



Paper to be presented at the DRUID Academy Conference 2017 at University of Southern Denmark, Odense, Denmark on January 18-20, 2017

## **Academic research echoes in the media: the effect of research excellence and public resonance**

**Hsiao-Han (Sophia) Lu**  
**Imperial College Business School**  
**Department of Innovation and Entrepreneurship**  
**[h.lu13@imperial.ac.uk](mailto:h.lu13@imperial.ac.uk)**

### **Abstract**

Many universities and academics evaluate relationships with the media in a positive light; indeed, media engagement is one of the professional roles that academics are expected to take up (Peters, 2013). The impact of academics' work is not confined to academia, but it has social consequences. The media plays an intermediary role in conveying scientific findings from scientific audiences to public audiences. While prior research has focused on the active role of firms or individuals in issuing press releases to inform the media (Petkova et al., 2013), how the media chooses which press releases to incorporate in news articles remains unknown. Moreover, when academics push out their research to the media, it is unclear why certain press releases get disseminated to many news outlets while others are not picked up at all. On the one hand, research published in high impact journals, which signal the quality of research, increases the likelihood of capturing journalists' attention. On the other hand, journalists have an incentive to write about research that resonates with the public's interests. As such, high journal quality and high public resonance need not go together, which raises the question: under what circumstances can low-quality research generate high media attention? Therefore, this study aims to explore the tension between research quality and public resonance in explaining which research gains attraction in the news. Prior studies have identified some factors contributing to media attention, and these factors can be categorized as message-level explanations and individual-level explanations. The main discussion about individual-level explanations takes place in the celebrity literature.

Individuals who do distinctive or non-conforming actions create greater abundance of information for journalists who use them to dramatize the stories. These are more recognizable in the media (Hayward et al, 2004; Rindova et al., 2006). Message level explanations emphasize the importance of "issues": topic areas that are considered newsworthy for the general public (Andrews and Caren, 2010; McDonnell and King, 2013).

Organizations seeking to get media attention have an interest in signalling the quality of their work but also need to look at disseminating issues that fit with the themes to attract media attention (Andrews and Caren, 2010). Despite several studies addressing the drivers of media attention at different levels – whether it is the message or the individual – neither the celebrity nor the media attention literature examines the intersection of the two levels explanations. Academia serves as a good setting to explore the intersection between individual and message-level mechanisms because academics can promote their research through press releases if they achieve publications in top journals or obtain research findings which are of particular relevance to the public. In

this study, I hypothesize that the excellence of research, measured by the impact factor of the journal indicated in each press release, is positively related to chances of dissemination in more news outlets. I argue that the media considers research to be resonating with the public for two different reasons: direct relevance and unexpectedness. Research which shows direct relevance to the public's day to day life shows the importance of the issues and raises the public's willingness to learn about it. The more unexpected, deviating from public knowledge, the more likely the research is considered to provoke public curiosity. Direct relevance and unexpectedness fits the human desire for attachment and imagination and this aligns with the public's values, beliefs and ideas. It is also more likely to be noticed in the media as a result (Giori and Weber, 2015; Vasi and Strang, 2009). If journalists judge public resonance to be high, they are better able to make judgement of the press releases themselves and need to rely less on the quality signal of the journal. Therefore, I argue the link between research excellence and dissemination to media outlets decreases with the level of research resonance. Individual quality signal also plays a role in reducing the reliance of quality signal indicated by a research paper. Academics with more prior media coverage are more recognizable by journalists, so journalists rely less on the quality signal in the press release. Journalists also tend to approach academics with higher prior media coverage for more comments or ideas of their work than those with less prior media coverage. Therefore, I argue the effect of research excellence on the dissemination to media outlets decreases with the level of prior media coverage of the academics. I requested press releases from the media office at Imperial and constructed the press releases dataset in the form of press release-publication pair as there is a journal article indicated in each press release. Using 400 press release-publication pair between 2000 and 2013, I examine the effects of quality signal and public resonance when academics reach out to the public, where the media audiences value different norms with academics and they rely on quality signals to judge among a variety of information. I conducted 20 exploratory interviews with academics, media staff and journalists to get a contextual understanding of how academics get media attention. Resonance construct emerges from these interviews and each of the press release was rated by coders with the two dimensions (unexpectedness/direct relevance) in resonance. To measure how many news outlets cover the press releases, I obtained all media coverage of academics in Factiva and link the press releases with the media coverage by the names of academics, then check the title similarity for both press releases and news articles within one month window after the release date. Then I linked the press release dataset with the TRIC (TRansfer of knowledge at Imperial College) database which contains scientists' research outputs as well as official records that I used as individual level explanations. Preliminary results show that high levels of public resonance of the content described in a press release can compensate for the low quality of the underlying signal, suggesting there is substitution effect between the signal of research quality and public resonance in explaining the media attention of academics.

## **Academic research echoes in the media:**

### **The effect of research quality and public resonance**

19 January 2017

#### **Paper to be presented at the Druid Academy Conference, 2017**

**[This paper is at an early stage, please, do not cite, circulate or make it public.]**

## **1. INTRODUCTION**

The impact of academics' work is not confined to academia, but has social consequences (Bornmann, 2013, D'este, Tang, Mahdi, Neely, & Sánchez-Barrioluengo, 2013). The media plays an active role in spreading and disseminating information to society and drawing the public's attention to particular actors or issues (Petkova, Rindova, & Gupta, 2013). The media is also important for the dissemination of research findings in society and it enables academics to make an impact on wider society (Summ & Volpers, 2016). Scientists are expected to disseminate scientific advancements and increase the public value of scientific knowledge (Mcnie, Parris, & Sarewitz, 2016). While some academics might see the media as a means to contribute to their duty to educate the public, other academics consider media attention a valuable strategy to obtain more research funding (Tsfati, Cohen, & Gunther, 2010). Since external funding has become more important than university funding (Gulbrandsen & Smeby, 2005), many academics need to establish relationships with the private sector in order to finance their research. Increased media attention can help provide access to opportunities for cooperation, and attract resources. In the context of the importance of media interest for scientific careers, it is necessary to understand how academics attract media attention.

Academics seeking media attention attempt to have their work recognized by a different audience than the one for which their work was originally developed (The New York Times, 31 May 2015)<sup>1</sup>. Given the limited scholarly attention to the question what drives the media coverage of academics' research, it is unclear under which circumstances quality signals relevant in the scientific domain are also relevant for journalists selecting which news to cover in their outlets. Although exceptional academic achievements might attract media attention in their own right, using press releases increases the availability of information and highlights the significance of the potential news item and the firm or individual associated to it (Stern & James, 2016). Therefore, most research findings need to be accompanied by press releases in order to inform the media. Journalists select which research press releases are covered in the news, and thus act as intermediaries between the academics and the public (Petkova et al., 2013). They are on the lookout for academics or research outputs that have the potential to capture high public attention. Therefore, the valuation of academic research by the media is undertaken in an active and practical manner (Muniesa, 2012) whereby the worth of a particular research finding is compared to other findings.

On the one hand, journalists want to report important achievements in science. The quality of the journal where new academic findings are published may signal the level of achievement of these findings. Journalists may not necessarily have the time and relevant expertise to judge the research content and quality by themselves and, as a result, rely on existing quality signals in addition to their own judgement (Podolny, 1994). As journalists are not in the position to judge the research quality independently, the quality signal of the exceptional achievement of publishing in the most prestigious scientific journals may raise the

---

<sup>1</sup>Academics Seek a Big Splash, The New York Times, 31 May 2015  
<http://www.nytimes.com/2015/06/01/business/beyond-publish-or-perish-scientific-papers-look-to-make-splash.html? r=0>

attention value of the underlying research. Thus, recognition of science published in prestigious scientific outlets may increase the likelihood that it captures journalists' attention.

