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Information: A Comparison of Online
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Abstract

Empirical studies on the effect of sellers' reputation on closing prices in online auctions present mixed results. A large number of studies addresses reputational effects in one country, especially in the US. Only a small number of cross-country studies inspect the moderating role of institutional frameworks on bidder behavior. The purpose of this paper is to examine if country-specific differences in the formal and informal institutional framework influence the effects of reputation and information signals on final prices in online auctions. From the perspective of the New Institutional Economics, management decisions and individuals' characteristics are affected by the institutional framework, which consists of cultural aspects as well as a set of social and legal rules and regulations. Therefore, bidders that are influenced by one institutional framework have different preferences, expectations, and perceptions about reputation and information in online auctions than individuals socialized by another institutional framework. In order to examine the effects of reputation and information on prices as well as to assess cross-country similarities and differences in these effects, a sample of 6,166 homogenous online auctions, conducted on the respective eBay websites in Germany, the UK, and the US, is analyzed. The results suggest that either the effects of reputation and product information variables vary significantly across countries or that different variables have an impact on prices in different countries. It can be concluded that country-specific institutional frameworks influence bidder behavior in international online auction markets.

Keywords: reputation, information, online auctions, cross-country studies

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1 Introduction

On eBay's website, the eBay Marketplace is described as an online platform for the sale of goods and services through auctions and fixed-prices offered by individuals and small businesses on a local, national, and international level (eBay, 2007a). In the first quarter of 2007, eBay's overall net revenues reached \$1.25 billion with 49 percent from operations in the US and 51 percent from international business operations. In 2006, eBay's worldwide gross merchandise volume, the total value of all successfully closed items on eBay's trading platforms, was more than \$52 billion. In June 2007, eBay was directly or indirectly active in 37 countries and offered localized websites in the Asia-Pacific region, Europe, and North America. With more than 233 million buyers and sellers and 575 million listings worldwide in the first quarter of 2007, eBay is the largest international online auction market (eBay, 2007b).

The temporal and geographical separation of anonymous transaction partners in online auction markets such as eBay results in a separation of payment and transaction as well as in information asymmetries, which are a main cause of potential uncertainties and risks, especially for buyers. In addition to these asymmetries, one-sided specific pre-investments of buyers in the form of initial trust and payment in advance might cause opportunistic behaviour on the sellers' side such as delivering an item with substandard product quality or not delivering an item at all. Akerlof (1970) demonstrated in his seminal work that, in the presence of asymmetrical information, low quality goods can drive out high quality goods, which results in a market of lemons and potential market failure. Klein and Leffler (1981), Shapiro (1983), and Allen (1984) among others, theoretically analyzed a strategy that sellers of high quality goods might utilize to distinguish their products from those of lower quality, namely the strategy of investing resources in developing a reputation for selling only high quality products. These theoretical models have typically proposed a positive relationship between the reputation of a seller and the price, since the seller's reputation is to a large extent a signal for quality and the seller's behavioral characteristics in future transactions.

Traditional brick-and-mortar markets rely on personal relationships, built through face-to-face communication and repeated interactions to establish reputation and trust between buyers and sellers. However, Internet auction markets are characterised by limited communication channels and one-shot interactions (Resnick and Zeckhauser, 2002). Electronic marketplaces use several

mechanisms and policies to counteract the challenges of the online environment. The most obvious mechanisms are electronic reputation systems, such as eBay's feedback forum, that systematically collects user feedback and reports information about past interactions of buyers and sellers to potential transaction partners (Resnick et al., 2006).

The empirical analysis of the effects of reputation on prices in traditional markets has proven to be complicated because of difficulties in quantifying and measuring a seller's reputation.¹ Electronic marketplaces, which apply reputation mechanisms, give researchers the opportunity to empirically test the effect of a seller's reputation on the buyer's willingness to pay.² More than 50 empirical studies, directly or indirectly, have analyzed this particular effect in online auction markets. The majority of them has been performed in the United States. However, there is a lack of cross-cultural studies. Dellarocas and Resnick (2003) state that in order to understand how cross-cultural differences affect reputation mechanisms' influence bidder behavior, future research must implicate cross-country comparisons of online auctions. The current study examines country-specific effects of seller reputation, product information, and auction variables on closing prices in online auctions both in an intra-country analysis as well as in a cross-country comparison. The study compares auctions of new, homogenous music Compact Discs (in the following CDs), digital cameras, and video game consoles that took place in February and March 2006 on the national eBay websites in Germany, the UK, and the US.

The significance of our study's proposed model and conceptualization is shown by its behavioral outcomes: institutional frameworks are found to moderate the effect of seller characteristics, product information, and auction characteristics on prices in online auctions. On the one hand, different reputation, item, and auction variables have an impact on selling prices in different countries. On the other hand, the effect of the same reputation, item, and auction variables that affect prices in different countries, varies across countries. These results have profound managerial consequences for sellers, bidders, and international online marketplaces. While specific product information policies and auction characteristics might be successfully used by sellers in online auctions in one country, they might be inefficient in another country. The same applies to reputation systems; variables that work efficient in one country can be inefficient in another one.

¹ See Landon and Smith (1998) for an empirical, and Camerer and Weigelt (1988) for an experimental analysis.

² For a review of research in related fields see Wood (2004), Bajari and Hortaçsu (2004) and Ockenfels et al. (2006).

In the following section, the theoretical framework of the study will be introduced by providing a brief literature review on reputation effects in online auctions in general and the effects of country-specific differences in online auctions, followed by a mathematical model, finally resulting in our hypotheses. The third section of the paper covers the methodological approach and includes sampling issues, the process of data collection, as well as a description of the variables and measures. The results of the study are presented in the fourth section. The paper concludes with a summary and discussion of the major findings and an outlook for further research.

2 Theoretical Background

Literature Review

In management and business economics, diverse streams of research have focused on reputation. Applying Wilson's (1985) definition, reputation is a concept where a characteristic is ascribed to an individual, organization, or institution by another individual, organization, or institution. Reputation arises in repeated interactions where players are uncertain about the true nature of another player. If a history of past behaviour of interactions is available, players with a history of collaborative behavior might realize higher long-term payoffs by signalling their inherently trustworthy nature (Kreps et al., 1982). In this way, reputation effects generate cooperation in environments of imperfect and asymmetric information (Kreps and Wilson, 1982; Milgrom and Roberts, 1982). As transaction partners might establish a positive or negative reputation, reputation is both, a source of information as well as a mechanism to sanction, since the reputation of past transactions as well as the probability and importance of future transactions form "the shadow of the future" (Axelrod, 1984).

In offline buyer-seller relationships reputation is a concept that describes to which degree a buyer believes that a seller will behave as promised in the transaction and post-transaction phase (Doney and Cannon, 1997). Instead of a temporal embeddedness, where reputation is established by repeated interactions of players, in online auctions, network embeddedness is present where reputation is build through the interaction with different transaction partners (Gautschi, 2002). As a result, in the setting of one-shot interactions "the shadow of the past" from interacting with

other partners substitutes “the shadow of the future” from repeated interactions with the same partner. In the context of Internet marketplaces, a reputation system as applied for example by eBay is an online adaptation of the traditional word-of-mouth (Dellarocas, 2006). As defined by Resnick et al. (2006), reputation systems collect, distribute and aggregate information about observations of participants’ past behavior. In doing so, reputation reduces uncertainty about a seller’s behavior in the future and determines the degree of trust bidders tend to have in a specific seller (Kollock, 1999).

During the last decade a number of studies have emphasized on online auction markets and empirically examined reputation effects on prices in this context.³ Previous research has empirically examined the relation between closing prices and various variables, especially, whether and to what degree prices are influenced by seller characteristics, product information, and auction characteristics. Seller characteristics within online auctions particularly relate to the reputation of the seller, meaning, the detailed information about the seller’s former transactions. Product information includes the price level, condition, complexity, and visual presentation of the good being auctioned. Auction characteristics are related to specifications such as auction type and timing as well as escrow and payment services being offered.

