SELLING THE DRAMA:

DEATH-RELATED PUBLICITY AND ITS IMPACT ON MUSIC SALES

Leif Brandes[*]

Leif.Brandes@business.uzh.ch
University of Zurich
Plattenstrasse 14
8032 Zurich
Switzerland

Egon Franck

Egon.Franck@business.uzh.ch
University of Zurich
Plattenstrasse 14
8032 Zurich
Switzerland

Stephan Nüesch

Stephan.Nüesch@business.uzh.ch
University of Zurich
Plattenstrasse 14
8032 Zurich
Switzerland

First version: February 11, 2011.

SELLING THE DRAMA:
DEATH-RELATED PUBLICITY AND ITS IMPACT ON MUSIC SALES

Abstract:

This paper analyses the sales impact of artist publicity in the music industry. Our identification strategy employs exogenous variation in the timing of information release due to naturally occurring deaths of 77 artists who died in the period 1992 – 2009. Our findings reveal a substantial increase in weekly album sales after death. To determine if this impact is attributable to death-related affective reactions by (existing) customers, or to greater awareness of previously uninformed customers, we proceed in two steps. First, we show that the sales of albums with high pre-death sales levels and good expert evaluations benefit disproportionally from death-related publicity, which implies that new customers must have entered the market. Second, we find after-death sales to be significantly more responsive to album publicity if an artist's pre-death awareness is lower, i.e., when his last album was released more than four years before death. Together, these findings support the informational role of death-related news, but contradict affective reactions, e.g., nostalgia, as underlying mechanism.

Keywords: customer information; publicity; quasi-experiment; cultural markets

"Michael Jackson, who was a forgotten star, is once again the biggest musical artist on earth."
(JP's Music Blog on July 13, 2009)

1. INTRODUCTION

On June 25, 2009, around 2:30 pm local time the news broke that Michael Jackson had died. As soon as forty-five minutes later, *Twitter* crashed from user overload (Rawlinson & Hunt, 2009). At *Google*, it was initially believed that the input from millions of people searching for "Michael Jackson" meant that the search engine was under attack (Shiels, 2009). In less than 24 hours, Jackson's work accounted for every single entry in the Top 10 album charts at *Amazon.com*. But this was no local reaction. In Germany, his share in Top 10 album charts amounted to 90%, and 70% at *Amazon.de*, and *iTunes*, respectively. People all over the world seemed to be desperate to buy any album he had ever released. The truly remarkable thing about this story is that it all started from death-related news about the artist that was uninformative about the quality of his products.

In this article, we aim to empirically assess the *mechanism* through which artist publicity translates into album sales. We focus on death-related media content and employ exogenous variation in the timing of information release due to the natural deaths[1] of artists. This quasi-experimental approach enables us to identify a causal effect from death-related publicity on album sales. The goal of this paper is then to answer if after-death sales are predominantly driven by increased awareness from customers who were previously uninformed, or by affective reactions associated with death-related news.

Recent empirical studies on cultural markets support a strong link between (cross-) product publicity and product sales (Hendricks & Sorensen, 2009; Berger, Sorensen & Rasmussen, 2010). Moreover, this link has been shown to reflect publicity's informational effect on customers by raising awareness about products. The degree of incomplete

---

[1] This includes forceful deaths, such as the killing of Tupac Shakur, but rules out evident suicides as the one by Curt Cobain (Nirvana).

information in the market is so high that even negative publicity may increase sales of previously unknown products (Berger et al., 2010). In contrast, the focus of the present study is on quality-neutral publicity that originates from the artist's death, i.e., on the artist level[2]. Moreover, we analyse information effects for artists towards *the end of their career*. In contrast, existing studies have focused on informational effects for newcomers (Hendricks & Sorensen, 2009) or new products (Berger et al., 2010).

Death-related news may not only influence product demand through increased customer awareness. Rather, to learn about the death of an artist may evoke affective reactions from customers. Affect reactions have been shown to provide a context that translates into product evaluations (Goldberg & Gorn, 1987). While such context effects are a general phenomenon (Coulter & Punj, 1999), recent evidence specifically establishes a link between death-related media context and brand evaluations (Liu & Smeesters, 2010). News about deaths makes personal mortality salient, which causes psychological distress for customers. To counterbalance such negative feelings, terror management theory (TMT) (Greenberg, Pyszczynski, and Sheldon, 1986) proposes that customers will search for ways to bolster self-esteem, e.g., through secured meaning of their current life, and their worldviews. Feelings of nostalgia have been shown to serve this purpose (Routledge, Arndt, Sedikides and Wildschut, 2008). Nostalgia is defined "as a sentimental longing for the past" (Routledge et al., 2008) and has been found to be an ultimately positive feeling – bittersweet components notwithstanding (Holak and Havlena, 1998; Wildschut, Sedikides, Arndt, and Routledge, 2006). When it comes to music songs, nostalgia is strongest when individuals are familiar with the song and link it to important autobiographical events (Barrett, Grimm, Robins, Wildschut, Sedikides, and Janata, 2010). We build on this insight to hypothesize that

---

[2] A first step into that direction was recently made by Berger et al. (2010) who point out that Michael Jackson's scandals during the 2003-2004 period seem to have benefitted his album sales ranks at *Amazon.com*, but their analysis remains highly preliminary and is limited to only one artist. Moreover, Berger et al. (2010) cannot rule out the possibility that Michael Jackson intentionally started part of the publicity himself (the "baby on the balcony"). Our analysis differs in studying quality-unrelated news, rather than negative publicity.

nostalgia should be most pronounced for existing customers. This view is supported by literature on death-related loss coping (Weiss, 1988). A testable implication is that previously unsuccessful albums should disproportionally profit from artist deaths, because existing customers are unlikely to buy the same album twice, and positive affect state improves evaluations of low-quality albums.

Using data on weekly album sales for 441 albums of 77 artists who died in the period 1992 – 2009, we document weekly album sales to increase by as much as 60% throughout the first two months after death. We find clear evidence for the informational role of death-related news on customer demand: there exists a positive interaction between the after-death period and product quality on album sales, implying that new customers must have entered the market. Subsequently, we aim to establish this informational interpretation in yet another way and group artists based on their activity status before death: in case that an artist's death occurred [less] more than four years after her last album release, she is classified as [active] inactive. Evidence by Berger et al. (2010) suggests that sales reactions should be greater for inactive artists, because previous awareness is lower than for active artists. On the product publicity level, this is exactly what we find in the data: albums of inactive artists are about twice as sensitive to album publicity than those of active artists. Thus, existing customer awareness determines the impact of death-related news on album sales, which cannot be aligned with patterns of death-induced affective reactions.

The remainder of this paper is structured as follows. The next section provides the theoretical background of our study. In section 3, we discuss our data and estimation approach. Section 4 presents our estimation results, and section 5 concludes with a general discussion of our findings.

2. THEORETICAL BACKGROUND

How could artist publicity that is uninformative about quality cause album sales to rise? In this section, we answer this question from two different perspectives, namely the advertising literature, and the literature on customers' affective reactions due to media contexts. Economists and scholars in marketing science agree that advertising can influence customer behaviour in three different ways (Bagwell, 2005). These are the *informative*, *persuasive* or *complementary* views on advertising. According to the informative perspective, advertising by firms helps customers to learn about the existence of products, and enables them to choose products that better suit their needs. This perspective has a long tradition in the area of economics (Stigler, 1961; Nelson, 1974). Adherents of the persuasive view argue that advertising by firms is intended to create perceived virtual product differentiation that is in reality non-existent. In this case, advertising has a combative nature that intends to steal market shares from rival firms (Chen, Joshi, Raju & Zang, 2009). Finally, the complementary view assumes that advertising increases consumers' utility from consumption, because advertised products generate greater social prestige of consumption.

In the music business, each of those three perspectives may contribute to the link between death-related artist publicity and product sales, but the informative perspective follows most naturally from the industry's characteristics: In the music industry, like in all cultural markets, a very large number of products are released every week, making it impossible for buyers to be perfectly informed about all albums. Recent research in these markets supports the idea of imperfect customer information, finding that product sales of previously unknown products increase after successful new product introductions (in the music business; Hendricks & Sorensen, 2009) and even after negative publicity (in the book market; Berger, et al., 2010). It is difficult to explain the later finding in view of the persuasive or complementary perspectives on advertising.

4

In line with the informational perspective, death-related information about an artist makes customers more aware of the artist and his albums, and thus improves product awareness and accessibility during choice processes. Marketers have long acknowledged the importance of consideration for choice (Hauser, 1978; Nedungadi, 1990). Unless a product is part of a customer's consideration set, the product will never be chosen. This is the classical economic perspective on informative advertising. However, it has also been argued by marketing researchers that information may improve accessibility for customers who were previously aware about the artist's existence and products – intuitively speaking, for these customers, death-related information causes products to be 'top of mind' leading to higher choice propensities (Berger et al, 2010). Of course, accessibility and awareness may simultaneously affect previously uninformed customers.

