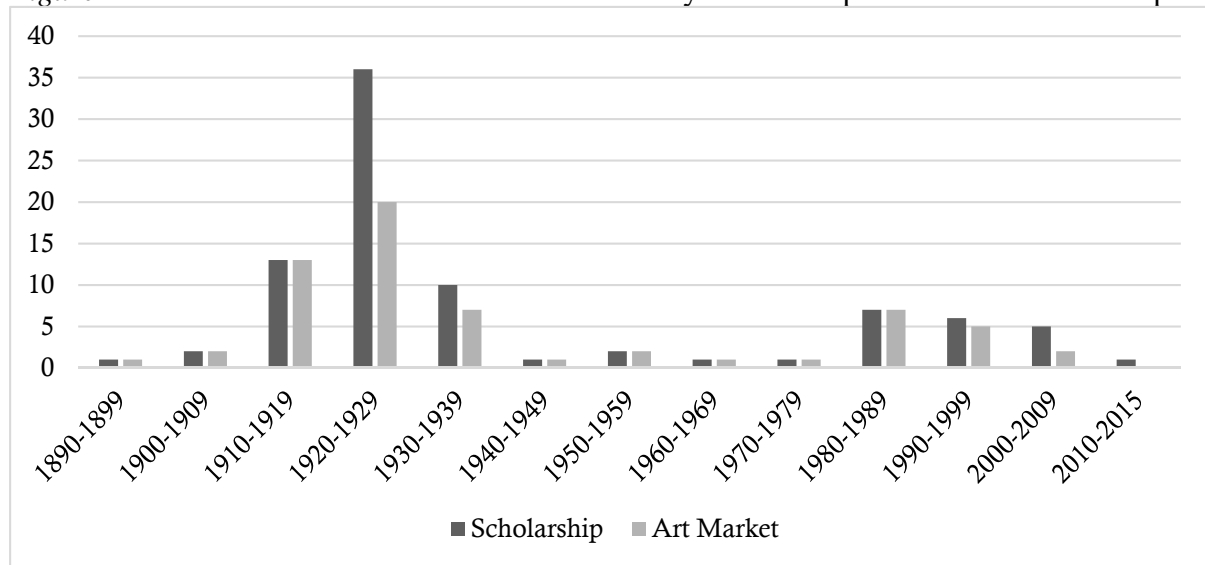
Our working sample encompasses most Flemish MPNs. The distribution of the data confirms that the Master's concept reached its apex for early Flemish art in the first decades of the 20th century. The practice of creating names experienced a dramatic drop after the 1940s, probably caused by the progressive decline in traditional expertise based on the eye's experience and the development of new connoisseurship based on scientific methods for the authentication process (Ainsworth 2006). The same period also corresponds to the deaths of most of the pioneers involved in this practice.[8] One may also conjecture that the paintings which were the easiest to assign to a single master were identified first, leaving only more complex cases to be discovered. A new wave of creation of MPNs is perceptible in the 1980s, impelled by a new generation of scholars who perpetuated Friedländer's method. The graph also reveals the extent to which the art market has adopted this scholarship output. Most of the names identified in the academic literature have made at least one appearance on the art market. By contrast, recently created names (i.e. Master of the Grog Madonna, Master of the Madonna Van Gelder) have not been detected in our sample. One may argue that provisional names need time to be embraced by the art market. Several other reasons may also explain why some artists have not come back on the market. Rarity is the most obvious explanation, especially when the name evokes a reference work held in a public collection. Inalienable pictures are by definition unlikely to reappear on the art market.[9] Other paintings are possibly in private hands or are still

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[8] Hulin de Loo and Friedländer died in 1945 and 1958, respectively.
[9] This is the case, for example, of the Master of 1473, a Bruges master whose unique reference painting is a triptych entitled *The Triptych of Jean de Witte*, purchased by the Royal Museums of Fine Arts of Belgium through the Brussels-based gallery Robert Finck in 1963.

misattributed to other artists. Moreover, there is no logical reason why works by MPNs who have been identified should continue to be sold under their initial designation. Neither can we exclude the hypothesis that some masters may have passed through art dealers and lesser-known salesrooms, or simply have been auctioned before our starting-year 1955. The numbers related to the art market in Figure 1 should therefore be viewed as lower bounds.

2. Data and Methodology

In a sample of nearly 14,500 sales of Flemish Masters[10], named artists represent 81.1%, against 12.8% for anonymous pictures. With 874 observations (buy-ins included), MPNs make up 6.1% of the general sample. More specifically, our working sample consists of 798 lots auctioned between 1955 and 2015 in more than 30 auction venues.[11] Observations are mainly collected from the Hislop Art's Sales Index, and have been systematically compared with data recorded by Artprice and the World Collectors Annuary to provide a comprehensive corpus of sources. We also examined the corresponding printed sales catalogues when available. To allow for inflation, prices are deflated using the US Consumer Price Index, and expressed in 2015 US dollars. The sample exclusively focuses on paintings and accounts for 55 distinct Flemish MPNs. We consider not only provisional names created by Friedländer but also those coined by contemporaries and later generations of art historians. When the spellings of a name differed slightly from one catalogue note to another, they have been adjusted to avoid unnecessary duplications.[12]

The starting year 1955 is justified both for economic and for art history reasons. To ensure optimal absorption of these names by the art market, it was necessary to consider a significant time span after the two main historiographical landmarks regarding MPNs: the publication of *Die Altniederländische Malerei* (1924-1937) and the 37th volume of Thieme-Becker (1950). From an economic perspective, the post-World War II market is more stable and characterized by the rise of international auction houses. Greater attention has been paid to advances in art history, as evidenced in well-documented sales catalogues. The second half of the 20th century thus offers an appropriate framework to measure the spread and market

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[10] Born between 1390 and 1568 and active in the Southern Low Countries

[11] Initially our sample accounts for 874 observations from which buy-ins were excluded. The Master of the Double Portrait of Cleveland and the Master of 1521 have been intentionally omitted from the sample because there is no firm evidence of their official recognition by the academic field and they might therefore be a salesroom's invention.

[12] e.g. Master of the Saint Lucia Legend – Master of the Legend of Saint Lucy - Master of the Saint Lucy Legend – Maître de la Légende de sainte Lucie.

reception of these artificial names. Table 2 gives some descriptive statistics, based on prices and attribution qualifiers.

Table 2. Descriptive Statistics (Prices in 2015 USD)

Attribution	Obs.	Mean	Median	Std Dev.	Maximum	Minimum
After	4	44,884	27,260	53,783	122,768	2,247
Attributed to	124	57,255	32,017	76,949	596,281	3,109
By	510	148,735	57,865	368,789	6,398,092	1,588
By and Studio	4	87,794	66,418	51,075	163,340	55,002
Circle of	91	27,033	20,894	25,115	129,025	2,916
Follower of	31	22,218	17,595	18,864	79,167	2,593
School of	3	16,419	17,107	9,366	25,422	6,727
Studio of	31	54,453	47,156	42,582	180,500	6,656
Total	**798**					

The first obvious observation is that the authenticity scale, usually applied by salesrooms to named artists, is also valid for MPNs. Autograph pictures ("by") are the most represented works (63%) and fetch six-figure prices on average (USD 148,735), ranging from a minimum of USD 1,588 to a maximum of USD 6,398,092. Pictures "attributed to" make up 14% of the data, with paintings from the "circle of" representing 11% of our sample. Other attribution qualifiers are used in insignificant proportions. However, following the recent hypothesis of provisional names as groups of artists, the relevance of this system may be questioned. In fact, selling paintings by the Master of the Embroidered Foliage as strictly autograph, or attributing paintings to the "circle of" this unspecified group of painters may be viewed as inconsistent. Unsurprisingly, signed artworks are weakly represented in our data set, with only seven pictures bearing a mark, and 14 bearing a date. The fact that salesrooms opt for provisional names instead of the identity disclosed by the signature mitigates the reliability of these auctorial signs, unless there is a deliberate strategy of assigning more profitable names to pictures. In terms of iconography, religious subjects account for 84% of the whole sample, with a majority of neo-testamentary scenes (Adoration of the Magi, Crucifixion) and depictions of the Virgin and Child. Seemingly, the religious purpose of this production does not seem to be a major obstacle for purchasers, whereas demand for Christian art has decreased considerably over the past decades (Hook 2013).

The distribution of lots sold varies from one MPN to the other, with an average of 14.5 and a median of 3 lots sold (Appendix A). There is a strong concentration of sales on a rather small sample of MPNs: 12 MPNs reach between 10 and 50 lots sold, 3 MPNs between 50 and

100, and only two MPNs exceed one hundred paintings sold at auction. This is the case of the Master of Parrot (101 lots) and the Master of the Female Half-Lengths (144 lots).Both MPN are in fact generic designations that, similarly to the Master of the Embroidered Foliage, embody several hands in one name. For the remaining part of the sample, sales range from 1 to 10 lots, with 17 names only appearing once. The date of creation of a MPN is not automatically related to the number of artworks attributed to him. It is true that the total of lots attributed to recently-created names is usually lower than for older names, but some of the latter are also weakly represented on the art market. This situation, more globally, reflects that of art history with, on the one hand, very rare masters and, on the other hand, more available – and presumably more liquid – artists.