A search of the major online databases from 1997 to 2007 revealed more than 50 studies that directly or indirectly study the effect of reputation on prices in online auctions. While 43 of these studies were conducted in the US, six studies in Germany, two studies in South Korea, and in the Netherlands and Switzerland one study examined reputation effects. In 28 of these studies the effect of positive feedback was tested. 19 studies found a positive relation, one study a negative relation, and eight studies found no effect on prices at all. In 29 studies the impact of negative feedback was tested. In 22 studies a negative effect was found, in one study negative feedback had a positive but not statistically significant effect, and in six studies no effect was existent. In 30 studies the effect of a feedback score was tested. 21 studies found a positive relation between price and feedback score and ten studies found no effect at all. In order to examine reputation effects, the studies used different reputation measures, different statistical methods as well as different heterogeneous and homogenous goods with different price levels, conditions, and com-

³ For more detailed surveys of the results of early empirical studies see Bajari and Hortaçsu (2004), Dellarocas (2006), and Resnick et al. (2006).

plexities. The general result is that buyers are willing to pay a higher price for goods sold by a seller having a good reputation.

All of these studies examine the effect of reputation on prices in a single country. As pointed out by Adler (1983a, 1983b), single-country studies are missing cross-cultural aspects since culture is not considered an influencing factor. In the New Institutional Economics, especially the three layers presented by Williamson (1996), management decisions and individuals' characteristics are affected by the institutional framework, which includes informal and formal aspects (Wolff, 2005). While the informal framework consists of cultural aspects, the formal framework is a set of political, social, and legal rules, laws, and regulations (North, 1990). In single-country studies, the formal and informal framework is considered constant, which follows from expanding Adler's argument that culture is implicitly considered to be constant in single-country studies. Therefore, results and implications of studies conducted in one institutional framework are constrained in their theoretical and practical implications.

In the online environment, mechanisms of the formal institutional framework, which support cooperation in an offline setting, such as legal systems and repeated interactions, are less efficient (Kollock, 1999). While the rules and regulations on eBay's marketplace are the same in all countries except for minor differences, the national legal frameworks differ (González, 2003). The costs of law enforcement and dispute resolution make trust a substitute of formal laws (Kreps and Wilson, 1982; Milgrom and Roberts, 1982). The uncertainty about the enforcement of the legal system in disputes on online auctions varies across countries and individuals need different levels of trust and trust premises, consequently.

With respect to the informal institutional environment, culture can be defined as a set of norms and values (Hofstede, 1983). The variations of cultural determinants across countries and societal norms define a country's informal institutional framework. The behavior is socially transmitted and enforced by rewards and sanctions (Fisher, 1988). In different countries the individual determinants of culture have different distinct influences on the processes of establishing the degree of trust (Fukuyama, 1995). National culture moderates the creation of trust through reputation (Yamagishi and Yamagishi, 1994). As a result, in the process of deciding if and which seller a buyer should trust, the general degree of trust varies across countries (Doney et al., 1998).

In the context of online consumer behavior, culture influences the development of trust in online buyer-seller relationships (Jarvenpaa and Tractinsky, 2002; Mahmood et al., 2004; Teo and Liu, 2007). Despite the global character of the Internet and the different formal and informal frameworks, in which electronic auction markets operate, relatively little research has been done on cross-country differences in bidders' valuation of products in online auctions. The results of these studies will be briefly summarized.

The study most related to the current, in terms of both scope and method, is Hou (2007), which examines the determinants of online auction prices of LCD monitors in China and the US. The study results show that in China as well as in the US positive reputation has a significant positive effect and negative reputation has a significant negative effect on prices. Vishwanath (2003) performed an empirical exploratory study of laptop auctions on local eBay websites in Germany, Japan, and the US in order to examine country-specific information effects of pictures, descriptions, and reserve prices on the number of unique bidders and the range between the initial and the final bid value. The study's findings show that the product descriptions as well as accompanying pictures have different effects in different countries. Yet, the study focuses only on the effects of information on the number of bidders. The direct impact of reputation on prices was not considered.

In a second explorative study, Vishwanath (2004a) looked closer at the country-specific effects of seller ratings on the number of bidders in eBay auctions of Apple iBook laptops in Canada, France, and Germany. The study found support for the research question if seller ratings significantly influence the number of bidders that are attracted to an auction within and across countries. While in France and Germany seller ratings moderately influence the number of bidders, in Canada no effect can be found. Opposed to Germany and Canada, bidders in France do not bid on auctions of less reputable sellers. Robinson (2006) examined inter-country differences in reputation effects on prices in eBay auctions of fine art goods in France and the US. The study results show that French bidders pay more attention to negative feedback than bidders from the US. Negative feedback seems to decrease the selling price in France more than in the US. The results of the study, as also conceded by the author, are interpretations of mean values rather than statistically derived results.

Model and Hypotheses

Our study takes up a comparative perspective, focusing on the verification of the general intra-country results as well as the cross-national similarities and differences of the impact of seller characteristics, product information, and auction characteristics on prices. The aim of the study is to provide further understanding on the impact of institutional framework differences on individuals' preferences and consumer behavior in electronic auction markets. In the following, a model of sellers' characteristics in a second-price auction will be introduced to discuss theoretical predictions and the influences of institutional frameworks on the seller's characteristics.

In order to model the effect of reputation and information, a second-price auction in a private values setting is used that closely follows Houser and Wooders (2006) and a modification of their model by Offenberg (2006). A single seller offers one indivisible unit of a good for auction, with the seller's costs normalized to zero and n risk neutral bidders being interested in buying the good. Bidder i 's ($i = 1, \dots, n$) privately known value of the good is denoted by v_i with $v_i > 0$. In most countries it is common practice that auction winners pay in advance. As a result sellers may behave opportunistically and default on the auction contract by not delivering the good once they have received the payment. The probability that a seller successfully completes the transaction and delivers the good is described by $p^S \in [0,1]$. It is assumed that all bidders evaluate this probability according to the following equation of M commonly known reputation characteristics of the seller:

$$p^S = \sum_1^M \lambda_l x_l, \text{ where } \sum_1^M \lambda_l = 1.$$

The observable seller reputation such as the seller's overall number of positive feedbacks or percentage of positive feedbacks, which are available in the auction are represented by $x = (x_1, x_2, \dots, x_M)$, being a positive real vector, with $x \in [0,1]$. It is assumed that the characteristics are a true signal, meaning that the reputation information is the behaviour of the sellers in the past and therefore should represent the probability that the seller behaves in the same way in future transactions. Bidders weigh the seller characteristics according to the vector $\lambda = (\lambda_1, \lambda_2, \dots, \lambda_M)$, where each λ_k is related to the information content in x_k . While the reputation variables that provide a higher amount of information are weighted more heavily, observations that provide weaker signals receive a smaller weight in the calculation of p^S . Seller characteristics and values of λ are as-

sumed to be commonly known across all bidders. Since all factors of p^S are common across all bidders, p^S is also common across bidders.

Furthermore, it is assumed that all bidders evaluate the value v_i of a product according to the following:

$$v_i = \alpha_i \left(\delta \sum_1^N \varepsilon_l y_l + \varphi \sum_1^O \omega_l z_l \right), \text{ where } \sum_1^N \varepsilon_l = 1, \sum_1^O \omega_l = 1, \text{ and } \delta + \varphi = 1.$$

First, bidder i 's privately known value of the good is determined by α_i , $\alpha_i \in [0,1]$. Value draws are assumed to be independent and identically distributed. Second, $y = (y_1, y_2, \dots, y_N)$ is a positive real vector of N observable product information characteristics available in the auction and restricted to values between zero and 1. Each y corresponds to the information signal from a particular product information, such as the amount of product description or the number of pictures included. Bidders weigh the available information according to the vector $\varepsilon = (\varepsilon_1, \varepsilon_2, \dots, \varepsilon_N)$. Each weighted term ε_k is related to the information content in y_k . Third, $z = (z_1, z_2, \dots, z_O)$ is a positive real vector of O observable auction characteristics, restricted to values between 0 and 1. Each z corresponds to the signal from a particular observable auction characteristic such as the start price, reserve price, or the acceptance of an online payment service such as PayPal. Bidders weigh the available auction characteristics according to the vector $\omega = (\omega_1, \omega_2, \dots, \omega_N)$. Each weighted term ω_k is related to the information content in z_k . Finally, all bidders weigh the importance of product information according to the term δ and auction characteristics according to the term φ .

If bidder i wins the auction and pays the selling price b , with probability p^S the seller delivers the good and bidder i realizes the payoff $(v_i - b)$. With probability $(1 - p^S)$ the seller does not deliver any good. In that case, bidder i 's payoff is normalized to $-b$. The expected profit from winning the auction, therefore, is

$$E = p^S v_i - b.$$

The utility of all non-winning bidders is zero. In view of the fact that less reputable bidders possibly default on payment can still bid and win, the reputation of bidders is ignored.