Besides being informative about the existence of an artist and his products, death-related news about an artist is likely to induce *affective reactions* from consumers, too. Previous research has argued that death-related news leads to mortality salience (MS), which requires individuals to face the truth that their time on earth is ultimately finite. The associated distress is frequently termed terror, which requires customers to engage in terror management practices to bolster self-esteem (Greenberg et al., 1986). A substantial body of marketing research has built on this theory and shown that MS significantly impacts customer behaviour (Fransen, Fennis, Pryn, & Das, 2008; Mandel & Smeesters, 2008; Liu & Smeesters, 2010; Fransen, Smeesters, & Fennis, 2011). A relatively new finding, however, is the result that nostalgia can serve as a terror management practice, because it makes death thoughts less accessible (Routledge et al., 2008). In contrast to the traditional view that nostalgia is a bittersweet emotion, Holak and Havlena (1998) present evidence that nostalgia is inherently a positive affective state. Evidence by Wildschut et al. (2006) supports this view, because "relative to participants in the control condition, those in the nostalgia condition score higher

on brief measures of social bonding, positive self-regard, and positive affect" (p. 989). Through the self-reassuring mechanism of nostalgia, death-related news about an artist may lead to positive affect of customers. Although this affective state bears no connection to characteristics of the product, it may influence product evaluations by serving as a context for encoding of product information (Meyers-Levy & Tybout, 1997).

The degree of death-induced nostalgia for a given artist will vary across customers, and for a given customer, across artists. This fact is caused by nostalgia's content and triggering events. For instance, Wildschut et al. (2006) suggest that "nostalgia is a prima facie self-relevant emotion in the sense that the self is a salient protagonist in the nostalgia experience" (p. 976) and provide supportive empirical evidence. This implies that only previously informed customers engage in nostalgic experiences, because uninformed customers lack the autobiographical salience, or familiarity with the dead artist. As a case in point, music-evoked nostalgia by individuals has been shown to be stronger the greater the autobiographical salience and familiarity of the song is (Barrett, Grimm, Robins, Wildschut, Sedikides, & Janata, 2010). Indeed, Barrett et al. (2010) demonstrated "that the autobiographical salience of a particular song was the strongest predictor of the intensity of music-evoked nostalgia" (p. 399). While these findings are highly suggestive for our argument that nostalgic experience is a phenomenon of existing customers, this argument can also be inferred from evidence on the "triggers" of nostalgia.

Recall from above that nostalgia is triggered by negative affect as a means to counteract psychological discomfort. Leaving the general class of negative emotions, Wildschut et al. (2006) show that the discrete affective state[3] of loneliness led subjects to score higher on their nostalgia measure.

---

[3] On a hierarchical approach towards emotions in consumer behavior, see Laros & Steenkamp (2005).

Loneliness is frequently experienced through the loss of an emotionally related person. Building on the social psychology literature, we know that when people experience the loss of an emotionally important individual (as music fans would through the death of an artist), they exhibit various types of attachment behaviour. In particular, it has been argued that such attachment behaviour stems from relationships similar to those that bond children to their parents, and is intended to rebuilt personal security by "seeing, hearing, or touching the attachment figure" (Weiss, 1988; p. 40). This argument builds on conceptualizations of grief, which comprise several phases. For instance, it has been argued that the first phase is a protest phase, "in which effort is devoted to undoing the loss, even though there may be awareness that this is impossible. In this phase, the individual is agitated and fearful, oppressed by intense pain, and subject to bouts of anxiety mounting to panic. There is a vigilant scanning of the environment for sights or sounds that would indicate the return of the attachment figure" (p. 46). While this grief-related view may at first appear somewhat extreme, and to apply mainly to high-involvement fans, it is generally plausible that death-related news induces mood-states of sadness, loneliness and grief on behalf of existing customers. The discussed social psychological view suggests this to result in an increased need for artist proximity by customers. Besides physical proximity (which is restricted) such proximity can certainly best be experienced through purchasing, and listening to, the artist's work.

No matter whether sales reactions are predominantly influenced by affective reactions or increased awareness, death-related news may reach customers on two different levels. First, the millions of *Google* searches for "Michael Jackson" strongly suggest that death-related news stipulates customers' interest in the artist's life and work. Thus, customers learn about products through *artist specific publicity* that subsequently creates interest in his products. Second, death-related news increases the media's interest in the products of the artist. Similar to the first mechanism, media coverage will not only increase for the artist, but also for the

artist's products. Customers thus learn about products through *product specific publicity*. On the artist level, for example, customers learn about the death of "Michael Jackson", whereas on the product level, they learn about "Michael Jackson" and "Thriller" as one of his most famous albums. While existing work has focused on the second mechanism (Sorensen, 2007; Hendricks & Sorensen, 2009; Berger et al. 2010), we are specifically interested in the former link between artist and product level, and hypothesize that both effects will contemporaneously be present.

Death-related Publicity and Product Popularity

To empirically discriminate between the informational and affective reactions explanations for increased after-death album sales, we exploit an important characteristic of the music industry: music albums are differentiated in quality, but all albums sell at essentially identical prices. As a result, not all albums of an artist will be equally popular among customers. This fact is critical, because it makes different behavioural predictions for album choices of existing and new customers.

Consider first the case of an existing customer. If nostalgia leads to positive affect that translates favourably into product evaluations, death-related publicity makes all products of an artist more appealing to existing customers – but which albums will be chosen for purchase? Because there is no utility in owning the same album twice[4], our prediction is that, on aggregate, death-related publicity will mostly increase sales of albums that did not sell well before death.

---

[4] We acknowledge the fact that there might be utility from owning the album twice when technologies differ. For instance, a consumer who owns a specific album on vinyl might later buy the same album in a compact disk format. However, it seems to be unlikely that these customer account for the majority of sales in the market. Moreover, if the customer buys this album after death, the behaviour is most easily explained by increased awareness and accessibility.

H1a: If nostalgia is the underlying mechanism for death-related publicity about an artist to increase product sales, sales of previously <u>unsuccessful</u> albums should profit disproportionally from death-related publicity.

As it turns out, the reasoning for a new customer is completely different. Because quality differs across albums, but prices do not, the utility maximizing choice for a new customer is to buy the best album of an artist. However, this requires new customers to distinguish between high and low quality products, but quality is ex-ante unobservable. What is observable, however, are purchasing actions by other customers. Assuming that every single customer gets a private signal about true album quality, it can be reasonable to infer product quality from purchasing decisions of other customers (Bikhchandani, Hirshleifer, and Welch, 1998). Indeed, many studies provide empirical evidence on the impact of such observational learning activity on product choices and sales in a variety of environments (Cai, Chen, and Fang, 2009; Zhang, 2010; Moretti, Forthcoming).

H1b: If increased customer awareness and accessibility is the underlying mechanism for death-related publicity about an artist to increase product sales, sales of previously <u>successful</u> albums should profit disproportionally from death-related publicity.

If new customers do indeed rely on historical sales figures to infer product quality, it should be true that available objective quality signals (such as expert evaluations by music critics) also improve album sales.

H2a: If increased customer awareness and accessibility is the underlying mechanism for death-related publicity about an artist to increase product sales, sales of <u>high-quality</u> albums should profit disproportionally from death-related publicity.

For existing customers, the established link between pre-death album success and product quality would correspondingly imply a negative moderating effect of product quality on album sales.

H2b: If nostalgia is the underlying mechanism for death-related publicity about an artist to increase product sales, sales of low-quality albums should profit disproportionally from death-related publicity.

Death-related Publicity and Pre-death Awareness

To establish in yet another way if the underlying mechanism for death-related publicity to impact album sales is increased customer awareness or affective reactions, we rely on a measure of customer awareness before death.

Findings by Sorensen (2007), Hendricks and Sorensen (2009), and Berger et al. (2010) suggest information provision to be more important for previously unknown products. For instance, Hendricks and Sorensen (2009) show informational spillovers from new product releases on previous catalogue albums to be relative low in the hometown area of an artist, where customer awareness is likely to be higher than in the rest of the country.

Because artists differ in their productivity cycles of album releases, it is likely that the last studio release of some artists occurred a long time before their death while for others it only occurred a few months before death. Building on aforementioned evidence, we expect that customer awareness is generally higher for "active" artists than for "inactive" artists. If

customer awareness is what drives the death-related impact on sales, we thus hypothesize that albums of artists whose last album was released a long time before death profit disproportionally, because pre-death customer awareness is lower for inactive artists.

H3a: If increased customer awareness and accessibility is the underlying mechanism for death-related publicity about an artist to increase product sales, sales of albums by inactive artists should profit disproportionally from death-related publicity.

In contrast, if the death-related impact on sales stems from nostalgia by existing customers, it should not matter whether the artist was active or inactive; whether nostalgia is triggered as an affective reaction depends only on *whether* existing customers associate autobiographically salient events with the artist's work, but *not on when* they experienced this association.

H3b: If nostalgia is the underlying mechanism for death-related publicity about an artist to increase product sales, activity status of an artist should not matter for after-death sales reactions.

3. EMPIRICAL ANALYSIS

In this section, we first discuss our sample construction process, and provide background information for the artists in our sample. Next, we present our estimation strategy and show that artist deaths result in immediate reactions from the media and customers.

