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**Harald Biong
BI Norwegian Business School**

**Ragnhild Silkoset
BI Norwegian Business School**

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Harald Biong

Associate professor of marketing
BI Norwegian Business School
Department of Marketing
Centre for Advanced Research in Retailing
N-0442 Oslo, Norway
Phone: +(47) 46 65 29 59
Fax number: +(47) 23 26 47 92
harald.biong@bi.no

Ragnhild Silkoset

Professor of Marketing
BI Norwegian Business School
Department of Marketing
N-0442 Oslo, Norway
Phone: +(47) 46 41 05 65
Fax number: +(47) 23 26 47 92
ragnhild.silkoset@bi.no

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Harald Biong (Dr.oecon, Norwegian School of Economics), Associate Professor of Marketing, BI Norwegian Business School, Oslo, Norway, harald.biong@bi.no.

Ragnhild Silkoset, (Dr.oecon, BI Norwegian Business School), Professor of Marketing, BI Norwegian Business School, Oslo, Norway, ragnhild.silkoset@bi.no.

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ABSTRACT

B2B branding research indicates that corporate brand equity investments will increase suppliers' price premiums. In contrast, economics of information studies suggest suppliers' price premiums to decrease with their brand investments. This study, building on economics of information, tests these contrasting perspectives empirically in a B2B-services context. The results show that suppliers' corporate brand investments are ineffective in creating price premiums because brand investments and price premiums provide substituting information of unobservable quality. Furthermore, suppliers' price premiums decrease with buyers' willingness to punish sellers' quality deception. In contrast, the suppliers' price premiums increase with their provision of warranties and with their customers' quality sensitiveness.

Uncertainty about supplier quality characterizes a variety of goods and services in business-to-business and consumer markets (e.g., Biong 2013; Erdem, Swait, and Valenzuela 2006; Homburg, Klarmann, and Schmitt 2010; Mishra, Heide, and Cort 1998; Shapiro 1982). For example, buyers of B2B services, such as marketing research, may have difficulties in evaluating providers and the value of their services (Wuyts, Verhoef, and Prins 2009). Poor plumbing may not be discovered before a building suffers from serious leakage damages (Biong 2013). Therefore, when buyers cannot fully ascertain supplier quality before selection, supplier choice implies considerable risks (Homburg; Klarmann, and Schmitt 2010). First, buyers risk to choose unqualified suppliers (e.g., Akerlof 1970). Second, buyers may have post-purchase problems in detecting contractual compliance, thereby risking ending up with low-quality supplies (e.g., Mishra, Heide, and Cort 1998).

Under conditions of quality uncertainty economics of information theory, therefore, suggests that high-quality sellers need to credibly inform and assure their customers about their qualifications and performance (Kirmani and Rao 2000; Klein and Leffler 1981).¹ Examples of quality assuring mechanisms are brand investments (e.g., Erdem and Swait 1998; Homburg, Klarmann, and Schmitt 2010), price premiums (Klein and Leffler 1981), and warranties (Soberman 2003).

Unfortunately, the extant literature is ambiguous about the pricing effects when suppliers invest in their corporate brand name to enhance their quality reputation. B2B brand management studies suggest corporate brand investments to increase suppliers' ability to charge price premiums (e.g., Bendixen, Bukasa, and Abratt 2004; Persson 2010). In contrast, empirical

information economics studies in B2B and B2C contexts show that buyers would pay lower or none price premiums to suppliers with a credible corporate quality reputation (Andrews and Benzing 2007; Biong 2013; Png and Reitman 1995; Rao and Bergen 1992). These ambiguous findings may have serious implications for firms' pricing and reputation-building strategies. If, for example, corporate brand investments are ineffective for creating price premiums as one stream of information economics theory suggests (Rao and Monroe 1996), firms may be misled in expected effects of their marketing mix allocations.

Our study builds on insights from economics of information (e.g., Kirmani and Rao 2000; Rao and Monroe 1996; Png and Reitman 1995). In the economics of information literature brand investments, warranties and price premiums are marketing mix variables or signals, yet with different properties, sellers might apply to provide credible information of their abilities and performance (Kirmani and Rao 2000; Klein and Leffler 1981). Common to these variables is that they commit sellers to be honest about their high quality because dishonesty will have negative economic consequences. Unfortunately, empirical research is sparse about effects when marketers combine signals from various categories (Kirmani and Rao 2000; Rao and Monroe 1996). In our study we examine how the sellers' price premiums depend on sellers' corporate brand name investments and provision of warranties and on buyers' reactions to sellers' service quality. However, the corporate brand investments - price premium and warranties -price premium effects also depend on sellers' service attributes, that is whether the sellers' services predominantly have experience or search attributes (Erdem, Swait, and Louviere 2002; Nelson 1970).² First, we argue that for experience services, as the size of the sellers' corporate brand name investments and provision of warranties increases, sellers' ability to charge price premiums

will decrease. To the best of our knowledge, our study is among the first to examine empirically how corporate brand investments and warranties affect price premiums from a sellers' perspective in a B2B context.

Second, assuming that B2B purchasing managers are both price and quality sensitive as the extant literature suggests (Biong 2013; Darvish, Yasaei, and Saeedi 2009; Håkansson and Wootz 1975; Wuyts, Verhoef, and Prins 2009), and assuming that sellers adapt their pricing strategies to their perceptions of buyer behavior, we examine how sellers' price premiums are functions of purchasers' quality-sensitiveness and willingness to punish quality deception, as perceived by the seller. More specifically, we argue that sellers' price premiums will decrease with their perceptions of buyers' increasing willingness to punish quality deceptions and to increase with their perceptions of buyers' increasing quality-sensitiveness (Rao 1993).

Third, we compare experience and search services (Erdem, Swait, and Louviere 2002; Nelson 1970) explicitly for each set of variables. The economics of information literature is explicit that mechanisms for quality assurance, such as brand investments, warranties, and price premiums, only apply to experience products and services where credible information of unobservable quality is essential (Kirmani and Rao 2000), whereas the B2B brand management literature usually does not make this distinction. A third contribution of our study is, therefore, that it will provide insights to whether brand equity investments may have different effects on pricing for services with experience vs. search attributes.

We organize the rest of the article as follows: In the following section, we present the conceptual framework, including hypotheses. Then we describe the research design and the

empirical tests. Finally, we discuss the implications of the findings, the limitations of the study, and possible topics for further research.

