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Observable persuaders: A longitudinal study on the effects of quality signals in the contemporary visual art market

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Publication date

2016

Document Version

Final published version

[Link to publication](#)

Citation for published version (APA):

Kackovic, M. (2016). *Observable persuaders: A longitudinal study on the effects of quality signals in the contemporary visual art market*. [Thesis, fully internal, Universiteit van Amsterdam].

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CHAPTER 1

INTRODUCTION

Some years ago, a cartoon made by Gumbah, a Dutch illustrator, was printed in *de Volkskrant*, a national newspaper in the Netherlands. The cartoon portrayed a middle-aged couple contemplating what appeared to be a contemporary work of art. The punch line in the text bubble from the woman read: “*I find this awfully beautiful, if I am not mistaken*”¹. In this cartoon, contemporary art is cleverly depicted as being surrounded by extreme uncertainty, presumably because of incomplete and imperfect information about the producer’s underlying quality, which is difficult to observe directly.

Uncertainty about quality is not unique to contemporary visual arts. In many markets, e.g., high tech industries, financial markets, professional services, and other creative industries, quality is often difficult to observe *a priori* (Nelson, 1970; 1974). If the cartoonist had decided to satirize other markets besides contemporary art, he could have illustrated a cartoon depicting two stockbrokers staring at their computers, with one saying to the other: “*I guess this could be an awfully good investment, if I am not mistaken*”. Or a young couple at a used car lot, looking thoughtfully at a car, and one saying to the other: “*I think this car is awfully dependable, if I am not mistaken*”. Imperfectly detectable quality among competing producers coupled with imperfect and incomplete quality information about the products on sale often results in high degrees of uncertainty among buyers and intermediaries, which may negatively impact sales and in extreme cases even lead to market failure (Akerlof, 1970; Spence, 1973).

Most markets have some degree of asymmetrically distributed information, in which different people know different things about the quality of the products in particular transactions (Stiglitz, 2002), and such information, or lack thereof, may substantively influence purchase decisions (Akerlof, 1970; Spence, 1973). A distinction in kinds of asymmetries of information can be made and broadly understood in terms of information imperfections about quality and information imperfections about intent (Stiglitz, 2000). The former focuses on how signals, which convey publically observable quality information, affect buyer behavior (Spence, 1973), while the latter concentrates on how private information and hidden actions may cause problems associated with moral hazards² (Hölmstrom, 1979; Arrow, 1970) or adverse selection^{3,4} (Akerlof, 1970).

The core focus of this thesis is on the former; namely, to examine the extent to which signals and the sources transmitting those signals function as observable persuaders and reduce uncertainty caused by information imperfections about producers’ underlying quality, mainly in the empirical context of the primary art market⁵.

1. *Ik vind dit verschrikkelijk mooi, als ik me niet vergis.*

2. A moral hazard is when “privately taken actions affect the probability distribution of an outcome” (Hölmstrom, 1979: 74).

3. Adverse selection is when “there is an incentive for sellers to market poor quality merchandise, since the returns for good quality accrue mainly to the entire group instead of the individual seller.” (Akerlof, 1970: 489).

4. In a general way, moral hazards are also described in the sketch with the stockbrokers, especially if the trade was based on a hidden action, e.g., a kick-back, which may have a positive financial effect for the stockbrokers but negatively affect investors; and adverse selection is described in the other sketch where the couple are worried about hidden information the salesman may have about whether the car is a lemon.

5 The contemporary art market consists of the primary market, where artworks are sold for the first time either directly by the artist or through intermediaries such as an art gallery, and the secondary and tertiary art markets, where artworks are re-sold through intermediaries and art auction houses, respectively (Singer and Lynch, 1994).

This market has an oversupply of producers in part due to relatively low barriers to entry, uncertain demand, and no objective criteria for evaluating the quality of the products made and sold (Caves, 2000; DiMaggio, 1987; Yogev, 2010; Velthuis, 2013). Coupled with the fact that producers' underlying quality is largely unknown to all parties involved in a transaction, there is extreme uncertainty in this market, which may further negatively affect the already uncertain demand (Prinz, Piening, and Ehrman, 2015).