Our analysis addresses the two following research questions: Are MPNs profitable for the art market, and do they help reduce information asymmetry, as real names do? We apply a hedonic pricing model (Ashenfelter and Graddy 2003; Ginsburgh, Mei and Moses 2006) to our data, for two reasons. First, we use it to construct comparative price indexes based on the antilogs of the estimates of time dummies. Our prices indexes therefore control for the heterogeneous character of artworks and, as suggested by Renneboog and Spaenjers (2013) and Oosterlinck (2017), are corrected for a minor transformation bias identified by Triplett (2004). Second, the hedonic model is used to test five hypotheses, based on Lancaster's theory of goods as "bundle of characteristics" (Lancaster 1966). These hypotheses are translated into five exogenous parameters that are suspected of increasing the value of these masters. The repeat sales regression (e.g. Baumol 1986; Goetzmann 1993; Pesando 1993; Mei and Moses 2002) is another econometric methodology that could have been used for this study, but our working sample does not offer enough resales to conduct a robust statistical analysis. Cited authors, however, endorse that results are approximately similar, independently of the method used. Furthermore, hedonic variables are required for the second part of the analysis. Our hedonic model equation can therefore be summed up as follows:

$$\ln p_i = \alpha + \sum_{j=1}^{m} \beta_j s_{ij} + \sum_{k=1}^{r} \gamma_k x_{ki} + u_i$$

where $\ln p_i$ is the log of the price of painting i, the s_{ji} are variables expected to influence the market value of MPNs, while the x_{ki} are other standard controls, commonly known as hedonic variables (see Appendix A for their description) and u_i is the error term, with $i = 1....n$, ; $j =$

1,…,m ; $k = 1,…r$. Apart from dimensions, all parameters are converted into dummy variables that take the value of one if the condition is satisfied, and zero otherwise.

3. Empirical Results

This section describes our main results (on the basis of our preferred specification). We first detail the market trend of MPNs over the past sixty years and assess whether they are valued differently by the art market. Then we expose and comment on five exogenous hypotheses suspected to drive an MPN's value. Figure 2 first plots the volumes of transactions made between 1955 and 2015.

Figure 2. Total Number of Sales of MPNs by Year (1955-2015)
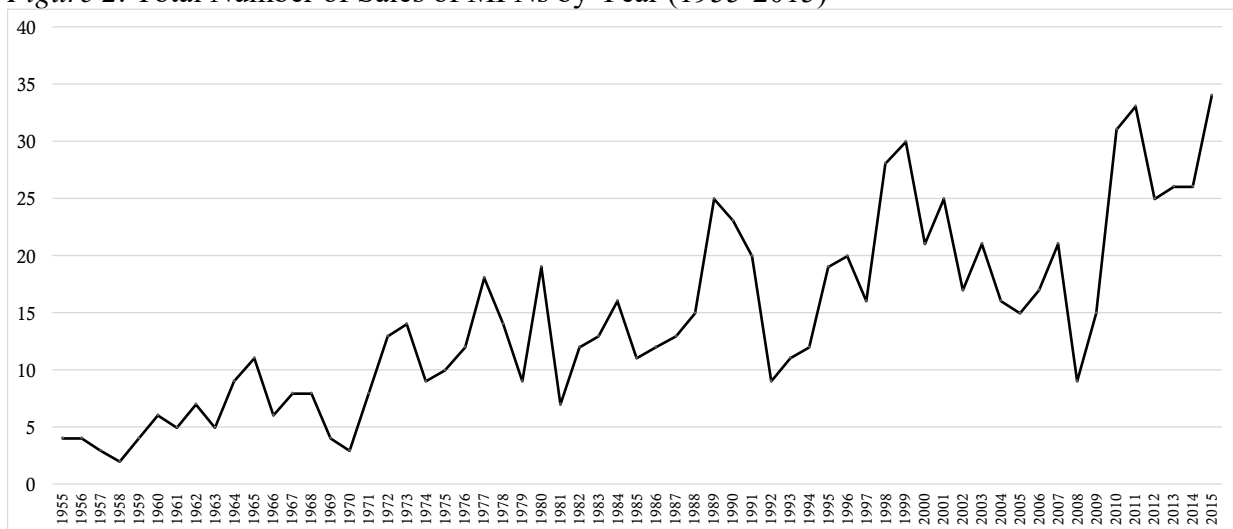
As mentioned in the historical section of this paper, provisional names rapidly entered the market, with a gradually expanding volume of sales. Despite annual variations, the number of lots sold has grown significantly since 1955, with one first obvious jump in the 1970s, probably stimulated by the publication of the English version of the *Die Alniederländische Malerei*, and as a consequence of a simultaneous boom in the art market in the same years (Wood 1997). A second significant increase is noticeable in the late 1980s and during the 1990s, with an approximate range of 20 and 30 lots sold every year, and a peak of 34 lots purchased in 2015. Two main drops in sales occurred, one in 1990 and the other in 2007-2008, possibly as a result of the two global financial crises. A rapid recovery in supply is observed in the following years, likely due to the general robustness of the market for Old Masters in an uncertain context (Artprice Report 2009, p. 10). More importantly, although the second half of the century saw a considerable slowdown in the practice of creating names (see Figure 1), sales

clearly follow the opposite trend, with growth that contrasts with the situation of scholarship during these years.

Similar observations are made in terms of value. Table 3 first offers the means and medians of prices successively computed for named masters[13], MPNs[14] and anonymous painters ascribed to a generic artistic school.

Table 3. Average and median prices by decades

|	1955-1965	1966-1975	1976-1985	1986-1995	1996-2005	2006-2015
Named Masters						
Mean	41,698	68,895	66,326	77,111	97,874	222,249
Median	12,553	19,987	15,292	18,842	19,179	37,722
MPNs						
Mean	66,104	72,311	73,314	88,931	109,631	200,034
Median	34,699	32,716	40,268	39,198	46,046	60,274
Anonymous Painters						
Mean	13,925	31,065	29,695	34,049	31,126	62,148
Median	6,833	17,824	23,467	13,847	14,534	26,182

Intuitively, one could have expected MPNs to fetch higher average and median prices than anonymous artists for whom no tangible information is provided, but lower prices than for named masters whose identity is known. Indeed, in the latter case, the association of a painting with a name is likely to increase the buyer's confidence. Our figures confirm the first assumption, but strikingly refute the second one: MPNs are more highly prized than named artists by the art market. Average prices for MPNs are 58.5% higher than those for identified masters in 1955-1965, 4.9% in 1966-1975, 10.5% in 1976-1985, 15.3% in 1986-1995, 12% for 1996-2005, with an exception for the last decade 2006-2015 during which the mean for these masters dropped below that of named artists (-9.9%). Though such price differences are possibly caused by unequal subsamples, their relatively consistency over time must be pointed out. One may conjecture that art historians create MPNs only for paintings meeting a certain quality. By contrast, being able to identify a given artist by his name is not strictly linked to the quality of his work, as less talented artists may be identified because they signed their works.

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[13] Under the category "Identified masters" we include not only autograph paintings but all the works attached to the name of identified masters with attribution qualifiers ('attributed to', 'studio of', 'circle of', 'follower of', etc.).

[14] Similarly, the category "Master with provisional names" includes pictures attached to the name of these masters with attribution qualifiers.

Translated into price indexes in Figure 3, the market behavior of each category of artists appears clearer and corroborates our observations.