THEORETICAL BACKGROUND AND HYPOTHESES

Economics of Information

The information economics' approach to branding and pricing is based on the premise that sellers and buyers often have different amounts of information about supplier quality and performance (Kirmani and Rao 2000). This information asymmetry makes it difficult for buyers to assess correctly sellers' quality. In transactions where sellers' abilities and performance are uncertain and only can be assessed after purchase and use, sellers and quality-sensitive buyers need mechanisms that credibly commit sellers always to be honest about their abilities and performance (e.g., Kirmani and Rao 2000; Png and Reitman 1995). The economics of information literature suggests signals and incentives to be such quality assuring mechanisms, for example brand name investments, warranties, and price premiums (e.g., Akerlof 1970; Mishra, Heide, and Cort 1998; Soberman 2003). Common to these mechanisms is that they credibly commit the seller to be honest throughout transactions by rewarding honesty through enhanced revenues and punishing dishonesty through loss of money in post-purchase situations (Klein and Leffler 1981; Picard 1987; Rao and Monroe 1996). Corporate brand name investments commit sellers to provide high quality because repeat business recovers the investments (e.g., Homburg, Klarmann, and Schmitt 2010). Warranties commit sellers to provide high quality by avoiding future repair costs should they cheat on their quality promises. A price premium, the difference between a super-high price and the perfectly competitive price for high-

quality output (Rao and Monroe 1996), provides high-quality sellers with above-average profits (Klein and Leffler 1981). The above-average profits credibly commit sellers to be honest and always to deliver high quality (Klein and Leffler 1981; Rao and Monroe 1996). Otherwise, quality sensitive buyers will punish quality debasement³ by stopping buying and the high profits will be lost. Therefore, buyers can infer the sellers' quality level and performance from their quality assuring strategy (Kirmani and Rao 2000; Rao and Monroe 1996). In essence, in this perspective a price premium is an extra payment committing sellers always to be honest about their high quality in pre- and post-purchase situations.

It should be noted that price premiums are conceptually different from *premium prices*. The literature assumes that there is more costly to produce high than low quality (Klein and Leffler 1981; Rao 1993; Rao and Monroe 1996). A high-quality seller will claim to be compensated for the higher production costs by charging a “commensurately” higher price (Rao 1993). Hence, a high-quality supplier charging a high price that only compensates for the higher production cost with the same profit as a low quality product in the same category would receive a *premium price*.

B2B Corporate Brand Management

Brand equity is a key concept in the B2B brand management literature (e.g., Kotler and Pfoertsch 2006; van Riel, de Mortanges, and Streukens 2005). Brand equity and the related concept brand image are the outcomes of past investments in the marketing mix variables (e.g., Erdem and Swait 1998; van Riel, de Mortanges, and Streukens 2005). Findings from reviews of the empirical B2B brand management research can be summarized as: (1) the dominating B2B branding strategy is to build corporate brand awareness (e.g., Homburg, Klarmann, and Schmitt 2010; Zablah, Brown, and Donthu 2010) and (2) corporate brands matter for buyer preference

(e.g., Roberts and Merrilees 2007; van Riel, de Mortanges, and Streukens 2005; Zablah, Brown, and Donthu 2010). Drivers of B2B brand equity are perceived quality, name awareness, brand associations, and brand loyalty (Kotler and Pfoertsch 2006). Brand equity and a favorable brand image may positively affect products' and services' perceived quality and enable a firm to charge price premiums; the higher the perceived quality, the higher the potential for price premiums (e.g., Bendixen, Abratt, and Bukasa 2004; Persson 2010). However, Ailawadi, Lehman, and Neslin (2003) modify the emphasize on price premiums and brand equity by noting that in the market place there are many strong, value-priced corporate brands (e.g., WalMart, Ryanair). Hence, corporate brand equity also should encompass a company's ability to capture market shares at competitive prices. In essence, corporate brand equity in the brand management perspective might be a company's ability to achieve revenue premiums through volume or price (Ailawadi, Neslin and Lehman 2003). It should be noted that B2B brand management research based on brand equity models usually do not make assumptions of asymmetric information and quality uncertainty of suppliers' products and services.

Common to the economics of information and the brand management literature, is the relationship between sellers' corporate brand equity enhancing activities and abilities to charge price premiums. In the economics of information perspective, for experience products and services price premiums serve three functions: (1) they credibly inform buyers of high-quality sellers' abilities and performance, (2) they assure quality-sensitive buyers of sellers' honesty, i.e., that sellers will not cheat on quality, and (3) they are payment (premiums) from quality-sensitive buyers for high quality performance, as noted.

In the brand equity perspective a price premium might be a reward for perceived higher quality services with higher utility relative to competitors (Ailawadi, Lehman, and Neslin 2003; Rao and Monroe 1996). In that respect, information of economics and brand management may converge. However, the brand management perspective does not assume explicitly quality assuring properties of price premiums.

Corporate Brand Investments and Price Premiums

Dissemination of corporate brand names and logos is central for many companies to convey information about their quality, people, skills, and behavior (Akerlof 1970; Gordon, Calantone, and di Benedetto 1993; Homburg, Klarmann, and Schmitt ; Kotler and Pfoertsch 2007). In fact, building corporate brand awareness without developing a more comprehensive brand identity is the focal B2B branding strategy for many firms (Homburg, Klarmann, and Schmitt 2010). The company brand name assures buyers that the supplier is the responsible party should quality not meet expectations. Additionally, suppliers might make their corporate brand names more credible through brand investments, such as advertising or other activities to make the name known to the public (Erdem and Swait 1998; Erdem, Swait, and Louviere 2002; Milgrom and Roberts 1986). For example, recent B2B branding studies show how corporate brand awareness positively affects brand and firm market performance (Homburg, Klarmann, and Schmitt 2010; Zablah, Brown, and Donthu 2009). Brand investments involve expenditures of money regardless of whether anyone buys the service without providing direct benefits to the buyer (Kirmani and Rao 2000; Klein and Leffler 1981). The quality-assuring properties of brand investments are that sellers commit themselves credibly by spending money even if a sale has not occurred, intending to recover the expenditures through future sales to buyers caring about high quality (Homburg,

Klarmann, and Schmitt 2010). Hence, suppliers with large brand investments make themselves vulnerable to quality cheating because cheating on quality will reduce return on investments in brand name capital (Rao and Monroe 1996). The higher the investments, the higher the seller's commitment to provide high quality and the less likely the seller will cheat on quality.

