Audience recognition: the determinants of
academics’ media impact

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DECLARATION OF ORIGINALITY

This is to certify that:

The thesis comprises my original work towards the PhD except where indicated, and appropriate reference has been made in the text to all other material used.

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ABSTRACT

This thesis examines the media impact of academics, and in particular focuses on the conditions of research publication being covered in the news and the pathways that academics become media stars (celebrity). University actors are increasingly required to demonstrate research impact on society. The first chapter provides an overview of the changing landscape of the ‘broader impact’ and highlights the role of the media as an intermediary in delivering scientific research across the boundary between academia and the public. The second chapter provides an overview of the quantitative data in the two studies.

Study 1 seeks to explain the role of research quality signals, as evidenced by journal prestige, in whether a press release is being picked up by the media. This study explores the tension between research quality and public resonance in explaining which academic publications are covered in the news. Results show how various dimensions of public resonance may strengthen or weaken the importance of research quality as a signal. Specifically, it finds 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 the media attention of academic articles.

Study 2 explores the question of through what pathways do academics become celebrities in the media. The results show that academics who achieve ‘research’ celebrity status are discovered – based on the quality of their research – rather than manufactured, whereas academics who excel at commentary in the media tend to be manufactured rather than discovered. My findings also show that it is difficult for academics who excel in achieving one type of media coverage to switch to achieving the other type. Only academics who are both academically excellent and who actively push for media attention tend to become celebrities both in terms of research coverage and public commentary.
ACKNOWLEDGEMENT

Two roads diverged in a wood, and I —

I took the one less traveled by, and that has made all the difference.

(The Road Not Taken) by Robert Frost

PhD was a long and committed journey with many unknown obstacles ahead. Without close friends/relatives whom have pursued PhD before I made this choice, taking a route that less people travelled by – PhD – was challenging for me. Being far away from home and going back home only once a year, I often questioned myself whether it was a wise and correct decision during these years. And now I know –Yes– I wouldn’t have become whom I want to be without this journey. I couldn’t imagine how to go through the process without the supports of many people around.

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INTRODUCTION

The impact of academics’ work is not confined to academia, but also has broader social consequences. Universities are increasingly expected to contribute to society and the economy and to inform the public about new scientific insights via the media. This implies academics’ work is not only valued by academic peers in the process of peer-review and academic publishing, but also by journalists – and indirectly the general public – who make valuations which academic insights to feature in news articles. In this thesis, I exploit the context of academics seeking media attention to study how valuation processes occur across multiple audiences.

While there has been considerable research across a variety of settings in valuation processes and outcomes, most of this research has operated under the assumption that valuation is based on candidate-specific features and homogeneous audiences. Aspects related to how the valuation of outcomes transfers across different contexts are less understood. To address this gap, I examine how valuations take place across multiple audiences. Specifically, I aim to understand to what extent valuations from a primary audience are recognized by a secondary audience. Also, I seek to reveal the pathways through which people can become well-known across multiple audiences given that values and criteria may differ between them.

In my context, the scholarly community represents academics’ primary audience and the media its secondary audience. The central research question of my thesis is what determines academics’ impact in the media. To answer this question, I have collected 27,000 newspaper articles from Factiva that mention Imperial College academics (total population of 2,500) over the last 13 years. I linked the news articles from Factiva to a dataset of press releases issued by the university’s media office, and supplemented these datasets with
information from the university’s official HR database and archival data to account for individual variables.

In Chapter 1, I provide an overview of the changing role of universities where impact beyond academic has become increasingly important. This chapter sheds light on the role of the media in enabling academics to have an impact on societal and economic issues, and distinguishes a range of different roles of academics in the media. I include a brief introduction to the context of the university I studied, which shows that it is an ideal setting for studying the transfer of impact from academia to the society. In addition, a detailed explanation of the exploratory interviews also provides an overview of the context before understanding at the quantitative data. Finally, this chapter provides a review of existing studies on media attention in academia, audience valuation, and celebrity in order to identify areas of our understanding of academics’ media attention that have remained unexplored.