Figure 3. Comparative Price Indexes (Named masters, MPNs, Anonymous painters)
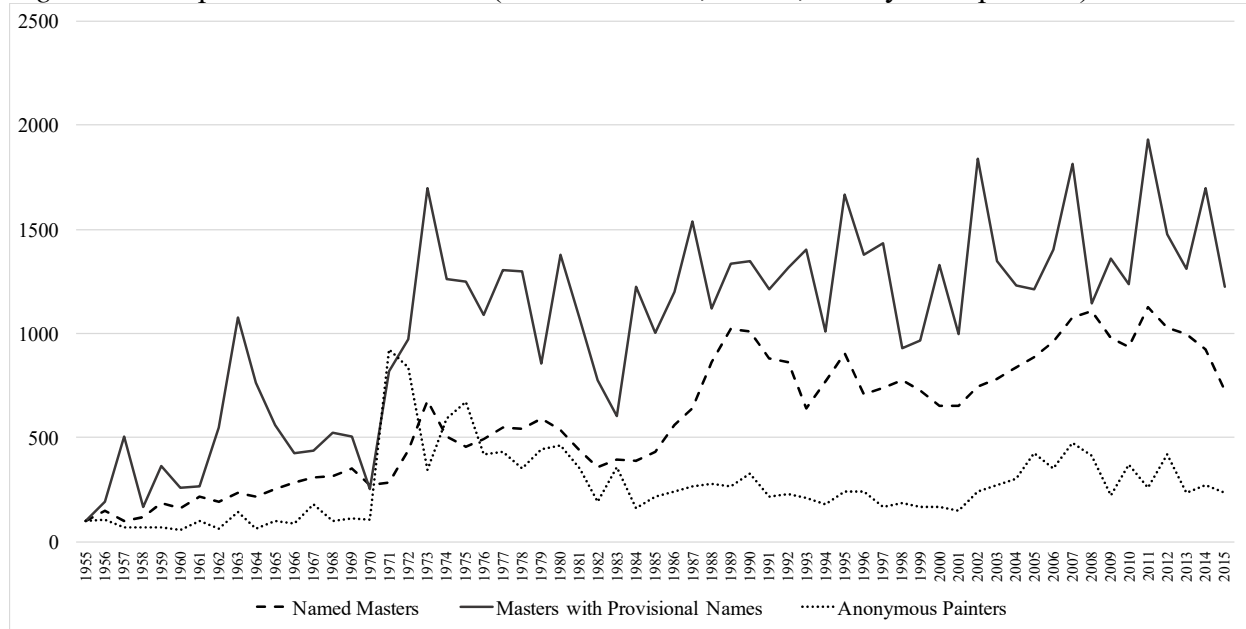
The graphs from Figure 3 result from standard hedonic regressions. Each regression includes the same hedonic variables to afford comparative frameworks [15], with price levels standardized to 100 in 1955 (see Appendix B for detailed results). The pattern for MPNs sharply exceeds that for named and anonymous artists, starting in the reference year 1955, suggesting that prices in this subcategory grew faster than the other two. All three curves globally follow the same general trend, and especially those for named artists and provisional names. As for the volume of lots sold, the early 1970s are characterized by a sharp price increase and values that remain relatively stable thereafter, with intervals comprised between 1000 and 1500 up until 2015. On the contrary, there is no substantial jump in the 1990s, even though the monetary value of these pictures has slightly increased since the beginning of the 2000s. In other words, the growing volume of sales, previously observed, has not generated a proportional price increase. Similarly, the two drops in volume in the early 1990s and after the 2008 crisis are not reflected in financial terms. Several factors are likely to explain why MPNs outperform identified masters. The latter subcategory is far from homogeneous; indeed, named artists have

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[15] Artist's names (in the case of unidentified masters, the paintings were sorted on the basis of the artistic school they belong to: Flemish, Antwerp, Brussels, etc.), attribution qualifiers (except for unidentified masters), date, signature, provenance, certificate, previous exhibition, existing literature, dimensions (height and width), materials, techniques, subjects, salesrooms, years. Most of these controls (except dimensions) are dummy variables that take the value 1 if the condition is satisfied or 0 otherwise.

varying reputations, with celebrated painters such as Brueghel, David, Memling and Bosch appearing alongside names that are lesser-known or even unknown to non-specialists (Coffermans, De Beer, Claeissins, De Ryckere, etc.).[16] Quality is also heterogeneous since all the attribution qualifiers are included in the subsample, with obvious differences of quality between an autograph picture and a work executed by a later follower. This observation however applies to MPNs as well. The main difference between both categories is that the creation of a name requires highly identifiable characteristics to enable art historians to single out a body of work from anonymity. By definition, MPNs are almost a guarantee of artistic singularity. Their works have unusual peculiarities that make them probably more original than pictures executed by skillful copyists or named but minor painters. MPN therefore induce a positive bias; as brand names, they are indicators of quality (Akerlof 1970), and it is commercially preferable to be an unknown but particular and recognizable hand than a modest named artist who imitates the *maniera* of a great master. Obviously, namepieces are not of equivalent quality but the Master's concept itself is distinctive. It is also worth noting that MPNs still comprise a marginal category of artist (in terms of proportions); they are comparatively less represented at auction and are therefore likely to be the focus of greater curiosity. In addition, the lack of biographical information is offset by the (sometimes intriguing) story of the origins of the names. Finally, since a significant proportion of provisional names is included in Friedländer's book, and since most of their works are hanging in major museums alongside the greatest names of early Flemish art, there is no reason for not considering them in equivalent terms.

More pragmatically, other objective factors determine the prices fetched by provisional names at auction. The coefficients picked up by standard hedonic variables, displayed in Appendix B, tend to have a similar sign to the one foreseeable for identified masters. As expected, lower attribution qualifiers have negative effects on prices; the quality of paintings is decisive in this segment, as for any other kind of production. Literature and provenance dummies come out as significantly different from 0, whereas the signature dummy remains logically insignificant, since this trade-mark is no evidence of authorship. The exhibition dummy does not appear significantly different from 0 either. This result may reflect the historiographical situation of these masters, rarely subject to monographic or retrospective exhibitions. More importantly, most artist dummies are not significant. Apart from a couple of

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[16] Most famous names have been confirmed by Ginsburgh and Weyers (2006, p. 24) who demonstrated that they were amongst the most sustainable and acknowledged names throughout art history.

exceptions[17], the bulk of the explanatory power does not come from the artists' names. Without excluding possible bias caused by unique sales, one may argue that the notion of reputation is counterbalanced because provisional names provide no information about the notoriety of an artist during his lifetime. Some art world professionals, however, claim that the Master's concept itself conveys a kind of mystic aura in the collective imagination that may be highly appealing for buyers.[18] This assumption may be linked to the concept of iconic brand (Holt 2004), which designates artists who achieve icon status by creating myths about themselves that are particularly attractive for art buyers.

To go further in the analysis, we discuss five hypotheses that possibly explain the market excitement surrounding MPNs. As experiential goods, these paintings are expected to have research and experience attributes that are, in a context of uncertainty, particularly sought after by consumers and likely to increase their intrinsic value (Nelson 1970). According to signaling theory, these five new variables could be legitimately perceived as profitable signals of quality for the market (Miller and Plott 1985; Larceneux 2003).

Hypothesis 1. The Creator: Unlike recorded artists, individuals assigned to a provisional name have the peculiarity of being created by one identified scholar, or "creator". The pioneering role played by Friedländer has already been discussed, and although a significant part of our sample is composed of artists created by the German connoisseur, many were named by other specialists. More precisely, 13 other creator's names are encountered in our data set, some of them contemporaries of Friedländer while others belong to a more recent generation of art historians. In total, 58% of our observations are attributed to provisional names created by Friedländer In view of this expert's reputation, we first hypothesize that the creation of a name by him will add value for buyers, as a quality label likely to influence the buyer's purchasing decision (Larceneux 2001). His widespread recognition and his ability to distinguish good quality paintings from less significant works are expected to increase the buyer's confidence in his names, which still pass through the art market. To test this hypothesis, we include a dummy variable in our model, taking a value of one for names created by Friedländer and 0 otherwise.

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[17] Master of the Parrot -0.858*; Master of the 1540s -1.189**; Master of Delft -1.144*; Master of the Antwerp Crucifixion -1.339; Master of the Legend of Saint Barbara 1,521**; Master of the Amsterdam Death of the Virgin -1,559**; Master of the Baroncelli Portraits 2.575***; Master of the Prodigal Son -1,525***. Note that most negative coefficients are related to 16th century masters while rarer 15th century artists have mostly positive coefficients.

[18] We conducted several interviews in 2017 in London-based art galleries and salesrooms specialized in the market for Old Masters.

Hypothesis 2. Inclusion of provisional names in reference art dictionaries. The mention of a painting in the academic literature usually sends a positive signal. MPNs are rarely the focus of *catalogues raisonnés* or exhibition catalogues, but only of scholarly articles in specialized journals. It is consequently not an easy task to accurately measure the impact of a literature dummy for these artists. Renneboog and Spaenjers (2013) propose to include a dummy variable if an artist is present in classic art history textbooks in order to proxy for an artist's reputation. In our analysis, we follow this approach and rely on two key art dictionaries – Thieme-Becker and the Grove Dictionary of Art – since both dedicate full-volumes to MPNs. We assume that the record of these names in art dictionaries participates in the process of legitimizing the artists, who officially and endurably enter art history. As educational books, art dictionaries help to turn informal (or imperfect) information into authoritative (or perfect) information (Wankhade et al. 2010, p. 22). It is however necessary to stress that biographical dictionaries are rarely referenced in catalogue notes since their entries tend to discuss the artist's life rather than works likely to be offered at auction. In other words, the *Art Dictionaries* variable, as exogenous information, is not related to each lot but to the general presence of our provisional names in one of these reference books. Obviously, *Die Altniederländische Malerei* played a similar role in the legitimation process for provisional names, but we decided not to include it because of collinearity issues.[19] In order to better gauge the reputation of the artist, we create a variable which takes into account his or her presence in more than one dictionary. Our *Art Dictionaries* variable takes the value of zero when the name is neither recorded in Thieme-Becker nor in the Grove Dictionary. The variable takes the value of one when included in one of these dictionaries and the value of two when documented in both.