However, if both price premiums and corporate brand name are commitments to provide high quality, a credible corporate brand name may reduce the price premium's function as a substitute for missing information of quality (Erdem, Swait, and Louviere 2002). Similarly, Ippolito (1990, p. 53) argues that increase in the bonding effect of advertising reduces the size of the price premium. Rational buyers know that sellers intending to stay in the market risk their reputation and brand investments by cheating on quality with negative consequences for profits. Therefore, there should be little reason for the buyers to pay sellers with large brand investments a price premium to prevent quality cheating. This argument parallels previous findings, buyers would not pay price premiums to sellers having invested in a corporate quality reputation (e.g., Andrews and Benzing 2007; Biong 2013; Png and Reitmann 1995). Still, suppliers with corporate brand investments may try to charge price premiums in their market offerings. However, when buyers compare similar offers from reputed quality sellers, they will most likely award the contract to a supplier offering the best competitive market price because reputed sellers can be trusted. Hence, sellers having credibly informed about their quality through corporate brand investments might lose contracts if they charge price premiums above a competitive market price. Then through market feedback (Connelly et al. 2011) , sellers may revise their pricing policy and charge competitive market prices next time they submit bids.

H1a: The level of price premiums to sellers of experience services will decrease with increases in their level of corporate brand investments.

In theory, markets for search services should be perfectly competitive and therefore, the prices for equal-quality services should be the same across all suppliers, reflecting the services' true value. In practice, markets and prices are seldom so (Stigler 1961). Often, prices vary for the same service, of the same quality, in the same market, and at the same time (e.g., Maynes and Assum 1982; Salop and Stiglitz 1977). This observation is explained by buyers' lack of search, which allows some sellers to take advantage of buyers' incomplete search and charge a high price that may include a price premium (Maynes and Assum 1982). Conversely, more search activities by buyers should better inform them of the prices in the markets and provide them with lower prices (Stigler 1961; Tellis and Wernerfelt 1987). For search services the purposes of brand investments are different and more limited than they are for experience services (Rubin 1993). One purpose of brand investments for search services is to increase brand awareness. Another is to inform buyers about prices and availability. Brand investments for search services should, therefore, assist buyers in their search efforts for low prices and better inform them about the prices offered in the market place (Rao and Bergen 1992; Stigler 1961). Hence, corporate brand investments for search services, such as advertising, should make search and comparisons between suppliers easier and even make it easier for buyers to select the lowest priced supplier, thereby reducing the sellers' ability to charge price premiums (Kalra and Goodstein 1998).

H1b: The level of price premiums paid to sellers of search services will decrease with increases in their level of corporate brand investments.

Although the predicted effects of brand investments on price premiums are the same for experience and search services, we will emphasize that the underlying reasons differ. For experience services, brand investments reduce information asymmetry about unobserved quality, whereas for search services, brand investments reduce information asymmetry about price dispersion.

Warranties and Price Premiums

“A warranty is a promise, made by a manufacturer or seller, that a product or certain of its performance characteristics are free from defects in materials and workmanship; it is a commitment to correct problems if the product fails during the warranty period” (Menezes and Quelch 1990, p. 70). In our context, a contract that specifies adherence to industry standards regarding components and workmanship usually regulates buyer-seller transactions. Thus, a supplier provides a warranty when both the length and the scope of the supplier’s responsibilities for correcting failures caused by component or workmanship defects exceed what standard contracts and legislation specify. The extant literature shows that warranties can serve both signaling and incentive purposes (Cooper and Ross 1985; Emons 1989) and that warranties motivate firms to produce high quality (Boulding and Kirmani 1993; Grossman 1981; Shapiro 1982; Spence 1977; Wiener 1985).

Unlike brand investments, a warranty is costless when the seller provides this signal. Future costless repair in case of service quality failure commits the seller to provide high quality during all transactions (Chu and Chintagunta 2011). Thus, the bonding effect of a warranty derives from these future repair costs. The higher the future repair costs in case of service failure,

the higher the sellers' commitment to provide high quality. For large installation-projects, repair and costs of rectifying defects could be substantial and the profit on the project will be reduced or in worst case lost. A low-quality firm thus will face higher repair costs than will a high-quality firm, and is therefore less likely to provide warranties (Emons 1989). Rational buyers then can infer the sellers' unobservable quality from the warranties sellers offer (Emons 1989; Kirmani and Rao 2000). The arguments for linking warranties to price premiums parallel the arguments for brand investments and price premiums. Sellers providing warranties as a "bond" for performance put future costs at risk, so there should be less need for buyers to motivate sellers to produce high quality by paying them price premiums (Allen 1984; Ippolito 1990). Consequently, when a seller provides a warranty its ability to charge price premiums should decrease.

H2a: The level of price premiums to sellers of experience services will decrease with increases in their level of warranties.

As noted, buyers can detect search services' quality before purchase. Sellers providing services with quality below buyers' acceptable level will not achieve business. Therefore, warranties are not needed as quality assurance, and the sellers will not be able to charge price premiums. This argument is in line with Chu and Chintaguta's (2011) findings from the U.S. server market. When buyers are well informed of product quality, they do not need to infer quality from warranties.

H2b: For search services sellers' price premiums and warranty levels will not be related.

Punishment and Price Premiums

The sellers' ability to charge price premiums not only depends on their quality assuring activities but also on two buyer behavior characteristics: the buyers' quality-sensitiveness and the buyers' willingness to punish a deceitful seller by stopping buying (Rao 1993). If sellers know that buyers will not punish them for being dishonest, they may exploit the situation by charging price premiums. Similarly, if buyers are unwilling or unable to punish sellers when they detect violation of the sellers' quality promise, sellers will have little to lose by cheating. Conversely, if buyers are willing to punish a seller by stopping buying if that seller cheats, the seller will lose all future profits (Rao 1993). However, this mechanism will function only in a competitive market with available alternatives and few long-term commitments or switching barriers between the actors (Rao and Monroe 1996; Wathne, Biong, and Heide 2001) as in the context of this study. For example, when starting a construction project contractors usually invite potential suppliers to submit tenders based on assessments of their previous performance (Blombäck and Axelsson 2007). Suppliers will have much to lose by not fulfilling their quality promises, because buyers probably will not invite poor performers to submit tenders in the future. Thus, suppliers perceiving the risks of being omitted from bidding on future projects to be high, should be more likely to be honest and to receive only a competitive price commensurate with their quality level (Rao 1993; Rao and Monroe 1996). Conversely, if suppliers perceive they will be invited to submit bids in spite of previous poor quality performance, their potential for charging price premiums for substandard quality should increase.