Subsequently, in Chapter 2, I provide a description of the quantitative data. This data overview shows the data-collection process for news articles and press releases related to this university’s academics. I then explain the news articles dataset I used in Chapter 4, and the press releases/journal-related dataset I used in Chapter 3. Next, I further explore the distribution of news articles and the demographics (subjects and seniority) in both datasets. Finally, I compare the academics included in the samples of both chapters to the total population of academics at the university.

Next, in Chapter 3, I seek to explain which academic publications get coverage in the news. Drawing on mechanisms from the audience appreciation literature, I argue that academics may gain attention in the media either because they publish high-quality research that got recognition in the scholarly community, and/or because they publish work that resonates with the public interest. Thus, in selecting which academic publications to cover in the news, the media may rely either on quality signals from the academic community such as
work published in high-impact journals and/or self-select publications it judges to be of interest to the public. To explore how the tension between research quality signal and public resonance helps to explain academic media attention, I exploit the matched press releases and new articles.

Finally, in Chapter 4, I analyse academic media attention from the perspective of the celebrity literature. Specifically, I address the question to what extent academics who are frequently covered in the media are “discovered” based on their academic excellence or “manufactured” based on extensive efforts to push for media attention. To this purpose, I distinguish two different aspects of academic celebrity: frequent coverage of their own research in the media, and frequent commentary on relevant topics related to their research. To analyse how the pathways – i.e. discovered versus manufactured – may differ for these two aspects of academic celebrity, I measure the type of academic news coverage taking a dictionary-based content analysis approach to code newspaper articles as ‘research’ or ‘commentary’.
CHAPTER 1: THE MEDIA IMPACT OF ACADEMICS? WHY BOTHER?

This chapter explains the role of the general media in enabling academics to make a broader impact on society. It refers to prior studies and interviews of academics to explore why and how they get attention in the media. First, in the context of academic research, the increasing attention on universities and policy makers is outlined by demonstrating its societal impact, and furthermore, the use of media attention to measure the societal impact. Next, I conducted 20 exploratory interviews with three groups of stakeholders involved in the process of media-coverage creation: academics, media staff and journalists. I will explain how I collected the interview data and justify the choices I made. Third, the various roles that academics play in the media are distinguished, based on interviews and current studies of media attention they receive. Finally, a selected literature review of media attention, audience valuation and celebrity lead to sighting directions for further analysis in this study.

1. The Growing Importance of Demonstrating Impact beyond Academia

The role of universities in society has become increasingly important, as have external pressures on them (Deiaco, Hughes & McKelvey, 2012). For centuries, the primary role of universities has revolved around generating advancements in scientific knowledge. Academics’ primary impact has focused and been measured around publications in peer-reviewed journals and the traction these generate within scientific communities. In the USA, the Bayh–Dole Act was passed in 1980, allowing universities and other institutions to own the inventions made with federal funding. This facilitated university patenting and licensing activities (Mowery et al., 2001) and led to a subtle shift in public policy that has spurred the development of university technology transfer and economic growth. This early development of their impact beyond academia led to the broader involvement of different, non-academic stakeholders in academic research.
Since the 1990s, a noticeable trend has appeared of showing the evidence of the social and economic impact of research to policymakers around the world (Bornmann, 2013). For example, compared to the prior assessment framework of the Research Assessment Exercise (RAE), which emphasises the quality of research, the Research Excellence Framework (REF) in the UK has a new dimension\(^1\) to assess ‘impact beyond academia’.

The broader impact of research has been defined in different ways. For instance, in the UK, the Research Councils UK definition of research impact includes ‘economic and societal impact, which is the demonstrable contribution that excellent social and economic research makes to society and the economy, of benefit to individuals, organisations and nations’.\(^2\) Specifically, the new REF states that ‘the impact element will include all kinds of social, economic and cultural benefits and impacts beyond academia, arising from excellent research’ (Higher Education Funding Council for England, 2011, p. 4).