On the other hand, journalists have an incentive to write about research that resonates with the public's interests (Andrew & Caren, 2010). They may use their own judgement in determining whether research covered in a press release is relevant to the general public. Resonance plays a key role in selection decisions where content is matched to audience interests (Giorgi & Weber, 2015). In the context of the performing arts, the celebrity literature suggests that it is the resonance between the individual's lifestyle and personality and the audience that creates a positive image which drives celebrity status (Adler & Adler, 1989; Gamson, 1994; McCracken, 1989). Likewise, there may be properties of research topics that journalists may judge to be resonating particularly well with the public that may lead to higher chances of media attention. Journalists' expectations of what kind of research findings will resonate with the public may be a function of their judgement of the clarity of the press release's title and content, the relevance of the research contribution to the general public, and the unexpectedness of the research findings.

This study aims to explore the tension between research quality and public resonance in explaining which academic publications get coverage in the news. Quality signals from one audience may not be necessarily transfer to the other audience as different audiences have their own beliefs and values. Some research may be ignored in the media despite being published in top journals, whereas other research may be covered in the news although the research appeared in lower-tier journals. Building on mechanisms discussed in the celebrity literature, this study argues under what circumstances there is a substitution effect or a complementarity effect between the signal of research quality and the various dimensions of public resonance in explaining academics' media attention.

This study focuses on the media attention of all academics in one major research-intensive university. The analyses are based on interviews with 20 academics and media professionals and a matched dataset of press releases sent out by the university press office and the academic articles to which these press releases relate. The analyses show that there is a substitution effect between the signal of research quality and the unexpectedness of the research content, and a complementarity effect between the research quality signal and contribution relevance of the research in explaining academics' media attention. The context of academics is an ideal setting to explore the interplay between quality signals and judgements of resonance in explaining recognition of achievements across audiences. The findings highlight how the tension between quality and resonance may be resolved by showing under what circumstances high resonance may compensate for low quality signals and when high resonance may amplify the quality signal. We discuss implications of the findings for individuals and organizations that attempt to gain attention in multiple audiences.

## **2. THEORY AND HYPOTHESES**

### **2.1 Science and Media**

Scientists nowadays are expected to communicate scientific information to a wide range of audiences, not just the academic audiences who already have an interest in science (Nisbet & Scheufele, 2009, Wilkinson & Weitkamp, 2013). The communication of science to wider audiences is part of the professional role of scientist (Peters, 2013). Scientists can take active roles in stimulating the coverage by showing their research findings to the public. However, in most cases, scientists who appear in the media are seen as public experts and are approached by journalists who frequently ask them to comment on relevant issues (Bucchi & Trench, 2014).

Scientists who work on topics of direct relevance to the public are more likely to be viewed as experts in the media. For example, scientists are trusted sources of high quality information about environmental issues compared to government sources (Bickerstaff, Lorenzoni, Pidgeon, Poortinga, & Simmons, 2008). Therefore, scientists can act as policy advisors if they report on topics that fall within the realm of government policy (i.e. drug policy, climate change, cyber security, etc). Scientists can help clarify choices and expand alternatives that aid in policy decisions (Sarewitz & Pielke, 2007). In addition, scientists can help the government to educate the public. One interviewee explained: 'I think particularly in the area of cyber security it is a big push by many governments to actually try to educate the *public about what the risks are. What's going on, so that's quite important aspect on it.*'

Beyond working on issues that relate to government, scientists often appear in the news as public communicators (Dudo & Besley, 2016) by informing the general public with general science knowledge. Academics are contacted by the organizations they are involved in to give comments on relevant stories. One interviewee explained: 'I was contacted by Cancer Research UK last week because they had a paper sent to them and they wanted me to comment on it so they put out a press release.' In addition to being public communicators on behalf of an organization, academics are contacted by the media directly to ask for comments on issues related to their expertise areas. One interviewee mentioned: 'There was a big thing about hormone *and meat in EU (...)* and I get media requests from all over the world about it *because I'm a toxicologist.*'

The above mentioned examples of scientists in the media are mostly problem-oriented news items that deal with issues that directly relate to society (Summ & Volpers, 2016). Academics work in relevant areas has greater opportunities to be noticed by the media as it is driven by external demand. Less attention is paid to the internal supply of research findings, which constitutes the other side of media attention of academics. Traditionally, research

findings are valued only within academia without reaching other audiences. In recent years there has been a growing emphasis on communication of research findings to the public, i.e. beyond the traditional academic communities (Wilkinson & Weitkamp, 2013). Scientific findings being reported in the news is one of the ways for the general public to keep up with the latest scientific information. Furthermore, progress in research is needed to shape the future of public discourse of science (Boykoff, 2008; Brechman, Lee, & Cappella, 2009; Tsfati et al., 2011). In this study, we would like to explore how the research findings are noticed across the boundary from the science community to the broader society.

Scientists and journalists occupy distinct arenas which obey to different rules (Peters, 2013). On the one hand, scientific findings published in journals seek recognition from academic peers. The nature of work in academia is to add to the accumulation of scientific knowledge by conducting basic research (Sauermann & Stephan, 2013). Therefore, high impact research is theoretical in essence and often related to very specialized academic audiences. The importance of scientific research is likely to become visible for the public only after many years have passed (Summ & Volpers, 2016). On the other hand, the media tend to prefer scientific knowledge that helps understanding key problems faced by society. Prior studies show that organizations working on economic or social dimensions of the environment, for example, attract more media attention (Andrews & Caren, 2010).

Despite the media's intention to cover news items with direct relevance to society, they may pay also attention to the quality of the source of information. According to Bell (1991), p192: 'The more elite the source, the more newsworthy the story'. The media also prefer some resources shows the prominence over the others. Publishing in high impact journal represents a high quality signal to journalists which they can take into account when valuing scientific findings and deciding whether they should cover it in the newspaper. Although the quality signal from academia can obtain recognition from the media, some high

impact research may not be selected to be reported as news, whereas other lower impact research may be covered in the news. One interviewee mentioned:

*I've noticed you can have really low quality research and if some people in the media are interested in that they can get more attention, whereas you might have the most amazingly high quality research but the public finds it dull and they don't show any interest in it.*

Therefore, the quality signal from one audience may not fit the valuation criteria for the other audience. This study aims to explore the tension between research quality and public resonance in explaining which academic publications get coverage in the news by asking the following question what is the role of research quality signal as evidenced by the journal impact factor in whether or not a press release is being picked up by the media? Answer to this question will have implications for our understanding of the circumstances under which the quality signal from an audience is relevant for a second audience?

## **2.2 Research Quality Signal and Press Mentions**

Journalists act as an intermediary in disseminating the scientific knowledge across the boundary from academia to the media. The latest advancement in scientific knowledge is often described in academic journals. Among all the scientific findings published in journals, journalists do not typically actively browse academic journals to find scientific findings to report due to the time pressure of their daily work. Therefore, they rely on easily accessible information, such as press releases to discover the frontier science achievements. Academics also recognise that sending out press releases from press office is an effective route for reaching non-academic audiences (Wilkinson & Weitkamp, 2013). A journalist commented that:

If you have the scientific papers coming out make sure your press office knows about it.

*That's what* I called the Good pack – a paper published in the good journal that is a good reason for something to publish in newspaper.