H3a: The level of price premiums to sellers of experience services will decrease with increases in the perceived buyers' willingness to punish for quality cheating.

For search services, buyers can detect quality upon purchase. Therefore, buyers should pay prices commensurate with the services' quality level. High-quality sellers will receive premium prices, whereas low-quality sellers will receive low prices. If sellers cheat and provide quality beyond lowest acceptable level, quality-sensitive buyers will detect cheating immediately and punish low-quality suppliers by simply not buying from them (Rao and Monroe 1996).

H3b: The level of price premiums to sellers of search services will decrease with increases in the perceived buyers' willingness to punish sellers for quality cheating.

Quality-Sensitiveness and Price Premiums

As noted, an underlying premise of our study is that some buyers value high quality and are willing to pay a price premium for it (Kirmani and Rao 2000; Rao and Monroe 1996). Especially, if inferior quality from the supplier will lead to monetary losses for the buyer, selection of high-quality suppliers is essential (Biong 2013). Unfortunately, sellers of experience services may change and undersupply quality during services delivery, for example by using substandard components or unskilled workers, because quality reductions provide immediate cost savings and are difficult to detect (Mishra, Heide, and Cort 1998). If buyers employ a competitive bidding model to achieve low prices in selecting their suppliers, this practice may exacerbate the problems described (Liebeskind and Rumelt 1989). Dyer (1996), for example, reports that Chrysler experienced serious quality problems when the company forced its component suppliers to engage in fierce price competition for Chrysler's business on short-term contracts. It should be noted that there might be situations where sellers cannot fully control and measure the quality of services provided, which complicates sellers' ability to maintain their

reputation as high-quality sellers (Liebeskind and Rumelt 1989). Liebeskind and Rumelt (1989) suggest that this problem can be resolved if the buyer promises to repurchase provided the seller can promise to supply high-quality services at the next delivery at the buyer's reservation price. Thus, the seller can maintain its price for high quality.

Quality-sensitive buyers, therefore, may pay high-quality sellers a price premium and continue to repurchase to ensure supplier quality, whereas buyers with lower need for quality will not buy at the high price (Kirmani and Rao 2000). The more important high quality is, the higher buyers' willingness to pay price premiums should be, as extant research shows (e.g., Biong 2013). High-quality sellers, therefore, should be able to charge quality sensitive buyers price premiums as long as they fulfill their quality promises. Thus, price premiums also should motivate sellers to deploy governance mechanisms to achieve high quality throughout the value chain and buyers should receive the promised service quality (Ghosh and John 1999; Mishra, Heide, and Cort 1998).

H4a: The level of price premiums to sellers of experience services will increase with increases in the level of perceived buyers' quality-sensitiveness.

Quality-sensitive buyers are likely to have a higher utility for quality and they will therefore engage in more search for information about quality and prices (Png and Reitman 1995). Because of their search activities, quality-sensitive buyers will be better able to detect whether the quality level and prices charged reflect the quality level. If the quality level and prices are not commensurate, quality-sensitive buyers will not buy at the high price. In our research context, subcontractors to the construction industry, buyers generally award contracts

on a competitive bidding basis, which drives prices down (Burt and Boyett 1979). Since organizing competitive bidding processes is costly to buyers, quality- and price-sensitive buyers should be expected to engage more extensively in bidding processes than are the less sensitive buyers (Maynes and Assum 1982). Thus, for search services the seller should be less able to charge price premiums to buyers they perceive to be quality-sensitive.

H4b: The level of price premiums to sellers of search services will decrease with increases in the level of perceived buyers' quality-sensitiveness.

RESEARCH METHOD

Research Context

The research context for our study is that of subcontractors who supply plumbing and electrical installation services to the construction industry. This context was chosen for five reasons. First, the academic literature (e.g., Shapiro 1982) and interviews with buyers and industry experts showed that buyers to varying degrees have problems in distinguishing between high- and low-quality suppliers of electric and plumbing services. In addition, some of these services' quality attributes may be revealed only after a long time. On the other hand, installation standards exist that expert-buyers, such as the buyers in this context, can assess easily. Second, trade reports and interviews with industry experts indicated that these plumbing and electrical installation services have a particular influence on the final building quality and are the most prominent problem areas. Therefore, according to our panel of industry experts, contractors define suppliers of plumbing and electrical installation services as being among their strategic subcontractors. The quality problems mentioned are often increased by complex buying

processes and unclear distribution of responsibility between builders, contractors, and subcontractors (Espelien and Reve 2007). Third, industry experts indicated that various signals and incentives are relevant mechanisms for resolving potential adverse selection and moral hazard problems in this industry. Fourth, suppliers should be the closest ones to observe effects of their marketing strategies. Fifth and finally, suppliers to construction projects are traditionally chosen based on a competitive bidding procedure despite the possibility that quality may suffer by choosing the lowest priced bidder (Holt, Olomolaiye, and Harris 1995).

Sample Frame and Design

Two databases, one a commercial database with information about contact persons and economic information about companies providing installation services, and one the membership list of an industry association representing suppliers of plumbing and electrical installation services to the construction industry, formed the basis for the survey sample. Based on NACE codes⁴ we extracted a subset of service suppliers with the appropriate characteristics from the commercial database. Then the two databases were merged and duplicates removed. This procedure provided a list of 1611 companies with complete contact details (phone numbers, email address, web site, mailing address) and other relevant company information.

Since many of the suppliers are small companies without dedicated marketing persons and the study's issues are of a strategic nature, we decided to request that the suppliers' CEOs serve as key informants (Campbell 1955). The qualitative prestudy underlined that the CEOs in these firms actively are involved in developing and implementing the suppliers' strategy and marketing programs. Data was collected by distributing a digital questionnaire to the companies'

e-mail addresses using an Internet-based market research program (Confermit). To increase the study's credibility, the names and logos of the industry association and of a research center affiliated with our business school were included in the cover letter. After two reminders, we received 235 completed questionnaires – a response rate of 14.6%. As non-response bias might be a concern, we used the Armstrong and Overton (1977) procedure to test for non-response bias. The results showed no statistical differences between early and late respondents on variables such as service category (Chi-square 1.005, 1 df, $p > 0.05$), number of employees (t-value difference -9.217, 190 df, $p > 0.05$), informants' company position (Chi-square 6.923, 6 df, $p > 0.05$) and strategic competence (t-value difference -0.129, 170 df, $p > 0.05$), and company revenue (t-value difference -29.843, 164 df, $p > 0.05$). Thus, we concluded that there was little likelihood of non-response bias and that we could proceed with testing our hypotheses. Moreover, the total of 235 respondents is adequate for performing the required statistical analyses because the sample reflects the underlying theoretical assumptions and provides satisfactory variance on the focal variables, and because it covers the two subgroups of search and experience services (Sudman 1996, p. 110). Within the sample, 71% of the companies provided electrical installation services, 15% provided plumbing installation services, and 14% provided both electrical and plumbing installation services.