However, with the emphasis on broader impact, the precise measurement of the ‘impact to society’ or ‘impact beyond academia’ is often questioned (Bornmann, 2013; Martin, 2011). It is difficult to measure the outcomes of impact as the boundaries between different types of impact are blurred. Economic, cultural, societal, health, and environmental dimensions are all related to ‘impact to society’, and the research findings are often not related to only one dimension. The fuzzy boundary between the economic and non-economic impact appears in the example of nanotechnology’s potential to produce new and effective ways of treating cancer. The effects are not related only to health impact; they might spur potential economic growth in medical devices and the pharmaceuticals market, according to AZoNano\(^3\) and may extend to social impact. In addition, studies tend to focus on measuring the dimension of economic impact because it is quantifiable and easier to measure (Bornmann, 2013).

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\(^1\) https://www.ref.ac.uk/2014/results/analysis/comparisonwith2008raeresults/
\(^2\) https://www.ukri.org/innovation/excellence-with-impact/
\(^3\) https://www.azonano.com/article.aspx?ArticleID=1700
Research outcomes more directly related to society also include different dimensions of impact. For example, a study described in a press release addressed health and environmental factors:

*Your body has to deal with hundreds of different pollutants every day, the vast majority of which are probably harmless. However, we know that some pollutants can cause health problems—for example, some of the minute particles found in diesel fumes can make people’s asthma symptoms worse. It's quite difficult to work out whether certain pollutants are affecting our health because we are exposed to so many, over such long periods of time. Our new Centre is developing methods to look at the exposure of many thousands of people. Through this research we will investigate the extent, for example, a particular chemical is contributing to a particular health problem.*

In addition to the measurement of impact, it is important to know the types of pathways academics use to impact broader audiences. Hughes & Kitson (2012) (also see Hughes & Martin, 2012) show that the two primary forms of academics’ interactions with external organizations are associated with people-based activities (e.g., student placements, standard-setting forums, employee training, sitting on advisory boards) and problem-solving activities (e.g., informal advice, joint publications, joint research and consultancy services provided to external organisations). Media coverage can capture many of these activities, along with the direct measure of social impact that such coverage may produce.

2. Academics’ Media Coverage and Societal Impact

The media is an intermediary between academia and the wider public audience. ‘Academics are interacting with a range of partners in the economy and society—including businesses but also the public and third (charitable or not for profit) sectors’ (Hughes & Kitson, 2012, p.746). The media represent one important channel through which academics

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4 Is your environment damaging your health? New Centre aims to find out
can generate an impact on society. News coverage can disseminate impact to larger audiences, including other journalists, researchers and the public (Wilkinson & Weitkamp, 2013). Media interviews and press releases are also important channels for disseminating research findings and showing their broader impact beyond the traditional routes of academic publications or directly meeting relevant stakeholders (McVay et al., 2016).

In addition, given the blurred boundaries between different types of impact, an intuitive way of quantifying an academic’s overall societal impact is to look at the number of press mentions the research has generated in news outlets. As printed newspapers cover topics that are relevant to society, media attention is a proxy for the broader impact on society. Given the growing importance of societal impact, research councils in the UK actively encourage academics to build up media relationships and engage with the public. Research councils and funding organisations (e.g., charities) often assess the number of press mentions when academics apply for funding. One academic interviewee (physics) mentioned, ‘The research councils are very keen on these sorts of things, they always ask us to write grant applications saying what social interactions with the public we are involved with.’ Another academic interviewee (Heart & Lung) also confirmed by saying that

It’s important to inform the public and engagement [with the media] is an important part of every academic activity. It’s important to raise awareness of the charities in the field so their efforts to raise money can be assisted. It’s important to justify investment and government funding bodies to the government as well.

