

# The Signaling Effect of Critics

## Evidence from a Market for Experience Goods

Joe Cox<sup>1</sup> and Daniel Kaimann<sup>2</sup>

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**Abstract** Experience goods are characterized by information asymmetry and a lack of *ex ante* knowledge of product quality, such that credible and reliable external signals of product quality are likely to be highly valued. Due to their independence and expert reputations, professional critics therefore have the potential to significantly influence buyer behavior and hence product demand. In order to empirically verify the influence of critic reviews on market success, we analyze a sample of 1,480 video games and their sales figures between 2004 and 2010. We find strong evidence to suggest that reviews from professional critics have a significant effect upon sales and serve as a signal that helps consumer to overcome uncertainty and support the decision making process. The influence of professional critics on sales is also found to substantially outweigh that of word-of-mouth reviews from other consumers.

**Key words** Signaling Theory, Information Asymmetry, Critics, Video Games

**JEL classification** C31 · D82 · L14 · L82

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<sup>1</sup>Portsmouth Business School, Richmond Building, Portland Street, Portsmouth, PO1 3DE, UK, E-Mail: joe.cox@port.ac.uk, Phone: +44 2392 844723

<sup>2</sup>University of Paderborn, Department of Business Administration and Economics, Warburger Str. 100, D - 33098 Paderborn, Germany, E-Mail: Daniel.Kaimann@wiwi.upb.de, Phone: +49 5251 60 3373

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## **Signaling in the Presence of Information Asymmetry**

Experience goods represent an example *par excellence* of information asymmetry among consumers and producers, being characterized by a lack of *a priori* knowledge of product quality on the part of the consumer (Nelson 1970). An effective means by which information asymmetry can be reduced is the transmission of a credible signal by a sender. In order that the signal will be interpreted by the receiver as credible, the signal must be conjoint with costs. Critical statements of professional reviewers about the quality of a product or service represent such a signal and therefore have the potential to significantly impact sales performance. As illustrated in Figure 1, the critic's contribution to the reduction of information asymmetry must be understood as an external signal or factor to the existing signaling and screening process between consumers and producers. Whereas in the traditional signaling model, the agent sends a credible signal about his product or service qualities to the principal, the model outlined in this study illustrates the effects of a signal that is sent by an external party. Due to the independence and reputation of critics, their opinions and recommendations also possess a high level of credibility. Consequently, their signal has a stronger and more reliable status than the signals of producers. The video game industry, with its ancillary rental and sales markets, represents an ideal object of research in order to analyze the effect of signaling from external parties upon information asymmetry, as products related to the entertainment industry (e.g. theaters, music or video games) represent classic examples of experience goods. Thus, the motivation for this study is to determine the signaling role played by professional reviews in determining video game sales performance and to isolate the influencing effects of critics.

[Figure 1 about here]

According to Eliashberg and Shugan (1997), critics can either adopt the role of an influencer or a predictor. The influencer has the reputation of being an opinion leader for a group or individuals and has credibility derived from reliable expertise within a particular field (Weiman 1991). In contrast, a predictor has no significant influence on buyer behavior and volume of sales. Predictors simply reflect the existing preferences of consumers and do not have any direct influence over buyer behavior. Consequently, customers will make consumption decisions based on other independent factors such as sales promotions, advertising, online user or word-of-mouth reviews. It may also be possible that the influencing and predicting effects of critics exist simultaneously.

Relatively few studies have analyzed the relationship between the influence of critics and the sales performance of experience goods such as movies, music, home entertainment or video games. Existing motion-picture studies typically find a positive correlation of film reviews and box office returns as a result of reduced information asymmetries (Litman 1983, Sochay 1994, Eliashberg and Shugan 1997, Basuroy *et al.* 2003, Boatwright *et al.* 2007, Moon *et al.* 2010). Additionally, Cui *et al.* (2010) examine a range of markets including DVDs, games and consumer electronics and find that negative reviews have a greater relative impact on sales than positive reviews.