Development of Measures

Appendix A reports the measures we used in the study, together with the factor loadings for each item. The scale items are anchored by the values 1 = strongly disagree and 7 = strongly agree.

Performance ambiguity denotes the extent to which buyers can assess service quality before purchase and use. The scale consists of seven items building on the operationalizations of Mishra, Heide, and Cort (1998), and on the product type and lag scales of Rao and Bergen (1992).

Price premiums refer to the difference between a super-high price and the perfectly competitive price for high-quality output (Kirmani and Rao 2000). We used four items by adopting the operationalizations of Mishra, Heide, and Cort (1998) and of Rao and Bergen (1992).

Quality-sensitiveness describes the seller's perception of the buyer's utility for high quality and the loss the buyer would incur if the seller were to provide low-quality services. The scale, adopted from that of Rao and Bergen (1992), consists of three items.

Punishment denotes the seller's perception of the buyer's willingness, upon detecting quality debasement, to punish the seller by stopping buying and by not doing further business. The punishment scale, adopted from that of Rao and Bergen (1992), uses two items to measure this construct.

Corporate brand investments measure the expenditures employed to make the company brand name known to the public. The scale, adopted from Erdem and Swait's (1998) brand investments scale, consists of three items.

Warranties refers to the seller's responsibilities for correcting failures caused by component or workmanship defects that exceed what is regulated by standard contracts and

legislation in both length and scope. We developed four items for measuring this construct based on the conceptual discussions of Boulding and Kirmani (1993), Menezes and Quelch (1990), and Soberman (2003).

We included the seller's *reputation* as a control variable in our model. *Reputation* is the generally held perception in the market about the seller's quality and honesty. Our scale consists of three items and builds on the reputation scales developed by Erdem and Swait (1998), and by Rao and Bergen (1992).

Measurement Model and Validity Test

To test the research model, the analysis used the statistical program SAS JMP 8. The statistical analysis began with a review of the convergent validity, the discriminant validity, and the descriptive statistics of the constructs.

First, an Exploratory Factor Analysis and the use of Varimax rotation estimated the factor loadings for the six latent constructs, reported in the Appendix. All items showed factor loadings greater than 0.37. The reliability for the three quality-sensitiveness items was 0.70. Therefore, the three items were included in the further analysis. The factor analysis, together with the Cronbach's alpha, confirmed the convergent validity of the variables in the model. For the further analysis, the items' factor scores were used to calculate the constructs.

The discriminant validity analysis examined whether the constructs were non-redundant. Discriminant validity might be biased due to random measurement error and/or systematic measurement errors. Bagozzi and Yi (1988) points out that the constructs can be tested for redundancy by investigating the correlation between them. Table 1 reports that none of the

correlations' +/- 2 standard deviations includes 1. Next, the Campbell and Fiske (1959) procedure tests the extent to which two constructs overlap, by taking the correlation coefficient divided by the square root of the multiplied reliability of the two constructs. None of these values exceeded the recommended level of 0.85 (ranging from -0.11 for price premiums and brand investments to 0.34 for punishment and warranties).

The constructs' descriptive statistics, reported in Table 1, show that the control variable *reputation* has a mean score of 6.08 on a scale from 1 to 7, and a standard deviation of 1.41. There might be some degree of social desirability inherent in the scale; however, were it to be present, it would not necessarily bias tests (based on correlations, regressions, and similar techniques) of hypotheses (Bagozzi 1996, p. 28). The analysis shows that the constructs are valid, and that they can be used in the tests of the hypotheses.

Place Table 1 about here

Model Analysis

To test the research model, we implemented a two-group analysis using an OLS estimate and SAS JMP 8. To classify sellers of experience and search services (Nelson 1970), the analysis mapped how the sellers perceived buyers' ability to determine quality prior to purchase. In the classification process, we used a measure of (perceived) performance ambiguity concerning assessing the sellers' service quality. We developed a summated scale based on the factor scores. The informants were divided into two groups, Sellers of experience services were identified as those informants above the summated scale's mean value, whereas sellers of search services

were identified as those informants below the summated scale's mean value. In total, 119 informants were labeled as sellers of experience services and 116 as sellers of search services. The next section discusses each of the hypotheses in the research model.

RESULTS

The results from the two-group OLS estimates are reported in Table 2. Due to our directional hypotheses, the analyses are based on one-tailed tests. Table 2 shows that the effect of supplier brand investments on the level of price premiums is significant for experience services but not for search services (H1a: -0.16, p -value < 0.05 ; H1b: -0.09, p -value ns.) supporting Hypothesis 1a but not Hypothesis 1b. Contrary to the prediction of Hypothesis 2a, we find that the level of price premiums to sellers of experience services increases with their level of warranties (H2a: 0.36, p -value < 0.01). As predicted in Hypothesis 2b, we find no relationship between sellers' price premiums and their levels of warranties for search services (H2b: 0.10, p -value ns.). Hypotheses 3a and 3b predicted a negative relationship between the buyers' willingness to punish for quality debasement and the level of price premiums for both sellers of experience services and for sellers of search services. We find, as hypothesized, that the level of price premiums to sellers of experience services decreases with increases in the willingness to punish for quality debasement, supporting Hypothesis 3a. In contrast, for sellers of search services we find no significant relationship between price premiums and buyers' willingness to punish for low quality. Therefore Hypothesis 3b was not supported (H3a: -0.18, p -value < 0.05 ; H3b: -0.08, p -value ns.). The fourth set of hypotheses predicted that the level of sellers' price premiums should increase with increases in the buyer's quality sensitiveness both for experience and for

search services, Hypotheses 4a and 4b. As Table 2 shows, Hypothesis 4a but not Hypothesis 4b are supported (H4a: 0.21, p-value < 0.01; H4b: 0.03, p-value ns.). In sum, four out of our eight hypotheses receive statistical support.