As shown by Houser and Wooders (2006), in equilibrium, it is a weakly dominant strategy, that all bidders offer a bid as their highest proxy bid according to their expected value of winning the

auction, i.e., $b_i = p^S v_i$.⁴ If the highest bidder offers a bid above his valuation and wins the auction, the bidder realizes a negative expected payoff, as the selling price exceeds the expected value. If the bidder is setting a bid under his/her valuation and loses the auction, the bidder realizes a payoff of zero. In a second-price auction, the bidder who submits the highest auction bid wins the auction and pays the offer submitted by the second highest bidder. So, the selling price is given by $b = p^S v_2$ with v_2 denoting the value of the second-highest bidder.

Given that the established equilibrium conditions still hold, it might be more reasonable to relax the assumption that $\lambda_i = \lambda \forall i \in 1, \dots, n$ and instead to allow the weights of the observed reputation, product information, and auction characteristics to vary across bidders. Moreover, it may be reasonable to allow the importance of product information and auction characteristics to vary across bidders. The probability that a seller delivers the good becomes

$$p_i^S = \sum_1^M \lambda_{il} x_l, \text{ where } \sum_1^M \lambda_{il} = 1.$$

The bidder's evaluation of the value of a product in an auction becomes

$$v_i = \alpha_i \left(\delta_i \sum_1^N \varepsilon_{il} y_l + \varphi_i \sum_1^O \omega_{il} z_l \right), \text{ where } \sum_1^N \varepsilon_{il} = 1, \sum_1^O \omega_{il} = 1, \text{ and } \delta_i + \varphi_i = 1.$$

Allowing the bidders to weigh seller characteristics, product information, and auction characteristics differently as well as to weigh the importance of the product information and auction characteristics according to perception directly affects p^S and v_i . While the probability of a successful transaction becomes a private value equal to p_i^S , the private value of the good does not depend on the α draw alone, but also on the valuation of the importance of the item information and auction characteristics in general and the weighing of each single characteristic as well. Allowing p^S to vary across bidders in addition to allowing v_i to vary beyond the α draw presents an approach to the theoretical explanation of cross-country differences in bidders' behavior. The described framework is a starting point to explore why bidders mainly being influenced by one institutional framework, have different preferences, expectations, and perceptions about reputation and information in online auctions than individuals socialized by another institutional framework.

⁴ In eBay auctions an automatic bidding system named "proxy bidding" is applied. On eBay's website bidders are advised to bid the maximum amount they are willing to bid this amount is kept confidential from other bidders and the seller. The bid is compared to those of other bidders and the system places bids as high as necessary to maintain the high bid position. The system bids as high as the maximum amount.

Taking all aspects into consideration, more reputable sellers signal a higher probability of a successful transaction in the future through their reputation of cooperative behavior in the past. Buyers integrate this information into the valuation of the good being auctioned, which then increases buyers' valuation and willingness to pay, and therefore, results in higher selling prices. Based on the theoretical considerations and the presented model it can be hypothesized:

Hypotheses 1a: More (less) reputable sellers will achieve higher (lower) prices.

If country-specific differences in the formal and informal aspects of the institutional framework influences bidders' endogenous preferences, the effect of a better reputation on bidders' willingness to pay and, as a result, the selling price will differ significantly for buyers in different countries. The second hypothesis is:

Hypotheses 1b: More (less) reputable sellers receive differently high (low) prices in different countries.

In online auctions, the channels of communication to distribute information about the item are restricted. According to Morgan and Hunt (1994), communication in buyer-seller relationships is the distribution of relevant and reliable information between the seller and the buyer, and plays an important role in establishing trust. The price rises with bidders' valuation of the good being auctioned. This result originates, among other factors from the information given about the good. Sellers achieve higher prices by reducing information asymmetries through the provision of information about the item. As a result bidders assign a higher value to the good, which then results in a higher willingness to pay. Therefore, the third hypothesis is:

Hypotheses 2a: The more (less) information sellers provide about the characteristics of the good being auctioned, the higher (lower) the price.

Beside the effect on reputation, institutional frameworks influence information-giving and seeking behaviour as well as information processing (Fisher, 1988), and thereby, an individual's information sources have different effects across countries (Dawar et al., 1996). If the country-specific formal and informal institutional frameworks influence bidders' preferences across coun-

tries in different ways, bidders' will have different preferences regarding the amount of information on product characteristics and the way the information is provided. Thus the price should differ significantly across countries as a result of bidders' different value assessments. The fourth hypothesis is:

Hypotheses 2b: Sellers that provide more (less) information receive different higher (lower) selling prices in different countries.

As shown in the model, the final price is also determined by bidders' valuation of auction characteristics. Since seller reputation and product information are the main focus of this study, various auction characteristics serve as control variables in the following empirical analysis.

3 Method

Sample and Data Collection

The hypotheses are tested with data compiled from publicly available information on completed auctions of music CDs, digital cameras, and video game consoles held on the respective national eBay website in Germany, the UK, and the US during a four week period between February and March 2006. The three countries were selected since the US represent the largest eBay marketplace in North America and also worldwide. So, the majority of empirical studies were conducted on eBay's US market. Currently, Germany is eBay's largest marketplace in Europe, followed by the UK. In Germany the second highest number of empirical studies examined effects of reputation on prices in online auctions. To the author's knowledge, in the UK no studies were conducted in this field.

The music CDs, digital cameras, and video game consoles are selected for the data collection for the following reasons: 1) For all three product types it is possible to set criteria of item homogeneity, namely that the goods are unused and sealed. 2) Similar goods were used in former studies. 3) In order to achieve a sample size that fits the requirements of the statistical analysis, goods were selected so that at least five successfully completed auctions per day could to be observed.

The CD as well as the digital camera sample consist of a portfolio of ten different products respectively. For this, the top ten best selling CDs and digital cameras on Amazon's sales rank at the first day of data collection on the website of each respective country were used. The video game console sample consists of Microsoft XBOX 360 Premium video game consoles. In total, the samples include 1,118 auctions in Germany, with 893 CDs, 125 digital cameras, and 100 video game consoles. The UK samples consist of 1,424 auctions, with 909 CDs, 86 digital cameras, and 429 video game consoles. The US samples consist of 3,624 auctions, with 517 CDs, 1,127 digital cameras, and 1,980 video game consoles.

In each country the complete sample of auctions fulfilling the following characteristics was surveyed: Only data of auctions of new, unused, and sealed goods were collected so that all items being auctioned are essentially homogenous. In this way, the price variations observed can be traced to a variation in the seller, item, and auction variables and not to a variation of the good being auctioned. Prices for entertainment and consumer electronics tend to fall over the long term and bidders are likely to be well informed about retail prices in the online environment. Over the time period of the data collection, retail prices were stable and no unforeseen events happened for the product or the manufacturer in the respective country. In order to ensure the intra-country coherence of each country sample, only transactions of sellers and buyers from the same institutional framework were part of the study. In fact, only auctions where seller and buyer were located within the same sample country were included. All auctions where one of the transaction partners belonged to another institutional framework than the other were eliminated. Data of "Power Auctions", "Buy it now" offers, and fixed-price offers were excluded as well.

The professional software BayWatch 3.0 was used to collect the data. During the four-week period two trained student research assistants and one of the authors proceeded daily as follows. First, eBay was searched for the items using the software for auctions containing respective keywords that were set in advance. The software then lists all current auctions containing these keywords. Some of the auctions were not relevant since they were e.g. auctions for consoles bundled with games or other items. Each new auction of only one single CD, digital camera, or video game console was recorded. For each finished auction recorded before, the seller's positive feedback percentage was recorded in addition to the data saved by BayWatch, to obtain a detailed measure of each user's reputation. Feedback profiles are updated in real time on eBay's websites.

So it might have happened that a user's profile at the time of data collection and the profile at the end of an auction do not comply with each other, if, in the interim, the seller had received additional feedback. In order to avoid such variances, a procedure suggested by Houser and Wooders (2006) was followed: Each feedback contains the date when it was posted and, since the time is known at which each auction in the sample closed, the number of positive, negative, and neutral comments from unique users at the time the auction closed was calculated. All the reputation data of completed auctions within the selected category were collected on their completion day. It was systematically checked on a daily basis whether the number of auctions the software collected was identical to the one shown on eBay's site. No differences were found over the entire period.