A smaller number of studies have examined the factors that influence sales of video games. The most comprehensive study of online user or word-of-mouth reviews in the video games market is by Zhu and Zhang (2010). This particular study finds that online user reviews are more influential for less popular games and for those consumers that are more experienced in their use of the internet. Despite a very comprehensive

empirical analysis, a potential flaw in the study of Zhu and Zhang is the assumption that the same games released for different platforms are heterogeneous, due to differing tastes between installed user bases. However, this assumption does not appear to hold in our (more extensive and up-to-date) database of games. Instead, the larger range of control variables used in our data set, especially the publisher fixed effects, are used to control for the influences of both product quality and review score. To our knowledge, no other studies exist where the role of professional critics in determining sales performance of video games is examined empirically, especially where the influencing and predicting effects are separately controlled for and measured.

While gaming may originally have been seen to be the exclusive preserve of children and teenagers, the market has evolved into a multi-billion dollar global industry that attracts consumers from an increasingly broad range of ages, genders and socio-economic backgrounds. According to the Entertainment Software Association (2012), the average gamer is 30 years of age, while 47% of gamers are female. In fact, adult female gamers represent around twice the proportion of total US gamers than boys aged 17 or younger. Figure 2 illustrates both the upward trend and cyclical performance of the US video games market from 1995 to the present day, measured in terms of hardware and software sales revenues. There is a clear pattern of significant growth during and immediately following years where new hardware models are launched, followed by flattening or declining performance in subsequent years. For reference, the significant years where this occurred are 1995/6 (Sony Playstation and Nintendo 64), 2000/01 (Playstation 2, Nintendo Gamecube, Microsoft Xbox) and 2005/06 (Microsoft Xbox 360, Nintendo Wii, Sony Playstation 3). Despite the huge sales successes observed over the course of the current hardware generation, the market has begun to experience a pronounced decline from 2008 to present, possibly due to a combination of

weak economic conditions, the rise in popularity of gaming on mobile phones and tablets and the approach of the end of the current generational hardware cycle. The pronounced decline in sales has resulted in some recent high-profile casualties within the industry, most notably the demise of major publisher THQ.

[Figure 2 about here]

Consequently, from a business perspective, it is of vital importance to forecast product sales efficiently, in particular those of new products at the beginning of their product life cycle. Thus, it is important to understand relevant signals that influence the purchase decision of customers and how the information contained in these signals (e.g. reviews from professional critics) can be measured and evaluated in order to optimize managerial decisions and strengthen competitive advantages.

## **Research Hypotheses**

### *The influence of individual signals*

We contend that the expert and independent information contained within the reviews of professional critics is of particular importance *before* the release a video game, whereas opinions shared through word-of-mouth are more likely to be shared *after* release. However, both opinion types have three things in common. First, more positive responses lower the uncertainty over product quality among prospective consumers. Second, if evaluations approach unanimity, consumers' certainty in their purchase decision will increase. Third, the greater the number of available evaluations, the lower is the evaluation insecurity among future buyers. Consequently, we formulate the following hypotheses:

- H<sub>1a</sub>: More positive ratings (higher valence) from professional critics have a positive and significant effect on total sales.
- H<sub>1b</sub>: A greater number of available reviews from professional critics positively influence total sales.
- H<sub>1c</sub>: Greater consistency of the reviews from professional critics has a positive and significant effect on total sales.

Given that The Entertainment Software Association (2012) claim that 62% of gamers play games with others and that a third of gamers play social games; the views of peers and word-of-mouth advertising are becoming increasingly important factors in the determination of sales success. Dellarocas and Narayan (2006) find that, compared to professional reviews, consumer reviews tend to be either very positive or very negative, resulting in a bi-modal ‘u-shaped’ distribution of scores. A growing body of literature has found evidence that word-of-mouth advertising and online reviews significantly associate with sales performance for other experience goods such as books and movies (e.g., Godes and Mayzlin 2004, Senecal and Nantel 2004, Chevalier and Mayzlin 2006, Dellarocas *et al.* 2007, Chintagunta *et al.* 2010, Archak *et al.* 2011). Dellarocas (2003) and Chen and Xie (2008) verified a correlation of customer reviews and product sales in the online markets eBay and Amazon. These studies considered mostly either the average ratings of the sellers or the products. Consequently, only quantitative indicators were included as exogenous variables. Liu (2006) analyses the personal atmospheric levels of user reviews with the help of lexicographic analysis tools. In particular, the number of messages and the average number of sentences qualified themselves for quality criterion. While a majority of studies highlight the significance of the valence of online reviews upon sales, studies such as Duan *et al.* (2008) find that it is the volume of consumer reviews that actually associate more

strongly with sales performance. Additionally, Clemons *et al.* (2006) find that the consistency of online ratings offers the most significant predictor of sales growth among the craft beer industry, along with the strength of the most positive quartile of reviews.