The Data

Our data contain album sales histories of 534 albums of 77 artists who died during our sample period, i.e. between January 1, 1992 and March 14, 2010, and who are listed in the *All Music*

Guide to Rock (3rd edition). The more than 2,000 artists portrayed by *All Music Guide to Rock* are considered as universe of mainstream North American singers and bands in the musical genres rock, pop, rap, funk, soul, singer/songwriter and hip hop.[5] Weekly album sales data were obtained from *Nielsen SoundScan*, a market research firm that tracks sales of music products throughout the United States and Canada. *Nielsen SoundScan* collects the sales data at more than 14,000 point of sales, both retail and on-line stores. The *Nielsen SoundScan* sales data are available since 1992 and serve as source for the well-known *Billboard* music charts. Taking all artists in the *All Music Guide to Rock* we identified 77 artists that naturally died during our sample period, i.e. between January 1, 1992 and March 14, 2010. We excluded artists who committed evident suicides, such as Curt Cobain. We received the weekly sales data of all albums registered by *SoundScan* if the identified artist had released less than 15 albums and a random selection of 15 albums if the artist had released more than 15 albums.[6] We comprehend major studio releases as albums, but not singles and greatest hits compilations. The latter music products are excluded from our analysis. Biographical data, such as birth and death dates, and album release dates were collected from the *All Music Guide to Rock*, *Wikipedia, allmusic.com,* and press articles using the *LexisNexis* database[7].

To empirically discriminate between the informational and affective explanations for increased after-death sales, we need measures of pre-death album success and album quality.

---

[5] As we concentrate on prominent artists who died between 1992 and 2009, the Soul/Funk music genre is overrepresented and the Hip-Hop/Rap music genre underrepresented in our sample compared to the relative market shares across genres as provided by the Recording Industry Association of America (RIAA). We empirically addressed the question, whether deaths influence sales stronger in some music genres than in others. For example, forceful deaths might well be expected to be a "quality signal" for gangster rappers. An empirical analysis of death-effects across music genres, however, did not reveal any systematic differences, which limits potential concerns about sampling bias.

[6] The reason for this restriction was primarily financial.

[7] *LexisNexis* is a database that contains the press articles of numerous quality newspapers (including e.g. *USA Today, The New York Times, International Herald Tribune, Los Angeles Times, Chicago Tribune, The Boston Globe, Chicago Daily Herald, The Denver Post, Detroit Free Press, Florida Today, The Kansas City Star, Miami Herald, The Washington Post*), tabloid newspapers (e.g. *The Edmonton Sun, The Boston Herald*), press agencies like *The Associated Press*, weekly magazines (including *Life, The Economist, Houston Press*) or music magazines (including e.g. *Billboard, BBC Music Magazine*, or *Variety*).

The most natural way of measuring the pre-death success of an album is to consider sales figures. In particular, we use the logarithm of accumulated pre-death sales of an album as a measure of album success.[8] To measure album quality, we follow the procedure in the literature and rely on expert evaluations (Reinstein & Snyder, 2005; Zhu & Zhang, 2010). Specifically, we employ the number of stars an album received at *allmusic.com*. The album ratings at *allmusic.com* are determined by a network of over 900 music critics who use a 1 to 5 star system (5 is the highest rating) with half of a star as minimum discrimination. The editorial staffs of *allmusic.com* represent knowledgeable experts in music with broad expertise in the entertainment media industry.

In constructing our sample, we excluded 63 albums because they were released after the artist had died and 30 albums because expert evaluations on *allmusic.com* were missing. The remaining sample contains 441 albums of 77 artists.[9] A complete list of artists' names, the reason of death, age at death, musical genre, and the number of albums included in our sample is displayed in Table 1.[10]

- Insert Table 1 about here -

The albums of artists in our sample cover a broad range of success. 20 albums in our sample were never sold between 1992 and 2010. Six artists do not possess any album with more than 1000 copies sold between 1992 and 2010 (Kevin Coyne, Lonnie Donegan, John

---

[8] As sales information is available only after 1992, sales histories may provide less precise measures of pre-death success for artists dying in the early 90s.

[9] The *All Music Guide to Rock* also contains information on bands. 6 of the 77 artists are actually bands that decided to dissolve the band after one of them died. The six bands are Beat Farmers, Brainiac, Coil, Silkworm, The Bee Gee's and The Grateful Dead. Sensitivity tests show that the results remain virtually unchanged if the six bands are excluded from the analysis (see Table A1 in the Appendix).

[10] One famous singer who died between 1992 and 2010, Jonny Cash, is not in our sample, as he is surprisingly not portrayed by *All Music Guide to Rock*.

Fred, Coil, Charlie Feathers, and Buddy Knox). Other artists have both, albums that never sold one copy, and albums that experienced reasonable success with more than 100'000 copies purchased (e.g. Rick James), while five artists have three and more albums with more than one million copies sold (2Pac, Aaliyah, Michael Jackson, Notorious B.I.G., Ray Charles).

Estimation Strategy

We employ exogenous variation in customer attention caused by a death of an artist[11]. Except for suicides[12], the point in time in which an artist dies is exogenous. Thus, in contrast to customer attention triggered by promotional activities, the attention generated by the shock of an artist death is not related to recent product releases or preceding time-trends of sales, for example. Artist deaths serve as a quasi-experiment because first they considerably change publicity at a discrete point in time and second the deaths occur unexpectedly. This is also reflected in see Figure 1. In the pre-death period, there is no systematic time trend in the number of weekly press articles mentioning an artist, whereas press publicity increases threefold immediately after death.

- Insert Figure 1 about here -

Following our previous reasoning that death-related publicity impacts album sales, the immediate jump in artist publicity should result in a similar increase for album sales. In

---

[11] Natural deaths of individuals have already been used as a quasi-experiment to study knowledge spillovers (Azoulay, Graff Zivin, Wang, 2010), growth effects in the context of firms (Bennedsen, Nielsen, Pérez-Gonzales, Wolfenzon, 2007) and growths effects in entire countries (Jones & Olken, 2005). We are the first, however, to use natural death as identification strategy in cultural markets.

[12] We conducted extensive text analysis of press articles and webpages to search for the reasons why an artist died, particularly to identify suicides. In two cases, suicidal death could not be ruled out with security (Elliot Smith and Epic Soundtracks). However, the results do not change in any significant way if we exclude those two artists (see Table A1 in the Appendix).

Figure 2 we therefore illustrate the average logarithm of weekly album sales during a period of 26 weeks before and after artist deaths. Figure 2 reveals that sales peak in the first two weeks after death with sales figures that substantially exceed pre-death levels. Thereafter, sales decline again with a decreasing rate of depreciation.

- Insert Figure 2 about here -

Whereas Figures 1 and 2 provide first suggestive evidence for death-related publicity to increase album sales, we perform different regressions to establish the channels through which death-related publicity influence album sales. The baseline regression model is as follows:

$$\ln(sales_{ijt}) = \beta_0 + \beta_1 AD_{jt} + \beta_4 Pub_{it} + X_{it}\theta + \mu_i + \varepsilon_{ijt} \tag{1},$$

where the subscripts j, i and t denote artists, albums and weeks, respectively. As album sales are highly skewed, we use the logarithm of weekly album sales as dependent variable[13]. AD_{jt} is an indicator denoting after death observations and the coefficient β_1 illustrates the proportional increase in sales in the after-death period in comparison to the pre-death period. Pub_{it} measures the logarithm of the weekly number of articles in which the album's title and the artist's name is mentioned at least once using the *LexisNexis* database. By including both album-level publicity (Pub_{it}) and the after-death indicator AD_{jt}, we are able to estimate separate publicity effects from the album- and artist-level on sales. The variable Pub_{it} controls for the fact that some albums may receive comparably higher death-related press attention than other albums of the same artist. The vector X_{it} includes a second polynomial of

---

[13] To prevent missing values, we add 1 to the absolute sales figures before performing the logarithmic transformation. The same procedure applies to logarithmic album publicity (see below).

the number of weeks since an album was released to consider that album sales are subject to a common nonlinear time trend (see Figure 2). In order to control for seasonality effects in sales throughout the year, we include 51 week-of-the-year dummies as controls. In addition, we incorporate year fixed effects that consider annual industry-wide time trends in music sales. Finally, we include album fixed effects (μ_i) to consider the time-constant unobserved quality components of an album. We compute standard errors that are White heteroskedasticity-robust and clustered at the artist level to take potential heteroskedasticity and correlation across the observations of the same artist into account.

To empirically disentangle the two opposing theoretical explanations for the death-related impact on sales, we augment equation (1) and include either an interaction term of the AD_{jt} indicator with the album's pre-death sales levels (to test H2a and H2b), or an interaction term of the AD_{jt} indicator with album quality (H3a and H3b) and estimate the following two regression models:

$$\ln(sales_{ijt}) = \beta_0 + \beta_1 AD_{jt} + \beta_2 AD_{jt} * PD\ Sales_i + \beta_4 Pub_{it} + X_{it}\theta + \mu_i + \varepsilon_{ijt} \qquad (2),$$

$$\ln(sales_{ijt}) = \beta_0 + \beta_1 AD_{jt} + \beta_3 AD_{jt} * Quality_i + \beta_4 Pub_{it} + X_{it}\theta + \mu_i + \varepsilon_{ijt} \qquad (3).$$

The included interaction terms test whether the sales impact of death-related publicity at the artist-level is moderated by pre-death album sales and quality. Under the informational explanation, we expect significantly positive interaction effects for both models.