Variables and Measures

The dependent variable in our empirical analysis is the gross price, in other words, the final selling price plus the costs of shipment shown on the website when the auction is completed. In the analysis it is denoted as *Price*. The price has to be paid in the respective currency of each country, which is Euro in Germany, Pound in the UK, and US Dollar in the United States. In order to compare the prices between the three sample countries in the interaction plots, all selling prices are converted from their local currency into US Dollar by using the purchasing power parity value (PPP) obtained from the mean final price of the respective sample. To be more precise, the mean selling price of all CDs in Germany divided by the mean selling price of all CDs in the US results in the relative ratios indexed by the cost of living in terms of music CDs. The same procedure was used for the digital camera and the video game console samples. Afterwards each selling price is converted into US Dollar using the PPP of the respective product and country.

The independent variables are seller characteristic, product information, and auctions characteristic variables publicly available on eBay's auction websites. The seller's reputation is measured by four different variables. In eBay's Feedback Forum, both buyers and sellers have the chance to rate each other after transactions are completed. Each rating is related to a specific auction and is noted as a number. While a positive feedback from a unique trading partner means one positive point (+1), a negative comment means one negative point (-1), and a neutral comment means one neutral point (0). The first reputation variable is *Feedback Score*, which is given next to each eBay's user ID and denotes the sum of all positive ratings minus the negative ratings users placed after a transaction. After a transaction, each user can affect another member's score just once and

neutral feedbacks have no effect on the score. The second reputation variable is the positive feedback percentage which is given right under each member's ID and denotes the percentage of all unique positive feedbacks relative to negative feedbacks. It is coded as *Feedback Percent*. Furthermore, on the feedback site of each user, eBay provides the numbers of the accumulated negative and the accumulated positive feedbacks. They are coded as *Negative Feedback* and *Positive Feedback*.

To capture the impact of differing information levels about item characteristics on bidders behavior the description of the item being auctioned and the use of accompanying pictures on the auction site are included in the analysis. The size of the product description is measured in kilobyte and is coded as *Description*. The pictures used on an auction site are measured as a dummy variable coded as *Picture* with 1 for at least one picture and 0 for no picture.

The auction characteristics describe the variables that are directly related to the auction. The variable *Bids* accounts for the number of bids an auction received, which is reported on each auction website. The bidders can bid themselves or use the automatic bidding system. Both cases require the entry of the bidder into the auction. Hence, this variable controls for competition on the demand side, in other words, among the competing bidders. The variable *Competition* accounts for the number of auctions of identical items ending on the same day and controls for the competition on the supply side. Sellers have the option to choose between 1, 3, 5, 7 or 10 days of running the auction, which is coded as *Duration*. The variable coded as *PayPal* accounts for the escrow and method of payment service, PayPal provides to eBay users. It is a dummy variable where 1 assigns PayPal acceptance and 0 no acceptance. The costs of shipping the item are coded as *Ship Cost*. The eBay marketplace allows sellers to set a start price, which is coded as *Start Price*. Start price is a dummy variable, where 0 denotes that the seller did not set a start price, while 1 means that the seller did set a start price higher than 1 Euro, 1 Pound or 1 Dollar in the respective country. The variable *Time* is a dummy where 1 denotes that the auction end was between 6 and 11 pm, whereas 0 stands for an auction end at all other times of the day. The variable *Weekend* is a dummy where 1 denotes that the auction end was on a Saturday or Sunday, whereas 0 stands for an auction end between Monday and Friday.

Data Analyses

One-way analyses of variance (ANOVA) of the independent variables across the different countries are conducted to examine significant differences in the means of the datasets. In testing the differences, the usual robustness criteria are applied and therefore both parametric and non-parametric methods are used. For the comparison of mean values as a parametric test the student's t-test is used and for the non-parametric test the Wilcoxon/Kruskal-Wallis test is used. The most conservative, that is, highest p-value between the parametric and non-parametric test, is applied in identifying significant relationships. To assess pair-wise inter-country differences, the Tukey-Kramer post-hoc procedure is used.

While the descriptive statistics are given for the original data, all interval and ratio measured dependent and independent variables were logarithmized before performing the correlation and regression analysis for two reasons: First, for the reputation variables the weight of additional feedback is higher for sellers with a low number of feedbacks than for sellers with a high number of feedbacks. Second, the variables approximately follow a lognormal distribution. As a result the logarithmized variables have a normal distribution. Since the logarithm of zero is undefined, one feedback is added to all reputation variables. In order to analyze the effect of reputation and information on prices, the logs of the respective independent variables are regressed on the logs of price using a simple ordinary least squares approach in all models. In the intra-country analysis the dataset of each individual country is used. In order to test the moderating effect of cultural differences the regression coefficients of the full interaction model are compared to each other using the merged samples of all three countries. The merged sample includes the interaction of the variables with each country (dummy variables). F-tests are performed for all variables and for all three country comparisons in all three samples. A significant difference suggests that institutional frameworks indeed moderate the effect of reputation and information on prices.

4 Results

To provide an overview of the summary statistics and regression results of the nine samples, we proceed by first providing an overview of the descriptive statistics of each sample, and then the results of the regression analysis of each sample will be presented. Table 1 reports means, medians, and standard deviations for all independent variables and the dependent variable.

Table 1: Means, Medians, and Standard Deviations

Variable	Mean			Median			s.d.		
	DE	UK	US	DE	UK	US	DE	UK	US
Compact Discs Sample^b									
Price	12.78	7.62	11.55	12.51	7.51	11.30	3.28	1.24	2.35
Feedback Score	834.80	804.65	10740.73	177.00	157.00	442.00	1986.01	1711.22	49160.10
Feedback Percent	98.19	98.82	97.87	100.00	100.00	99.90	11.63	7.90	12.36
Negative Feedback	3.30	2.27	111.41	0.00	0.00	1.00	10.50	7.38	553.33
Positive Feedback	837.38	806.92	10830.08	178.00	158.00	442.00	1994.55	1715.70	49597.24
Description	9276.35	11356.24	14075.98	8512.00	10780.00	12915.00	5414.73	3164.57	6285.56
Picture ^a	0.90	0.35	0.17	1.00	0.00	0.00	0.30	0.48	0.38
Bids	7.47	7.53	7.52	7.00	7.00	7.00	2.92	3.64	4.15
Competition	39.44	36.75	19.09	32.00	32.00	18.00	23.07	15.23	4.95
Duration	6.26	6.05	5.55	7.00	7.00	7.00	2.69	2.40	2.03
PayPal ^a	0.14	0.90	0.97	0.00	1.00	1.00	0.35	0.30	0.17
Shipping Costs	2.25	1.83	3.02	2.00	1.50	3.00	0.74	1.36	1.41
Start Price ^a	0.29	0.44	0.47	0.00	0.00	0.00	0.46	0.50	0.50
Time ^a	0.52	0.51	0.50	1.00	0.00	0.00	0.50	0.50	0.26
Weekend ^a	0.17	0.39	0.24	0.00	0.00	0.00	0.37	0.49	0.43
Digital Cameras Sample^c									
Price	236.09	170.41	262.42	239.00	189.31	283.95	40.18	80.45	76.29
Feedback Score	1335.74	251.07	917.21	138.00	76.00	153.00	4219.60	483.06	4893.29
Feedback Percent	99.37	99.67	97.66	100.00	100.00	100.00	1.46	0.77	13.19
Negative Feedback	4.10	0.93	6.56	0.00	0.00	0.00	12.46	2.29	42.10
Positive Feedback	1337.86	252.00	820.80	140.00	78.50	155.00	4232.93	484.37	3152.06
Description	30209.29	16301.91	30580.79	13881.00	15176.00	23681.00	46763.39	6730.10	27387.05
Picture ^a	0.96	0.94	0.81	1.00	1.00	1.00	0.20	0.24	0.39
Bids	23.43	15.58	19.83	23.00	15.00	19.00	9.65	8.19	9.21
Competition	7.03	4.66	41.39	6.00	5.00	42.00	4.12	1.92	10.74
Duration	5.19	5.64	3.75	5.00	7.00	3.00	2.72	2.92	2.36
PayPal ^a	0.06	0.97	0.91	0.00	1.00	1.00	0.25	0.18	0.28
Shipping Costs	7.86	23.48	17.66	7.90	10.00	19.99	2.64	45.72	8.67
Start Price ^a	0.22	0.52	0.28	0.00	1.00	0.00	0.41	0.50	0.45
Time ^a	0.53	0.57	0.57	1.00	1.00	1.00	0.50	0.50	0.50
Weekend ^a	0.48	0.30	0.26	0.00	0.00	0.00	0.50	0.46	0.44
Video Game Consoles Sample^d									
Price	391.09	338.26	524.57	385.80	335.00	520.00	27.706	35.15	39.00
Feedback Score	295.03	410.82	305.60	51.5	77.00	64.00	702.04	1255.72	1683.78
Feedback Percent	98.53	96.27	97.25	100.00	100.00	100.00	5.80	16.49	13.51
Negative Feedback	3.14	3.87	2.22	0.00	0.00	0.00	9.56	13.81	21.69
Positive Feedback	298.17	414.69	308.33	51.5	77.00	65.00	710.51	1266.94	1701.25
Description	11605.22	11669.49	13360.31	10200	9603	11596	5489.74	6404.98	7563.46
Picture ^a	0.97	0.95	0.87	1.00	1.00	1.00	0.171	0.22	0.34
Bids	26.54	22.94	18.52	24.05	21.00	18.00	11.38	15.73	10.75
Competition	5.64	21.48	88.80	4.00	21.00	81.00	3.27	11.09	34.18
Duration	3.88	3.29	2.85	3.00	3.00	3.00	2.28	2.30	2.18
PayPal ^a	0.16	0.86	0.96	0.00	1.00	1.00	0.37	0.34	0.19
Shipping Costs	8.27	21.26	33.09	9.75	25.00	39.99	3.59	9.22	17.49
Start Price ^a	0.07	0.34	0.51	0.00	0.00	1.00	0.26	0.47	0.50
Time ^a	0.47	0.54	0.45	0.00	1.00	0.00	0.50	0.50	0.50
Weekend ^a	0.41	0.39	0.38	0.00	0.00	0.00	0.49	0.49	0.49