Accordingly, we hypothesize the following:

H<sub>2a</sub>: More positive ratings (higher valence) from users have a positive and significant effect on total sales.

H<sub>2b</sub>: A greater number of available reviews from users positively influence total sales.

H<sub>2c</sub>: Greater consistency of the reviews from users has a positive and significant effect on total sales.

### *The interaction of signals*

Economic studies in the marketing and especially entertainment industry mostly concentrate on the evaluation on distinct types of signals. In reality, individual signals are unlikely to appear independently. Consequently, customers have to simultaneously evaluate the credibility and reliability of a range of distinct signals. Kirmani and Rao (2000) illustrate the interaction of independent types of signals in their theoretical framework, although Basuroy *et al.* (2006) are among the first studies to empirically estimate interaction effects among signals of quality in the entertainment industry. Using movie industry data and a dynamic simultaneous-equations model, they show that the simultaneous occurrence of expenditure on advertising and product sequels have a significant positive interaction effect on box office revenues. Following these findings and the principles of signaling theory, we consider the marginal contribution of additional signals and their interactions and propose the following hypotheses:

- H<sub>3a</sub>: The interaction between professional and user rating scores has a positive effect on total sales.
- H<sub>3b</sub>: The interaction between the consistency of expert and user opinions has a positive influence on total sales.
- H<sub>3c</sub>: The interaction of the valence of expert opinion and additional signals (sequels, re-releases, and video game age ratings) positively affect total sales.
- H<sub>3d</sub>: The interaction of the valence of users' opinion and additional signals (sequels, re-releases and video game age ratings) positively affect total sales.

## **Empirical Analysis**

### *Data*

In order to empirically verify the influence of critic reviews on market success, we construct a sample consisting of 1,480 video games and their sales figures between 2004 and 2010. Sales figures were obtained from VGChartz, while other characteristics (genre, age rating etc.) were obtained from the MobyGames database. We concentrate our analysis on the five console and handheld devices Nintendo DS, Nintendo Wii, Sony PlayStation 3, Sony PSP and Xbox 360. We do not consider the sales of PC games as part of this analysis. The video game reviews came from the internet portal Metacritic. Metacritic is a website that reviews music, movies, TV shows and especially video games on the basis of a weighted average of mainstream critical responses. Based on their importance and coverage, the opinion of some critics is assigned a greater weighting than others when the average review score is calculated. Every Metascore is calculated on the basis of at least four weighted reviews from professional critics. The review scale ranges from 0-100, with higher scores indicating a more positive response. There is significant and widespread regard for this resource among consumers and also within the industry itself. Wingfield (2007) states that game publishers are now even including the metric scores in the contracts with the developing studios. If a studio is

not able to achieve the agreed score, a royalty must be paid.

We gather three different main factors to model the influence of both professional critics and word-of-mouth on total market success – *valence*, *volume* and *consistency*. *Valence* represents the weighted average rating from Metacritic and consequently acts as the valuation standard for consumers, as the two scores are directly visible and comparable. User and critical *valence* both have a very similar average rating of approximately 70% within our data set and the two variables also show the highest correlation coefficient within our dataset (0.63). Consequently, user and critical *valence* feature an analogical structure that may also be perceived by consumers. In addition to the *valence* of critics, we also include the *volume* or total number of critic reviews in our analysis. On average, users generate around twice the quantity of individual reviews compared to professional critics. We expect that the higher the number of total reviews, the lower will be the level of uncertainty among consumers. Another important valuation factor for customers represents the *consistency* of ratings. Critic and user reviews are not only illustrated by their average rating score on total number of rating but are also formally divided into positive, mixed and number of negative ratings by the Metacritic site. Higher levels of inconsistency in the opinions of professional and user critics will directly result in greater uncertainty of consumers. Consequently, consumers will have less insecurity when critics reach near unanimity. Our measure of *consistency* is the sum of squares of the *proportions* of positive, negative, and mixed opinions among the total number of reviews. Accordingly, the *consistency* variable is analogous to the Hirschman-Herfindahl index which captures the degree of market homogeneity or heterogeneity of any variable of interest, usually market concentration. Our *consistency* variable is bounded between a value of 1 (perfect consistency) and 0.33 (exactly equal allocation proportions of reviews in each of the three opinion categories). Figure 3

illustrates the Lorenz curve of both consistency measures and shows that user reviews tend to demonstrate greater unanimity compared to those of professional critics; a condition that is also verified by the means of the different consistency measures (0.65 for professional critics and 0.69 for user critics). Nonetheless, both Lorenz curves are fairly close to the 45° line, which suggests that there generally tends to be a high level unanimity in reviews of video games.