Faced with a supply of many new research findings from academic articles and described in press releases it is unclear for journalists which ones have greater scientific value. Scientific value results from the extent of advancement of the research findings, but the journalists typically lack the expert knowledge to be able to interpret the extent of progress in a specific field. For the journalists, the quality of work is unobserved and thus they face high uncertainty in judging the suitability for news coverage. Previous research suggests that, under uncertainty of judgement, the higher the uncertainty of the underlying quality of the producers, the higher the reliance of market participants on quality signals of the producer's status to judge the quality (Podolny, 1994). In a similar vein, Stuart, Hoang, & Hybels (1999) point out new firms that have connections with more prominent partners can enjoy more resources, because in absence of clear quality observations about the new firm itself resource provides infer quality from the firm's partners.

Therefore, when the underlying quality differences are not transparent, external audiences tend to rely on observable characteristics of the candidate as an alternative insight into the quality (Sauder, Lynn, & Podolny, 2012). A high impact factor of research described in a press release is a strong signal for the media to pay attention and make it into news.

The level of achievement is one of the criteria that journalists use to decide whether they would like to incorporate the findings into the news. Journalists tend to refer to reliable resources for the quality standard as they are not in the position to judge the quality of research. In this case, the journalists will find the views of academic audiences informative particularly because the academic audiences are deemed to control useful information or analytical capabilities (Pollock, Rindova, & Maggitti, 2008). Research published in high

impact journals signal the approval from academic peers, who are in the position to judge the quality of findings. The high quality signal also shows that the findings have achieved certain important milestones, and it is worth knowing for the public. One interviewee mentioned that: *'I mean if it is in a big well known journal that might be an indication of it being an important piece of research, so it's more likely to be something that the media will be interested in.'*

In sum, research press releases indicating the high quality of the underlying science reduces the unobservable quality of the research for journalists. Press releases that show the research findings from high-impact journals thus imply the excellence of the research. The results that show greater impact to the public are likely to be selected by many outlets as journalists do not want to miss the stories that are seen as important from other outlets (Shoemaker & Reese, 1996). Thus, press releases indicating the findings from high impact journals are more likely to be noticed by many news outlets. Thus, we propose the following hypothesis:

Hypothesis 1: The research quality signal described in press releases is positively related to the dissemination of press releases to many news outlets

### **2.3 The Moderating Role of Public Resonance**

It is unlikely, however, that research quality signals from one audience will be taken equally by a secondary audience. The media plays a critical role in deciding which topics are discussed, and it achieves impact through its consideration of, and interaction with, the audience, so news selection takes into account viewing and reading behaviours (Chen and Meindl, 1991). In general, the media are interested in information that provides the basis for a 'good story' (Petkova et al., 2013). A good story oftentimes comes from the content that can satisfy the target audiences' interests. The alignment with the intended audiences' values, beliefs, and ideas (Vasi & Strang, 2009) is defined as resonance.

Resonance can be classified as message and individual levels. On the message level of resonance, for example, the reports framing in the way that meet the investor's needs garner more appreciation from investors (Giorgi & Weber, 2015). On the individual level of resonance, actors have the ability to meet the aspirations of a certain group (social categories, such as gender, class and status) (McCracken, 1989), which are important criteria deciding media attention. Therefore, both from the action taken by individuals or the message conveyed to the target audiences, the concept of 'resonance' plays an important role in audience's positive evaluation. In this study, we look at the concept of public resonance. Since journalists are the intermediary that judges the public's needs, the 'public resonance' is based on journalists' valuation of what the public may find interest. Drawing on mechanisms from celebrity and audience appreciation literature, we distinguish four dimensions of public resonance in below.

First, the contribution relevance of the research is one dimension of resonance. Research that has a direct impact on society resonates strongly with the public, because it strongly aligns with people's interests. In the audience appreciation literature, Giorgi and Weber (2015) it is suggested that the audience (institutional investor) is action-oriented and they want to act quickly on the ready-to-implement information. Therefore, the audiences resonate with the "financial orientation", the clearly stated investment implications and opportunities indicated in the framing of report by analysts. The abovementioned both imply that the information shows immediate application and impact relevant to the public is one dimension of resonance.

Second, in the audience appreciation literature, Giorgi and Weber (2015) suggest that the clarity of content is one dimension of resonance. The main point of the content being explicit, simple and quick to grasp for audiences is likely to meet audience's expectation, especially in the case of scientific findings. Scientists able to explain what they have found in

a clear and simplified manner increase the likelihood to be noticed by the audiences. In addition, the clarity of titles is also important in news selection as it is an entry point for audiences to decide whether they want to read a news article or not. Therefore, the third dimension relates to the clarity of title. After skimming the titles, the clarity of content would be important for the audiences to read more intensively (Giorgi & Weber, 2015), so we incorporate both the clarity of titles and content of press releases in this study.

Fourth, in the celebrity literature, the unexpectedness of actions is a typical aspect of a potential news item that helps attract media attention (Treadway, Adams, Ranft, & Ferris, 2009). Out-of-norm actions attract the media attention because actions that deviate from what other firms or individuals consider normal are ingredients to a ‘good story’ for journalists to dramatize (Rindova, Pollock, & Hayward, 2006). The unexpectedness of element arouses the curiosity of the public. Therefore, unexpectedness increases the news value by satisfying the needs for human imagination. We will explain each of these dimensions in more detail below.

### **2.3.1 Contribution Relevance**

Scientific findings that make contributions relevant to the public tend to attract more attention from journalists. Previous studies suggest that the greater the impact of the change on various stakeholders, the greater the extent to which it can be portrayed as a source of dramatic conflict, and the greater the extent to which firms can be constructed as celebrities (Rindova et al., 2006). Also, CEOs of larger firms will be more noticeable than those heading smaller firms (Hayward, Rindova, & Pollock, 2004). Giorgi and Weber (2015) suggest that audiences (investors) resonate with investment implications and opportunities that in comparison with other firms or industries that identified in the framing of report (analysts). Similarly, the scientific advancement with high level of relevance to the public can receive greater media attention as one interviewee mentioned:

Something that would make a big difference *to people, that's a good type*. For example, a breakthrough treatment, a new medicine, or a cure therapy since lots of newspapers have health pages. It could be improving British energy more clearly and more efficiently.

In addition, for two stories related to health, if one is a small achievement in science and the other is a health story relating to patients, journalists will tend to pick the latter. As one journalist explained:

If you want to put something forward to the general public, research related either to the environment or to a medical condition is the one that people are really interested in. If there is a sad story or a story about the patient – and the patient is willing to talk- it will get a lot of publicity. People are less interested in other less important things.

Beyond health related issues, other stories about changes to the economic, technological, political or cultural environment, stories with practical implications for society also attract media attention. For example, deregulation represents changes for industries and journalists will try to gather comments or predictions about the future situations. Therefore, many stories are more attractive than smaller achievements in science. Research with contribution relevance but which is published in lower impact journals has lower chances to be noticed.

We argue that the research quality signal is more important for research with high contribution relevance than for research with low contribution relevant for two reasons. First, if research findings concern people's lives directly, journalists want to report the major achievements, which are more likely to be published in higher impact journals. Research published in lower impact journals is more likely to be smaller achievements which the media would not be interested in. Second, journalists want to make sure the research underpinning

major findings are robust and the results are reliable if they directly relate to people's lives and interests. Quality assurances of the underlying research is crucial if the message conveyed in a press release may have direct repercussions for people's lives.