4. ESTIMATION RESULTS

In this section, we first document descriptive evidence on after-death effects for album sales. We then show that the empirical evidence on our theoretical hypotheses clearly supports the informational perspective on death-related publicity in the music industry, and provide another plausibility test for this interpretation.

Descriptive Analysis

Table 2 displays summary statistics for weekly album sales, total pre-death sales, and weekly album publicity (all in logarithmic terms). In addition, we give information on album quality, and a second order polynomial of the number of weeks since an album was released. Except for the time-constant variables pre-death sales and album quality, we also give summary statistics for pre- and after-death subsamples. The last column in Table 2 shows t-statistics for mean-comparison tests across both subsamples. Corroborating our graphical inspection in section 3, we see that both album sales and album publicity increase significantly after death. The reader should recall our discussion on different productivity cycles of artists, causing some, but not all albums to be released shortly before death. This fact leads to an unbalanced number of pre- and after-death observations in Table 2.

- Insert Table 2 about here –

Multivariate Analyses

Estimation results from a fixed-effects linear regression model are displayed in Table 3. To test the sensitivity of our results, we estimate our models across different treatment "windows", comprising 2, 4, and 6 months before and after the artist's death, respectively. Columns (1), (4), and (7) establish a strong increase in weekly album sales after death. Depending on the time range before and after death, the coefficient for *After Death (AD)* ranges from 54.1% to 59.9%. In light of our estimation strategy to control for death-induced publicity on the product level (*log album publicity*), the size of the effects is extremely large. Recalling that album publicity increases sharply after death, our findings imply that the

overall death-related news impact is much higher, because the publicity elasticity of album sales is always positive (between 0.357 and 0.481), and highly statistically significant. Moreover, the results show that death-related publicity impacts album sales still as long as six months after death.

- Insert Table 3 about here -

To test whether the documented impact on sales stems from affective reactions from existing customers (H1a) or increased awareness of previously uninformed customers (H1b), we resort to columns (2), (5), and (8) in Table 3. The interaction effect between pre-death sales and *AD,* denoted by *Pre-death sales* AD,* is always positive and highly statistically significant at the 5% significance level in all models. Thus, we find consistent evidence that previous album success intensifies the impact of death-related, artist-specific publicity on album sales. As we predicted, the results are corroborated when using expert evaluation information as quality signals. Here, too, the interaction effect *Quality * AD*, is always positive and statistically significant (at least on the 10% level). Altogether, these findings are perfectly in line with our informational hypotheses (H1b, H2a), but contradict the nostalgia hypotheses (H1a; H2b). [14]

To test whether the effect of death-related news on album sales is moderated by pre-death customer awareness (H3a and H3b), we construct two subsamples for *active* and

---

[14] The findings illustrated in Table 3 are very robust when performing several sensitivity tests. For example, we show that our results virtually the same when excluding superstars (2Pac, Aaliyah, Michael Jackson, Notorious B.I.G., Ray Charles), defined as artists with more than three albums that sold over 1 million copies (see Table A1 in the Appendix).

inactive artists. An artist is classified as *inactive* if her latest album was released more than four years before death, whereas artists with relatively new albums (release date less than four years before death) are classified as *active*. [15]

In Table 4 we present estimation results from a fixed-effects linear regression model for each subgroup, separately. The reader should recall that an artist's activity should affect customer reactions to death-related news if nostalgia was the underlying mechanism.

- Insert Table 4 about here -

In contrast to the nostalgia hypothesis, we find artist activity to significantly impact the relationship between death-related publicity and album sales. A comparison between columns (10) and (13), for example, reveals that the sensitivity of album sales to album publicity, *Log album publicity*, is twice as large for *inactive* artists than for *active* artists (t=1.78, p<0.10). When comparing the findings from specifications (11) and (12) to those in (14) and (15), respectively, the difference is also statistically significant at least on the 10% level ((11) vs. (14): t=2.76, p<0.01; (12) vs. (15): t=1.84, p<0.10). An interesting difference between columns (10) and (13) is also found for the after-death impact, *AD,* which is almost twice as large for *active* artists (t=2.13; p<0.05). While this difference is not statistically significant for a comparison between columns (11) and (14), the difference is significant on the 10% level of significance when comparing columns (12) and (15). Altogether, these findings strongly support our previous findings on the informational role of death-related publicity, because pre-death awareness moderates the relationship between death-related publicity and album

---

[15] The results of our analysis are robust to alternative definitions of *active* versus *inactive* singers, such as three or five years between the latest album and an artist's death.

sales. Moreover, Table 4 reveals that the positive, statistically significant interaction effects *pre-death sales*AD*, and *Quality*AD* from Table 3 are not attributable to either activity-related group of artists.

Persistency of Album Sales

Having established that death-related news impacts album sales through increased customer awareness, we provide yet another testable hypothesis of this explanation that stems from the advertisement literature. Berger et al. (2010) refer to Moore and Hutchinson (1983, 1985), who theorised that "even negative ads might boost purchase likelihood after delay because it increases customer awareness" (p. 817). This statement points at the high persistence of customer awareness *beyond* the presence of product stimuli. Indeed, Berger et al. (2010) provide evidence that negative publicity increases product sales after a significant time delay, because valence of publicity fades over time, but awareness remains high. This suggests that death-related publicity, which is of a more indirect nature, will also lead to increased awareness and thus, to higher album sales, beyond the presence of death-related product publicity.

To test this prediction, we use an album's weekly press citations to measure death-related product publicity that could foster album awareness. To measure unusually high levels of death-related album publicity and album sales, we proceed as follows: For each album, we derive a 95% confidence interval for pre-death sales [album publicity]. As long as after-death sales [album publicity] remain above this interval, we speak of unusually high sales [album publicity]. We apply non-parametric duration analysis to determine after-death spell length until album sales [album publicity] fall into the constructed interval for the first time.

- Insert Figure 4 about here -

The detected difference in sales and publicity patterns, displayed in Figure 4, is striking and supports our prediction that customer awareness and sales are more persistent than album publicity. For example, as soon as five weeks after death, unusually high album publicity exists for only 20% of all albums.[16] At the same time, however, 70% of all albums still exhibit unusually high sales. For 15% of all albums, such high sales levels persist throughout our full observation period of 27 weeks after death; after this period, however, virtually no album reveals any unusually high publicity. A log-rank test clearly rejects the null that album sales and publicity have identical survivor functions (Chi2(1)= 124.84; p<0.01). We regard this evidence as further support for the informational role of death-related news in the music industry.

5. GENERAL DISCUSSION

This paper analyses the relation between artist publicity and album sales in the music industry. We employed a quasi-experimental design for our study and focussed on naturally occurring deaths to exploit exogenous variation in the timing of information releases. We established a strong positive sales reaction of albums to death-related news about an artist. To discriminate between informational and emotion-related explanations for this finding, we proceeded in two steps. First, we hypothesized that death-related affective reactions such as nostalgia (Wildschut et al., 2006) or attachment behaviour (Weiss, 1988) are restricted to the set of existing customers. Previously uninformed customers, however, whose awareness for the artist increased through death-related publicity, should be largely unaffected by such emotions, because the songs and albums of an artist lack autobiographical salience for these customers.

---

[16] Obviously, this statement relates only to albums that show a treatment effect above the upper limit of the pre-death 95% confidence interval.

To determine whether the majority of death-related album sales should be attributed to previously uninformed customers or existing customers, we tested which albums' sales profit most from death-related publicity shocks. Because albums differ in quality but not in price, a new customer is best off by buying high-quality albums; existing customers, wishing to be emotionally attached to the artist again, however, would have to buy those albums that they do not already own. This implies a negative relationship between pre-death album popularity and after-death sales. We document a positive moderating effect from pre-death popularity and product quality on after-death sales, implying that "death-effects" in the music industry are predominantly influenced by new customers. While this pattern is already highly suggestive towards the informational role of death-related publicity for customers, we assured to establish this interpretation in an independent analysis. Specifically, we analysed if an artist's pre-death activity level moderates the sales impact of death-related publicity. In line with the informational view on death-related publicity, our prediction was that inactive artists (whose last album was released at least four years before death) should enjoy lower pre-death customer awareness, implying a greater sensitivity to death-related publicity. In contrast, if nostalgia from existing customers would be the mechanism behind after-death sales increases, we reasoned that artist activity status should not impact estimation results. Our findings from this analysis clearly contradict nostalgia as the predominant mechanism: albums of inactive artists show a substantially greater sales sensitivity to album publicity. This finding strongly corroborates previous results in cultural markets (Sorensen, 2007; Hendricks & Sorensen, 2009; Berger et al., 2010), but extends the results' validity from newcomer products to products of artists towards the end of their careers. Unexpectedly, however, artist spillovers are lower for inactive artists, which hints at the possibility that different mechanisms may be at work for spillovers across different levels. Nevertheless, these findings, too, support our informational interpretation, as pre-death customer awareness moderates the impact of death-

related news on album sales. We believe this to be the first empirical evidence that establishes death-related sales impact to be predominantly influenced by previously uninformed customers, rather than nostalgia of existing customers.