^a Dichotomous variable. ^b $n^{DE} = 893$, $n^{UK} = 909$, $n^{US} = 517$. ^c $n^{DE} = 125$, $n^{UK} = 86$, $n^{US} = 1127$. ^d $n^{DE} = 100$, $n^{UK} = 429$, $n^{US} = 1980$.

The median becomes important for the comparison because the means are strongly influenced by professional sellers with exceptionally high feedback scores as well as negative and positive feedbacks. Table 2 presents the ANOVA results, showing the statistically significant differences in the means of the independent variables across countries.

Table 2: Results of Analysis of Variance

Variable	Compact Discs	Digital Cameras	Video Game Consoles
Feedback Score	US>DE/UK***	DE<UK/US***	UK>DE/US***
Feedback Percent	-	-	-
Negative Feedback	US>DE/UK***	UK<DE/US**	UK>DE/US**
Positive Feedback	US>DE/UK***	UK<DE/US**	UK>DE/US***
Description	US>DE/UK***, UK>DE***	US>DE/UK***	US>DE/UK***
Picture ^a	DE>UK/US***, UK>US***	DE>UK/US***	US<DE/UK***
Bids	-	DE>UK/US***, UK<US***	DE>UK/US***, UK>US***
Competition	DE>UK/US***, UK>US***	DE>UK***, US>DE/UK***	US>DE/UK***, UK>DE***
Duration	DE>UK/US***, UK>US***	US<DE/UK***	DE>UK/US***, UK>US***
PayPal ^a	US>DE/UK***, UK>DE***	DE<UK/US***	US>DE/UK***, UK>DE***
Shipping Costs	US>DE/UK***, UK>DE***	DE<UK/US***	DE<UK/US***
Start Price ^a	G<UK/US***	UK>DE/US***	US>DE/UK***, UK>DE***
Time ^a	-	-	-
Weekend ^a	US<DE/UK***	DE>UK/US***	-

^aDichotomous variable. † p < .10. * p < .05. ** p < .01. *** p < .001.

There are several statistically significant differences in independent variable means for all three products in the three eBay marketplaces. There is no consistent pattern of sellers' average reputation distribution for all countries across the different products. While, for the CDs sample, sellers in the US have a higher feedback score as well as a higher number of negative and positive feedbacks compared to Germany and the UK, in the digital cameras sample sellers in Germany have a higher score compared to the UK and the US and a higher number of positive feedbacks compared to the UK. In the video game console sample, sellers from the UK have a higher score and a higher number of negative and positive feedbacks.

For product information, however, consistent patterns are obvious. In all samples, sellers in the US use a significantly more detailed description than sellers in Germany and the UK. Sellers in Germany make use of an accompanying picture on the auction website significantly more often than sellers in the UK and the US in all three samples. Also differences for auction characteristics in the means occur. Auctions in the US have the shortest duration compared to Germany and the UK in all three samples. In all samples, in Germany the online payment service PayPal as well as

start prices above \$1 are significantly less often offered than in the UK and the US. In the digital cameras and video game console sample auctions in Germany end more often on weekends than auctions in the UK and the US. Overall, seller strategies regarding the use of item information and auction characteristics for some variables differ significantly across countries and for others are similar across countries.

In all samples and in all countries, all significant correlations between the independent variables and *Price* are in the expected direction. As expected, in all samples and in all countries *Feedback Score* and *Feedback Percent* were highly correlated with the overall *Negative* and *Positive Feedback*. Therefore, in the regression analysis three different models are estimated for each product sample and country. In Model 1 the effect of *Feedback Score*, in Model 2 the effect of *Feedback Percent*, and in Model 3 the effects of the overall *Negative* and *Positive Feedbacks* are tested. The nine correlation matrices are available from the authors on request. Variance inflation factors (VIFs) are calculated to determine if there is multicollinearity in the analyses. A look at the VIF suggests that slightly high intercorrelation occur for overall negative feedback as well as overall positive feedback. However, the significance levels of the results remain the same whether or not negative feedbacks and positive feedbacks are entered at the same time in the analysis. The VIFs of all samples in the three countries suggest no problem of multicollinearity, which therefore does not affect the model fit and hypotheses testing.

In order to test Hypotheses 1a and 2a, an OLS regression for each individual country was conducted. In order to examine whether the forms of the interactions match those suggested by Hypotheses 1b and 2b a full-interaction model of all countries was tested, coded as *Interaction*. Tables 3, 4, and 5 present the regression result for each country. Model 1, 2, and 3 show the effects of seller characteristics, product information, and auction characteristics on prices for the three reputation measures in the intra-country analysis of the CDs, digital cameras, and video game console sample. Interaction shows significant differences in the full-interaction model.

Table 3: Results of Regression Analysis of the Compact Discs Sample^a

Variables	Model 1				Model 2				Model 3			
	DE	UK	US	Interaction	DE	UK	US	Interaction	DE	UK	US	Interaction
Intercept	1.879	1.808	1.262		1.926	1.832	1.220		1.824	1.806	1.192	
Feedback Score ^b	-0.005 (-0.17)	-0.0001 (-0.01)	.010*** (3.54)	DE<US** UK<US [†]	-0.013 (-1.36)	-0.005 (-0.38)	.005 (0.44)		-0.015* (-2.50)	-0.026*** (-4.03)	-0.007 (-1.14)	DE<US [†]
Feedback Percent ^b									.005 (1.38)	.007* (2.24)	.014** (3.20)	DE<US*
Negative Feedback ^b									.015 (1.20)	.005 (0.29)	.064** (3.03)	DE<US*
Positive Feedback ^b									.033*** (4.25)	.002 (0.41)	.010 (1.12)	DE<UK* DE<US [†] UK<US**
Description ^b	.012 (0.98)	.009 (0.49)	.058** (2.84)	DE<US [†]	.013 (1.08)	.008 (0.49)	.066** (3.19)	DE<US*	.120*** (10.72)	.094*** (8.65)	.086*** (7.38)	DE>US*
Picture ^c	.033*** (4.24)	.003 (0.57)	.009 (0.96)	DE>UK** DE>US* UK>US**	.032*** (4.18)	.003 (0.53)	.0001 (0.01)	DE>UK** DE>US** UK>US***	-.058*** (-5.97)	-.036* (-2.55)	.035 (1.39)	UK<US***
Bids ^b	.120*** (10.72)	.095*** (8.60)	.087*** (7.46)	DE>US* UK>US*	.120*** (10.72)	.095*** (8.60)	.088*** (7.48)	DE>US* UK>US*	-.006 (-0.72)	.016 (1.39)	-0.014 (-1.21)	DE>US*
Competition ^b	-.058*** (-5.96)	-.038** (-2.66)	.033 (1.31)	DE<US* UK<US**	-.058*** (-5.95)	-.038** (-2.66)	.031 (1.19)	DE<US** UK<US**	.002 (0.33)	.024** (3.15)	.068*** (3.54)	DE<UK* DE<US** UK<US***
Duration ^b	-.008 (-0.96)	.011 (0.97)	-.013 (-1.18)	DE<UK* DE<US*** UK<US***	-.008 (-0.95)	.011 (0.98)	-.014 (-1.23)	DE<UK* DE<US*** UK<US***				
PayPal ^c	.001 (0.22)	.025** (3.28)	.072*** (3.86)	DE<UK* DE<US*** UK<US***	.002 (0.25)	.025** (3.30)	.071*** (3.77)	DE<UK* DE<US*** UK<US***				
Shipping Costs ^b	.119*** (5.96)	.212*** (10.93)	.158*** (11.63)	DE<UK** UK>US**	.118*** (5.90)	.211*** (10.94)	.159*** (11.57)	DE<UK** UK>US**	.125*** (6.21)	.210*** (10.94)	.159*** (11.68)	DE<US**
Start Price ^c	.020*** (3.78)	.026*** (4.89)	.052*** (6.40)	DE<US** UK<US**	.019*** (3.70)	.026*** (4.94)	.048*** (5.87)	DE<US** UK<US*	.020*** (3.80)	.025*** (4.91)	.051*** (6.29)	DE<US**
Time ^c	-.013** (-2.89)	.001 (0.17)	.005 (0.78)	DE<UK* DE<US* UK<US**	-.013** (-2.94)	.001 (0.18)	.008 (1.20)	DE<UK* DE<US** UK<US**	-.014** (-2.98)	.001 (0.14)	.004 (0.65)	DE<UK* DE<US*
Weekend ^c	-.016* (-2.06)	.016** (2.75)	.001 (0.15)	DE<UK** UK>US**	-.016* (-2.07)	.016** (2.76)	.001 (0.16)	DE<UK** UK>US**	-.017* (-2.14)	.014* (2.43)	.001 (0.11)	DE<UK** UK>US**
Adj. R ²	.76	.36	.57		.76	.36	.56		.76	.37	.57	
F	140.53***	26.53***	35.02***		140.92***	26.58***	33.57***		134.94***	26.52***	33.44***	
N	893	909	517		893	909	517		893	909	517	