One way to overcome these problems is by interpreting signals, which facilitate the construction of quality through commensuration (Espeland and Stevens, 1998) and relative comparisons among competitors (Spence, 1973, 1974; 2002; Bergh, Connelly, Ketchen and Shannon, 2014). Signals are publically observable events or actions that convey information about producers' unobservable or latent quality (Spence, 1973, 1974, 2002). The cartoon with the middle aged couple pondering the painting illustrates how difficult the construction of quality is without signals, as signals provide input for structuring mechanisms, e.g., rankings or other segmentation devices, and help inform buyers and decision-makers about what is considered "good" and what not in a particular market (Anand and Watson, 2004). Describing different kinds of signals transmitted by different kinds of sources that aid commensuration and comparison among producers can be easily done by adding the following subtext to this cartoon: *"It really is quite simple, darling. Remember, we saw this artwork last year at Art Basel, that prestigious art fair in Switzerland. And I just read raving reviews in The Art Newspaper and The New York Times about this artist's solo exhibition at MoMa. Do you remember that this artist won the Turner Prize not long after graduating from that elite art school and exhibiting in the Arsenale at the Venice Biennale? Not surprising that Gagosian Gallery just sold more artworks, including this one, to Deutsche Bank, which already owns so many of this artist's paintings."*

It is reasonable to assume that not all signals are equally persuasive or, in other words, it is highly probable that some signals from some sources will have a disproportionately greater influence on producers' performance outcomes than others. The description of the signals in the cartoon above provides a clear-cut example of many different kinds of signals, concerning a single producer, all of which are transmitted by highly credible sources. However, most producers active in this market are usually the subjects of considerably fewer signals that originate from considerably less credible sources.

The main objective of this thesis is to gain a better understanding of the differential effects different kinds of signals transmitted by different kinds of sources with different levels of credibility have on producers' performance outcomes, e.g., sales price paid, number of sales, reputational rankings and selection by different kinds of intermediaries. To gain a fine-grained understanding of these effects, a multi-dimensional approach is taken in analyzing the quantitative characteristics of signals and qualitative attributes of sources conveying those signals, and examining these effects on not only different categories of buyers and intermediaries but also in the context of the particular career phase of the producers. The insights gained in this thesis are helpful in understanding inequalities in the distribution of success in a market where quality differentials among competing producers are imperfectly observable and information about their underlying quality is imperfect and/or incomplete. Special attention is paid to initial advantages producers may gain from signals received at the start of their career, as well as in

subsequent career phases, in which seemingly inconsequential rewards or benefits gained by being the subject of signals may grant these producers access to opportunities not given to their competitors. Such preferential treatment could lead to superior performance that could start self-reinforcing feedback mechanisms, which could result in persistent performance for some producers, further increasing inequalities in the distribution of success in the focal market (Merton, 1968; Azoulay, Stuart and Wang, 2013).

Signaling theory (Spence, 1973) describes how signals create a separating equilibrium that helps differentiate between high and low quality producers based on an inverse cost quality relationship, in which receiving or transmitting signals is less costly and easier for higher quality producers than those of lower quality (Spence, 1973, 1974; 2002; Bergh et al., 2014; Connelly, Certo, Ireland, and Reutzel, 2011). An example of a separating equilibrium is provided in the cartoon with the couple looking at the painting, after the hypothetical subtext describing the signals of quality has been added. Namely, the perceived high quality of this producer as constructed by these signals becomes evident because it would be too difficult for low quality producers to receive such signals. Another way to 'separate' between high and low quality producers is to consider the costs incurred by the sources transmitting the signals (Bergh et al. 2014). Referring back to the cartoon, a prestigious art education is an example of a signal that is conveyed by the producer (Spence, 1973), while the other signals are transmitted by third party sources⁶. These third party sources also create a separating equilibrium between high and low quality producers because buyers and intermediaries are aware of costs – e.g., financial and/or reputational – these sources may incur by transmitting signals, and believe that they would not jeopardize incurring these costs by signaling about producers of inferior quality (Bergh, et al., 2014; Higgins and Gulati, 2003; Ippolito, 1990). The value of each kind of signal from each kind of source is confirmed based on other producers who, in the past, received the same kinds of signals from the same kinds of sources and outperformed their rivals (Bergh et al., 2014).

1.1 MAIN THEORETICAL THEMES

In this section, the four themes that conjoin the four studies in this thesis are discussed. The first theme focuses on multi-dimensional attributes of sources conveying signals, and the differential effects these attributes have on producers' performance outcomes. The second theme highlights the effects of sets of signals and sets of sources that are interpreted as wholes. In other words, the set is not simply a sum of constituent parts but rather functions as a 'whole' signal itself. In this thesis the following sets are studied: quantities of signals of the same kind, diversity in sources transmitting signals, interaction effects between combinations of signals and source attributes and the effects of sequences of signals, again as predictors of different performance outcomes for producers. The third theme focuses on different kinds of buyers and on intermediation; specifically the extent to which individual signals and sets of signals affect decision making processes of expert buyers and different kinds of intermediaries.