Hypothesis 3. Long-term recognition of provisional names: MPNs were created during successive time intervals. Subsequently, not all names have the same date of birth, since some lived longer than others. The "test of time" may be a decisive factor for the appreciation of this subcategory of artists. Earlier names are indeed more likely to enjoy a stronger recognition than those created ten or twenty years ago. To capture the possible effect of time on the long-term recognition of provisional names, we define two variables: one containing the total number of years between the year of the creation and the year of the sale, and its square equivalent to take

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[19] Most of the names created by Friedländer are logically found in his book (with the exception of the Master of Gold Brocades), but are also included in Thieme-Becker and the Grove Dictionary of Art. Inclusion generates collinearity with the other variable "By Friedländer". Indeed, 89% of observations are attributed to provisional names included in *Die Altniederländische Malerei*, 708 are attributed to provisional names mentioned in Thieme-Becker, and 661 observations are attributed to provisional names recorded in the Grove Dictionary of Art.

into account a possible nonlinear effect. The natural assumption is to expect these variables to have a positive impact on prices. In doing so, we test whether the persistence of a name through time is likely to increase buyers' willingness to pay.

Hypothesis 4. Visibility on the art market: A visible presence on the market could raise the attention of buyers to MPNs. According to Moulin (1967), the art market is instrumental in legitimating artists. Frequently traded names are expected to fetch higher prices since their presence in sales catalogues is evidence of the confidence that the market places in these names. However, this hypothesis requires a minimum of lots sold, which may be incompatible with the notion of scarcity specific to the market for Old Masters. Two variables, similar to the previous ones (linear and quadratic), are created to capture the effects of regular appearances on the art market. For each observation, we identify and compute the total number of lots ascribed to the artist and auctioned between the year of creation and the sale.

Hypothesis 5. The typology of names: Our last assumption deals with the typology of the names created by art historians to designate MPN. Five main forms have been identified: names based on a location, a date, a key composition, recurring formal characteristics, or a previous collector. From a marketing perspective, such identification strategies are likely to influence buyers' behavior. A good brand must satisfy several specific characteristics to be effective (e. g. Kholi and LaBahn 1997; Carroll 1981; Robertson 1989; Klink 2001). Among the existing naming strategies, cited authors have stressed the importance of the structural form and meaning of the name, its metrics (length vs brevity) as well as its descriptiveness, inventiveness and differentiation. Good names need to be meaningful, that is, descriptive and suggestive (in contrast to non-meaningful brands that are arbitrary) but also easy to remember and pronounce. By including dummy variables for each category of name in our model, we seek to establish whether some provisional names are better brands than others. Effective brand names can enhance awareness of a product and create a favorable image of it, while ineffective names can hinder its success (Aaker 1997). Strong brands are thus likely to influence the customer's choices and offer a distinctive advantage over competing products (Kholi and LaBahn 1997).

We first present our baseline model, Model 1, and discuss the significance of the coefficients picked up by the five variables tested. Most of them are significantly positive. Evidence of their robustness is provided in Appendix C, where Table C1 and Table C2 control

for the validity of our results, using a general to specific approach. Artist dummies are no longer included in the models because of obvious collinearity issues. Table 4 displays the main results of Model 1, based on the assumption that Friedländer himself is a price determinant.

Table 4. Model 1 (Friedländer Model)

Model 1 - Friedländer	Coefficients
H1. Creator	
Created by Max J. Friedländer	0.339***
H2. Art Dictionaries (Thieme-Becker/Grove)	
Inclusion in Art Dictionaries	0.237
H3. Long-term Recognition	
Total years between creation and sale	-0.0158*
(Total years between creation and sale)²	0.000151**
H4. Market Visibility	
Total previous sales between creation and sale	-0.0111**
(Total previous sales between creation and sale)²	8.24e-05***
H5. Typology of Names	
'Location' pieces	0
'Collection' pieces	-0.308*
'Characteristic' pieces	0.083
'Date' pieces	-0.288
'Composition' pieces	-0.098
Hedonic controls	Incl
Time dummies	Incl
Constant	9.509***
R-squared	0.450
Adj R-squared	0.362

Note: All models are estimated using OLS with White heteroscedasticity-consistent standard errors and covariance. The dependent variable is the natural log of the real price. Artist dummies are excluded. In all regressions coefficients are significant at the following levels of confidence: *Significant at 10%; **significant at 5%; ***significant at 1%.

The coefficient picked up by the Creator variable shows the economic weight of being created by Friedländer, compared with a group of artists named by other scholars. The value of the certifier is high because Friedländer is associated with highly regarded scholarship (Mossetto 1994). Our preliminary tests presented in Appendix C show that the *Created by Friedländer* dummy remains positive and significantly different from 0 in all specifications. Therefore, the paintings assigned to MPNs created by Friedländer are likely to be more expensive (between 15% (antilog 0.140) and 40% (antilog 0.339)) than works that do not have

this feature. This price effect reflects the confidence afforded by the art market to the eminent connoisseur whose reputation and heritage affects the buyer's willingness to pay for an MPN.

The *Art Dictionaries* variable, which tests whether the inclusion of a name in art dictionaries is an attractive signal for the market, does not come out significantly different from 0. This confirms our intuition that the variable is strongly correlated with others, especially the *Creator* variable. However, Table B1 shows that once the variable is included in the model without the four others, the coefficient turns significantly positive with the value 0.221***.[20]

The third variable tests the long-term recognition of the artist. The model generates two coefficients that are positive and significantly different from 0 for the square variable, suggesting that the commercial achievement of provisional names also depends on the time factor. In other words, earlier names are better acknowledged and fetch higher prices than new ones. Buyers thus place more trust in sustainable designations since one possible risk with newly created names is that, because of academic disagreements, they fail the test of time and therefore return to anonymity. The coefficient of this second variable remains stable when individually added to the model or accumulated with the four other explicative parameters.

With the exception of rare masters, works ascribed to durable provisional names are more likely to make several reappearances on the art market. Logically, a unique sale is not expected to help build up the reputation of a previously unknown master. Exceptions exist, however, especially if the work was previously ascribed to a great name, or was kept in a museum and had a prestigious provenance [21]. The coefficients picked up by the *Market Visibility* variables are both positive and significantly different from 0, supporting the assumption that the commercial success of a provisional name depends on its market visibility and needs several years to be effective. The reoccurring appearance of a name on the art market has obvious advantages in terms of provenance, but it also reassures purchasers about the credibility of the name. One-shot sales do not say much about the sustainability of the name, especially if catalogues provide no information about its origin.

The last hypothesis deals with the typology of names traditionally used by art historians. According to Klink (2001, p. 28), consumers prefer new brand names that convey relevant

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[20] Most of other variables remain robust when the *Art Dictionaries* variable is excluded from the model.
[21] These occasional cases do not seem to affect our results (*cf.* The Master of the Plump-Cheeked Madonna).

product information. They enhance consumer acceptance of the good and reduce purchase risk, as do established brands (named artists in this case). The *'Location' pieces* variable is taken as reference group, and compared to this category of names; the only coefficient that becomes significantly negative is that of names referring to a previous collector or collection. This observation may be explained by marketing studies. First, this category of names provides no specific information about the artist or his work. Short of having a clear idea of the original composition in mind, names such as the Master of the Bentinck-Thyssen Madonna prevent consumers from having an immediate representation of the key characteristic of the artist. Second, complex spellings or foreign names can make it hard to memorize the name of an MPN, which could be detrimental to its market[22].

Robustness tests

Model 1 confirms our five hypotheses. To test the robustness of our results, we run the regressions on a different specification, which instead of focusing on Friedländer relies on the generations of scholars. In fact, the *Creator* variable, included in Model 1 and related to Friedländer, embodies a significant part of the sample. One possible bias is that it does not differentiate Friedländer from other creators and makes it impossible to control for recent names. To correct this potential bias, we distinguish three categories of creators[23]:

> *i*) MPN created by Max. J. Friedländer
> (active in the first-half of the 20th century)
> *ii*) MPN created by Friedländer's contemporary colleagues
> (active in the first-half of the 20th century)
> *iii*) MPN created by the new generation of art historians
> (approximately active since the 1970s)

As for Model 1, the different steps of our analysis are available in Appendix D. Table D2 presents the tests for each variable taken separately, and Table D3 the tests when all variables are successfully added to the model.