^a The dependent variable is Ln(Price). Values are robust unstandardized OLS regression coefficients with t-values in parentheses; all regressions include dummies for compact discs. ^b Logarithm. ^c Dichotomous variable. [†] p < .10. * p < .05. ** p < .01. *** p < .001.

Table 4: Results of Regression Analysis of the Digital Camera Sample^a

Variables	Model 1				Model 2				Model 3			
	DE	UK	US	Interaction	DE	UK	US	Interaction	DE	UK	US	Interaction
Intercept	5.322	4.926	4.907		2.601	3.072	4.879		5.309	4.917	4.908	
Feedback Score ^b	.005*	.014 [†]	-.002									
	(2.26)	(1.80)	(-1.08)									
Feedback Percent ^b					.584*	.398	.009 [†]					
					(2.27)	(0.26)	(1.95)					
Negative Feedback ^b									-.010 [†]	-.025	-.001**	
									(-1.91)	(-0.99)	(-2.65)	
Positive Feedback ^b									.008**	.019*	.002	
									(2.98)	(2.03)	(1.08)	
Description ^b	.005	.017	-.006		.008	.031	-.008 [†]		.006	.014	-.006	
	(1.01)	(0.52)	(-1.21)		(1.57)	(0.92)	(-1.65)		(1.10)	(0.42)	(-1.33)	
Picture ^c	-.004	.040	.004		-.001	.019	.004		-.004	.035	.004	
	(-0.43)	(1.42)	(1.20)		(-0.13)	(0.72)	(1.22)		(-0.37)	(1.22)	(1.00)	
Bids ^b	.025**	-.0001	.020***		.026**	.001	.019***		.024**	.005	.020***	
	(2.72)	(-0.01)	(4.31)		(2.83)	(0.05)	(4.12)		(2.65)	(0.30)	(4.40)	
Competition ^b	.002	-.001	-.009		.004	-.006	-.009		-.002	-.002	-.009	
	(0.16)	(-0.04)	(-1.11)		(0.45)	(-0.22)	(-1.14)		(-0.24)	(-0.09)	(-1.24)	
Duration ^b	-.003	.033 [†]	-.009*	DE<UK [†]	-.002	.025	-.008*		-.001	.032 [†]	-.007 [†]	
	(-0.50)	(1.84)	(-2.21)		(-0.28)	(1.38)	(-2.00)		(-0.21)	(1.81)	(-1.85)	
PayPal ^c	.007	.074*	-.009 [†]	DE<UK*	.008	.068*	-.009 [†]	DE<UK [†]	.007	.070*	-.009 [†]	DE<UK*
	(0.87)	(2.60)	(-1.70)		(0.92)	(2.32)	(-1.68)		(0.88)	(2.44)	(-1.82)	
Shipping Costs ^b	.006	.085**	.027***	DE<UK*	.013	.076*	.027***	DE<UK [†]	.008	.091**	.027***	DE<UK*
	(0.61)	(2.93)	(9.28)		(1.41)	(2.57)	(9.29)		(0.85)	(3.07)	(9.31)	
Start Price ^c	.005	.008	.010**		.007	.007	.010**		.001	.015	.010**	
	(0.81)	(0.67)	(2.77)		(1.24)	(0.50)	(3.01)		(0.11)	(1.08)	(2.96)	
Time ^c	.003	.012	.002		.002	.017	.002		.003	.008	.001	
	(0.73)	(1.01)	(0.60)		(0.49)	(1.45)	(0.58)		(0.82)	(0.63)	(0.53)	
Weekend ^c	.005	-.023 [†]	-.0001	DE<UK [†]	.003	-.022 [†]	.0001		.005	-.025*	-.0001	DE<UK [†]
	(0.93)	(-1.88)	(-0.04)		(0.52)	(-1.77)	(0.03)		(0.90)	(-2.04)	(-0.03)	
Adj. R ²	.95	.98	.94		.95	.98	.94		.95	.98	.94	
F	134.22***	242.09***	913.95***		134.27***	230.81***	916.28***		135.54***	229.93***	873.27***	
N	125	86	1127		125	86	1127		125	86	1127	

^a The dependent variable is Ln(Price). Values are robust unstandardized OLS regression coefficients with t-values in parentheses; all regressions include dummies for digital cameras. ^b Logarithm. ^c Dichotomous variable. [†] p < .10. * p < .05. ** p < .01. *** p < .001.

Table 5: Results of Regression Analysis of the Video Console Sample^a

Variables	Model 1				Model 2				Model 3			
	DE	UK	US	Interaction	DE	UK	US	Interaction	DE	UK	US	Interaction
Intercept	5.689	5.700	6.110		4.840	5.632	6.100		5.674	5.689	6.099	
Feedback Score ^b	-.0004 (-0.11)	.003 (1.16)	.0004*** (0.50)		.187 [†] (1.80)	.016** (2.68)	.002 (0.80)		-.039*** (-4.66)	.009 (1.46)	-.014*** (-5.58)	DE<UK*** DE<US* UK>US**
Feedback Percent ^b												
Negative Feedback ^b												
Positive Feedback ^b												
Description ^b	.030 [†] (1.96)	.003 (0.25)	.005 (1.29)		.028 [†] (1.86)	.003 (0.33)	.005 (1.39)		.011* (2.39)	.0004 (0.14)	.004*** (3.59)	
Picture ^c	-.005 (-0.28)	-.027* (-2.50)	.003 (1.38)		-.005 (-0.26)	-.030** (-2.92)	.003 (1.37)		(3.00)	(0.35)	(1.67)	
Bids ^b	.002 (0.13)	.027*** (3.94)	.021*** (9.24)		.009 (0.70)	.028*** (4.19)	.021*** (9.23)		-.008 (-0.46)	-.021 [†] (-1.73)	.003 (0.28)	
Competition ^b	-.045*** (-4.48)	-.012 (-1.39)	-.004 (-0.99)	DE<UK* DE<US** UK<US**	-.044*** (-4.51)	-.012 (-1.40)	-.004 (-0.97)	DE<UK* DE<US** UK<US**	-.051*** (-5.55)	-.011 (-1.36)	-.005 (-1.29)	DE<UK** DE<US** UK<US*** DE>UK [†]
Duration ^b	.010 (0.89)	-.007 (-1.10)	-.004 [†] (-1.66)		.009 (0.80)	-.008 (-1.23)	-.004 [†] (-1.67)		.010 (1.03)	-.007 (-1.06)	-.003 (-1.33)	
PayPal ^c	.010 (0.90)	.034*** (5.17)	.012** (2.90)	DE<UK*	.011 (1.04)	.036*** (5.37)	.011** (2.82)	DE<UK*	.017 [†] (1.69)	.035*** (5.29)	.010* (2.55)	
Shipping Costs ^b	.029** (2.88)	.018*** (3.81)	.018*** (16.33)		.031** (3.07)	.019*** (3.97)	.018*** (16.30)		.026** (2.78)	.017*** (3.61)	.017*** (16.04)	
Start Price ^c	-.003 (-0.20)	.011 (1.62)	.007*** (3.93)		.014 (0.87)	.012 [†] (1.79)	.007*** (3.85)		-.003 (-0.65)	.011 [†] (1.66)	.007*** (3.98)	
Time ^c	-.009 (-1.36)	-.025*** (-5.33)	-.010*** (-6.36)	DE>UK [†]	-.007 (-1.11)	-.024*** (-5.31)	-.010*** (-6.38)	DE>UK*	-.012* (-2.04)	-.024*** (-5.31)	-.009*** (-6.30)	
Weekend ^c	.010 (1.56)	.007 (1.34)	-.006*** (-3.55)	DE>US*	.013 [†] (1.94)	.006 (1.25)	-.006*** (-2.58)	DE>US*	.014* (2.31)	.008 (1.49)	-.005*** (-3.64)	DE>US*
Adj. R ²	.246	.192	.191		.272	.204	.190		.382	.195	.202	
F	3.93***	10.27***	43.05***		4.37***	10.95***	43.27***		6.09***	9.63***	42.82***	
N	100	429	1980		100	429	1980		100	429	1980	