For these reasons, we posit that findings published in lower impact journals get limited media attention even if their contribution is relevant to the public. Journalists pay less attention to these scientific findings as they contain lower news value. In sum, when it comes to research findings that are relevant to the public, not all achievements get noticed by the media (Hayward et al., 2004). Thus we would argue that the contribution relevance by a press release with higher research equality matters much more than by a press release with lower research quality and we hypothesize that:

Hypothesis 2a: The effect of research quality signal on the dissemination of press releases increases with the contribution relevance of the content

Previous discussion focused on high quality research and contribution relevance indicated in the press releases can amplify the effect of research quality signal on press mentions. The abovementioned mechanisms cannot explain under what circumstances the research published in low tier journals also capture journalists' attention. In the following section, we turn to other dimensions in public resonance.

### **2.3.2 Clarity of Presentation**

One way to attract media attention is through the clarity of the message. For scientific findings, journalists are not familiar with the specific details of scientific achievements and thus they are hardly able to understand and interpret scientific outputs (Summ & Volpers, 2016). Therefore, the presentation of scientific findings in the press releases is important in order for journalists to notice the information. As one interviewee commented:

I think the press office take the lead on it and they try to make this complicated research to understandable frame in order to reach more audiences. So the journalists,

busy journalists, *they either don't get much time or don't have expertise to look at these.*

As journalists face ongoing pressures and deadlines (Andrews & Caren, 2010), the title of press release is the first thing they fall back on when deciding whether they would like to explore the information in greater depth. A clear framing of the research finding in the title will help convince journalists to continue reading the content for more information.

Furthermore, if, in the main body of the press release, the main point of the research finding is explicit and shows the coherence of the story (Giorgi & Weber, 2015) and makes the scientific findings understandable, it will have higher chances of being covered because it will be easier for journalists to write the story. The clarity of press releases is mentioned by an interviewee:

The case of press releases, the factual way of doing it is to write a really clear, short press release. It helps some understanding of new science worlds and then they can *approach the information rather than have them trying to figure out what's going on.*

Clarity of the content helps journalists relate to prior stories they have covered, which increases the likelihood of writing new stories, as continuity of the stories are important in news selection (Galtung & Ruge, 1965). In addition, the clarity of press releases also lead journalists to infer that the academics involved might be good at communicating their research to the public, so journalists are more likely to contact them for further explanations of their research.

High clarity may help lower quality research disproportionately more to gain traction. This is because journalist face lower uncertainty about the quality (they can judge something for themselves) and thus become less reliant on impact factor as an alternative quality assessment to fall back on. In sum, the clarity of the title and content can reduce reliance of the quality signal indicated in the press releases for journalists. Journalists are then capable to

judge whether they want to cover this story or not. Thus, we argue that the clarity of title and content by a press release with lower research equality signal matters more than by a press release with higher research quality signal and we hypothesize that:

Hypothesis 2b: The effect of research quality signal on the dissemination of press releases decreases with the clarity of the press release headlines

Hypothesis 2c: The effect of research quality signal on the dissemination of press releases decreases with the clarity of the press release content

### **2.3.3 Unexpectedness of the Research**

Research that contains elements of originality and novelty have high unexpectedness of content. Novelty and originality of events tend to work as good sources for news, so journalists seek out 'obtrusive events, such as taking bold or unusual, nonconforming actions, displaying distinctive identities in the environment' (Rindova et al., 2006) and turn them into news. Similarly, journalists look for unexpected stories in science. Unexpectedness of research findings can be taken three main forms. First, the research shows relations between things we would have expected to be unrelated. Second, the research shows something deviates from the previous common knowledge. Third, research reveals the unknown world regarding the past, the future and outer space which contains the unknown element that can arise human curiosity.

For low impact research, the unexpectedness element of the research is important as they would give the journalists more sources to tell the story. Many smaller achievements in science contain some unexpected elements. For example, a study about 'a substance in grape skin could help asthma sufferers' is not a breakthrough in science. However, it attracted public's attention as it was not biomedical related element that we would have expected. In addition, some research shows something that is different from what we have known is a good resource for 'expert controversy'. If research is published or ongoing, journalists will consult

several expert sources with conflicting views in order to promote the so called expert controversy, which is an important journalistic strategy for communicating scientific uncertainty in mass media (Boykoff and Boykoff, 2004 ; Ren, Peters, Allgaier, & Lo, 2014). For example, a study about ‘Cannabis more damaging to health than previously thought claim doctors’, even it did not show greater advancement of science, it would be a good resources for journalists to ask opinions from experts in relevant field. Expert controversy figures also in the context of business, as reporters seek to find balance in a story (Deephouse, 2000).

For high impact research, the unexpectedness element is less important as journalists can focus on the achievement in science rather than looking for other elements of the story. Major findings are sufficient and unexpectedness is less required to increase the values of media attention. The unexpectedness of research feeds human imagination and it makes it easier for journalists to dramatize the story, so it is easier to have higher public interest. In this case, the quality signal in the press releases becomes less important for journalists. Journalists hunger for “drama” may trump their need for assurance of research quality. Thus a potential lack of quality can be compensated by high levels of unexpectedness. Therefore, we would argue that the unexpectedness by a press release with lower research quality signal matters much more than by a press release with higher research quality signal and we hypothesize that:

Hypothesis 2d: The effect of research quality signal on the dissemination of press releases decreases with the unexpectedness of the content

### **3. DATA AND METHODS**

#### **3.1 Sample and Data Collection**

We conducted the study by using information on academics employed by a major research-intensive university, specializing in the natural sciences, medicine, engineering, and business. It has approximately 15,000 students, employs 1,200 faculty and 2,600 research

staff. In order to identify academics' media coverage, we obtained the list of the 2,520 academics' names from administrative records. The name list consists of senior faculty (readers and full professors), junior faculty (lecturers and senior lectures) and senior researchers (senior research fellows and principal research fellows).

Based on this name list, we identified and downloaded relevant news articles from Factiva, which is a Reuters and Dow Jones news and business information service, which provided efficient access to media articles. We checked different search terms,<sup>2</sup> but the search string 'First name surname and name of university' proved to be the most effective and complete way of identifying academics' news articles. The news articles we found included reports on research findings or other issues relevant to academics' research field. Any non-research-relevant news articles, such as about university events, student activities or anything unrelated to the individual's field of research were excluded, as they were not relevant to this research. We obtained 28,192 news articles from news outlets including newspaper, industry news and press wires after cleaning the data.

The press releases dataset was then put together from three main resources: the press releases from the media office, the Factiva news articles and academic's research outputs. We obtained 1,215 press releases sent between academics and media relations officers from media office in the form of unstructured archives. We excluded any press releases about appointments, and external activities, and only kept press releases related to research and research relevant events.

## **3.2 Measures**

### **Dependent Variable**

---

<sup>2</sup> 'First name and [university name], 'surname and [university name]', 'First name and surname' – which yielded articles more than half of which were not related to the particular academic. Added the title 'Dr or Professor' or middle names 'First name, middle name and surname' in search term limited the results.

**Number of Press Mentions.** In this study, we focus on the press releases that relate to specific journal articles. To this end, we identified manually the ‘paper-press releases pairs’ if there was a reference of journal publication mentioned at the end of the press releases. We also referred to the main content of press releases to find further linkages to academic articles. If there was a journal name in the content but no reference at the end of the article, we referred to the publication data and matched the press release to a specific academic article based on the time of publications and the name of academic. The longitudinal study includes a sample of 415 press release-person pairs between 2000 and 2013.

We used two steps to identify the number of mentions in news outlets. First, we collected news articles from Factiva Database and articles which appeared under “Newspaper” were counted in the number of press mentions. We chose the “Newspaper” category because the media outlets under this category reach the general public. We also reviewed the list of publication resources to ensure that the media outlets were accurately categorized. Second, we identified the linkage between press releases and news articles by the name of academics, then checked the similarity of titles both from press releases and news articles news within one month window after the release date.<sup>3</sup> A certain amount of press releases (47.94%) attracted no coverage and some that attracted high levels of coverage created a very skewed sample, therefore, we logged the dependent variable (ranging between 0 and 3.892).