6. Third parties are the focal sources studied in this thesis, although signals transmitted by first parties, e.g., education, are also studied.

The fourth theme concentrates on signals and sets of signals received in different phases of producers' career trajectories, and the effects on performance outcomes, especially differential persistence.

These four themes were chosen because of their importance to the current debate in various streams of literature and their contribution to salient gaps in that literature. For instance, in general most studies on signals in marketing, management science and entrepreneurship focus on one kind of signal and study the effect of that kind of signal on one particular performance outcome immediately after the signal has been transmitted. In this thesis, different kinds of signals and sets of signals are studied in conjunction with the qualitative attributes of different kinds of sources transmitting those signals. Furthermore, a distinction is made among different performance outcomes, namely: sales price paid, number of sales, reputational rankings, and selection by different kinds of intermediaries. The influence of signals and sets of signals is analyzed, both after the signal has been transmitted and on long-term career effects. To gain a better understanding of persistence in performance, special attention is given to the phase of producers' careers, i.e., nascent phase of competition and later career phases in which signals and sets of signals are received. This level of detail provides greater insights into understating unequal distribution of success in markets with extreme information imperfections about the quality of the products made and sold.

1.1.1 Multi-dimensional qualitative attributes of sources conveying signals

The first theme focuses on distinctions among sources transmitting signals, paying close attention to qualitative attributes of these sources. An important distinction can be made between signals transmitted directly by the producer, the so-called first party source, and those transmitted by third party sources that evaluate producers' quality and disseminate that information to a broader public (Sauder, 2006).

First, signals from first party sources have been studied in the field of marketing and, for instance, focused on advertising (Sridhar, Germann, Kang, and Grewal, 2016), brand prominence (Han, Nunes and Drèze, 2010), and warranties (Chu and Chintagunta, 2011). In addition, management science literature has placed emphasis on board member characteristics (Certo, 2003), CEO background (Zhang and Wiersema, 2009), and top management team characteristics (Lester, Certo, Dalton, Dalton and Cannella, 2006). And within the field of entrepreneurship studies have focused on founder involvement (Busenitz, Fiet and Moesel, 2005; Ahlers, Cumming and Günther and Schweizer, 2015), and franchisors (Michael, 2009). These different streams of literature show how signals conveyed by producers provide quality information to potential buyers and decision-makers. However, because of the obvious self-interest in influencing the behavior of others, it is possible that signals conveyed by these sources may be perceived as being biased.

Second, signals from third party sources, in contrast to first party sources, are more likely to be perceived as fair and accurate (Lampel and Shamsie, 2000; Pollock and Rindova, 2003) because if they do not than these sources risk incurring costs, e.g., financial and/or reputational, and jeopardizing their position in the market (Spence, 1973; Ippolito, 1990; Bergh et al., 2014). Earlier studies have shown that signals from third party sources help shape producers'

reputations (Higgins and Gulati, 2003, Deephouse, 2000) and help define status hierarchies (Scott, 1994; 1995). The literature in marketing on signals transmitted by third party sources has focused on the effects of reviews (Eliashberg and Shugan, 1997; Basuroy, Chatterjee and Ravid, 2003) and awards (Anand and Watson, 2004; Gemser, Leenders and Wijnberg, 2008); while the management science and entrepreneurship literature has focused on the effects of prestigious affiliations (Pollock, Chen, Jackson and Hambrick, 2010; Pollock, Porac, and Wade, 2004) venture capitalist backing (Gulati and Higgins, 2003), credentialing devices such as certifications and reputational rankings (Rao, 1994; Rindova, Williamson, Petkova, and Sever, 2005; Deephouse, 2000).