[Figure 3 about here]

Following the work of Basuroy *et al.* (2006), we include additional signaling effects that may affect total sales. Specifically, the sequel and re-release variables represent consumer-specific reputation effects and account for prior market success. Sequels represent 56% and re-releases 5.5% of our sample. The proportion of re-release video games therefore reflects the distribution of sequels in movie business research, whereas the proportion of sequel game releases in our data set exceed the percentage of sequels in prior entertainment business studies many times over (Basuroy *et al.* 2006). The variable *Rating M* (reflecting 17.5% of all video games) represents product and category characterizations and consequently reflects customers' preferences and taste. Accordingly, we follow past studies on the entertainment business from DeVany and Walls (2002) and Ravid (1999) who utilize a similar age-classification variable for the movie industry, where both studies show that R-rated movies serve as a signal of content and quality. Besides testing for the influence of critics and additional signaling effects, we also control for gameplay characteristics, release information and other available *ex ante* indicators of quality, studio size and market share as well as genre and group effects and miscellaneous industry and time effects.

*Estimation results*

Table 1 presents regression output from six different model specifications. Models I-IV estimate the relationship between sales and a range of alternative combinations of critical and user response, thereby testing hypotheses  $H_1$  and  $H_2$ . Models V and VI include interactive terms to capture the interrelationships between external signals of product quality, which allow for the testing of  $H_3$ . The regression output is remarkably consistent between model specifications, indicating that our findings are broadly robust. However, some important distinctions can be made, most notably between the specifications that do and do not include interaction terms.

[Table 1 about here]

Focusing on the model specifications that do not include interaction terms, it is apparent that every measure of professional critical response (valence, volume and consistency) associates positively and significantly with sales. A one unit increase in valence, which is equivalent to a 1% increase in the review score, is found to increase unit sales by an average of around 1.7%, while every additional review from a professional critic associates with an average increase in sales of just under this amount. A one unit increase in the consistency of reviews posted by professional critic's associates with an average increase in unit sales of around 98%, although because this variable is measured in a range between 0-1 the 'elasticity' is best regarded as approximately 0.98. Clearly, unit sales are relatively elastic to all measures of professional critical response. These coefficient estimates show strong support for all elements of hypothesis  $H_1$ .

When taken in isolation, the equivalent independent variables representing the

response of users look relatively similar. A one unit increase in the average user review increases unit sales by just over 1.8%. The association with volume of user reviews is around 0.01% increase in sales for every one user review, revealing that the effect of an additional review from professional critics is significantly greater than that of a single additional user at the margin. Perhaps contrary to theoretical expectations, a statistically significant negative relationship is observed between the consistency of user reviews and unit sales, with an elasticity of approximately -0.68. As there is a negative correlation between these two variables (coefficient -0.14), the only reasonable interpretation for this finding is that users tend to be more consistent in their assessment of poorly selling games and less consistent in their assessment of successful titles. The regression results from Model II therefore show support for hypotheses H<sub>2a</sub> and H<sub>2b</sub>, but do not support H<sub>2c</sub>.

When the two sets of variables (critics and users) are combined in Model III, a somewhat different pattern emerges, especially with regards to the influence of valence. The estimated elasticity of sales to critical valence remains unchanged, while the elasticity of sales to user reviews is found to be equivalent to zero. The interpretation of these results is that if user and critical valence are both controlled for, the influence of professional critical response on sales completely dominates that of users. This result is particularly noteworthy given that the correlation between these two variables is not as high as might have been expected. Other measures of critical response (volume, consistency) do not dramatically change in this particular model specification. On balance, when both types of critical response are controlled for separately, we find that there is much greater support for the components of H<sub>1</sub> compared with H<sub>2</sub>. Consequently, we conclude that professional critics influence buyer behavior through presenting credible *ex ante* signals of quality, whilst user reviews are largely generated

*ex post* and hence are more likely to simply reflect the known quality of a particular title. Therefore, we find no support for the arguments that online word-of-mouth associates with greater credibility and stronger social control compared to professional critics.