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[22] Nonetheless, references to prestigious and well-known collectors could obviously add value to a brand name, especially significant information about provenance.
[23] A third option would have been to include a binary variable for every creator but with several cases of unique sales, this would have led to collinearity issues.

Table 5. Model 2 (Generation Model)

Model 2 - Robustness test	Coefficients
H1. Creator	
Old Generation of scholars	0
Created by Max J. Friedländer	0.376**
New Generation of scholars	1.864 ***
H2. Art Dictionaries (Thieme-Becker/Grove)	
Inclusion in Art Dictionaries	0.310*
H3. Long-term Recognition	
Total of years between creation and sale	0.0102
(Total years between creation and sale)^2	-1.27e-05
H4. Market Visibility	
Total previous sales between creation and sale	-0.00925**
(Total previous sales between creation and sale)^2	6.62e-05**
H5. Typology of Names	
'Location' pieces	0
'Collection' pieces	-0.367**
'Characteristic' pieces	0.219
'Date' pieces	-0.365**
'Legend of' pieces	0.281
'Saints' pieces	0.0492
'Religious scene + location' pieces	-0.480**
Other types	-0.671***
Hedonic controls	Incl
Time dummies	Incl
Constant	8.148***
R-squared	0.496
Adj R-squared	0.412

Notes. All models are estimated using OLS with White heteroscedasticity-consistent standard errors and covariance. The dependent variable is the natural log of the real price. Artist dummies excluded. In all regressions coefficients are significant at the following levels of confidence: *Significant at 10%; **significant at 5%; ***significant at 1%.

The *Old generation of scholars* variable is used as a control group to question two distinct periods, covering approximately fifty years and corresponding to two steps in name creation. Model 2 confirms that being created by authoritative art experts such as Friedländer remains a safe bet, but more interestingly it brings out the subcategory of living scholars. Even though the recent generation constitutes proportionally a smaller group the coefficient picked up by the variable suggests that the market still gives credit to this practice and to Friedländer's

successors. Table D1 also reveals that paintings attributed to recently-created MPNs are, on average, two or three times more expensive than names created by Friedländer or the old generation of scholars. The median price computed for the new generation is also considerably higher than for the two other categories.

As expected, the *Long-term recognition* variable is no longer significant in this model. By construction, Model 2 leads to a strong correlation between the age of provisional names and the generations to which their creators belong. Hence, the previous variables seem to absorb the effect of long-term recognition of these names. In return, the nonlinear effect of a good *Market visibility* variable is still attested in Model 2, even though the coefficient is slightly weaker. This variable, however, remains reasonably stable from one model to another, indicating the need for minimum market visibility to raise buyers' attention to these names.

Model 2 further details the *Typology of names* parameter and provides significantly negative coefficients for names created on the basis of collectors' names and dates. In all likelihood, *'date' pieces* are not easy to remember and consequently are less efficient. Indeed, the presence of numbers in a brand does not facilitate the memory process. They do not help identify the artist's distinctive characteristics but nevertheless make it possible to locate the activity of the painter, which is a non-negligible piece of information. Model 2 also goes a step further in decomposing the *'composition' pieces* variable into subgroups of frequently encountered iconographical themes, that is, legends of saints (e.g. Master of the Legend of Saint Catherine), religious scenes with a reference to location (e.g. Master of The Antwerp Adoration), biblical saints (e.g. Master of Saint Giles), and a last category comprising other names that do not fit into any of these categories. Two coefficients come out significantly negative: the undetermined category and the names that combine a religious scene with the location where the reference painting was found out. These results show that the five categories of names are not of equivalent value and are priced differently by the market, each depending on its own characteristics. Finally, as an additional test, regressions are run on a sub-sample, which excludes artists who appear only once on the market and who are likely to fetch abnormal prices because of the scarcity of their names. As shown in Appendix E, the coefficients of the five variables are not affected by this last robustness check, which thus supports the consistency of our results.

4. Conclusion

The market for Old Masters is among the markets most affected by information asymmetry, especially because of the uncertainty surrounding the key notion of authorship. To offset the inability to assign identified and reliable names to paintings, art historians use an alternative method that consists in creating artificial names. Systematized by Max J. Friedländer, the Master's concept has remained a current practice amongst a small community of living art historians, and has been adopted by art market participants.

Although some scholars still claim that artists are interesting only when their biography is available (Scherer in Gombert and Martens 2007, p. 40), a market analysis of this segment has shown that Flemish MPNs are particularly valued by the market. Although they do not totally conform to the traditional hedonic controls used by art economists to explain auction prices (signature, exhibition, literature, etc.), they are valuable and, paradoxically, have outperformed named artists in the long run. The art trade has rapidly exploited art history to provide purchasers with information about the identity of still-unknown artists. In this way, provisional names offset a lack of documentary evidence about authorship and reduce information asymmetry. In this paper, we investigate five original variables to better understand the performance of MPNs at auction. Our results indicate that market confidence in these artists is strengthened by factors such as the name of the creator, the long-term recognition of their names as well as their market visibility, and the category of names used in the existing typology. Inclusion in reference art dictionaries is also likely to play a role in the market reception of MPNs, though this is the least stable parameter in our analysis because of collinearity issues. Provisional names therefore appear to be efficient substitutes that are more appealing and saleable than strictly anonymous artists. From an economic perspective, our study confirms the hypothesis that such designations put anonymous artists on an equal footing with their named colleagues.

In the light of these conclusions, our study raises several new questions. One may wonder what salesrooms are expected to do once a name is officially identified and acknowledged by the academic community. Logically, the historical name should replace the provisional one. Such cases are unusual since most MPNs remain unknown nowadays. However, in the case of the Master of 1518, identified in 1966 with Jan Mertens van Dornicke,

salesrooms continue to use the provisional name in their catalogues or, at best, include both names in the head of the catalogue note.[24] This example proves that there is still a reticence (due to habit or caution) to definitively abandon these names that are almost equated with real names. That some scholars and museums still leave this identification open is one possible reason for mitigating this behavior (Born 2010).

Furthermore, in view of the positive market reception of MPNs, it may also be wondered whether the art market has reasonable incentives to create its own provisional names to increase the market value of unnamed artists. Our results advocate for a negative answer to that question. Indeed, the academic authority of the creator is valued, and official recognition of a provisional name, both by art history and the market, takes time, with presumably no direct financial returns for isolated names. MPNs must first be assessed through an intersubjective process between experts and institutions to sustainably build up their reputations. In other words, the market benefits from interactions with scholars, and provisional names must be first embraced by the discipline before they can attain significant monetary value.

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[24] 59 lots ascribed to The Master of 1518 are detected after 1966 in our sample. Concerning the simultaneous use of both names, see for example Jan van Dornicke, formerly known as The Master of 1518, *Triptych with the Adoration of the Magi, Nativity and Flight into Egypt*, Sotheby's York Avenue (New York), *Important Old Master Paintings and Sculpture*, 28 January 2010, lot 152.

References

- Aaker, J. (1997). Dimensions of Brand Personality. *Journal of Marketing Research*, 34(3), 347-356.

- Akerlof, G. A. (1970). The Market for 'Lemons': Quality Uncertainty and the Market Mechanism. *The Quarterly Journal of Economics*, 84(3), 488-500.

- Ashenfelter, O., & Graddy, K. (2003). Auctions and the Price of Art. *Journal of Economic Literature*, 41(3), 763-787.

- Ainsworth, M. (2005). From Connoisseurship to Technical Art History: The Evolution of the Interdisciplinary Study of Art. *Conservation*, 20(1), 4-10.

- Baumol, W. J. (1986). Unnatural Value: or Art Investment as Floating Crap Game. *American Economic Review*, 76(2), 10–14.

- Beazley, J. D. (1925). *Attische Vasemaler des rotfigurigen Stils*. Tübingen: J. C. B. Mohr.

- Beckert, J., & Rössel, J. (2013). The price of art. *European Societies*, 15(2), 178-195.

- Berenson, B. (1957-1968). *Italian Pictures of the Renaissance. Florentine school*, 2 vol.; *Venetian school*, 2 vol., *Central Italian and North Italian school*, 3 vol., London: Phaidon.

- Biglaiser, G. (1993). Middlemen as Experts. *The RAND Journal of Economics*, 24 (2), 212-223

- Born, A. (2010), *Essai d'analyse critique du maniérisme anversois de Max Jacob Friedländer suivi d'une révision du groupe des œuvres du Maître de 1518 (Jan Mertens van Dornicke ?)*, PhD dissertation, Universiteit Gent, 2010.

- Bourdieu, P. (1985). The Market of Symbolic Goods. *Poetics*, 14, 13-44.

- Bücken, V., & Steyaert, G. (2013). *L'héritage de Rogier van der Weyden. La peinture à Bruxelles 1450-1520.* Brussels: Brepols.