Nevertheless, not all third party sources transmit signals that are equally persuasive; one reason for this is that the strength of the signal is dependent upon the level of credibility of the third party source transmitting the signal (Sternhal, Dholakia and Leavitt, 1978; Pornpiktapan, 2004). Expertise and trustworthiness are two components of the source credibility construct (Ohanian, 1990); the former referring to the extent to which a source is perceived to have knowledge and experience (Hovland, Janis, and Kelley, 1953; Ohanian, 1990), and the latter refers to the extent to which buyers perceive a source to be honest and dependable (Hovland et al., 1953; Meyer, 1988; Newell and Goldsmith 2001; Ohanian, 1990). For instance, if we refer back to the cartoon with the middle-aged couple looking at the contemporary work of art, a distinction can be made between winning the *Turner Prize*, which is bestowed annually by the Tate Britain in London, or winning another award such as *The Best Brush Stroke Award*, from a local business dealing in art supplies. Although in both cases the signals are awards, and both signals are transmitted by third party sources, the relative credibility of these sources is different. Similarly, having an exhibition at the Museum of Modern Art (MoMa) in New York City is different from an exhibition at an art space provided by a local business. Again, both exhibitions are signals of quality, but the relative expertise and trustworthiness of the sources transmitting each signal are different, and this affects the persuasive strength the signal has on influencing purchase decisions. This differential effect can be explained by attribution theory (Kelley, 1967), which specifies that buyers and decision-makers do not accept signals simply at their face value, but rather based on their perception of the sources' levels of expertise and trustworthiness they first evaluate the ability of the third party sources to communicate unbiased and accurate information before they accept the quality information provided by the signal (Kelley, 1967; Eagly and Chaiken, 1975; Mizerski, Golden and Kernan, 1979; Kirmani and Rao, 2000).

The credibility of the source can also depend on the stake the third party source has in the performance of producers who are subjects of the signals transmitted by that source. In this thesis, a distinction is made between third party sources with a financial stake in the producer and third party sources without. This distinction adds to the extant explanations of the credibility differentials of third party sources and their eventual impact on producers' performance outcomes. As such, this is one of few studies that focus on the source credibility dimension in the signaling literature.

1.1.2 Signals of the same kind and sets of signals of different kinds

The core focus of the second theme is on sets of signals, studied as wholes. In general, the quantity of signals, the diversity of sources transmitting those signals, interactions between signals and source credibility, and sequences of signals may function as aggregate indicators of quality, and help reduce heterogeneous quality information and transform it into a common metric (Espeland and Steven, 1998).

First, emphasis is placed on understanding the effects of diverse sources transmitting signals about focal producers in a given time period and the quantity of signals – from the same and different sources- on performance outcomes in different time periods. Second, specific attention is paid to the interaction between different kinds of signals and different kinds of sources and the effects on producers' short and long-term performance outcomes. Interaction effects occur when signals become stronger in combination with characteristics of the source. Referring back to the cartoon with the middle aged couple staring at the painting, after the subtext describing the different kinds of signals from different sources had been added: The overall effect of exhibiting at the Gagosian gallery *and* winning the Turner prize can be higher than the sum of the effects of the individual signals. Similarly, the effect of a review in a highly credible media outlet, e.g., The New York Times, will most likely have a stronger effect on performance outcomes than a review in a local newspaper.

Finally, the effect of a sequence of signals on performance is studied. A sequence is comprised of events, e.g., signals, which can be ordered over time (Abbott, 1995). Particular sequences, and the temporal order of signals received, can strengthen the effects of the individual signals in the sequence because the sequence as such is not just the sum of its parts but rather is conjoined as a signal in and of itself (Rindova, Ferrier and Wiltbank, 2010). The sequences studied in this thesis reflect the stake the third party source has in transmitting the signal about a focal producer; for instance an affiliation with an art gallery is a signal in which the third party source, i.e., the art gallery, has a direct financial stake in a producer, while an award is a signal in which the third party source transmitting the signal does not. Referring back to the signals in the hypothetical sequence - winning the Turner Prize *after* affiliating with Gagosian Gallery, or the reverse - provides an additional layer of understanding, above and beyond the effects of the individual signals and their possible interactions. In this thesis, sequences of signals are studied in relation to events immediately following them, but also in achieving a competitive advantage in the long run.

1.1.3 Effect of signals on different kinds of buyers and different kinds of intermediaries

The third theme centers on the extent to which signals and sets of signals transmitted by different sources with different qualitative attributes affect sales to different kinds of buyers and influence different kinds of intermediaries' choices in their selection of one producer over another. First, a general distinction is made between different kinds of buyers, namely: experts and non-experts. The former refers to individuals with high-levels of skill by virtue of their specialized knowledge and professional experience with the products and/or producers in a focal market (East, 1992; Alba and Hutchinson, 1987; Moorthy et al., 1997); the latter refers to relatively uninformed buyers who lack familiarity and expert knowledge about the products and/

or producers they are considering to purchase (Moorthy, Ratchford, and Talukdar, 1997; Huang, Lurie and Mitra, 2009). In this thesis, the focal buyers studied are expert buyers, particularly curators employed at organizations with corporate art collections⁷, and to a lesser extent museums and private collectors⁸, active on the primary market for contemporary visual art. Non-expert buyers are only studied in the context of art auction sales.