In search of additional evidence for our informational perspective on death-related publicity and album sales, we investigated durations of unusually high after-death sales and album publicity. Specifically, we analysed the number of weeks after death before album publicity and sales figures are statistically indistinguishable from their corresponding pre-death levels. In line with expectations from the advertisement literature that customer awareness persists beyond the presence of product stimuli, our estimation results documented after-death effects to exist much longer for album sales than for album publicity.

The results of the present study highlight the importance of *indirect* publicity for product success. Thereby, we address a recent call by Berger et al. (2010) who suggest "that further research should examine not only direct negative publicity (i.e., product reviews) but also publicity that is of a more indirect nature." (p. 826). Our evidence corroborates findings by Berger & Fitzsimons (2008) who show that conceptually related environmental cues impact product choice.

The previously unreported finding that active and inactive artists differ in their informational spillovers across product and artist level, raises the important question *how* artist level and product level publicity translates into product sales. We contend that an important difference between both publicity levels is the cognitive activity by customers that is required to translate publicity into product sales. Consider, for example, a consumer who learns about an artist's existence through death-related media coverage. To translate this artist-level publicity into specific album sales the consumer first needs to translate artist awareness into product line awareness, because an artist's product line determines his consideration set. An example for this procedure would be a customer who learns about

Michael Jackson's death and decides to search for "Michael Jackson" in products at *amazon.com*. Based on the associated hits from the search, he will then have to choose which specific product he would like to buy.

The choice procedure is much less cognitively involved when publicity relates to the product level. Here, the *Amazon* shopper can search more specifically for products, for example by typing "Michael Jackson, Thriller". Because his search criterion is much more restrictive than in the case of artist level publicity, less cognitive activity is required by avoidance of product line screening. In light of this conceptualization, our findings suggest that customers' *willingness* to employ increased cognitive resources is positively influenced by pre-existing awareness levels.

On a more general level it would be misleading to exclusively limit the relevance of our findings to the music industry; similar to the artists in our sample, firms frequently face variation in their share of customer attention over time. Such variation may either be endogenously (through advertising) or exogenously (such as through scandals) created.

When it comes to deliberate advertising, firms often compete for customer attention on the firm rather than the product level. When firms possess horizontally differentiated product lines, an important question relates to which products will be most affected by such types of firm level attention. In fact, this question is essential to determine the firm's willingness to spend on exclusive advertising slots, such as sports events sponsorship. Consider for instance the case of the 2014 FIFA Soccer World Cup in Brazil. As of February 2011, the FIFA webpage presented several FIFA Partners (Adidas, Emirates, Coke, Hyundai, Sony, VISA) and FIFA World Cup Sponsors (Budweiser, Castrol, Continental, McDonald's, OI, Seara). None of these sponsorships was particularly linked to a product of the companies. Our findings suggest that customers may be well aware of product differentiation in this case and may resort to observational learning to improve choices; popular, high-quality products may

thus benefit more from attention created at the firm level than products of the same firm that are of comparably lower quality. By resorting to observable sales patterns or product related consumer word-of-mouth, a firm can thus improve its knowledge about customers' preferences for the firm's products to determine ex-ante its maximal willingness to spend on firm level advertisement channels.

What relates the artist deaths in our setting to firm scandals is that economic actors often receive attention in ways they did not ask for, and that does not relate to the quality of the products they produce. Consider, for example, the findings of a recent study by Jonsson, Greve & Fujiwara-Greve (2009). Analysing two scandals for Skandia AB, a Swedish insurance firm, the authors find customers to withdraw from transactions with the company although the scandals were unrelated to the quality of the products. In fact, the authors show that subsequent returns for Skandia AB funds did not underperform those of other companies. Even more striking, however, is that customers also withdrew from transactions with firms that resembled Skandia AB in its organizational form. This finding clearly reveals that customers engage in categorized thinking.

Analysing categorized thinking in the music market lay beyond the scope of the present paper, but seems to be an interesting topic for future research. Researchers might study, for instance, how news about an artist affects product choice for artists in the same genre. Similar to Sorensen's (2007) argument for bestseller list items, it could either be that death-related news cannibalizes or boosts product sales of other artists in the same genre. On the one hand, cannibalization could occur if customers substituted between albums in the same genre. On the other hand, death-related news about an artist might stipulate additional demand for this genre, leading to an overall market expansion. A first analysis, studying spillovers between Ray Charles and James Brown with the data at our hand, does not provide conclusive evidence on this question. Ray Charles and James Brown were born within two and a half

years from each other (Charles: 1930; Brown: 1933), were both active in the Soul/Funk genre and died both at the age of 74 (see Table 1). Based on these features we expected that a customer of one artist's products would also have an interest in the other artist's products. However, a first preliminary analysis revealed this reasoning to be false: while James Brown albums increased slightly after Ray Charles' death, album sales by the latter seem to have suffered when James Brown died two years later. Future work seems warranted to investigate the mechanism for cross-artist spillovers in greater detail.

In summary, our findings provide strong evidence on imperfect customer information in the music market. While the type of publicity we study is not directly linked to product characteristics (as, for example, customer word-of-mouth would be), and thus is of a more indirect nature, there is a large, and persistent sales impact that stems from new customers entering the market. Besides these publicity-related insights, our study also provides comfort to mourning music fans: a long time ago Ray Charles asked in one of his songs *do I ever cross your mind*? Our findings reveal that his death may well have increased the number of people giving an affirmative answer.

REFERENCES

Azoulay, P.; Graff Zivin, J. S.; Wang, J. 2010. Superstar Extinction. *The Quarterly Journal of Economics,* **125**(2), 549-589.

Bagwell, K. 2005. The Economic Analysis of Advertising. in: *Handbook of Industrial Organization, Volume 3*, edited by M. Armstrong, R. Porter. Amsterdam: North-Holland.

Barrett, F. S.; Grimm, K. J.; Robins, R. W.; Wildschut, T.; Sedikides, C.; Janata, P. 2010. Music-Evoked Nostalgia: Affect, Memory, and Personality. *Emotion*, **10**(3), 390 – 403.

Bennedsen, M.; Nielsen, K. M.; Pérez-Gonzalez, F.; Wolfenzon, D. 2007. Inside the Family Firm: the Role of Families in Succession Decisions and Performance. *The Quarterly Journal of Economics,* **122**(2), 647-691.

Berger, J.; Fitzsimons, G.M. 2008. Dogs on the street, Pumas on your feet: How cues in the environment influence product evaluation and choice. *Journal of Marketing Research*, **45**(1), 1-14.

Berger, J.; Sorensen, A. T.; Rasmussen, S. J. 2010. Positive Effects of Negative Publicity: When Negative Reviews Increase Sales. *Marketing Science*, **29**(5), 815 – 827.

Bikhchandani, S.; Hirshleifer, D.; Welch, I. 1998. Learning from the Behavior of Others: Conformity, Fads, and Informational Cascades. *Journal of Economic Perspectives*, **12**(3), 151-170.

Cai, H.; Chen, Y.; Fang, H. 2009. Observational Learning: Evidence from a Randomized Natural Field Experiment. *American Economic Review*, **99**(3), 864 – 882.

Chen, Y., Joshi, Y. V.; Raju, J. S.; Zhang, Z. J. 2009. A Theory of Combative Advertising, *Marketing Science*, **28**(1), 1-19.

Coulter, K. S.; Punj, G. 1999. Influence of Viewing Context on the Determinants of Attitude Toward the Ad and the Brand. *Journal of Business Research*, **45**, 47 – 58.

Fransen, M. L.; Fennis, B. M.; Pryn, A. Th. H.; Das, E. 2008. Rest in Peace? Brand-Induced Mortality Salience and Consumer Behavior. *Journal of Business Research*, **61**, 1053 – 1061.

Fransen, M. L.; Smeesters, D.; Fennis, B. M. 2011. The Role of Social Presence in Mortality Salience Effects. Journal of Business Research, **64**, 29 – 33.

Goldberg, M. E.; Gorn, G. J. 1987. Happy and Sad TV Programs: How They Affect Reactions to Commercials. *Journal of Consumer Research*, 14(3), 387 – 403.

Greenberg, J.; Pyszczynski, T.; Sheldon, S. 1986. The Causes and Consequences of a Need for Self-Esteem: A Terror Management Theory. In: Baumeister, R. F. (ed.) *Public Self and Private Self.* New York: Springer-Verlag, 189 – 192.

Hauser, J. R. 1978. Testing the Accuracy, Usefulness, and Significance of Probabilistic Choice Models: An Information-Theoretic Approach. *Operations Research*, **26**(3), 406 – 421.

Hendricks, K.; Sorensen, A. 2009. Information and the Skewness of Music Sales", *Journal of Political Economy*, **117**(2), 324 – 369.

Holak, S. L.; Havlena, W. J. 1998. Feelings, Fantasies, and Memories: An Examination of the Emotional Components of Nostalgia. *Journal of Business Research*, **42**, 217 – 226.

Jones, B. F.; Olken, B. A. 2005. Do Leaders Matter? National Leadership and Growth Since World War II. *The Quarterly Journal of Economics,* **120**(3), 835-864.