An alternative specification (Model IV) replaces the straight measurement of critical valence with a measurement of the level of critical valence above 80%, with every observation of 80 or less being set equal to zero. This particular model specification is estimated as a direct response to the 2006 Activision study of 789 Sony PlayStation 2 titles (cited in Wingfield 2007), where it was found that games sales will typically double for every increase in critical valence of 5% above the threshold of 80%. In our analysis, the size of the coefficient is unsurprisingly found to be much larger than for the simple linear measurement of critical valence, with every 5% increase in review score over and above 80% increasing unit sales by about 23%. After controlling for a range of other variables, our estimate of the sales return to review scores at the upper-end is around a quarter of that estimated by Activision. Additionally, when this measurement of critical valence is used, the coefficient estimate for the effect of user valence is shown to be statistically significant, although the elasticity is estimated to be lower. In all but one of model specifications I-IV, the effect of two other credible *ex ante* signals of quality (whether the respective title is a sequel and/or a re-release) are found to significantly increase unit sales, with the average of the coefficient estimates suggesting increases in unit sales of just over 20% and 29% respectively. The final quality signal (an 'M' or 'Mature' age rating) is not found to significantly affect unit sales in these specifications.

Models V and VI include interaction terms which capture the interrelationship between the various signals of quality available to buyers and allow for the formal

testing of hypothesis  $H_3$ . While the presence of these interaction terms has little effect on the coefficient estimates for separate measures of volume and consistency for both professional critics and users, the relationship between valence and sales is shown to be quite different. In these specifications, user valence is still shown to have a negligible influence on unit sales and is not found to be statistically significantly different from zero. Additionally, interactions between user and professional critic valence and consistency are not found to significantly affect sales, leading us to reject hypotheses  $H_{3a}$  and  $H_{3b}$ . Instead, we find a significant positive association for variables capturing the interactions between professional critic valence and other indicators of quality, especially sequels and titles that have mature ratings. The coefficient estimates suggest that every unit (equivalent to percentage) increase in critical review score increases unit sales for sequels by 1.2% and 1.7% respectively. These findings strongly support hypothesis  $H_{3c}$  and suggests that video game consumers make purchasing decisions based upon multiple reliable indicators of quality, such that disproportionately greater sales are typically generated where a two or more credible signals are observed together. No such evidence is found to support the interaction between any of these additional signals of quality and user reviews, which leads us to reject hypothesis  $H_{3d}$ .

Due to concerns about the potential for endogeneity between valence and unit sales in the above model specifications, we further check the robustness of our results by estimating similar model specifications using a Two-Stage Least Squares (2SLS) procedure. Following Basuroy *et al.* (2006), we use consistency of review scores as an instrumental variable. While this variable is theoretically and statistically correlated to some degree with valence (correlation coefficients of 0.48 and 0.34 respectively for critics and users), it is also correlated with unit sales (0.37 and -0.14 respectively for critics and users), which calls into question the suitability of this variable as an

instrument for the endogenous system of equations described above. Nonetheless, the absence of superior alternatives and precedence elsewhere in the literature provides some justification for its use. These 2SLS regressions produce very similar results to the OLS output summarized in Table 1. The same broad conclusions can be drawn, specifically that professional critical valence is significantly more influential than user valence in terms of video game unit sales and that professional critical valence associates even more strongly with sales when observed in conjunction with other credible signals of quality, such as sequels or games with mature age ratings. In fact, the coefficient estimates attached to these variables are larger than those reported in Table 1, suggesting that failure to control for endogeneity in OLS regressions is likely to underestimate the strength of the relationship between valence and sales. However, due to the poor suitability of the chosen instrument, we mention these findings only as an indication of the robustness of our previously reported findings.

## **Conclusion and Managerial Implications**

This study reinforces the hypothesis that the reviews of professional critics influence sales as opposed to merely predicting them. Their independence and reputation serves as a credible signal that helps consumer to minimize uncertainty and consequently support the decision making process. We conclude that our video game sales data reveals strong argument that positive reviews significantly improve sales.