Second, intermediaries, or gatekeepers as they are sometimes referred to in the cultural industries literature (Becker, 1982; Caves, 2000; Hirsch, 1972, 2000), function as vanguards and have an important role, especially the impact of their decisions on producers' market access and attention, which help co-determine eventual market success (Hirsch, 1972; Peterson, 1997; Glynn and Lounsbury, 2005; Foster, Borgatti and Jones, 2011). For instance, on a micro level, intermediaries have been shown to help shape content of creative products (Peterson, 1997), promote products and/or producers creating the products (Hirsch, 1972; Hsu, 2006), or selectively grant producers access to their networks (Gould and Fernandez, 1989). And on a meso level, intermediaries have been shown to influence the level of product diversity in a market (Foster et al., 2011). In this stream of literature, intermediaries have been described as being co-producers (Peterson, 1997), tastemakers (Hirsch, 1972; Hsu, 2006) or selectors (Gould and Fernandez, 1989; Foster et al., 2011; Gemser, Leenders and Wijnberg, 2008; Ebbers and Wijnberg, 2012).

In this thesis, the extent to which signals and sets of signals transmitted by first party sources and different kinds of third party sources with different levels of credibility influence which producers are chosen by different kinds of intermediaries, i.e., selection committees and core mediators, are analyzed in detail. Core mediators can bestow full legitimacy to the producers they select, effectively granting them immediate access to an existing and previously unattainable buyer base for which they must compete, as fully-fledged and legitimate competitors with other fully legitimate producers. Selection committees, especially those selecting for prestigious educational or professional programs, must choose a few potentially excellent applicants from a large pool of good applicants, mostly making their decisions under conditions of extreme uncertainty about applicants' current quality and future developmental potential. Effectively, selection committees are at the forefront of the intermediation process, the other intermediaries and core mediators usually affect careers more strongly in later phases.

⁷ Over half of the Fortune 500 companies have a corporate art collection (Kottasz, Bennett, Savani, Mousley, and Ali-Choudhury, 2007; Kottasz, Bennett, Savani, and Ali-Choudhury, 2008), employing expert buyers who mostly purchase art for these collections on the primary art market (Wu, 2002).

⁸ The private collectors studied collect contemporary visual art collectors and on average purchase at least five new artworks annually at art fairs and art galleries. Many of these experienced private collectors have been collecting art on the primary art market for at least a decade, and employ expert buyers to help them build their art collections.

1.1.4 Effect of signals and sets of signals on different phases of producers' career trajectories

The fourth theme focuses on the extent to which signals and sets of signals transmitted by third party sources about producers in different phases of competitive activity can differentially affect performance outcomes. First, signals and sets of signals can function as determinants of producers crossing the so-called legitimacy threshold (Zimmerman and Zeitz, 2002; Rutherford and Buller, 2007; Rutherford, Buller, and Stebbens, 2009), effectively exiting nascency, and continuing on as fully fledged and legitimate competitors. Second, signals and sets of signals as determinants of persistent performance differentials – in different career phases – are studied to gain a better understanding of inequalities in the distribution of success in markets with incomplete and imperfect information about quality.

First, nascent producers face challenges at market entry because they might lack legitimacy. Legitimacy is the degree to which a producer is perceived to be pursuing activities associated with accepted norms, values, beliefs and expectations of the group to which he/she belongs (Suchman, 1995). New producers are at a competitive disadvantage because they suffer from a liability of newness (Stinchcombe, 1965) in the sense that they usually lack experience, do not have established networks, and encounter difficulties in getting access to resources. One way for producers to overcome this liability of newness is to gain legitimacy (Stinchcombe, 1965; Hannan and Freeman, 1984; Singh, Tucker and House, 1986; Shepherd, Douglas, and Shanley, 2000). Crossing the legitimacy threshold is a crucial event in the nascent phase of producers' careers because it unambiguously conveys full legitimacy of those producers to buyers and intermediaries active in a focal market (Zimmerman and Zeitz, 2002; Rutherford, Buller, and Stebbens, 2009; Rutherford and Buller, 2007).