^aThe dependent variable is Ln(Price). Values are robust unstandardized OLS regression coefficients with t-values in parentheses. ^bLogarithm. ^cDichotomous variable. [†] p < .10. * p < .05. ** p < .01. *** p < .001.

Hypothesis 1a stated that more reputable sellers will achieve higher prices, and less reputable sellers achieve lower prices. As shown in Table 3, in the intra-country analysis of the music CD sample, the coefficient for *Feedback Score* is positive and statistically significant in the US. The coefficient for overall *Negative Feedback* is negative and statistically significant for the German and the UK sample. The coefficient for overall *Positive Feedback* is positive and statistically significant in the UK and the US. As shown in Table 4, in the digital camera sample, the coefficient for *Feedback Score* and *Feedback Percent* is positive and statistically significant in Germany. The coefficient for overall *Negative Feedback* is negative and statistically significant for the US sample. The coefficient for overall *Positive Feedback* is positive and statistically significant in Germany and in the UK. As shown in Table 5, in the video games console sample, the coefficient for *Feedback Score* is positive and statistically significant in the US. The coefficient for *Feedback Percent* is positive and statistically significant in the UK. The coefficient for overall *Negative Feedback* is negative and statistically significant in Germany and the US. The coefficient for overall *Positive Feedback* is positive and statistically significant in Germany and the US. In the CDs sample, Hypotheses 1a, then, is supported by *Feedback Score* in the US, by overall *Negative Feedback* in Germany and the UK, and by overall *Positive Feedback* in the UK and the US.

Hypothesis 1b predicted a moderation of the relationship between reputation and price by institutional frameworks. As shown in Table 3, in the full interaction of the CDs sample, the difference in the coefficients for *Feedback Score* is statistically significant for the German and the US samples. In the CDs sample, therefore, Hypotheses 1b is confirmed by *Feedback Score*. As shown in Table 5, in the full-interaction model of the video game console sample the difference in the coefficients for overall *Negative Feedback* is statistically significant for the German and the UK samples, the German and the US samples, and for the UK and the US samples. In the video console sample Hypotheses 1b is only confirmed by overall *Negative Feedback*.

To exemplarily show the patterns of the significant moderating effects that supported Hypothesis 1b in the above analysis of the CDs sample, Figure 2 presents the plotted interactions using one standard deviation above and below the mean to capture high and low *Feedback Score*. Figure 3 presents the significant moderating effects that supported Hypothesis 1b in analysis of the video game console sample using one standard deviation above and below the mean to capture high and low *Negative Feedback*.

Figure 2: The Moderating Effect of Institutional Frameworks on the Relationship between Feedback Score and Price in the Compact Discs Sample

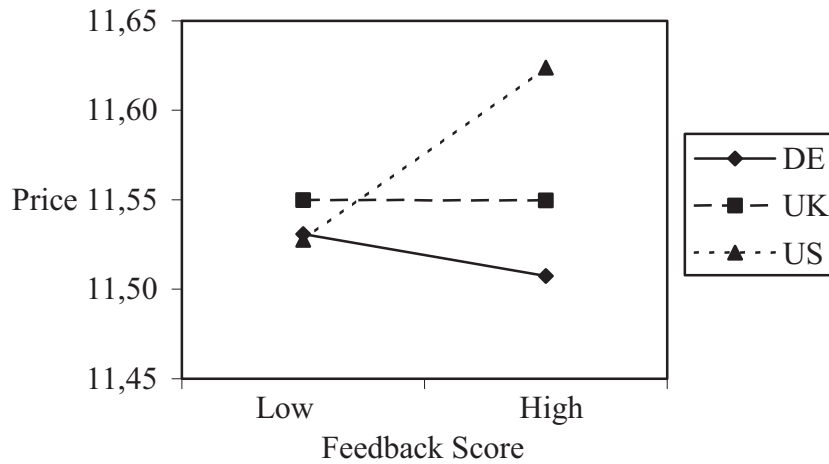
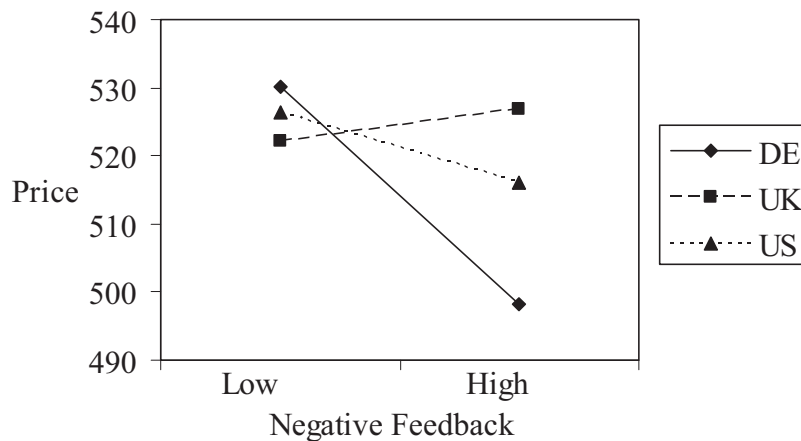


Figure 3: The Moderating Effect of Institutional Frameworks on the Relationship between Negative Feedback and Price in the Video Game Console Sample



For all three product samples at least one of the reputation variables that represent the seller characteristics has a statistically significant effect on final prices. Negative feedback has a stronger effect than positive feedback. These findings are in line with the results of Standifird (2001) and Reiley et al. (2007). For example, if in Germany a video game console seller with three negative feedbacks receives another negative feedback, the price decreases by five percent. If the seller's number of positive feedbacks increases by one-third, the price increases by 1.6 percent. If in the US, in the same sample, a seller's number of negative feedbacks increases by one-third, the price decreases by 1.9 percent. If the seller's number of positive feedbacks increases by one-third, the price increases by 0.5 percent.

The general result is that the influence of a seller's reputation on the price is significant for less expensive products but economically marginal. For more expensive products the influence on price is significant and becomes, especially for the influence of negative feedbacks, a crucial factor. These results are in line with the findings of Ba and Pavlou (2002). While sellers with a higher negative feedback receive lower prices, sellers with a higher positive reputation achieve higher prices. The country-specific result is that the effect varies across institutional frameworks and reputation variables. Additionally, bidders in different countries use different reputation indicators in the value assessment process for the same sample product as well as in different products. The major finding is that, while some reputation measures about a seller have a significant effect in one institutional framework, they have no or a less significant effect in another institutional framework.

Hypothesis 2a stated that, when sellers provide more information about item characteristic, the price will increase and, when sellers provide less information, the price will decrease, respectively. As shown in Table 2, in the CD sample, the coefficient for item *Description*, in all three models, is positive and statistically significant for the US sample. The coefficient for the application of a *Picture*, in all models, is statistically significant in Germany. As shown in Table 4, in the video game console sample, the coefficient for *Description*, in the third model, is positive and statistically significant in Germany. Surprisingly and in contradiction to the predicted relation, the coefficient for *Picture* is negative and statistically significant in the UK in the first and in the second model.