### **Independent Variable**

**Research Quality Signal** equalled to 1 if the impact factor of the journal indicated in the press release is within the top 1 percentile compared to all science publications in ISI Web of Science in the focal year<sup>4</sup> (0 if not in the top 1 percentile). We used the binary variable rather than the full impact factor since journalists would consider research published in some journals as good journals but they were not discerning as to the quality and the ranking of

---

<sup>3</sup> expand the timeframe if can see the pattern of selection is still continued in the news dataset.

<sup>4</sup> The Impact factor of top 1 percentile is 11.158 in 2000 and 14.723 in 2013

each journal. The top-1 percentile of journals represents half of the paper-related press releases in my data

**Public Resonance** The content of press releases can satisfy the public's need for scientific knowledge, which is defined as public resonance. We followed the two steps to identify these dimensions which characterize public resonance in press releases. We read the press releases and identified the recurring dimension, which we then compared and adjusted with the results of interviews. We asked four different groups of people - academics, media staff, journalists and the public, who have no knowledge of these preliminary dimensions, to describe what they thought the public would want in the news and coded the needs that they articulated in the interviews. We then resorted to manual coding based on the instructions that summarized from prior steps. Two coders coded a random sample of 15 percent of the press releases and then we used Krippendorff's alpha (Krippendorff, 2012) to evaluate the inter-coder reliability for the different dimensions within public resonance. All values for the four dimensions are in the range of 0.65-0.80 which is acceptable (Giorgi & Weber, 2015). Then one of the author coded the rest of press releases.

Compared with the results of interviews and preliminary dimensions, we found there are four main needs that can be concluded: **Contribution Relevance**, refers to the extent to the finding will change people's lives - the combination of how important the impact is and the number of people being affected. It would be considered high contribution relevance, for example, if it was a breakthrough in a certain disease areas (influences a small group of people with deep impact) or a finding might be applicable to everyone (influences a large group of people with smaller impact). **Clarity of Title**, refers to the extent the findings or the aim of the research are quickly to grasp to the audiences. **Clarity of Content**, refers to the extent the story is coherent and the main point of press releases being explicit. **Unexpectedness of Research**, refers to extent the research are unexpected: something that is

different from what we would have previously thought OR shows relations between things we would have expected to be unrelated OR represents the unknown world.

### **Control variables**

A number of controls variables were included in the analyses. We controlled for a number of media related, individual, and message level factors. Individual level controls, for example, the tenure, contracts, are official database matched by HR department in this university. We controlled for **the number of press wires** each press release has been distributed to. Because the more press wires were selected for a press release, the higher the chance for it to be noticed by news outlets. We controlled for **prior media coverage** of individuals up to the focal year mentioning the name of academics. This variable is used to account for path dependence in academic's media experiences. Prior media visibility could potential influence the current attention (Vergne, 2012). We also included a dummy variable (**media friendly**) equal to 1 if the academic was on the list of this university's media guide which showed their willingness to reach out to the public because media attention could be driven by the academic's proactiveness in looking for external attention. Academics who have higher record in academia have higher chances to be noticed by the may be considered more authoritative in the media (Weingold, 2001, Tsfati et al., 2011), so we considered the **prior average research impact** by measuring the average impact factor of a researcher's work divided by the number of total publication they have up to the focal year. The duration of employment (**tenure**) in a given institution may influence the academic media attention because recently hired academics may have a lower likelihood of being noticed by the media.

The characteristics of the content of research can also influence the likelihood that the press release will receive media coverage. To account for the appliedness/basicness of academic's research at individual level, we consider the **average research level** (1 applied; 4 basic; based on Boyack, Patek, Ungar, Yoon, & Klavans, 2014) up to the focal year.

Scientists publishing in more diverse journals might have higher chances to be more applied in nature, and they are more likely to have been noticed by more media outlets, so we controlled for the **concentration of publication**. We also considered **the number of contracts award as PI that funded by industry, and funded by government and charity**. Contracts are more applied in nature than grants, the number of contracts academics received also implied their visibility in practice (funded by industry implied their practical impact whereas funded by government and charity indicated their social impact). The two variables were a cumulated number of contracts in a five year window as we wanted to know the recent publicity of individual's research whereas other variables are a lifetime measure to capture the overall characteristics of academics.

The characteristics of the journal indicated in press releases can also influence the likelihood that the press release will receive media coverage. We controlled for **the number of ISI categories** that journal has been included, the more ISI subject categories indicated, it has the higher chances to reach to more audiences. We include eight dummy variables to denote the field of the journal described in the press release (Biomedical Science, General medicine, Other medicine, Neurosciences/Clinical Medicine, Geosciences/Ecology/Environmental Science, Infection Disease, Physics/Chemistry, Materials Science/Engineering; the omitted variable is Business School).

#### **4. RESULTS**

To test the main hypothesis, we focus on research quality signal and press mentions. In the moderating hypothesis, we introduce four different dimensions of public resonance. We use linear regression models because the dependent variable is a logged count variable. All equations were estimated clustering the errors by year. Press mentions have a different

distribution across different years, which could introduce correlations in the error terms, for each press release-paper pair at the same year.

Table 1 presents descriptive statistics and correlations. The level of correlation among the key variables is generally low. The high correlation between the variables for number of press wires and total press mentions ( $r=.63$ ) was expected, given that more press wires cover the press releases, the more likely the press release being mentioned by more media outlets. The maximum variance inflation factor is less than 2, signalling that multicollinearity is not a problem in the data.

-----  
Insert Table 1 about here  
-----

Table 2 shows the tests for the impact of research quality signal and public resonance on press mentions. Model 1 includes only control variables and represents the baseline model. As expected, we find that the number of press wires and prior media coverage are strong predictors of press mentions. Model 2 and Model 3 show that research quality signal has a positive and significant effect on the likelihood of press mentions: a one standard deviation increase in research quality signal from its mean value increases the likelihood of more press mentions by 5%. This provides support for Hypothesis 1.

In Model 4-7, we test Hypothesis 2a-2d, which states that the effect of research quality signal on press mentions is amplified (H2a) or dampened (H2b-H2d) by different dimensions of resonance. In Model 4, the interaction term is positive and significant, suggesting that the effect of research quality signal amplified if the content of research has relevance contribution. This supports Hypothesis 2a. The plot shows no significance in Model 5 and interaction term is not significant in Model 6. Both Hypothesis 2b, 2c are not supported, suggesting that the effect of research quality signal does not change given the different level of clarity of content and titles. In Model 7, the interaction term is negative and significant, suggesting that the

effect of research quality signal dampened if the content of research is unexpected. This supports Hypothesis 2c. Model 8 includes both significant interaction terms, and it supports both of my moderation hypotheses.

-----  
Insert Table 2 about here  
-----

To interpret these moderation effects, these plots were derived by setting the moderation variables at one standard deviation below the mean value (low value) and one standard deviation above the mean value (high value). In line with Hypothesis 2a, Figure 1 shows that at high research quality signal, high level of contribution relevance increases the likelihood of press mentions, whereas at low research quality signal, high level of relevance of contribution does not affect the chances of more press mentions. Consistent with Hypothesis 2d, Figure 2 shows that at low research quality signal, high level of unexpectedness increases the likelihood of press mentions, whereas at high research quality signal, high level of unexpectedness does not affect the chances of more press mentions.