Referring back to the cartoon with the middle-aged couple contemplating the painting, the producer who painted the contemporary work of art is obviously fully-fledged and legitimate, as can be observed in the hypothetical scenario of many different kinds of signals transmitted exclusively by highly credible sources; Presumably, this producer was once exposed to the liability of newness in the nascent phase of competitive activity. This theme focuses on what happens before the legitimacy threshold is crossed; specifically, the extent to which signals and sets of signals from third party sources with different levels of credibility help determine whether a legitimate core mediator, in this case an art gallery, decides to affiliate with the producer, effectively bestowing full fledged legitimacy to that producer in the eyes of potential buyers.

Second, as mentioned earlier, many markets are characterized by high pre-consumption quality uncertainty (Nelson, 1970; 1974), and in particular markets, e.g., the primary market for contemporary visual art, post consumption quality may also be difficult to discern (Darby and Karni, 1973). Nevertheless, some producers systematically and persistently outperform their competitors. Especially in the presence of uncertainty about quality and unobservable heterogeneity of producers' individual characteristics, e.g., ability, perseverance, the cause of inequality in the distribution of success is not easily explained. This is even more so in situations where many competitors have equal schooling and training. Precisely in such contexts, particular signals and sets of signals could have a powerful effect on setting in motion the self reinforcing processes that underlie the persistent performance. It is possible that these signals

may function as hard-to-imitate resources (Merton, 1968; Azoulay et al., 2013; Waguespack and Salomon, 2015). Such hard-to-imitate resources can lead to sustainable competitive advantage for a few producers. This can occur at any phase of producers' careers (Merton, 1968), although earlier research has shown that often seemingly inconsequential performance differentials gained in the nascent phase of competitive activity may become magnified into extremes later in producers' careers (Merton, 1968; Azoulay et al., 2013; Gould, 2002). More specifically, this thesis will explore whether signals originating from diverse sources and with different levels of credibility or with different kinds of stakes in the producer who is the subject of the signal contribute to persistent performance differentials. Again, not just the effects of individual signals will be studied, but also the effects of sets of signals, sets of sources and sequences, especially those occurring at the very start of the competitive career.

1.2 EMPIRICAL SETTING

1.2.1 Contemporary visual art market

Paintings, sculpture, photography, drawings, and art videos are examples of fine art products sold in the contemporary visual art market, the focal setting of this thesis. As mentioned earlier, this market consists of the primary market, where artworks are sold for the first time either directly by the artist or through intermediaries such as an art gallery, and the secondary and tertiary art markets, where artworks are re-sold through intermediaries and art auction houses, respectively (Singer and Lynch, 1994). Art products can be described as non-material, serving an aesthetic or expressive function rather than a utilitarian one (Hirsch, 1972). To gain a fine-grained understanding of how individual signals and sets of signals from different sources with different levels of credibility influence performance outcomes for producers active in the contemporary visual art market, data from several sources was used to create three unique databases.

In the next section, a general description of the two main sources of raw data, i.e., Gerrit Rietveld Academie and the Rijksakademie van beeldende kunsten, as well as the three core sources of sales data will be discussed. This is followed by a summary describing the three data sets, a description of the empirical strategy and finally, the structure of this thesis is presented.

1.2.2 Multiple sources of data

The raw data originates from two art institutions in the Netherlands: the *Gerrit Rietveld Academie* and the *Rijksakademie van Beeldende Kunsten* (RABK). The Gerrit Rietveld Academie is a well-known and prestigious art school that offers two undergraduate programs, a Bachelor in Fine Arts and a Bachelor in Design. Originally founded in 1924 as the Institute for Education in the Applied Arts, the name was changed to the Gerrit Rietveld Academie in 1968, in honor of the architect and furniture designer Gerrit Rietveld, who designed the building where the school has been located since 1967. In recent years, there have been approximately 850 students in attendance annually; close to 70% are international students and the average age of a freshman is 21. Roughly 1000 applicants apply every year and around 250 are accepted. (www.gerritrietveldacademie.nl).

RABK is an internationally renowned visual arts program that is held in high esteem by the

international art community. Founded in 1870, as a classical art academy, RABK offers a two-year residency to autonomous visual artists. As a residency program, RABK grants selected artists financial support, studio space, technical facilities, workshops, podia for presentations and networking opportunities so that they can focus on further developing their art practice through research, experimentation, innovation and critical discourse (Rijksakademie Annual Report, 2014). RABK is extremely selective: on average 1000 applicants apply annually and approximately 27 are accepted of which more than 70% are from abroad. The average age of a first year resident is 29 years old, and more than 95% have received a bachelor and/or master degree in fine arts or in a related discipline. Although often referred to as a post-graduate program, RABK does not grant a degree upon finishing the residency (www.rijksakademie.nl).