The results show no significant relationship between the control variable reputation and price premiums either for sellers of experience or search services. Finally, we comment briefly on our models of search and experience services respectively (Table 2). As Rao and Bergen (1992) note, factors that are relevant for explaining price premiums for experience services do not apply well to search services. Our models for search and experience services, Table 2, support this perspective. While R^2 is close to zero in our search-service model (0.03), the value in our experience-service model compares well with that in Rao and Bergen's (1992) model, with R^2 values at 0.19 and 0.24, respectively.

Place Table 2 about here

DISCUSSION

Theoretical Implications

A growing body of B2B branding research indicates that brand equity investments will pay off by price premiums and increased supplier preference (e.g., Bendixen, Bukasa, and Abratt 2004; Hutton 1997; Persson 2010). In contrast, economics of information studies indicate that brand investments are positive for supplier selection, but reduce suppliers' ability to charge price premiums (e.g., Andrews and Benzing 2007; Biong 2013; Rao 1993; Rao and Monroe 1996).

These contrasting findings leave unanswered questions because price usually is highly important for final B2B-supplier choice, and, generally, a high price is negative (e.g., Biong 2013; Wuyts, Verhoef and Prins 2009). In our study, we draw on information economics theory to shed light on these contrasting findings by examining how suppliers' ability to charge price premiums are affected by their corporate brand name investments and their provision of warranties. Corporate brand investments, warranties, and price premiums are marketing mix variables suppliers deploy to build brand equity and to inform of their qualities and performance in the marketplace. Therefore, examination of their combined effects from a supplier perspective should be a contribution to the literature. We examine the effects for both experience and service services in a context of subcontractors to the construction industry. In this context, buyers usually chose subcontractors after a bidding process, emphasizing low price. Unfortunately, substandard service quality from subcontractors often causes serious quality problems to the final constructions with economic losses for the contractors. Hence we included subcontractors' perceptions of buyers' quality-sensitiveness and willingness to punish quality deception in our model.

First, the finding showing that sellers' ability to charge price premiums decreases with increasing levels of corporate brand investments may be counterintuitive but is in line with argumentation from economics of information (Ippolito 1990; Rao 1993; Rao and Monroe 1996). For sellers of experience services, high-quality sellers credibly need to inform quality-sensitive buyers about their abilities and quality performance. Both price premiums and corporate brand investments serve such information purposes (Kirmani and Rao 2000; Milgrom and Roberts 1986). By investments in corporate brand names and logos, sellers credibly commit

themselves always to provide high and consistent quality of their services (Erdem and Swait 1998; Erdem, Swait, and Louviere 2002). Similarly, the above-normal profit from price premiums serves the same function, as explained. Therefore, our findings indicate that corporate brand investments and price premiums substitute each other as credible information of unobservable quality (Kirmani and Rao 2000). Thus, when corporate brand investments commit the seller, there should be less need for buyers additionally to pay a supernormal price (Biong 2013; Rao and Monroe 1996). We do not suggest that companies with high corporate brand investments do not receive price premiums. What we found is that the size of price premiums decreased with increasing levels of corporate brand investments.

Contrary to our prediction, we find that price premiums increase with increases in sellers' use of warranties exceeding standard contract obligations. Our data suggest that other components than the quality assuring properties are present for sellers' warranties and that these components may have an impact on sellers' abilities to charge price premiums. The theoretical and empirical literature uniformly agrees that warranties are signals and incentives for providing high quality services (e.g. Boulding and Kirmani 1993; Emons 1989; Soberman 2003). In that sense, warranties and price premiums might provide substitutions for quality assurance, as we predicted. However, suppliers offering contracts with a warranty may be perceived by the buyers to offer a service with perceived higher quality than suppliers offering the same service without a warranty to influence supplier preference. We will remind that in our research context, suppliers of electrical installation and plumbing services, the buyer usually defines the specifications of the work to be done (Blombäck and Axelsson 2007), whereas the supplier chooses whether to offer the services with or without a warranty. In the non-warranty situation the supplier's corporate

brand investments assures service quality, as discussed. Hence, there should be less need to pay price premiums in addition. In the warranty situation, the warranty assures service quality but also provides higher quality (more of the desirable characteristics (Klein and Leffler 1981)) through future costless repair in case of service quality failure. Hence, buyers might be willing to pay a price premium for this higher quality (Rao and Monroe 1996), whereas more price-sensitive buyers may choose the cheaper contract that lacks one (Chu and Chintagunta 2011). By showing that corporate brand investments and warranties may affect differently sellers' ability to charge price premiums, our findings contribute to the understanding of how various types of signals act as marketing tools.

Second, we examined the effect of buyer behavior –specifically sellers' perceptions of buyers' willingness to punish deceitful sellers and of buyers' quality sensitiveness – on sellers' ability to charge price premiums. We find that when sellers fear that buyers will punish quality deceptions by stopping buying, sellers' price premiums decrease, consistent with theoretical predictions (Rao 1993). Next, consistent with previous studies (Biong 2013; Rao and Bergen 1992), we find that sellers' price premiums increases with increases in buyers' quality-sensitiveness, as perceived by the seller. When sellers know that quality debasement may cause substantial economic losses to the buyers, charging a price premium may be a credible commitment to provide high quality.

Third, in our comparison between experience and search services, we find that the signaling model in our study does not apply well to search services, a result conforming to the economics of information theory and to the results of previous studies (Chu and Chintagunta

2011; Rao and Bergen 1992). Whereas signals provide information about sellers' unobservable quality for experience services, buyers do not need to rely on signals such as warranties and corporate brand investments to be assured of the quality provided by sellers of search services. Nor do they need to pay price premiums for quality assurance, as noted.

Finally, our findings may suggest some tentative explanations addressing the contrasting findings of brand management and information of economics studies. Whereas a high price is generally negative for supplier preference, it can also serve quality information purposes (Biong 2013, Klein and Leffler 1981). As noted, price premiums may lose their information and bonding function when suppliers invest in their corporate brand name awareness. Buyers will therefore pay lower price premiums to reputed sellers with equal quality services because their corporate brand investments assure service quality. If sellers should be able to charge price premiums they should provide services with a higher quality (more of the desirable benefits) relative to competitors, as the effect of warranties indicates (Rao and Monroe 1996). The success of value-based corporate branded companies such as WalMart, Southwest, and Suave, inspired Ailawadi, Lehman, and Neslin (2003) to suggest that these companies' strong brand equity originated from their ability to capture market shares at competitive prices, and not from their abilities to charge price premiums. Rather, price premiums may result in significant losses in volume. Hence, in those authors' terminology, the brand equity concept should be measured as a company's ability to generate revenue premiums through volume premiums, price premiums, and combinations of volume and price. In this perspective, the corporate brand of value-based companies guarantees their consistent quality, which enables them to compete effectively on price. Hence, the information economics and brand management perspectives may converge. A strong corporate

brand equity, supported by corporate brand investments is generally positive for buyer preference, assures product and service quality and makes competitive prices trustworthy. If sellers should be able to charge price premiums they should provide higher quality products and services relative to their competitors, and the higher the perceived quality, the higher the potential for price premiums (e.g, Bendixen, Bukasa, and Abratt 2004; Rao and Monroe 1996).