Jonsson, S.; Greve, H. R.; Fujiwara-Greve, T. 2009. Undeserved Loss: The Spread of Legitimacy Loss to Innocent Organizations in Response to Reported Corporate Deviance. *Administrative Science Quarterly*, **54**, 195 – 228.

Laros, F. J. M.; Steenkamp, J.- B. E. M. 2005. Emotions in Consumer Behavior. *Journal of Business Research*, **58**, 1437 – 1445.

Liu, J., Smeesters, D. 2010. Have You Seen the News Today? The Effect of Death-Related Media Contexts on Brand Preferences. *Journal of Marketing Research*, **47**, 251 – 262.

Mandel, N.; Smeesters, D. 2008. The Sweet Escape: Effects of Mortality Salience on Consumption Quantities for High- and Low-Self-Esteem Consumers. *Journal of Consumer Research*, **35**, 309 – 323.

Meyers – Levy, J.; Tybout, A. M. 1997. Context Effects at Encoding and Judgment in Consumption Settings: The Role of Cognitive Resources, *Journal of Consumer Research*, **24**(1), 1-14.

Moore, D. L.; J. W. Hutchinson.1983. The Effects of Ad Affect on Advertising Effectiveness. R. P. Bagozzi, A. M. Tybout, eds. *Advances in Consumer Research*, Vol. 10. Association for Consumer Research, Ann Arbor, MI 526 – 531.

Moore, D. L.; J. W. Hutchinson. 1985. The Influence of Affective Reactions to Advertising: Direct and Indirect Mechanisms of Attitude Change. L. F. Alwitt, A. A. Mitchell, eds. *Psychological Processes and Advertising Effects: Theory, Research, and Application.* Lawrence Erlbaum, Hillsdale, NJ, 65 – 90.

Moretti, E. Forthcoming. Social Learning and Peer Effects in Consumption: Evidence from Movie Sales, *Review of Economic Studies*.

Nelson, P. H. 1974. Advertising as Information. *Journal of Political Economy*, **81**, 729 – 745.

Nedungadi, P. 1990. Recall and Consumer Consideration Sets: Influencing Choice without Altering Brand Evaluations. *Journal of Consumer Research*, **17**, 263 – 276.

Rawlinson, L. and Hunt, N. 2009. Jackson dies, almost takes Internet with him. http://edition.cnn.com/2009/TECH/06/26/michael.jackson.internet/index.html, accessed February 10, 2011.

Reinstein, D. A.; C. M. Snyder 2005. The Influence of Expert Reviews on Consumer Demand for Experience Goods: A Case of Movie Critics. *Journal of Industrial Economics,* **53**, 27-50.

Routledge, C., Arndt, J., Sedikides, C., Wildschut, T. 2008. A blast from the past: The terror management function of nostalgia. *Journal of Experimental and Social Psychology* **44**, 132 – 140.

Shiels, M. 2009. Web slows after Jackson's death. http://news.bbc.co.uk/2/hi/technology/8120324.stm, accessed February 10, 2011.

Sorensen, A. 2007. Bestseller Lists and Product Variety: The Case of Book Sales. *Journal of Industrial Economics*, 55(4), 715 – 738.

Stigler, G. J. 1961. The Economics of Information. *Journal of Political Economy* **69**(3), 213-225.

Weiss, R. S. 1988. Loss and Recovery. *Journal of Social Issues*, **44**(3), 37 – 52.

Wildschut, T.; Sedikides, C.; Arndt, J.; Routledge, C. 2006. Nostalgia: Content, Triggers, Functions. *Journal of Personality and Social Psychology*, **91**(5), 975 – 993.

Zhang, J. 2010. The Sound of Silence: Observational Learning in the U.S. Kidney Market. *Marketing Science,* **29**(2), 315-335.

Zhu, F., Zhang, X. 2010. Impact of Online Consumer Reviews on Sales: The Moderating Role of Product and Consumer Characteristics. Journal of Marketing, **74**, 133-148.

TABLES

<div align="center">TABLE 1</div>
<div align="center">List of Artists Who Died between 1992 and 2010</div>

Artist Name	Reason of Death	Age at Death	Genre	# Gram- mys	# Albums in Sample	Artist Name	Reason of Death	Age at Death	Genre	# Gram- mys	# Albums in Sample
2Pac	shot dead	25	Hip Hop/ Rap	0	4	Joe Strummer	heart failure	50	Pop/ Rock	0	4
Aaliyah	airplane crash	23	Hip Hop/ Rap	0	3	John Denver	airplane crash	54	(Hard) Rock/ Metal	1	10
Arthur Alexander	heart attack	51	Soul/ Funk	0	1	John Fred	major complications	64	Soul/ Funk	0	1
Arthur Conley	cancer	58	Soul/ Funk	0	4	Johnnie Taylor	heart attack	62	Soul/ Funk	0	9
Barbara George	unknown	64	Soul/ Funk	0	1	Junior Walker	cancer	64	Soul/ Funk	0	1
Barry White	stroke	59	Soul/ Funk	2	15	Kevin Coyne	lung fibrosis	61	Singer/ Songwriter	0	5
Beat Farmers	heart attack	41	Pop	0	6	Kristy MacColl	killed	41	Pop/ Rock	0	3
Betty Everett	natural death	62	Soul/ Funk	0	1	LaVern Baker	heart failure	67	Jazz/ Blues	0	8
Billy Lee Riley	bowel cancer	76	other	0	2	Laura Branigan	brain aneurysm	47	Pop/ Rock	0	6
Billy Preston	malignant hypertension	60	Soul/ Funk	2	5	Laura Nyro	cancer	50	Singer/ Songwriter	0	11
Bo Didley	heart attack	79	Jazz/ Blues	0	4	Little Eva	cerivcal cancer	60	other	0	2
Brainiac	car accident	29	(Hard) Rock/ Metal	0	3	Lonnie Donegan	heart attack	72	other	0	7
Carl Perkins	laryngeal cancer	66	Country	1	7	Lou Rawls	lung cancer	70	Jazz/ Blues	3	6
Charlie Feathers	stroke	66	Singer/ Songwriter	0	2	Luther Ingram	heart failure	62	Soul/ Funk	0	4
Coil	accident	43	other	0	5	Major Lance	heart failure	53	Soul/ Funk	0	1
Cub Koda	kidney failure	52	other	0	4	Mary Wells	throat cancer	49	Soul/ Funk	0	6
Curtis Mayfield	natural death	58	Soul/ Funk	0	12	Michael Jackson	homicide	51	Pop/ Rock	13	11
Dan Fogelberg	prostate cancer	56	(Hard) Rock/ Metal	0	15	Nicolette Larson	liver failure	45	other	0	7
David Ackles	cancer	62	Singer/ Songwriter	0	4	Notorious B.I.G.	shot dead	25	Hip Hop/ Rap	0	2
Davy Graham	lung cancer	68	(Hard) Rock/ Metal	0	8	Ol' Dirty Bastard	overdose cocain	36	Hip Hop/ Rap	0	3
Dee Dee Warwick	natural death	63	Soul/ Funk	0	1	Paul Davis	heart attack	60	(Hard) Rock/ Metal	0	6
Doug Sahm	heart attack	58	(Hard) Rock/ Metal	1	6	Phil Seymour	lymphoma	41	Pop	0	1
Dusty Springfield	breast cancer	60	Soul/ Funk	0	13	Ray Charles	liver cancer	74	Soul/ Funk	12	11
Eazy-E	AIDS	31	Hip Hop/ Rap	0	1	Richard Berry	heart failure	62	other	0	1
Edwin Starr	heart attack	61	Soul/ Funk	0	5	Rick James	heart failure	57	Soul/ Funk	1	8
Elliot Smith	suicide or homicide	34	Singer/ Songwriter	0	5	Robert Palmer	heart attack	55	Pop/ Rock	0	12
Epic Soundtracks	unclear	38	Pop/ Rock	0	3	Rufus Thomas	heart failure	85	Soul/ Funk	0	6
Ernie K-Doe	kidney failure	65	Singer/ Songwriter	0	1	Ruth Brown	heart failure	79	other	1	8
Frank Zappa	prostate cancer	53	Pop/ Rock	2	11	Sandy Bull	lung cancer	60	(Hard) Rock/ Metal	0	4
Fred Neil	cancer	66	(Hard) Rock/ Metal	0	5	Silkworm	car accident	40	(Hard) Rock/ Metal	0	8
George Harrison	lung cancer	59	(Hard) Rock/ Metal	11	13	Skip Spence	lung cancer	53	Singer/ Songwriter	0	1
Harold Melvin	stroke	53	Soul/ Funk	0	7	Syd Barrett	pancreatic tomors	61	(Hard) Rock/ Metal	0	2
Harry Nilsson	cardiac insufficiency	53	(Hard) Rock/ Metal	2	10	Ted Hawkins	stroke	58	Singer/ Songwriter	0	4
Hasil Adkins	run over	69	other	0	7	The Bee Gee's	volvulus	53	Pop/ Rock	4	12
Ian Dury	liver cancer	58	Singer/ Songwriter	0	5	The Grateful Dead	heart attack	53	(Hard) Rock/ Metal	0	9
James Brown	cardiac insufficiency	74	Soul/ Funk	3	7	Warren Zevon	cancer	57	Singer/ Songwriter	2	15
James Carr	lung cancer	59	Soul/ Funk	0	3	Willie Hutch	natural death	59	Soul/ Funk	0	3
Jeff Buckley	been drowned	31	Singer/ Songwriter	0	1	Wilson Pickett	heart attack	65	Soul/ Funk	0	6
Jerry Garcia	heart attack	53	(Hard) Rock/ Metal	0	13						

<div align="center">TABLE 2</div>
<div align="center">Descriptive Statistics</div>

Variables	Whole sample		Before death		After death		Difference b/a
	Mean	SD	Mean	SE	Mean	SE	t-value
Ln weekly sales	1.705	2.452	1.422	0.021	1.997	0.026	-17.043 ***
Ln pre-death sales	5.815	4.666					
Album quality	3.425	0.883					
Ln album publicity	0.293	0.008	0.151	0.005	0.300	0.008	-14.532 ***
Album weeks	1091.1	6.15	1085.1	6.18	1097.0	6.18	-1.362 *
Album weeks^2 (in 10^{-4})	158.9	148.24	156.5	1.44	160.6	1.46	-1.647 **
Observations	20'866		10'386		10'667		

Notes: * = statistically significant at 10%; ** = 5%, *** = 1%.