Hypothesis 2b predicted moderation by institutional frameworks of the relationship between item characteristics and price. As shown in Table 2, in the full interaction of the CD sample, the difference in the coefficients for *Description* is statistically significant for the Germany and the US samples in the second and in the third model. The difference in the coefficients for *Picture*, in all models, is statistically significant for the German and the US samples, the German and the UK samples, and for the UK and the US samples.

Auctions that provide a more detailed description, and therefore, a higher amount of information about the product being sold, result in significantly higher prices only in the US in the CDs sample and in Germany in the digital cameras sample. These mixed results confirm the mixed find-

ings e.g. by Yin (2006), where a more detailed description of computers resulted in higher prices, and Andrews and Benzing (2007), where no effect of description was found for used cars. Auctions, which used pictures, resulted in higher prices in the German CDs sample as well as in the video game console sample. Surprisingly, in the UK, auctions of video game consoles that used a picture resulted in significantly lower prices. Also, earlier studies confirm these mixed results. Ottaway et al. (2003) find no significant effect for the use of accompanying pictures, whereas Melnik and Alm (2005) find a positive significant effect for coins.

Though the empirical focus of this study is seller's reputation and product information, this study's conceptualization of bidders' value assessment includes different auction characteristics. As shown in Table 3, in the CDs sample, the coefficient for *Bids*, in all models, is positive and statistically significant for all countries. The coefficient for *Competition*, in all models, is negative and statistically significant in Germany and in the UK. The coefficient for *PayPal*, in all models, is positive and statistically significant in the UK and in the US. The coefficients for *Shipping Costs* and *Start Price*, in all models, are positive and statistically significant for all countries. The coefficient for *Time*, in all models, is negative and statistically significant in Germany. The coefficient for *Weekend*, in all models, is negative and statistically significant in Germany and positive and statistically significant in the UK.

As shown in Table 4, in the digital camera sample, the coefficient for *Bids*, in all models, is positive and statistically significant in Germany and in the US. The coefficient for *Duration*, in the first and in the second model, is negative and statistically significant in the US. The coefficient for *PayPal*, in all models, is positive and statistically significant in the UK. The coefficient for *Shipping Costs*, in all models, is positive and statistically significant in the UK and in the US. The coefficient for *Start Price*, in all models, is positive and statistically significant in the US. The coefficient for *Weekend*, in the third model, is negative and statistically significant in the UK.

As shown in Table 5, in the video game console sample, the coefficient for *Bids*, in all models, is positive and statistically significant in the UK and in the US. The coefficient for *Competition* in all models is negative and statistically significant for the German sample. The coefficient for *PayPal*, in all models, is positive and statistically significant in the UK and in the US. The coeffi-

cient for *Shipping Costs*, in all models, is positive and statistically significant for all countries. The coefficient for *Start Price*, in all models, is positive and statistically significant in the US. The coefficient for *Time* is negative and statistically significant in the UK and the US in all models and for the German sample in the third model. The coefficient for *Weekend* is negative and statistically significant in the US in all models and positive and statistically significant in Germany in the third model.

The theoretical prediction that a higher number of bidders in an auction results in higher prices (McAfee and McMillan, 1987) is supported by significant effects for all samples and for all countries. The theoretical prediction that a higher competition results in higher prices is only supported for Germany in the CDs and video game console sample and in the UK in the CDs sample. Surprisingly, no significant effect is found in the US. A closer look at all three samples and countries where “Buy it now” auctions are included reveals that competition then becomes a significant determinant of prices also in the US. Obviously, there is a strong crowding out of “pure” auctions in the US and the UK. The finding of previous studies (Houser and Wooders, 2006; Reiley et al., 2007) that a longer auction duration has a positive effect on prices is not supported by the results of this study. This finding is in line with Melnik and Alm (2002) as well as McDonald and Slawson (2002).

Interestingly, there are significant differences in the effects of the PayPal service between Germany and the UK as well as Germany and the US. In the CDs sample, auctions with PayPal result on average in an eight percent higher average price in the UK and in a 17.5 percent average price in the US. In the digital cameras sample, auctions offering PayPal result on average in a ten percent higher average price in the UK and in a three percent higher average price in the US. In the video game console sample, auctions offering PayPal result on average in a seven percent higher average price in the UK and in a three percent higher average price in the US. In all countries and in all samples, shipping cost increase the price. Higher start prices (higher than \$1) have a positive significant effect in Germany, the UK, and the US in the CDs sample and in the US also in the digital cameras as well as the video game console sample. This finding is in contradiction to Reiley et al. (2007) and Bajari and Hortaçsu (2003) where start prices were found to have a negative effect on prices. Very often eBay seller guides propose auction end times in the evening. In all three countries auctions that end between 6 and 11 pm result in significantly lower prices. This

finding is consistent with Grund and Gürtler (2006) were auctions at comparable times did not result in higher prices, either. The results for auctions that end on a weekend are mixed. While auctions in the compact discs sample, that end on a weekend result on average in seven percent lower prices in Germany, auctions that end on a Saturday or Sunday result on average in a two percent higher average price in the UK.

5 Conclusion and Outlook

The first objective of this study was to gain a better understanding of the impact of country-specific institutional frameworks on the relationship between seller reputation and closing prices in online auctions. The second objective was to test the moderating effect of the institutional environment on the influencing role of item information on prices. For these purposes, a sample of 6,166 homogenous online auctions of Compact Discs, digital cameras, and video game consoles, conducted on the respective eBay websites in Germany, the UK, and the US, was analyzed.

The theoretical framework predicted that reputation and information have an effect on prices in the intra-country analysis. The second prediction was that country-specific differences in the formal and informal institutional framework moderate the effect of reputation and information on selling prices through bidder's individual preferences and value assessment, which are just as well influenced by the respective institutional framework. The relevance of the proposed model is empirically demonstrated by the significance of the intra-country effect of seller, item, and auction characteristic on closing prices, as well as the influence of the institutional frameworks in moderating these effects.

The main result is that the influence of a seller's reputation on the price is economically marginal but significant. The impact of the effect varies across countries and reputation variables. Additionally, bidders in different countries use different reputation variables in the value assessment process. These findings may help further research in the field of the different dimensions of online reputation and their effect on prices (Ghose et al., 2006), value assessment in different phases of the auction process (Ariely and Simonson, 2003), and on country-specific determinants of electronic commerce (Pavlou and Chai, 2002). They may also illuminate the understanding of bidder behavior in general.

Despite the empirical focus of this paper being reputation, the conceptualization of this study, concerning the valuation of auctions, includes the information given for the good being auctioned. Our findings with respect to the effect of item information show that the description given on the auction website and accompanying pictures have a different effect in different countries. The current study therefore also contributes to the research on information effects in online auctions (Vishwanath, 2003, 2004b).

In addition to examining the effects of seller and item characteristics on price empirically, the study took an important first step in investigating the interplay of bidders' preferences and auction characteristics, its effect on prices, and the moderating role of institutional frameworks. The study provides profound evidence of country-specific bidder preferences for different levels of demand, seller supply, start prices, and the PayPal online payment service. These findings have the potential to advance recent research on herding behavior and competition neglect (Simonsohn and Ariely, 2007; Simonsohn, 2006), and online payment systems (González, 2004).

Several limitations of the present study merit, however, further discussion. The role of buyer experience is not included in our analysis. In previous studies mixed results were found for a negative effect of bidder experience on prices (Houser and Wooders, 2006; Lee et al., 2006; Wilcox, 2000). In order to examine country-specific effects of bidder experience, future studies could include experience effects in their analysis. Also, a differentiation of highly professional sellers and more regular sellers, especially in the US, might find stronger effects of reputation in auction of sellers where a pure consumer-to-consumer transaction is at hand (Snijders and Zijdemans, 2004). Moreover, we did not examine differences in the effect of buyer and seller feedback (Zhang, 2006) and differences in socio-economic characteristics of sellers and buyers (Black, 2005; Black, 2007). Also, in the present study it is assumed that bidders in each country are a homogeneous group. Especially in the Internet, multiculturalism, subgroups within nations, and cultural heterogeneity could occur (Jacob, 2005). Therefore, the presented approach simplifies the influencing role of institutional frameworks. However, even in the presence of these limitations the findings of our study highlight the effect, which differences in cultural as well as legal aspects have on prices in online auctions.

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