Implications for Management

In highly competitive business markets with many suppliers of apparently similar services, as in our context, high-quality suppliers face the marketing challenge of winning contracts in competition with lower quality competitors and of achieving a price rewarding their efforts in providing high quality. This is especially the case when buyers cannot fully assess the quality of suppliers' services before contract agreement.

In such situations, high-quality sellers may intuitively want to support their quality strategy by building their brand equity through corporate brand name investments (e.g., Homburg, Klarmann, and Schmitt 2010; Zablah, Brown, and Donthu 2010). Investments in corporate brand name awareness is in line with the dominating B2B brand building strategy towards building corporate brand preference, because buyers generally prefer well-known sellers (Blombäck and Axelsson 2007; Wuyts, Verhoef, and Prins 2009). Well-known and reputable sellers should therefore capture larger market shares, and within the same industry, reputable sellers usually also are relatively more profitable than are competitors who lack a reputation for quality.

Yet, it is a paradox that sellers' ability to charge price premiums decreases when their corporate brand investments increase, as our findings indicate, but it does not mean that companies should not invest to make their corporate brand name known. When price and quality matter to buyers, as it does in many business markets, buyers know that they can trust companies with large corporate brand name investments to provide high quality at competitive prices. If the sellers do not deliver the quality they promise, they will lose future business and the corporate brand investments will not pay off.

Brand investments require monetary spending regardless of sales. Since they also undermine the potential for achieving price premiums, brand investments might be an effective entry barrier against competition. Corporate brand investments, therefore, may be less feasible for new firms or firms with limited financial resources. For such companies our results suggest warranties to be an option to build brand equity and a credible quality reputation. In competitive markets sellers may offer warranties without extra costs to the buyers as a competitive advantage. Unlike brand investments, warranties do not require up-front investments and they enhance sellers' abilities to charge price premiums. Furthermore, warranties may assist suppliers in their segmentation strategies. As our findings suggest, sellers' ability to charge price premiums increases when buyers' quality-sensitiveness increases. Therefore, sellers may target quality-sensitive market segments with warranty contracts and price premiums, whereas standard contracts might appeal to price-sensitive market segments. In contrast to corporate brand name investments, the quality-assuring properties of warranties do not depend on repeat business (Kirmani and Rao 2000). In many B2B markets, transactions are organized as projects where suppliers are selected based on a competitive bidding process although quality may suffer if low

price is emphasized (Holt, Olomolaiye, and Harris 1995). Therefore, suppliers of high-quality services in project markets might use warranties as a credible support for their quality promise and as a means to achieve price premiums even in short-term transactions.

Finally, firms providing search services may want to invest in promoting their corporate brand name for a variety of reasons. However, our findings indicate that such investments will not affect their ability to charge price premiums.

LIMITATIONS AND FURTHER RESEARCH

First, our findings support the arguments of Rao and Monroe (1996) and compare well to findings of extant research (Biong 2013; Rao and Bergen 1992) on the relationship between brand investments and price premiums. Despite our attempts to explain positive and negative associations between concepts such as reputation, brand names, brand equity, brand credibility and price premiums in economics of information and brand management perspectives (e.g., Ba and Pavlou 2002; Bendixen, Bukasa, and Abratt 2004; Erdem, Swait, and Louviere 2002; Firth 1993), many questions remain for further research. Therefore, studies further integrating the economics of information theory's and brand management theory's perspectives on brand equity investments and pricing effects with careful comparisons of B2B and B2C contexts should be promising issues for further studies.

Second, both our and Rao and Bergen's study (1992) rely on surveys and perceptual measures of the focal variables, yet from suppliers' vs. buyers' perspective respectively. Similarly, rather than measuring realized price premiums, many studies rely on hypothetical price premium measures (i.e., how much more are you/is your company willing to pay for...)

(Bendixen, Bukasa, and Abratt 2004; Hutton 1997; Persson 2010), a method that may overstate willingness to pay (Voelckner 2006). Furthermore, many studies do not distinguish clearly between price premiums (i.e. an above normal price providing above normal margins for a given quality) and premium prices (i.e., a higher but still a competitive price for a higher quality). To reduce potential bias with perceptual and hypothetical measures, interest has recently grown in analyzing marketing and financial performance through econometric models using longitudinal secondary data (see for example *Journal of Marketing*, November 2009). In this tradition, there have been published econometric studies showing the financial value of branding and of reputation (e.g., Ailawadi, Neslin, and Lehmann 2003; Joshi and Hanssens 2010; Madden, Fehle, and Fournier 2006; Roberts and Dowling 2002). Unfortunately, none of these studies examines to what extent volume or price affects financial performance. Incorporating data about prices and sales together with data about brand investments and other types of signals (Kirmani and Rao 2000) in econometric analyses might be feasible to test how various types of quality-assuring mechanisms affect price premiums. Do these mechanisms add to or substitute for each other? To what extent will price or volume affect financial performance (Joshi and Hanssens 2010)? Especially, more precise measures of price premiums, including marginal costs of production, profits and trade margins (Klein and Leffler 1981) to distinguish between price premiums and premium prices, might fit well into such analyses.

Finally, our sample has some limitations. For theory testing purposes, we decided to test our hypotheses in one specific context, subcontractors who supply plumbing and electrical installation services to the construction industry. Similar to Rao and Bergen's procedure (1992) we divided our sample into two groups, services dominated by search attributes and services

dominated by experience attributes. Although the sellers' perspective is relevant for examining the effect of sellers' marketing mix variables, this division builds on the sellers' judgments of buyers' abilities to assess service quality. Therefore, we cannot disregard that biases might influence our results. Future research should therefore be conducted among B2B industries predominantly characterized as "search" and others predominantly characterized as "experience," and should also examine to what extent suppliers are selected through competitive bidding processes from sellers' and from buyers' perspectives (e.g., Biong 2013).