-----  
Insert Figure 1 & 2 about here  
-----

## **5. DISCUSSION**

The goal of this study was to explore the social valuation of organizational members subject to multiple audiences. Specifically, we investigated under what circumstances a quality signal from the focal audiences is relevant for the secondary audiences. The findings suggest that, when determining the worth of a candidate, the secondary audience is influenced by the quality signal from focal audience. Drawing on mechanisms from celebrity and audience appreciation literature, we also suggest that the extent of influence from focal audience is contingent on different dimensions of valuation by secondary audiences. On the

one hand, this study suggested that there is a substitution effect between the research quality signal and the unexpectedness of the research content. It means that high unexpectedness valued by the secondary audience can help the research with low quality signal to attract more attention from the secondary audiences. On the other hand, the study suggested that there is a complementarity effect between the research quality signal and contribution relevance of the research. It means that high contribution relevance valued by secondary audiences can help the research with high quality signal attract more attention from the secondary audiences. The results did not find support for the moderating role of clarity of content and title to the quality signal. Possible explanation of this result is that the media cares more about how the content work as a good story (Petkova et al., 2013). Clarity of the information did not show that the research findings contains the values that are appreciated by the audiences. Thus clarity of information is insufficient to capture journalist's attention.

## **5.1 Theoretical Contributions**

These findings contribute to several research streams, including work on multiple audiences, signaling theory, and the phenomenon of public resonance. A growing stream of research has examined the various factors affecting audience valuation. For example, Cattani Ferriani, and Allison (2014) showed that candidate distancing itself from the core of the field lower their peer recognition. Shymko and Roulet (2016) also indicated that the more external stakeholders the actors relied on, the lower their peer recognition. Pontikes (2012) showed that organizations with ambiguous labels are preferred by market-makers as they are interested in redefining the market structure, while consumers find the ambiguity less interesting as they prefer clear label to assess and evaluate the actors. Previous work has suggested that different audiences prefer different characteristics of the actor, thus the success of the actors depends on perception of audiences. Ertug, Yogev, Lee, and Hedström (2016) also suggested that one actor enjoys high status in one domain but not another, but the

audiences they addressed are audiences within the same field (ie. museums and galleries). This study of how academic scientists interact with both academic the public extend the previous finding that focus on peer recognition or audiences in the same field, and goes further in exploring when a signal spills across to a different field or audience.

Prior studies have shown that signals may affect multiple receivers (Stern & James, 2016) but they did not examine when signal of one audience is used by intermediaries for selection decisions for the other audiences. Quality signal for the focal audiences reflect the taken-for-granted beliefs within the focal audiences, and how the quality signal is adopted by the secondary audiences depends on the different criteria they assess. The strength of the signal increases when the contribution relevance is high for the secondary audience. However, the strength of the signal decreases when the unexpectedness of the research is high, which means that the secondary audiences rely less on the quality signal to judge the newsworthiness of scientific findings.

By revealing the signal effects, this study complements recent work that seeks to examine not only the advantages of associated with status, but also the limit of such benefits (Bothner, Kim, & Smith, 2010). This study responds to the call for more research on status that appeal to different domains of audiences (George, Dahlander, Graffin & Sim, 2016) and seek to explain why the high quality do not ‘take-all’ across different audiences. We found partially support for the Matthew effect in this study – the rich get richer as Matthew effect indicated, but the poor might also get richer in some case. As the study shows that lower quality signal from one audience may yield high attention from the alternate audiences.

This study contributes to the tension between quality and public resonance by highlighting the four dimensions of public resonance and their effects on high and low level of quality signal. This research provides new insights by addressing the conflicting opinions about whether research quality or research resonance matters more. Although prior literature

showed resonance as a fundamental mechanism for effectiveness of framing (Benford & Snow, 2000; Cornelissen & Werner, 2014), the mechanisms through which it stimulates media attention were mostly implicit. This study brings in mechanisms from the celebrity literature and audience appreciation literature to explain how different dimensions of resonance can help high or low quality signal.

## REFERENCES

- Adler, P. A. & Adler, P. 1989. The Gloried Self: The Aggrandizement and the Constriction of Self. **Social Psychology Quarterly**, 299-310.
- Andrews, K. T. & Caren, N. 2010. Making the News Movement Organizations, Media Attention, and the Public Agenda. **American Sociological Review**, 75: 841-866.
- Bell, A., 1991. *The Language of News Media*. Blackwell, Oxford.
- Benford, R. D. & Snow, D. A. 2000. Framing processes and social movements: An overview and assessment. **Annual Review of Sociology**, 611-639.
- Bickerstaff, K., Lorenzoni, I., Pidgeon, N.F., Poortinga, W. & Simmons, P., 2008. Reframing nuclear power in the UK energy debate: nuclear power, climate change mitigation and radioactive waste. **Public Understanding of Science**, 17(2): 145-169.
- Bornmann, L. 2013. What is societal impact of research and how can it be assessed? a literature survey. **Journal of the American Society for Information Science and Technology**, 64: 217-233.
- Bothner, M.S., Kim, Y.K. & Smith, E.B., 2012. How does status affect performance? Status as an asset vs. status as a liability in the PGA and NASCAR. **Organization Science**, 23(2): 416-433.
- Boyack, K.W., Patek, M., Ungar, L.H., Yoon, P. and Klavans, R., 2014. Classification of individual articles from all of science by research level. **Journal of Informetrics**, 8(1): 1-12.
- Boykoff, M. T. & Boykoff, J. M. 2004. Balance as bias: global warming and the US prestige press. **Global Environmental Change**, 14: 125-136.
- Boykoff, M.T., 2008. Lost in translation? United States television news coverage of anthropogenic climate change, 1995–2004. **Climatic Change**, 86(1-2): 1-11.
- Brechman, J., Lee, C.J. & Cappella, J.N., 2009. Lost in translation? A comparison of cancer-genetics reporting in the press release and its subsequent coverage in the press. **Science Communication**, 30(4): 453-474
- Bucchi, M. & Trench, B. 2014. **Handbook of Public Communication of Science And Technology**, Routledge.
- Cattani, G., Ferriani, S. & Allison, P.D., 2014. Insiders, Outsiders, and the Struggle for Consecration in Cultural Fields A Core-Periphery Perspective. **American Sociological Review**, 79(2): 258-281
- Chen, C. C. & Meindl, J. R. 1991. The Construction of Leadership Images in the Popular Press: The Case of Donald Burr and People Express. **Administrative Science Quarterly**, 36: 521-551.
- Cornelissen, J.P. & Werner, M.D., 2014. Putting framing in perspective: A review of framing and frame analysis across the management and organizational literature. **The Academy of Management Annals**, 8(1): 181-235.