Our empirical findings also lead us to content that professional critics generate an *ex ante* effect on cumulative revenues whereas consumer word-of-mouth influences consumption *ex post*. Due to the peer group effect and more credible reputation of word-of-mouth information it may have been expected that word-of-mouth would outweigh the signaling effect of critics. Our analyses of contemporary video game sales

data shows that the opposite is true: critics have an influencing effect which outweighs the word-of-mouth generated by other users, who are more likely to simply predict sales. We not only confirm the signaling effect of critics on market sales, but also show that the influence of professional critics occurs even during the interaction with additional relevant signals, such as the reputation effects associated with sequels or re-releases. Consequently, our results are counterintuitive to industry belief in the importance of consumer word-of-mouth and emphasize the importance of professional reviews in the purchase decision process of consumers. The results also suggest that measures of valence, such as the Metacritic score, should be of critical importance to games developers and publishers. We also suggest that publishers should make increasing use of contracts with development studios whereby royalties are paid or received based on the Metacritic score achieved by a given title, as this is shown to be a major factor in determining sales performance.

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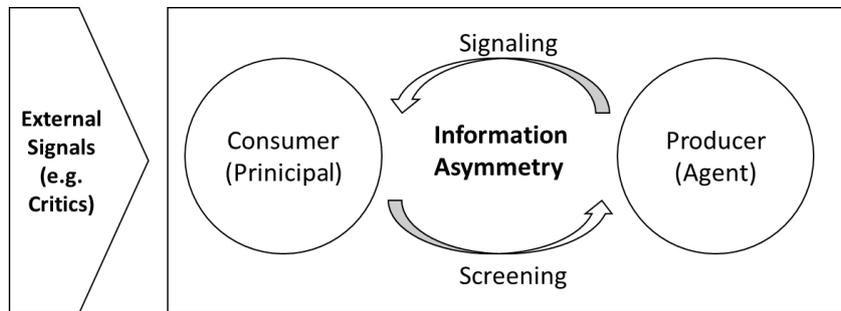
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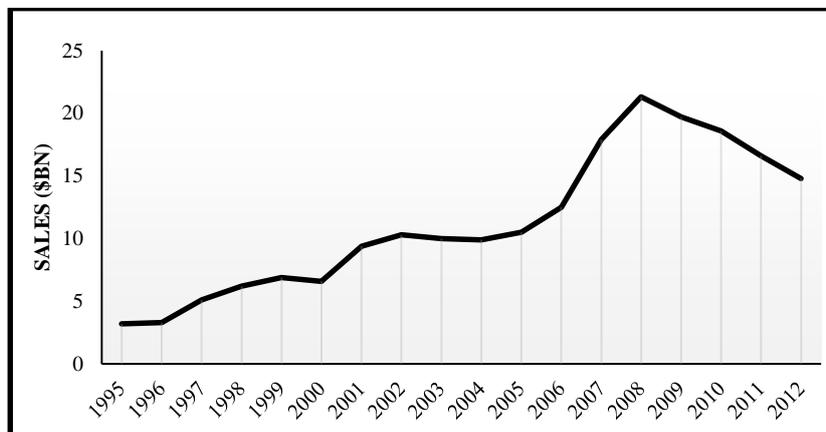
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## Figures and Tables

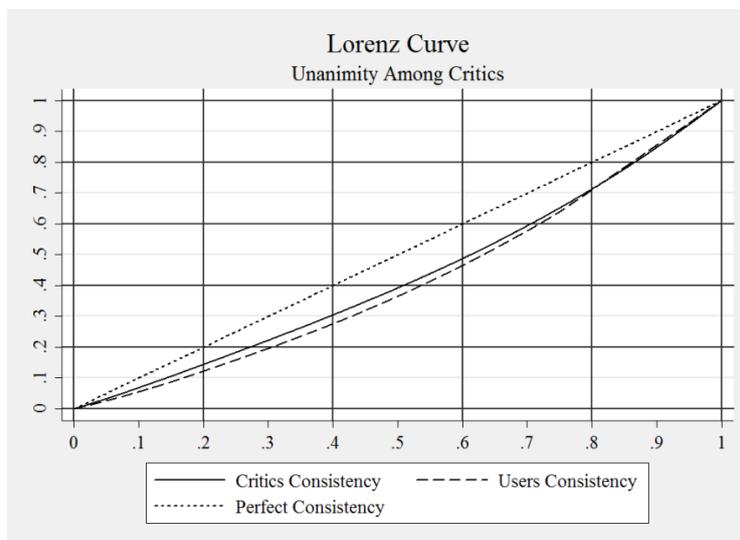
**Figure 1: External Signal Effects of Critics in the Information Asymmetry Model**