- Carroll, J. M. (1981). Creating Names for Things. *Journal of Psycholinguistic Research*, 10(4), 441-455.

- Chastel, A. (1974). Signature et signe. *Revue de l'art,* 26, 12-24.

- Coffman, R. B. (1991). Art Investment and Asymmetrical Information. *Journal of Cultural Economics*, 15(2), 83–94.

- De Vos, D. (1969). *Primitifs flamands anonymes : catalogue avec supplément scientifique. Maîtres aux noms d'emprunt des Pays-Bas méridionaux du XVe et du début du XVIe siècle*, cat. exp., 11 June – 21 September 1969, Lannoo: Tielt.

- Dubin, J. A. (1998). The Demand for Branded and Unbranded Products—An Econometric Method for Valuing Intangible Assets. In J. A. Dubin. *Studies in Consumer Demand Econometric Methods Applied to Market Data*. New York: Springer, 77-127.

- Ebitz, D. (1988). Connoisseurship as Practice. *Artibus and Historiae*, 9(18), 207-212.

- Eichenberger, R., & Frey, B. S. (1995). On the rate of return in the art market: Survey and evaluation. *European Economic Review,* 39(3-4), 528-537.

- Friedländer, M. J. (1903). Die Brügger Leihausstellung von 1902. *Repertorium für Kunstwissenschaft LXVI*, S. 148ff.

- Friedländer, M. J. (1915). Die Antwerpener Manieristen von 1520. *Jahrbuch der königlich preußischen Kunstsammlungen*, 36, 65-91.

- Friedländer, M. J. (1924-1937). *Die Altniederlandische Malerei*. 14 vol., Berlin: Cassirer. (English ed. (1967-1976). *Early Netherlandish Painting*. New York: Frederick A. Praeger)

- Friedländer, M. J. (1942). *On Art and Connoisseurship*. Boston: Beacon Press.

- Ginsburgh, V., & Schwed, N. (1992). Price Trends for Old Master's Drawings 1980-1991. *The Art Newspaper*.

- Ginsburgh, V., Mei, J. and Moses, M. (2006). The computation of price indices. In V. Ginsburgh, & D. Throsby (eds), *Handbook of the Economics of Arts and Culture*, Amsterdam: North Holland, 947–79.

- Ginsburgh V., & Weyers, S. (2010). On the formation of canons: The dynamics of narratives in art history. *Empirical Studies of the Arts*, 28, 37-72.

- Gombert, F., & Martens, D. (dir.) (2007). *Le Maître au feuillage brodé. Démarche d'artistes et méthodes d'attribution d'œuvres à un peintre anonyme des anciens Pays-Bas du XVe siècle*, conference proceedings: Palais des Beaux-Arts de Lille 23-24 June 2005.

- Goetzmann, W. N. (1995). The informational efficiency of the art market. *Managerial Finance*, 21(6), 25-34.

- Goetzmann, W.N. (1993). Accounting for taste: art and the financial markets over three centuries. *American Economic Review*, 83(5), 1370–6.

- Grampp, W. (1989). *Pricing the Priceless. Art, Artists and Economics*, New York: Basic Books.

- Haskell, F. (1976). *Rediscoveries in Art: Some Aspects of Taste, Fashion and Collecting in England and France*. New-York: Cornell University Press.

- Henderiks, V. (2016). L'anonymat dans la peinture flamande du XVe siècle. Des maîtres aux noms d'emprunt aux collaborateurs d'atelier, in S. Douchet & V. Naudet (Eds.). *L'anonymat dans les arts et les lettres au Moyen Âge*, Provence: Presses de l'université de Provence, 95-105.

- Holt, D. B. (2004). *How Brands Become Icons*. Harvard Business School, Cambridge, MA.

- Hook, P. (2013), *Breakfast at Sotheby's*, London, Penguin Books

- Hulin de Loo, G. (1902). *De l'identité de certains maîtres anonymes*. Gand: A. Siffer.

- Karpik, L. (2010). *Valuing the Unique. The Economics of Singularities*, Princeton: Princeton University Press.

- Klink, R. R. (2001). Creating Meaningful New Brand Names: A Comparison of Semantic and Sound Symbolism Imbeds. *Journal of Marketing Theory and Practice*, 9(2), 27–34.

- Kotler, P. H. (1991). *Marketing Management: Analysis, Planning, Implementation, and Control*. Englewood Cliffs, NJ: Prentice-Hall, Inc.

- Larceneux, F. (2003). Segmentation des signes de qualité : labels expérientiels et labels techniques. *Décisions Marketing*, 29, 35-47.

- Larceneux, F. (2001). Critical Opinion as a Tool in the Marketing of Cultural Products: the Experiential Label. *International Journal of Arts Management*, 3(3), 60-71.

- Leary, D. E. (1995). Naming and Knowing: Giving Forms to Things Unknown. *Social Research*, 62(2), 267-98.

- Kohli, C., & LaBahn, D. W. (1997). Observations. Creating Effective Brand Names: A study of the naming process. *Journal of Advertising Research*, 37(1), 67-75.

- Lancaster, K. (1966). A new approach to consumer theory. *Journal of Political Economy*, 74, 132-157.

- Lorentz, P. (2007). Les 'Maîtres' anonymes: des noms provisoires fait pour durer? *Perspective. La Revue de l'INHA,* 1, 129-144.

- Mei, J., & Moses, M. (2002). Art as an investment and the underperformance of artworks. *American Economic Review*, 92(5), 1656–68.

- Milgrom, P., & Roberts, J. (1986). Price and Advertising Signals of Product Quality. *Journal of Political Economy*, 94 (4), 796-821.

- Miller, R. R., & Plott, C. R. (1985). Product Quality Signaling in Experimental Markets. *Econometrica*, 53 (4), 837-872.

- Moore, M. B. (2006). Satyrs by the Berlin Painter and a New Interpretation of his Namepiece. *Antike* Kunst, 49, 17-28.

- Mossetto, G. (1994). Cultural institutions and value formation of the art market: A rent-seeking approach. *Public Choice*, 81, 125-135.

- Moulin, R. (1967). *Le marché de la peinture en France*. Paris: Éditions de minuit.

- Nash, S. (2008). *Northern Renaissance art*. Oxford: Oxford University Press.

- Nelson, P. (1970). Information and Consumer Behavior. *Journal of Political Economy*, 78 (2), 311-329.

- Onofri, L. (2009). Old Master Paintings, Export Veto and Price Formation: an Empirical Study. *European Journal of Law Economics*, 28, 149-161.

- Oosterlinck, K. (2017). Art as a Wartime Investment: Conspicuous Consumption and Discretion. *Economic Journal,* http://onlinelibrary.wiley.com/doi/10.1111/ecoj.12391/abstract.

- O'Reilly, D., & Kerrigan, F. (2010). Marketing the arts. in D. O'Reilly, D. & F. Kerrigan (Eds), *Marketing the Arts: A Fresh Approach*, London & New York: Routledge.

- Pesando, J.E. (1993). Art as an investment: the market for modern prints. *American Economic Review*, 83 (5), 1075–89.

- *Primitifs flamands. Le Maître au Feuillage brodé. Secrets d'ateliers*, cat. exp. (Palais des Beaux-arts de Lille: 13 May– 24 July 2005), Lille, 2005.

- Renneboog, L., & Spaenjers, C. (2013). Buying Beauty: On Prices and Returns in the Art Market. *Management Science,* 59 (1), 36-53.

- Reynaud, N. (1978). Les Maîtres à noms de convention. *Revue de l'art,* 42, 41-52.

- Robertson, K. (1989). Strategically Desirable Brand Name Characteristics. *Journal of Consumer Marketing*, 6, 61–71.

- Rouet, P. (2001). *Approach to the study of attic vases: Beazley and Pottier.* Oxford: Oxford University Press.

- Stange, A. (1934-1961). *Deutsche Malerei der Gotik*. 11 vol., Berlin: Deutscher Kunstverlag.

- Sterling, C. (1941). *La peinture française. Les peintres du Moyen Âge*. Paris: Pierre Tisné.

- Smallwood, D., & Conlisk, J. (1979). Product Quality in Markets where Consumers are Imperfectly Informed. *The Quarterly Journal of Economics,* 93(1), 1-23.

- Schroeder, J. E. (2005). The Artist and the Brand. *European Journal of Marketing*, 39 (11-12), 1291-1305.

- Schroeder, J. E., & Salzer-Mörling, M. (2006). Rethinking Identity in Brand Management. In J. E. Schroeder, & M. Salzer-Mörling. *Brand Culture*. London: Routledge, 118-135.

- Syfer-d'Olne, P. (2006), *The Flemish Primitives IV: Masters with Provisional Names*, Brussels: Brepols.