- Deephouse, D. L. 2000. Media Reputation as a Strategic Resource: An Integration of Mass Communication and Resource-Based Theories. **Journal of Management**, 26: 1091.
- D'este, P., Tang, P., Mahdi, S., Neely, A. & Sánchez-Barrioluengo, M. 2013. The pursuit of academic excellence and business engagement: is it irreconcilable? **Scientometrics**, 95: 481-502.
- Dudo, A. & Besley, J. C. 2016. Scientists' prioritization of communication objectives for public engagement. **PloS one**, 11, e0148867.
- Ertug, G., Yogev, T., Lee, Y.G. & Hedström, P., 2016. The art of representation: How audience-specific reputations affect success in the contemporary art field. **Academy of Management Journal**, 59(1): 113-134.
- Galtung, J. and Ruge, M.H., 1965. The structure of foreign news the presentation of the Congo, Cuba and Cyprus Crises in four Norwegian newspapers. **Journal of peace research**, 2(1): 64-90.
- Gamson, J. 1994. **Claims to Fame: Celebrity in Contemporary America**, Univ of California Press.
- Giorgi, S. & Weber, K. 2015. Marks of Distinction: Framing and Audience Appreciation in the Context of Investment Advice. **Administrative Science Quarterly**, 60, 333-367.
- George, G., Dahlander, L., Graffin, S.D. & Sim, S., 2016. Reputation and Status: Expanding the Role of Social Evaluations in Management Research. **Academy of Management Journal**, 59(1), 1-13.
- Gulbrandsen, M. & Smeby, J.-C. 2005. Industry Funding and University Professors' Research Performance. **Research Policy**, 34, 932-950.
- Hayward, M. L., Rindova, V. P. & Pollock, T. G. 2004. Believing One's Own Press: The Causes and Consequences of Ceo Celebrity. **Strategic Management Journal**, 25, 637-653.
- Krippendorff, K., 2012. **Content analysis: An introduction to its methodology**. Sage.
- Mccracken, G. 1989. Who Is the Celebrity Endorser? Cultural Foundations of the Endorsement Process. **Journal of Consumer Research**, 16: 310-321.
- Menie, E. C., Parris, A. & Sarewitz, D. 2016. Improving the public value of science: A typology to inform discussion, design and implementation of research. **Research Policy**, 45: 884-895
- Muniesa, F. 2012. A Flank Movement in the Understanding of Valuation." In: L. Adkins & C. Lury (eds.): **Measure and Value**. Oxford: **Wiley-Blackwell**, 24-38.
- Nisbet, M.C. & Scheufele, D.A., 2009. What's next for science communication? Promising directions and lingering distractions. **American Journal of Botany**, 96(10): 1767-1778.
- Peters, H. P. 2013. Gap between Science and Media Revisited: Scientists as Public Communicators. **Proceedings of the National Academy of Sciences**, 110: 14102-14109.
- Petkova, A. P., Rindova, V. P. & Gupta, A. K. 2013. No News Is Bad News: Sensegiving Activities, Media Attention, and Venture Capital Funding of New Technology Organizations. **Organization Science**, 24: 865-888.
- Podolny JM. 1994. Market uncertainty and the social character of economic exchange. **Administrative Science Quarterly**, 39:458-83
- Pollock, T. G., Rindova, V. P., & Maggitti, P. G. 2008. Market watch: Information and availability cascades among the media and investors in the US IPO market. **Academy of Management Journal**, 51(2): 335-358.
- Pontikes, E.G., 2012. Two sides of the same coin how ambiguous classification affects multiple audiences' evaluations. **Administrative Science Quarterly**, 57(1): 81-118.
- Ren, J., Peters, H. P., Allgaier, J. & Lo, Y.-Y. 2014. Similar challenges but different responses: Media coverage of measles vaccination in the UK and China. **Public Understanding of Science**, 23(4): 366-375

- Rindova, V. P., Pollock, T. G. & Hayward, M. L. 2006. Celebrity Firms: The Social Construction of Market Popularity. **Academy of Management Review**, 31: 50-71.
- Shoemaker, P. & Reese, S. D. 1996. **Mediating the Message**. New York: Longman.
- Sarewitz, D. & Pielke, R.A., 2007. The neglected heart of science policy: reconciling supply of and demand for science. **Environmental Science & Policy**, 10(1): 5-16.
- Sauder, M., Lynn, F. & Podolny, J.M., 2012. Status: Insights from organizational sociology. **Annual Review of Sociology**, 38: 267-283.
- Sauermann, H. & Stephan, P., 2013. Conflicting logics? A multidimensional view of industrial and academic science. **Organization Science**, 24(3): 889-909.
- Shymko, Y. & Roulet, T., 2016. When does Medici hurt DaVinci? Mitigating the Signaling Effect of Extraneous Stakeholder Relationships in the Field of Cultural Production. **Academy of Management Journal**, forthcoming
- Stern, I. & James, S. D. 2016. Whom Are You Promoting? Positive Voluntary Public Disclosures and Executive Turnover. **Strategic Management Journal**, 37(7): 1413-1430
- Stuart, T.E., Hoang, H. & Hybels, R.C., 1999. Interorganizational endorsements and the performance of entrepreneurial ventures. **Administrative Science Quarterly**, 44(2): 315-349.
- Summ, A. & Volpers, A.-M. 2016. What's science? Where's science? Science journalism in German print media. **Public Understanding of Science**, 25(7): 775-790.
- Treadway, D. C., Adams, G. L., Ranft, A. L. & Ferris, G. R. 2009. A Meso-Level Conceptualization of Ceo Celebrity Effectiveness. **The Leadership Quarterly**, 20: 554-570.
- Tsfati, Y., Cohen, J. & Gunther, A. C. 2010. The Influence of Presumed Media Influence on News About Science and Scientists. **Science Communication**, 33, 143-166.
- Vasi, I.B. & Strang, D., 2009. Civil Liberty in America: The Diffusion of Municipal Bill of Rights Resolutions after the Passage of the USA PATRIOT Act1. **American Journal of Sociology**, 114(6): 1716-1764.
- Vergne, J.P., 2012. Stigmatized categories and public disapproval of organizations: A mixed-methods study of the global arms industry, 1996–2007. **Academy of Management Journal**, 55(5): 1027-1052.
- Weigold, M.F., 2001. Communicating science A review of the literature. **Science Communication**, 23(2):164-193.
- Wilkinson, C. & Weitkamp, E., 2013. A case study in serendipity: environmental researchers use of traditional and social media for dissemination. **PloS one**, 8(12): p.e84339.

**TABLE 1**  
**Descriptive Statistics and Correlations**

	Mean	S.D.	Min	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
1 Number of Press Mentions	0.801	0.958	0	3.892																
2 Tenure	10.817	7.951	0	40	0.06															
3 Number of Press Wires	0.66	0.72	0	3.045	0.633	0.005														
4 Prior Media Coverage	0.927	1.034	0	4.281	0.308	-0.082	0.263													
5 Prior Research Impact	5.526	2.374	0.716	13.937	0.074	-0.156	0.103	0.166												
6 Media Friendly	0.39	0.488	0	1	0.03	0.203	-0.008	0.01	-0.072											
7 Publication Narrowness	0.116	0.099	0.02	1	-0.136	-0.212	-0.133	-0.212	-0.18	-0.163										
8 Basicness	3.045	0.731	1	4	-0.102	-0.09	-0.032	-0.089	0.219	0.01	-0.081									
9 Number of Contracts from Industry	1.333	4.354	0	36	0.024	-0.01	-0.027	0.358	-0.154	-0.102	-0.131	-0.031								
10 Number of Contracts from Government and Charities	0.499	2.163	0	23	0.087	0.026	0.072	0.088	-0.013	-0.008	-0.1	-0.227	-0.018							
11 Number of ISI subject categories	1.356	0.822	1	6	-0.064	0.002	-0.007	-0.085	-0.107	0.055	-0.045	-0.005	-0.009	0.0002						
12 Resonance: Unexpectedness	2.073	0.511	1	3	0.201	-0.027	0.125	0.06	0.057	-0.069	-0.077	0.085	-0.005	0.018	-0.013					
13 Resonance: Contribution Relevance	2.266	0.729	1	3	0.185	0.045	0.105	0.139	0.062	-0.15	-0.109	-0.41	0.144	0.113	-0.035	-0.022				
14 Resonance: Clarity of title	2.564	0.566	1	3	0.395	0.037	0.212	0.168	-0.017	0.042	-0.021	-0.207	0.041	0.128	-0.012	0.103	0.237			
15 Resonance: Clarity of content	2.56	0.515	1	3	0.181	0.027	0.154	0.067	-0.025	-0.029	0.024	-0.072	0.059	0.041	0.001	0.079	0.092	0.152		
16 Research Quality Signal	0.482	0.5	0	1	0.158	-0.072	0.118	0.064	0.198	-0.074	-0.118	0.171	-0.059	-0.084	-0.211	0.005	-0.1	-0.118	-0.04	