Table 1**Correlation Matrix and Descriptive Statistics**

	Mean	S. D.	η_1	ξ_1	ξ_2	ξ_3	ξ_4	ξ_5
η_1 Price premium	2.93	1.66	<i>0.89</i>					
ξ_1 Brand investments	3.43	0.12	-0.11	<i>0.93</i>				
ξ_2 Warranties	3.95	1.41	0.23 **	0.02	<i>0.79</i>			
ξ_3 Punishment	5.80	1.17	-0.05	-0.09	0.07	<i>0.82</i>		
ξ_4 Quality sensitiveness	4.89	1.12	0.07	0.06	-0.02	0.26	<i>**0.70</i>	
ξ_5 Reputation	6.08	1.41	-0.01	0.09	0.15 *	0.25	<i>**0.26</i>	<i>** 0.85</i>

p-value < .01 **

p-value < .05 *

Cronbach Alpha in diagonal and in italics

Table 2**Regression Analysis****Dependent variable: η_1 Price premium**

Independent variables		<i>Search services</i>		<i>Experience service</i>		
		<i>H1b – H4b</i>		<i>H1a – H4a</i>		
		Regression coefficient	t-value	Regression coefficient	t-value	
ξ_1	Brand investments (H1a – supported) (H1b – not supported)	-0.09	-0.91	-0.16	-1.79	*
ξ_2	Warranties (H2a – not supported) (H2b – supported)	0.10	1.02	0.36	4.10	**
ξ_3	Punishment (H3a – supported) (H3b – not supported)	-0.08	-0.75	-0.18	-1.88	*
ξ_4	Quality sensitiveness (H4a – supported) (H4b – not supported)	0.03	0.25	0.21	2.40	**
Control variable						
ξ_5	Reputation	-0.10	-1.01	0.05	0.58	
	R-Square	0.03		0.19		

p-value < 0.01 **

p-value < 0.05 *

APPENDIX A

Items Used to Measure the Constructs

Anchor points: 1 = strongly disagree, 7 = strongly agree

Items	Statement	Factor loading
Quality sensitiveness 1	Our organization feels that high service quality is crucial for our customers.	λ 0.37
Quality sensitiveness 2	Our customers would suffer a significant monetary loss if the quality of our services were low.	λ 0.80
Quality sensitiveness 3	Our customers check that the quality of the installation services they receive from us always are of a high level of quality.	λ 0.70
Punishment 1	Our company would suffer significant economic losses if our service quality were revealed to be low.	λ 0.83
Punishment 2	Our customers would blacklist and never do business with us again if we were to deliver low quality installation services.	λ 0.83
Brand investments 1	Our company spends annually significant amounts of money on ads, commercials, promotions, etc.	λ 0.91
Brand investments 2	Our company has invested considerable amounts of money on the community over the years.	λ 0.84
Brand investments 3	Our company spends annually considerable amounts of money to be visible in the marketplace.	λ 0.94
Price premium 1	Our customers are willing to pay us a higher price than normal for similar services.	λ 0.63
Price premium 2	The typical price that we charge for our installation services is considerably higher than what our competitors charge for the same service.	λ 0.88

Price premium 3	We are in the highest price level for our installation services compared to the industry in general.	λ 0.88
Price premium 4	Our organization claims a price whose magnitude is higher than normal for these kinds of installation services.	λ 0.88
Warranty 1	Compared to similar services in this industry, the length of the warranty on our company's services is longer than that of standard contracts.	λ 0.84
Warranty 2	The number of warranties on our installation services exceeds what is usual or standard for these kinds of services.	λ 0.81
Warranty 3	Our company takes full responsibility for errors, deficiencies, or related damages even when the customers have no legal rights to claim repairs or refunds.	λ 0.62
Warranty 4	If our warranties are not fulfilled, they will lead to greater economic consequences for our company than those arising from legally protected rights to claim repairs, refunds, etc.	λ 0.48
Performance ambiguity 1	Customers have to assume that they are getting high-quality services from our company because there is no other way they can tell.	λ 0.33
Performance ambiguity 2	It would be very time-consuming for a customer to check up on how well each of our employees is performing his job.	λ 0.64
Performance ambiguity 3	It is very difficult for customers to evaluate the right amount of service that our company suggests.	λ 0.76
Performance ambiguity 4	Our customers are not able to evaluate the quality of our services until the services are delivered.	λ 0.72
Performance ambiguity 5	There are no sufficient standards for measuring the quality of installation services prior to purchase.	λ 0.62
Performance	Our customers will have difficulties in defining the level of quality they need when buying	λ 0.73

ambiguity 6	installation services.	
Performance ambiguity 7	Customers are able to evaluate the quality of our company's services only after an extended period of usage.	λ 0.45
Control variable		
Reputation 1	Our company has a superior reputation in the market place.	λ 0.85
Reputation 2	Our company has a reputation for delivering services with superior quality relative to other installation companies.	λ 0.78
Reputation 3	Our company is highly trustworthy.	λ 0.80

Notes

¹ More specifically, adverse selection (pre-purchase) problems are resolved by using signals, whereas moral hazard (post-purchase) problems are resolved by using incentives (Mishra, Heide, and Cort 1998; Rao and Bergen 1992; Rao and Monroe 1996). However, adverse selection and moral hazard models apply the same principles for rewarding honesty and punishing dishonesty, and can therefore be analyzed simultaneously (Picard 1987; Rao and Monroe 1996). In the current context, we assume repeat business. Signals will therefore also serve incentive purposes (Klein and Leffler 1981).

² The categorization into experience vs. search depends on how easily quality attributes of goods and services can be assessed prior to purchase and use (Erdem, Swait, and Louviere 2002; Nelson 1970).

³ Throughout the article we use the terms “quality debasement” and “quality cheating” interchangeably. However, there might be a slight difference between these terms. Debasement of quality might mean that the seller reduces quality below acceptable standard from one transaction to the next hoping that this quality reduction will not be detected by the buyer. Cheating might mean that the seller intends to supply substandard services in the first place without being detected.

⁴ NACE (in French: Nomenclature statistique des activités économiques dans la Communauté européenne) or the Statistical Classification of Economic Activities in the European Countries is a European industry standard classification system consisting of a 6-digit code. NACE is similar in function to the SIC (Standard Industrial Classification) and NAICS (North American Industry Classification System) systems.

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