- Thomson, M. (2006). Human brands: investigating antecedents to consumers' strong attachments to celebrities. *Journal of Marketing*, 70(3), 104-119.

- Thieme, U., & Becker, F. (1950), *Allgemeines Lexikon der Bildenden Künstler von der Antike bis zur Gegenwart*. 37, Leipzig: Engelmann/Seemann.

- Triplett, J. (2004), Handbook on Hedonic Indexes and Quality Adjustments in Price Indexes: Special Application to Information Technology Products. *OECD Science, Technology and Industry Working Papers*, No. 2004/09, OECD Publishing, Paris. http://dx.doi.org/10.1787/643587187107

- Turner, J. (1996), *Grove Dictionary of Art: Masters, Anonymous and monogrammists*, 20, New York: McMillan Publishers.

- Ursprung, H. W., & Wiermann, C. (2011). Reputation, price, and death: An empirical analysis of art price formation. *Economic Inquiry*, 49(3), 697-715.

- Van den Brink, P. & Martens, M. P. J. (dir.) (2005), *ExtravagAnt! Een kwarteeuw Antwerpse schilderkunst herontdekt/ 1500-1530*, cat. expo. (Koninklijk Museum voor Schone Kunsten Antwerpen, 15 October – 31 December 2005/ Bonnefantenmuseum Maastricht, 22 January – 9 April 2006).

- Wankhade, L. et al. (2010). Quality Uncertainty due to Information Asymmetry. In L. Wankhade et al. *Quality Uncertainty and Perception*, Springer: Physica Verlag (Contributions to Management Science), 13-25.

- Wilenski, R. H. (1960), *Flemish Painters 1430-1830*, London: Faber & Faber Ltd.

- Wood, C. (1997). *The Great Art Boom, 1970-1997*. Weybridge: Art Sales Index Ltd.

Appendix A. Standard Hedonic Controls

With the exception of prices and dimensions, each characteristic is described by a variable that takes the value of 1 (if the characteristic is present) or zero otherwise.

Attribution qualifiers: By (autograph), By and studio, Attributed to, Studio of, Circle of, School of, Follower of, After;

Technique: Oil, Tempera, Other techniques;

Material: Panel, Canvas, Other Materials;

Subject: Allegory, Genre scenes, Landscape, Mythology, Portrait, Religious, Other scenes;

Dimensions: height and width expressed in centimeters;

Date: takes the value of one if the painting is dated, zero otherwise;

Signature: takes the value of one if the painting is signed, zero otherwise;

Provenance: takes the value of one if provenance information is provided, zero otherwise;

Exhibitions: takes the value of one if the painting was previously exhibited, zero otherwise;

Literature: takes the value of one if the painting is mentioned in the literature, zero otherwise;

Certificate: takes the value of one if the painting is accompanied by a written certificate of authenticity, zero otherwise;

Salesrooms: Artcurial, Bonhams, Christie's London, Christie's New York, Christie's others, Dorotheum, Drouot, Koller, Lempertz, Phillips, Piasa, Sotheby's London, Sotheby's New York, Sotheby's others, Tajan, Other salesrooms;

Year of sale: from 1955 to 2015

Names of artists: (with the total number of observations by MPN)

MPNs	Obs.	Percent
Master of the Adulterous Woman of Gent	1	0,13%
Master of Alkmaar	10	1,25%
Master of the Amsterdam Death of the Virgin	4	0,50%
Master of the André Madonna	1	0,13%
Master of the Antwerp Adoration	12	1,50%
Master of the Antwerp Crucifixion	4	0,50%
Master of the Baroncelli Portraits	2	0,25%
Master of the Bentinck-Thyssen Madonna	1	0,13%
Master of the Bruges Passion Scenes	1	0,13%
Master of the Brunswick Diptych	1	0,13%
Brussels Master of 1520	1	0,13%
Master of the Brussels Epiphany	2	0,25%
Master of the Brussels Madonna	1	0,13%
Master of Delft	4	0,50%
Master of the Dijon Madonna	2	0,25%
Master of the Abbey of Dilighem	1	0,13%
Master of the Embroidered Foliage	14	1,75%
Master of the Female Half-Lengths	144	18,05%
Master of Flémalle	4	0,50%
Master of Frankfort	53	6,64%
Master of the Gold Brocade	4	0,50%
Master of Güstrow	1	0,13%
Master of the Holy Blood	43	5,39%
Master of Hoogstraeten	11	1,38%
Master of the Khanenko Adoration	3	0,38%
Master of the Legend of Saint Barbara	4	0,50%
Master of the Legend of Saint Catherine	13	1,63%
Master of the Legend of Saint Joseph	1	0,13%
Master of the Legend of Saint Lucy	15	1,88%
Master of the Legend of Saint Ursula	26	3,26%
Master of the Lille Adoration	7	0,88%
Master of the Louvre Madonna	1	0,13%
Master of the Magdalen Legend	56	7,02%
Master of the Mansi Magdalen	22	2,76%
Master of the Morrison Triptych	8	1%
Master of the Orsoy Altarpiece	3	0,38%
Master of the Parrot	101	12,66%
Master of the Plump-cheeked Madonnas	1	0,13%
Master of the Redemption	1	0,13%
Master of the Prodigal Son	65	8,15%
Master of Saint Anna	1	0,13%

Master of Saint Giles	3	0,38%
Master of Saint Ildefonse	2	0,25%
Master of Saint John the Evangelist	1	0,13%
Master of Saint John on Patmos	3	0,38%
Master of the Solomon Triptych	2	0,25%
Master of the Tiburtine Sibyl	3	0,38%
Master of the Turin Adoration	2	0,25%
Master of the Västerås Trinity	1	0,13%
Master of the View of Saint-Gudule	15	1,88%
Master of the Virgo inter Virgines	11	1,38%
Master of the Von Groot Adoration	26	3,26%
Master of 1499	1	0,13%
Master of 1518	59	7,39%
Master of the1540s	19	2,38
Total	798	100%

Appendix B. Regression Results

Results of Hedonic Regressions for MPN, Names Masters and Anonymous Masters

	(1) MPN	(2) Named Masters	(3) Anonymous Painters
Attribution qualifier			
By	0	0	-
By and studio	-0.0937	-0.0844	-
Attributed to	-0.483***	-0.554***	-
Studio of	-0.461**	-0.593***	-
Circle of	-1.145***	-0.801***	-
School of	- 2.155***	-1.089***	-
Follower of	-1.269***	-1.280***	-
After	-0.064***	-1.635***	-
Manner of	-	-1.606***	-
Works of collaboration	-	-0.244***	-
Dimensions (cm)			
Height	-0.000225	0.000607***	0.000108
Width	0.000971***	0.00780***	0.00209
Authenticity			
Signed	-0.227	0.441***	0.107
Dated	1.015**	0.211***	0.00208
Certificate	-0.167	-0.115	0.697
Provenance	0.356***	0.255***	0.397***
Exhibition	0.193	0.642***	0.118
Literature	0.463***	0.370***	0.478***
Material			
Panel	0	0	0
Canvas	0.220	-0.336***	-0.181**
Copper	-	0.153***	0.0171
Other material	0.584	-0.173*	-0.170
Technique			
Oil	0	0	0
Tempera	-0.415	0.0828	0.158
Other techniques	0.421	-0.384**	0.0403
Subject			
Religious	0	0	0
Allegory	0.480	0.209***	0.0412
Genre scenes	0.305	0.283***	0.0663
Landscape	1.048**	0.0513	-0.0762
Mythology	-0.515**	-0.00323	0.0305
Portrait	-0.201	0.153***	0.0786
Still-life	-	0.387***	0.179
Other subjects	-0.693	0.130*	0.0726
Salesroom dummies	yes	yes	yes
Time dummies	yes	yes	yes
Artist dummies	yes	yes	regional schools
Total of observations	798	10,556	1,554
R-squared	0.562	0.553	0.440
Adjusted R-squared	0.457	0.523	0.379

Notes. All models are estimated using OLS with White heteroscedasticity-consistent standard errors and covariance. The dependent variable is the natural log of the real price. Period considered is 1955-2015, Model (1) only includes Masters with provisional names, Model (2) named artists and Model (3) anonymous painters. Annual data are used for each model. In all regressions coefficients are significant at the following levels of confidence: *Significant at 10%; **significant at 5%; *** significant at 1%.