TABLE 3
Treatment and Interaction Effects on Weekly Sales

| Explanatory variables	2 months before/after (18 weeks)			4 months before/after (34 weeks)			6 months before/after (52 weeks)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
After Death (AD)	0.599 ***	0.020	0.114	0.541 ***	0.047	0.135	0.543 ***	0.072	0.201
	(0.104)	(0.173)	(0.261)	(0.112)	(0.150)	(0.198)	(0.103)	(0.132)	(0.169)
Pre-death sales * AD		0.109 **			0.091 ***			0.084 ***	
		(0.027)			(0.024)			(0.023)	
Quality * AD			0.145 **			0.135 **			0.100 *
			(0.066)			(0.023)			(0.053)
Log album publicity (Pub)	0.357 ***	0.291 ***	0.343 ***	0.435 ***	0.385 ***	0.427 ***	0.481 ***	0.437 ***	0.477 ***
	(0.084)	(0.063)	(0.079)	(0.102)	(0.102)	(0.100)	(0.128)	(0.116)	(0.128)
Album weeks	-0.003	-0.034 ***	0.000	-0.002	-0.016 **	0.000	-0.005	-0.012 **	-0.004
	(0.013)	(0.010)	(0.014)	(0.008)	(0.007)	(0.008)	(0.005)	(0.005)	(0.005)
Album weeks^2 (in 10^{-4})	-0.028	0.094 **	-0.047	-0.008	0.049 *	-0.017	0.004	0.040 **	-0.001
	(0.042)	(0.046)	(0.044)	(0.022)	(0.027)	(0.022)	(0.013)	(0.016)	(0.013)
Week of the year dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes
Album fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes
R^2 (within)	0.259	0.331	0.265	0.207	0.257	0.211	0.180	0.221	0.182
Observations	7'272	7'272	7'272	13'678	13'678	13'678	20'866	20'866	20'866
Albums	441	441	441	441	441	441	441	441	441

Notes: Displayed are empirical results from an ordinary least squares regression (OLS) where the logarithm of weekly album sales is the dependent variable. The indicator variable *After Death* equals 1 for weeks after the artist's death. *Pre-death sales* denote the logarithm of the album's cumulated sales in the pre-death period (since 1992). *Quality* denotes the number of diamonds an album received at allmusic.com. The standard errors (in parantheses) are White heteroskedasticity robust and clustered at the artist level to take potential correlation of the error terms across artist observations into account. * = statistically significant at 10%; ** = 5%, *** = 1%.

TABLE 4

Pre-Death Awareness and Album Sales

| Explanatory variables	Inactive artists			Active artists		
	(10)	(11)	(12)	(13)	(14)	(15)
After Death (AD)	0.395 **	0.000	-0.201	0.724 ***	0.132	0.392 *
	(0.104)	(0.199)	(0.261)	(0.125)	(0.102)	(0.227)
Pre-death sales * AD		0.097 **			0.086 ***	
		(0.027)			(0.015)	
Quality * AD			0.172 *			0.100 +
			(0.091)			(0.062)
Log album publicity	0.560 ***	0.480 ***	0.553 ***	0.278 ***	0.249 ***	0.267 ***
	(0.148)	(0.064)	(0.145)	(0.056)	(0.054)	(0.055)
Album weeks	0.024	0.007	0.030	-0.014 *	-0.023 **	-0.014 *
	(0.021)	(0.010)	(0.022)	(0.008)	(0.003)	(0.008)
Album weeks^2 (in 10^{-4})	-0.051	-0.002	-0.075	-0.008	0.046	-0.009 *
	(0.049)	(0.046)	(0.055)	(0.032)	(0.035)	(0.032)
Week of the year dummies	yes	yes	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes	yes	yes
Album fixed effects	yes	yes	yes	yes	yes	yes
R^2 (within)	0.233	0.280	0.239	0.221	0.275	0.224
Observations	7'475	7'475	7'475	6,203	6,203	6,203
Albums	240	240	240	201	201	201

Notes: Displayed are empirical results from an ordinary least squares regression (OLS) where the logarithm of weekly album-sales is the dependent variable. All models consider 4 months before and after the artist's death. Regarding the definition of the variables we refer to Table 2. Inactive (active) artists are defined as artists whose latest album was released more (less) than four years before death. The standard errors (in parantheses) are White heteroskedasticity robust and clustered at the artist level to take potential correlation of the error terms across artist observations into account. + = statistically significant at 11%; * = 10%; ** = 5%, *** = 1%.

Figure 1
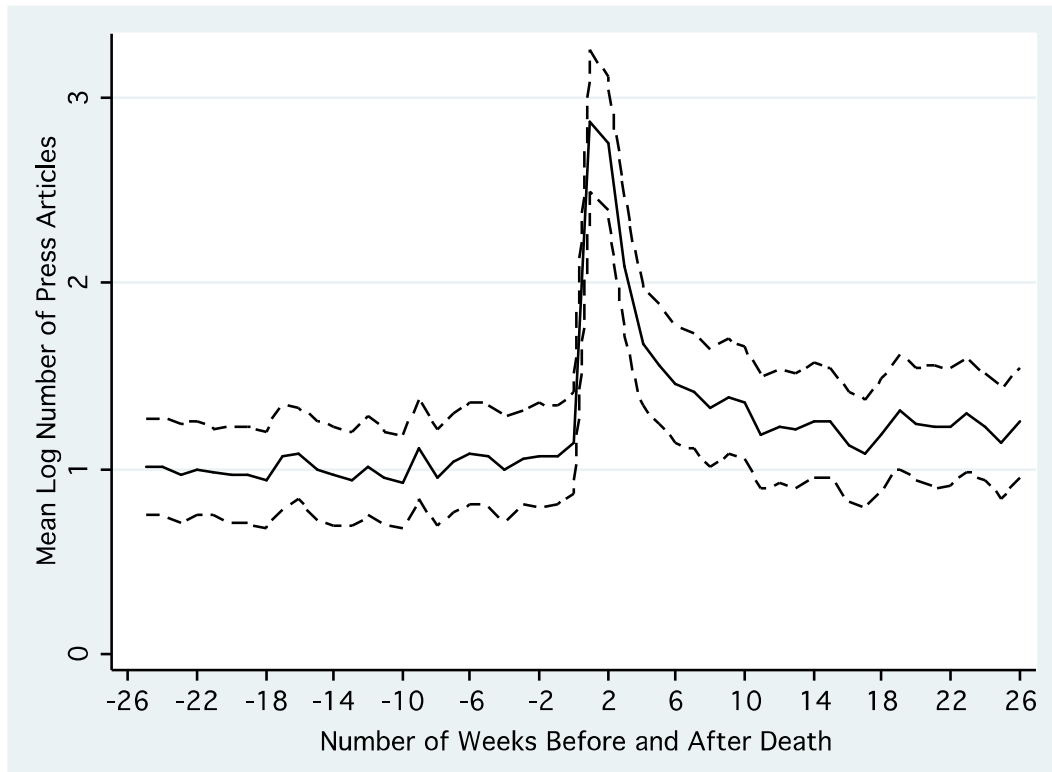
Notes: The solid line displays the mean of the log number of press articles referring to the artists in our sample (n=77) according to *NexisLexis* that includes numerous quality newspapers and tabloid magazines. The dashed lines graph the 95% confidence interval. The x-axis denotes the number of weeks before/after the artist's death.