Sales data originates directly from the different kinds of expert buyers located in the Netherlands, namely: curators employed at organizations with corporate art collections, museums and private art collectors. First, access to the curators of corporate art collections was facilitated through the Netherlands Association of Corporate Art Collections (VBCN). Thirty-five member organizations were approached and asked to participate in this study; 63% replied favorably and supplied sales data, i.e., price paid per artwork and date of purchase, about artists in their collection who were RABK residents from 1986 to 2012. The member organizations of the VBCN that participated in this study⁹ account for 77% of the sales made to corporate collections in the Netherlands during our observation period (www.vbcn.com). Second, the Stedelijk Museum Amsterdam and De Pont Museum in Tilburg supplied extensive sales data, i.e., price paid per artwork and date of purchase, again concerning artists in their collection who were RABK residents during the above mentioned observation period. Finally, the private collectors who participated in this study were either Dutch nationals or resided at least partly in the Netherlands. These private collectors were approached through snowball sampling; a core criterion for participation was that private collectors purchased at least five new artworks annually at art fairs and art galleries. Most participants provided detailed listings of artworks they purchased from artists who had attended RABK during the observation period, including both sales price paid and date of purchase.

1.2.3 Summary of data

The data retrieved from the Rietveld Academie and RABK consisted of biographic information: artist name, date of birth, gender, nationality, and education. RABK also supplied the following data: newspaper clippings, award records, reviews, listings of exhibitions and art fairs, magazine articles, and gallery information. The signal data about the Rietveld Academie alumni was collected through an Internet survey. Triangulation using publically available sources, e.g. art market websites: Artfacts.net¹⁰, Artnet.com¹¹ and artists' CVs cross-validated the accuracy of both data sources; and thereafter, made amenable to econometric analyses. Additionally, longitudinal selection data from RABK was collected. These data comprised detailed application

⁹ Members of VBCN that participated in this study: ABN AMRO, Achmea, Aegon, Ahold, AkzoNobel, AMC, DNB Bank, DSM, Erasmus MC, ING Bank, KPMG, KPN, LeasePlan, LUMC, OCE, Provincie Limburg, RaboBank, Rabo Vastgoedgroep, Sanquin, Stichting Beheer SNS Real, Theodoor Gilissen, and UMC.

¹⁰ ArtFacts.Net, which was established in 2001, is a website that ranks contemporary visual artists based upon their annual exhibitions at galleries and museums worldwide

¹¹ Artnet.com, which was founded in 1989, is an art market website that provides detailed information about more than 9 million public art auction results from 1,600 international auction house.

information and comprehensive jury notes about applicants invited to the last phase of selection: the interview round. RABK does not use formal selection criteria; nevertheless, interviews with jury members and non-participatory observation of selection rounds provided information enabling the construction of such criteria. Based upon these criteria, three raters scored the jury notes, which had been transcribed verbatim, and inter-rater reliability was calculated.

In total, 1590 artists' career trajectories were studied from 1986-2012, with a maximum observation period of 26 years and a minimum of four. The level of source credibility¹² of 967 third party sources was determined for 5236 signals, i.e., 3582 reviews, 947 awards, 253 merit based subsidies, and 454 affiliations with art galleries, and these effects were estimated on 1164 sales transactions to different categories of buyers active on the primary art market and to a lesser extent the auction market.

1.3 EMPIRICAL STRATEGY

This thesis consists of four quantitative studies conducted in the empirical domain of the contemporary visual art market. Particular emphasis is placed on a salient characteristic of this empirical setting: highly skewed right-tailed distribution of success. Information about artists with signals and sales in a particular period or periods of competitive activity *and* artists without is incorporated into the analyses. Especially since not having a signal or not having a sale can be interpreted as a signal in and of itself. Hence, mostly non-parametric and semi-parametric models - i.e., switching regressions based on the Heckman two-stage model, Poisson regressions, Cox event history and competing risks analyses - were used to estimate these data.