Appendix C. Regression Results of Model 1 (robustness tests)

Table C1

Inclusion of Each Variable in the Friedländer Model

Model 1 (Friedländer)	Hypothesis 1	Hypothesis 2	Hypothesis 3	Hypothesis 4	Hypothesis 5
Creator					
Created by Max J. Friedländer	0.140*	0.166**	0.250***	0.145*	0.226**
Art Dictionaries (Thieme-Becker/Grove)					
Inclusion in Art Dictionaries	-	0.221***	-	-	-
Long-term Recognition					
Total years between creation and sale	-	-	-0.0107	-	-
(Total years between creation and sale)^2	-	-	0.000133**	-	-
Market Visibility					
Total previous sales between creation and sale	-	-	-	-0.00846**	-
(Total previous sales between creation and sale)^2	-	-	-	7.52e-05**	-
Typology of Names					
'Location' pieces	-	-	-	-	0
'Collection' pieces	-	-	-	-	-0.308*
'Characteristic' pieces	-	-	-	-	0.0834
'Date' pieces	-	-	-	-	-2.888
'Composition' pieces	-	-	-	-	-0.0988
Hedonic controls	Incl	Incl	Incl	Incl	Incl
Time dummies	Incl	Incl	Incl	Incl	Incl
Constant	9.561***	9.189***	9.755***	9.556***	
R-squared	0.429	0.435	0.438	0.434	
Adj R-squared	0.346	0.352	0.354	0.350	

Notes. All models are estimated using OLS with White heteroscedasticity-consistent standard errors and covariance. The dependent variable is the natural log of the real price. Artist dummies are excluded. Period considered is 1955-2015. Total number of observations is 798. In all regressions coefficients are significant at the following levels of confidence: *Significant at 10%; **significant at 5%; ***significant at 1%.

Table C2

Successive Addition of Each Variable in the Friedländer Model

Model 1 (Friedländer)	Hypothesis 1	Hypothesis 2	Hypothesis 3	Hypothesis 4	Hypothesis 5
Creator					
Created by Max J. Friedländer	0.140*	0.166**	0.233***	0.247***	0.339***
Art Dictionaries (Thieme-Becker/Grove)					
Inclusion in Art Dictionaries	-	0.221***	0.189	0.144	0.237
Long-term Recognition					
Total years between creation and sale	-	-	-0.0162*	-0.0150	-0.158*
(Total years between creation and sale)²	-	-	0.000144**	0.000145**	0.000151**
Market Visibility					
Total previous sales between creation and sale	-	-	-	-0.0865**	-0.0111**
(Total previous sales between creation and sale)²	-	-	-	7.74e-05**	8.24e-05***
Typology of Names					
'Location' pieces	-	-	-	-	0
'Collection' pieces	-	-	-	-	-0.308*
'Characteristic' pieces	-	-	-	-	0.083
'Date' pieces	-	-	-	-	-0.288
'Composition' pieces	-	-	-	-	-0.098
Hedonic controls	Incl	Incl	Incl	Incl	Incl
Time dummies	Incl	Incl	Incl	Incl	Incl
Constant	0.9561***	9.189***	9.652***	9.667***	9.509***
R-squared	0.429	0.435	0.439	0.444	0.450
Adj R-squared	0.346	0.352	0.355	0.360	0.362

Notes. All models are estimated using OLS with White heteroscedasticity-consistent standard errors and covariance. The dependent variable is the natural log of the real price. Artist dummies are excluded. Period considered is 1955-2015. Total number of observations is 798. In all regressions coefficients are significant at the following levels of confidence: *Significant at 10%; **significant at 5%; ***significant at 1%.

Appendix D. Regression Results of Model 2 (robustness tests)

Table D1. *Descriptive Statistics by Generations*

Generation of creators	Obs.	Percent	Average Price of Attributions	Median Prices of Attributions
Max. J. Friedländer (mostly active in the first-half of the 20th century)	464	58,15%	127,079	43,400
Friedländer's colleagues (mostly active in the first-half of the 20th century)	316	39,60%	77,865	41,525
New generation of art historians (approximately active since the 1970s)	18	2,26%	266,750	227,514

Table D1: *Inclusion of Each Variable in the Generation Model*

Model 2. Generation Model	Hypothesis 1	Hypothesis 2	Hypothesis 3	Hypothesis 4	Hypothesis 5
H1. Creator					
Old Generation of scholars	0	0	0	0	0
Created by Max J. Friedländer	0.190**	0.296***	0.411***	0.207**	0.305***
New Generation of scholars	0.326	1.242***	1.444***	0.292	0.409
H2. Art Dictionaries (Thieme-Becker/Grove)					
Inclusion in Art Dictionaries	-	0.441***	-	-	
H3. Long-term Recognition					
Total years between creation and sale	-	-	0.000839	-	
(Total years between creation and sale)²	-	-	3.97e-05	-	
H4. Market Visibility					
Total previous sales between creation and sale	-	-	-	-0.00712*	
(Total previous sales between creation and sale)²	-	-	-	7.02e-05**	
H5. Typology of names					
'Location' pieces	-	-	-	-	0
'Collection' pieces	-	-	-	-	-0.340*
'Characteristic' pieces	-	-	-	-	0.179
'Date' pieces	-	-	-	-	0.416**
'Composition' pieces	-	-	-	-	0.176
Hedonic controls	Incl	Incl	Incl	Incl	Incl
Time dummies	Incl	Incl	Incl	Incl	Incl
Constant	9.487***	8.674***	8.946***	9.463***	9.480***
R-squared	0.431	0.447	0.450	0.436	0.437
Adj R-squared	0.3474	0.365	0.377	0.351	0.350

Successive Addition of Each Variable in the Generation Model

Model 2. Generation Model	Hypothesis 1	Hypothesis 2	Hypothesis 3	Hypothesis 4	Hypothesis 5
H1. Creator					
Old Generation of scholars	0	0	0	0	0
Created by Max J. Friedländer	0.190**	0.296***	0.394***	0.470***	0.794***
New Generation of scholars	0.326	1.242***	1.449***	1.599***	2.728***
H2. Art Dictionaries (Thieme-Becker/Grove)					
Inclusion in Art Dictionaries	-	0.441***	0.179	0.147	0.299*
H3. Long-term Recognition					
Total years between creation and sale	-	-	0.00320	0.00426	0.0170
(Total years between creation and sale)2	-	-	4.94e-05	5.24e-05	5.05e-06
H4. Market Visibility					
Total previous sales between creation and sale	-	-	-	-0.00377	-0.00679
(Total previous sales between creation and sale)^2	-	-	-	5.72e-05*	5.64e-05*
H5. Typology of names					
'Location' pieces	-	-	-	-	0
'Collection' pieces	-	-	-	-	-0.565***
'Characteristic' pieces	-	-	-	-	0.204
'Date' pieces	-	-	-	-	-0.573***
'Composition' pieces	-	-	-	-	-0.304**
Hedonic controls	Incl	Incl	Incl	Incl	Incl
Time dummies	Incl	Incl	Incl	Incl	Incl
Constant	9.487***	8.674***	8.851***	8.769***	7.853***
R-squared	0.431	0.447	0.451	0.457	0.477
Adj R-squared	0.3474	0.365	0.367	0.373	0.3924

Notes. All models are estimated using OLS with White heteroscedasticity-consistent standard errors and covariance. The dependent variable is the natural log of the real price. Artist dummies are excluded. Period considered is 1955-2015. Total number of observations is 798. In all regressions coefficients are significant at the following levels of confidence: *Significant at 10%; **significant at 5%; ***significant at 1%.

Appendix E. Robustness test

Robustness test – Cases of Unique Sales Excluded from the Generation Model

Model 2 - Robustness test	(1) Model 2	(2) Model 2 (unique sales excluded)
H1. Creator		
Old Generation of scholars	0	0
Created by Max J. Friedländer	0.376**	0.382**
New Generation of scholars	1.864 ***	2.074***
H2. Art Dictionaries (Thieme-Becker/Grove)		
Inclusion in Art Dictionaries	0.310*	0.308*
H3. Long-term Recognition		
Total years between creation and sale	0.0102	0.0147
(Total years between creation and sale)^2	-1.27e-05	-4.13e-05
H4. Market Visibility		
Total previous sales between creation and sale	-0.00925	-0.0100**
(Total previous sales between creation and sale)^2	6.62e-05**	6.69e-05**
H5. Typology of Names		
'Location' pieces	0	0
'Collection' pieces	-0.367**	-0.389**
'Characteristic' pieces	0.219	0.253
'Date' pieces	-0.365**	-0.348*
'Legend of' pieces	0.281	0.265
'Saints' pieces	0.0492	-0.264
'Religious scene + location' pieces	-0.480**	-0.512**
Other types	-0.671***	-0.674***
Hedonic controls	Incl	Incl
Time dummies	Incl	Incl
Constant	8.148***	8.024***
R-squared	0.496	0.491
Adj R-squared	0.412	0.404
Total observations	798	782

Notes. All models are estimated using OLS with White heteroscedasticity-consistent standard errors and covariance. The dependent variable is the natural log of the real price. Artist dummies are excluded. Period considered is 1955-2015. Total number of observations is 798. In all regressions coefficients are significant at the following levels of confidence: *Significant at 10%; **significant at 5%; ***significant at 1%.

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