Figure 2
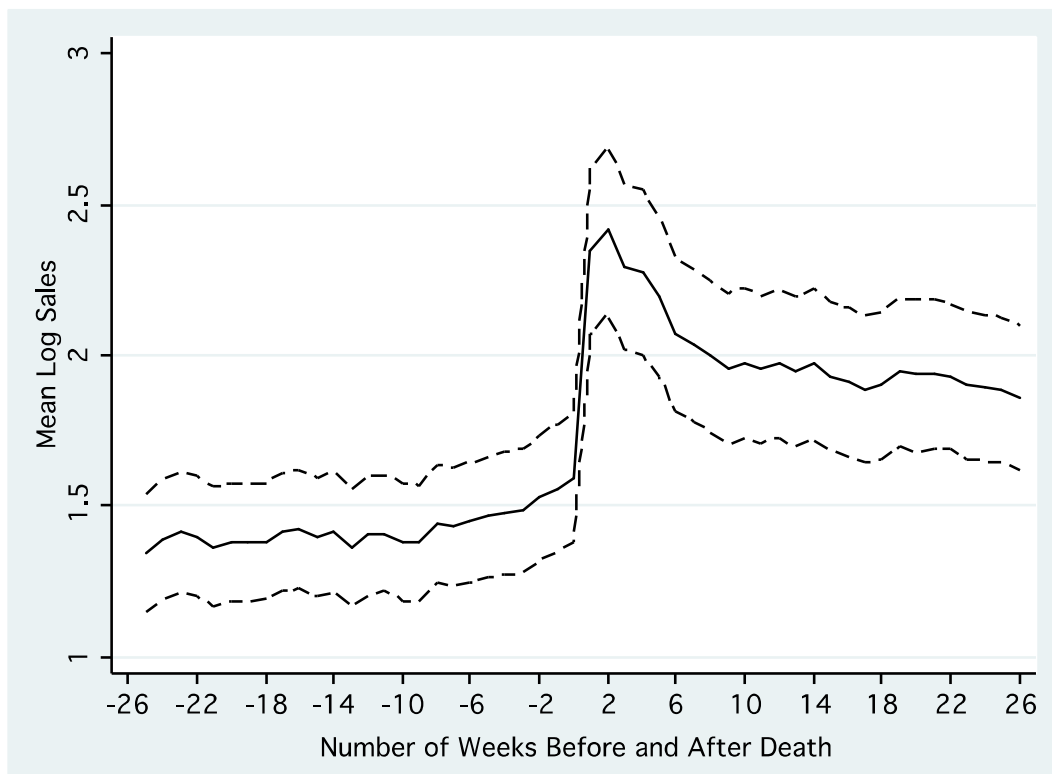
Notes: The solid line displays the mean of the log of weekly sales of the albums in our sample (n=441). The dotted lines graph the 95% confidence interval. The x-axis denotes the number of weeks before and after the artist's death.

Figure 3:
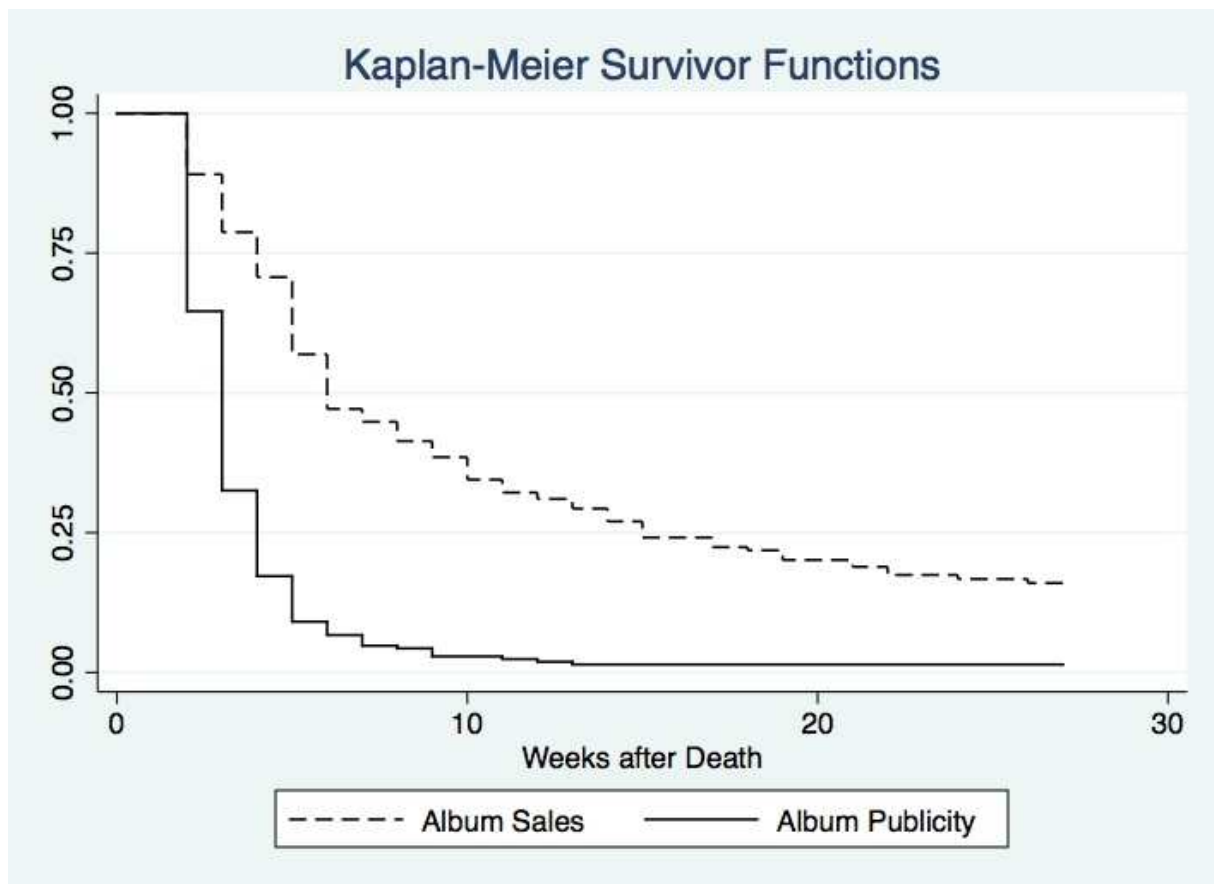
Notes: Displayed are Kaplan-Meier survival estimates for the duration (in weeks) between the death of an artist, and the first week in which after-death album sales [album publicity] did not exceed the album's average weekly sales [publicity] numbers before death. Average values were derived from up to 35 weeks before death. Equality of the survivor functions between album publicity and album sales is rejected based by the log-rank test (Chi2(1) = 124.84, p<0.0001). The illustration is based on 145 unique album observations for album sales, and 206 unique observations for album publicity. The difference in observations reflects the possibility than an album showed a death-related reaction in publicity, but not in sales.

APPENDIX

Sensitivity Analyses Using the Four Months Before and After Death as Treatment "Window"

Explanatory variables	Without potential suicides			Without bands			Without superstars		
	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
After Death	0.530 ***	0.055	0.157	0.603 ***	0.090	0.116	0.574 ***	0.246 ***	0.333 **
	(0.113)	(0.151)	(0.201)	(0.119)	(0.155)	(0.224)	(0.096)	(0.092)	(0.158)
Pre-death sales * AD		0.089 ***			0.101 ***			0.062 ***	
		(0.024)			(0.024)			(0.011)	
Quality * AD			0.110 *			0.143 **			0.071 *
			(0.055)			(0.062)			(0.039)
Log album publicity	0.436 ***	0.386 ***	0.428 ***	0.416 ***	0.351 ***	0.406 ***	0.259 ***	0.186 ***	0.254 ***
	(0.103)	(0.085)	(0.101)	(0.104)	(0.084)	(0.102)	(0.043)	(0.045)	(0.044)
Album weeks	-0.003	-0.017 **	-0.001	-0.012	-0.018 **	0.001	-0.011 ***	-0.020 ***	-0.010 *
	(0.008)	(0.008)	(0.008)	(0.009)	(0.009)	(0.009)	(0.006)	(0.006)	(0.006)
Album weeks^2 (in 10^{-4})	-0.004	0.051 *	-0.012	-0.020	0.047 *	-0.029	0.002 *	0.037 *	-0.004
	(0.028)	(0.027)	(0.022)	(0.023)	(0.027)	(0.028)	(0.020)	(0.022)	(0.020)
Week of the year dummies	no	no	yes	no	no	yes	no	no	yes
Year dummies	no	no	yes	no	no	yes	no	no	yes
Album fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes
R^2 (within)	0.205	0.252	0.208	0.220	0.278	0.225	0.184	0.217	0.186
Observations	13'438	13'438	13'438	12'318	12'318	12'318	12'706	12'706	12'706
Albums	433	433	433	398	398	398	410	410	410

Notes: Displayed are empirical results from an ordinary least squares regression (OLS) where the logarithm of weekly album sales is the dependent variable. All albums Elliot Smith and Epic Soundtrack are excluded in columns 16, 17, and 18, because suicide cannot be excluded as potential cause of death. Columns 19, 20, and 21 display the results when excluding all albums of the six bands in our sample (Beat Farmers, Brainiac, Coil, Silkworm, The Bee Gee's and The Grateful Dead). In columns 22 to 224 we exclude superstar artists defined as artists with more than three albums that sold over one million copies, i.e., Michael Jackson, Ray Charles, 2Pac, Aaliyah, and Notorious B.I.G.). The standard errors (in parantheses) are White heteroskedasticity robust and clustered at the artist level to take potential correlation of the error terms across artist observations into account.* = statistically significant at 10%; ** = 5%, *** = 10%.