**Figure 2: US Video Games Market Development from 1995 to 2012**



**Figure 3: Lorenz Curve of Consistency Measures**



The Signaling Effect of Critics: Evidence from a Market for Experience Goods

<b>Table 1: Regression Output (Dependent Variable: LN US Unit Sales)</b>						
Independent Variables	Specification					
	I	II	III	IV	V	VI
<b>Professional Critics</b>						
Valence (Weighted Average Rating)	0.016*** (5.78)		0.017*** (5.48)		0.015 (1.21)	
Valence (Weighted Average Rating above 80%)				0.043*** (3.05)		0.015 (1.05)
Volume (No of Ratings)	0.019*** (10.04)		0.014*** (7.37)	0.017*** (9.54)	0.014*** (7.42)	0.014*** (7.25)
Variance (Consistency of Rating)	1.130*** (6.96)		0.957*** (5.75)	0.852*** (4.05)	0.754** (2.37)	0.572* (1.76)
<b>Word-of-Mouth</b>						
Valence (Weighted Average Rating)		0.018*** (7.72)	0.000 (0.04)	0.008*** (3.57)	0.008 (0.73)	0.000 (0.06)
Volume (No of Ratings)		0.001*** (5.72)	0.001*** (4.30)	0.001*** (3.31)	0.001*** (4.30)	0.001*** (3.76)
Variance (Consistency of Rating)		-0.675*** (5.27)	-0.620*** (5.02)	-0.635*** (5.16)	-0.788*** (3.19)	-0.783*** (3.25)
<b>Interaction Effects</b>						
Prof Valence x User Valence					-0.000 (0.47)	-0.000 (1.61)
Prof Variance x User Variance					0.314 (0.89)	0.242 (0.70)
Prof Valence x Reputation Effects (Sequels)					0.010** (2.19)	0.012*** (2.85)
Prof Valence x Reputation Effects (Re-Release)					-0.002 (0.15)	-0.002 (0.12)
Prof Valence x Discrimination Effects (Rating M)					0.017*** (3.35)	0.017*** 3.47
User Valence x Reputation Effects (Sequels)					-0.002 (0.46)	-0.006 (1.21)
User Valence x Reputation Effects (Re-Release)					-0.004 (0.28)	-0.006 (0.44)
User Valence x Discrimination Effects (Rating M)					-0.010* (1.83)	-0.010* (1.88)
<b>Additional Signals</b>						
Reputation Effects (Sequel)	0.183*** (3.54)	0.241*** (4.50)	0.170*** (3.37)	0.215*** (4.27)	-0.388 (1.40)	-0.274 (-0.95)
Reputation Effects (Re-Release)	0.215 (1.94)	0.390*** (3.43)	0.268** (2.47)	0.291*** (2.76)	0.734 (1.14)	0.866 (1.31)
Discrimination Effects (Rating M)	0.045 (0.70)	0.079 (1.08)	-0.013 (0.21)	-0.027 (0.44)	-0.486 (1.56)	-0.477 (1.59)
F	29.96	17.66	30.70	28.48	31.40	25.74
R <sup>2</sup>	0.4748	0.4210	0.5021	0.4939	0.5084	0.5079
The following represent additional control variables:						
<ul style="list-style-type: none"> <li>- Studio Size/Market Share (2K, Activision, Atari, Capcom, Disney, Eidos, EA, Konami, Microsoft, Midway, Namco, Nintendo, Rockstar, Sony, Sega, THQ, Square-Enix, Ubisoft)</li> <li>- Genre and Group Effects (Maxplayers, Online, Licensed, Accessory, Ltd. Edition, Multiplatform, Wii, PS,3 PSP, Xbox 360, Adventure, Educational, Racing, RPG, Simulation, Sports, Strategy, Platform, Isometric, Sidescrolling, Top-down, Third-person)</li> <li>- Linear Time Trend (Year Released) and Constant Term.</li> </ul>						
Notes: In each regression, N=1480. Absolute t-statistics in parenthesis and are calculated using robust standard errors.						
Significance: 0.01 '***' 0.05 '**' 0.1 '*'						