**TABLE 2**  
**Impact of Research Quality Signal on Press Mentions and**  
**the Moderating effect of Public Resonance**

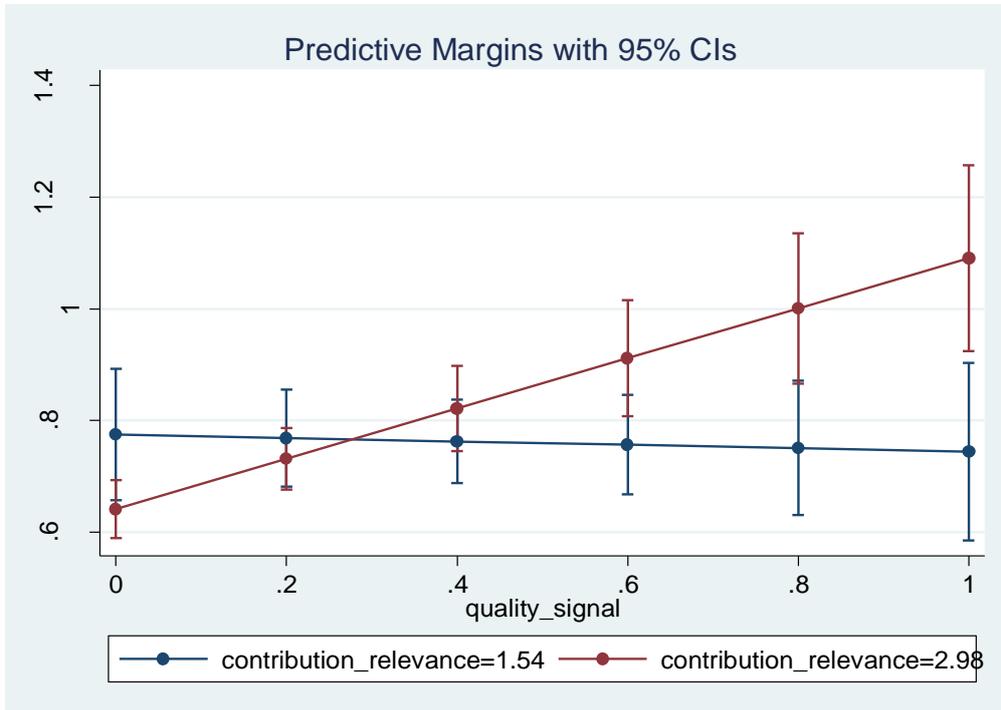
VARIABLES	Model1	Model2	Model3	Model4	Model5	Model6	Model7	Model8
Tenure	0.00412 (0.00464)	0.00467 (0.00470)	0.00436 (0.00435)	0.00452 (0.00424)	0.00486 (0.00424)	0.00425 (0.00430)	0.00467 (0.00415)	0.00485 (0.00378)
Number of Press Wires	0.801*** (0.0855)	0.795*** (0.0816)	0.691*** (0.0726)	0.660*** (0.0680)	0.691*** (0.0719)	0.693*** (0.0733)	0.686*** (0.0735)	0.653*** (0.0681)
Media friendly	0.0416 (0.0742)	0.0526 (0.0710)	0.0696 (0.0546)	0.0680 (0.0647)	0.0561 (0.0603)	0.0699 (0.0537)	0.0914 (0.0550)	0.0905 (0.0647)
Prior Media Coverage	0.162*** (0.0363)	0.157*** (0.0374)	0.123** (0.0346)	0.118*** (0.0293)	0.125*** (0.0304)	0.122** (0.0347)	0.123** (0.0353)	0.118*** (0.0296)
Prior Academic Performance	0.0121 (0.0118)	0.0109 (0.0112)	0.0107 (0.00822)	0.00496 (0.00956)	0.0139 (0.00830)	0.0106 (0.00838)	0.00609 (0.00837)	-2.45e-05 (0.00921)
Publication Narrowness	-0.0726 (0.297)	-0.000557 (0.266)	0.0934 (0.300)	0.217 (0.277)	0.107 (0.287)	0.0811 (0.310)	0.200 (0.318)	0.332 (0.306)
Basicness of Research	-0.148** (0.0422)	-0.157*** (0.0407)	-0.0985** (0.0294)	-0.0839** (0.0323)	-0.109** (0.0362)	-0.0981** (0.0307)	-0.0838** (0.0298)	-0.0680* (0.0325)
Contracts from Industry	-0.00176 (0.00435)	-0.000377 (0.00426)	-0.000212 (0.00616)	-0.000992 (0.00496)	0.000634 (0.00595)	-0.000298 (0.00621)	-0.00202 (0.00563)	-0.00289 (0.00437)
Contracts from Government and Charities	0.0458*** (0.00712)	0.0464*** (0.00784)	0.0382** (0.0136)	0.0428*** (0.0109)	0.0402** (0.0146)	0.0376** (0.0138)	0.0420** (0.0118)	0.0469*** (0.0100)
Number of ISI subject categories	0.0133 (0.0657)	0.0250 (0.0694)	0.0162 (0.0394)	0.0158 (0.0411)	0.00810 (0.0440)	0.0168 (0.0396)	0.0307 (0.0351)	0.0307 (0.0363)
Research Quality Signal		0.109* (0.0544)	0.207** (0.0568)	-0.543** (0.208)	-0.390* (0.181)	0.314 (0.185)	1.258*** (0.254)	0.510 (0.269)
Resonance: Unexpectedness of research			0.189** (0.0680)	0.198** (0.0714)	0.198** (0.0682)	0.188** (0.0687)	0.410*** (0.0885)	0.427*** (0.0944)
Resonance: Contribution Relevance			0.0734 (0.0583)	-0.0925** (0.0312)	0.0698 (0.0589)	0.0736 (0.0589)	0.0717 (0.0555)	-0.101** (0.0324)
Resonance: clarity of title			0.403*** (0.0589)	0.415*** (0.0575)	0.270*** (0.0624)	0.402*** (0.0583)	0.391*** (0.0509)	0.404*** (0.0509)
Resonance: clarity of content			0.128 (0.0836)	0.128 (0.0839)	0.124 (0.0785)	0.150* (0.0688)	0.134 (0.0751)	0.134 (0.0756)
Research Quality Signal x Contribution Relevance (H2a)				0.333*** (0.0810)				0.347*** (0.0880)
Research Quality Signal x Clarity of title (H2b)					0.232** (0.0711)			
Research Quality Signal x Clarity of content (H2c)						-0.0424 (0.0603)		
Research Quality Signal x Unexpectedness (H2d)							-0.504*** (0.123)	-0.520*** (0.140)
Constant	0.570 (0.491)	0.449 (0.532)	-1.469*** (0.328)	-1.204** (0.330)	-1.105** (0.380)	-1.524*** (0.366)	-2.038*** (0.358)	-1.780*** (0.349)
Observations	415	415	415	415	415	415	415	415
R-squared	0.500	0.502	0.575	0.587	0.579	0.575	0.591	0.604

Year Dummy; Field Dummy Included

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Figure 1 Research Quality Signal and Press Mentions moderated by the Contribution Relevance**



**Figure 2 Research Quality Signal and Press Mentions moderated by the Unexpectedness of Research**