To address potential selectivity in the empirical analysis in Chapter 2, switching regressions based on parametric and semi-parametric two-step selection models are used to estimate performance outcomes in the cross section data (Heckman, 1974,1976; Newey, 1999). In Chapter 3, Poisson regressions with cohort fixed effects and discipline fixed effects are used to estimate the panel data. Poisson regressions provide consistent estimates even when the dependent variable is not an integer (Santos Silva and Tenreyro, 2006, 2011). Interaction effects between the number of signals and the level of credibility of the third party sources transmitting those signals are also analyzed in Chapter 2. One way to estimate interaction effects in non-linear models is described in Dhar and Weinberg (2016) and Ai and Norton (2003). These papers show that nonlinear models inherently include interactions among the variables, so that specific interactions terms do not need to be added to the model. In Chapter 4, Cox semi-parametric models and competing risks analyses are used to estimate the time-to-event for cross-section data. Although the underlying probability density function for the baseline hazard is unknown, estimates from these models are consistent because the proportional hazards assumption have been met. And in Chapter 5, fixed effects regressions for panel data are used. A fixed effects approach to analyzing longitudinal data is a useful specification because it captures individual time invariant unobserved heterogeneity while constructing a recursive structure by following individuals over time (Greene, 2003).

¹² First, an expert panel of judges determined source credibility using a multi-item scale measuring expertise and trustworthiness (Ohanian, 1990). Second, inter-rater reliability was calculated to measure the homogeneity of measurements given to the same sources by different judges. Third, absolute agreement among the expert judges was measured and was higher than 0.70, which is an acceptable value (Shrout and Fleiss, 1979).

1.4 STRUCTURE OF THE THESIS

The four themes discussed earlier are common threads that weave across the four core empirical studies. The effects of qualitative source attributes (Theme 1) and sets of different kinds of signals transmitted by different kinds of sources (Theme 2) on different kinds of buyers and different kinds of intermediaries (Theme 3) at different phases of producers' career trajectories (Theme 4) interconnect, as leitmotif of this thesis, the four quantitative studies are introduced below.

In **Chapter 2** emphasis is placed upon gaining a better understating of the predictive value of multiple selection criteria used by committee members to select potentially excellent individuals from a large pool of applicants to a prestigious educational program. Concentrating on the scores applicants' received on these criteria as well their biographical data, acceptance to the program and future performance are estimated. In this chapter, signals and sets of signals transmitted by the individual applicants in their early phase of competitive activity are studied, and a comparison is made across two groups: accepted and rejected applicants. This provides a better understanding of the extent to which signals and sets of signals *and* the credibility dimension of the source transmitting the signals influence a specific kind of intermediary, i.e. selection committees. Based upon the scores applicants received during the semi-formal selection process, predictions are made about both groups' future performance outcomes, i.e., reputational rankings and sales.

Chapter 3 concentrates on past signals and past performance, as hard-to-imitate non-material resources, and studies the extent to which it affects self-reinforcing processes in competitive dynamics during different phases of producers' career trajectories and sales to expert buyers. Emphasis is placed upon quantitative characteristics of the signals and the qualitative attributes of the sources conveying those signals as well as past performance to gain a deeper understanding of how inequalities in the distribution of success are initiated and maintained, specifically in a market where the underlying quality differences among producers are hard to observe.

Chapter 4 focuses on source attributes as well as source diversity. Particular emphasis is placed on understanding the effects of diverse kinds of sources; specifically, the extent to which source diversity, interpreted as a 'whole' signal, affects a particular kind of intermediary: the core mediator. As mentioned earlier, core mediators, by the sheer virtue of the signals they transmit, allow new producers to cross the so-called legitimacy threshold and be granted full legitimacy. In this chapter, the accent is placed on how signals from third parties with different levels of credibility *and* different levels of diversity influence the explicit decision of a core mediator to allow the new producer to gain immediate access to the market as a fully legitimate competitor.

Chapter 5 centers on gaining a deeper understanding of two constituent parts of source credibility: independence in making evaluations and costs of signaling, particularly penalty costs third parties are willing to incur if there is the belief that the quality information conveyed is false or erroneous. Focus is placed on the first sequence of signals a producer receives in the nascent phase of competitive activity; specifically, signals that originate from different types of third party sources with different stakes in the future success of the subject of their signals. In this chapter, the commutativity of source credibility in the first sequence of signals is studied, particularly in relation to the differential effects the temporal order has on long-term financial success. Finally, Chapter 6 presents a discussion of the results from these four core empirical studies framed within the context of the four core themes. Conclusions follow.