As the concerns of broader research impact have arisen in recent years, studies looking at impact pathways and the definition of impact provide an understanding of why and how academics engage with external audiences. As the media connects academia and the public,
capturing many pathways, one specific measurement of impact of dissemination of academic research is available through the media. Therefore, in this study, ‘media coverage’ represents a measure of broader impact beyond academia.

3. Introduction of Research Context

I 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 15,000 students and employs 1,200 faculty and 2,600 research staff. Its science- and business-oriented nature makes this university a representative setting for studying the transfer of impact from academia to the public. The high volume of research that takes place in this university, with potential implications for society, raises questions of why and how academic findings that have an impact within academia may also generate impact through the media. Part of the university’s mission is ‘Pathways to Societal Impact’, and it places great importance on media impact. A limitation of choosing a top-tier university is that variations in the excellence of its researchers may be limited, compared to what one may observe in other institutions. However, this limited variance makes any estimates of the effect of research excellence on media attention more conservative.
4. Exploratory Interviews

Exploratory interviews are a credible means of obtaining information on what people do and how they do it, making such interviews a preferred method for the initial exploration of a phenomenon. These exploratory interviews were designed to get an overall understanding of media attention on academia. Therefore, I conducted 20 interviews and targeted three groups of relevant stakeholders involved in such media attention: academics at this research-intensive university; staff from this university’s press office; and science journalists.

Given the aim to understand how academics attract media coverage, most of the academics interviewed were from different disciplines. I looked at the university’s news website and searched for academics who had recently obtained media coverage. I asked those featured in the news if they were willing to be interviewed to talk about their views on media attention. Using ‘recent media coverage’ as a starting point, I encouraged the interviewees to talk about their most recent experience of media attention and describe it. I asked about the basis of the article and the determinants of media attention. In order to fully understand the media attention experienced by academics, I chose academics who had attracted different levels of media attention to see if there were any differences between the opinions of those with high and with low levels of media coverage, as to the value of media attention. I conducted 13 interviews with academics at the focal university: four from the Faculty of Medicine, four from the Faculty of Engineering, and five from the Faculty of Natural Sciences.

The interviewees from the university’s press office included its head, the head of the research division, and three media officers responsible for each faculty. To arrange interviews with journalists, I looked at the articles downloaded from Factiva and searched for journalists who had prior experience writing stories about academics at this university. During the interviews with journalists, I asked about their experiences in approaching academics and
their views on why certain academics attract more media attention than others. I tried to find journalists working in different fields and for different types of outlets, but the responsiveness of journalists to my interview requests was quite low compared to responses from academics or media staff. Ultimately I found three journalists, responsible for different types of news outlets, available to talk to me. Although the low number of interviews limited my access to information from a journalist’s perspective, the opinions and views of those I managed to interview on how academics attract media attention were quite similar to those of media staff.

The interviews were all semi-structured, lasted 30-40 minutes and were recorded and transcribed. I asked the interviewees to describe the media attention academics had received, media staff had facilitated or journalists had observed, and the process for creating media coverage. Table 1 shows an overview of the questions.
<table>
<thead>
<tr>
<th>Topic</th>
<th>Questions</th>
<th>Group(s) of interviewees</th>
</tr>
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<tbody>
<tr>
<td><strong>Topic 1: Achieving Media attention:</strong></td>
<td></td>
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</table>
| Recent Experience | When did you last get media attention?  
- When was the last time you were in news?  
When was the latest occasion that you were mentioned, quoted, or interviewed by the media?  
- Why do you think you could get media attention?  
- What do you think drives the media attention? | Academic |
| Impressive experience | What is the media coverage of this university’s academics that impressed you the most? | Media staff/ Journalists |
| Prior experience | What other media coverage did you have before?  
- What is the readership you pursue?  
- What is the study that gains more media attention?  
- What kinds of media outlets report more of your research? | Academics |
| Determinants of academics’ in the media | What factors lead to more media attention?  
- What factors most helped you to gain more media attention?  
- What do you do to enable the research to get into news? | Academics: |
| | What do you think drives the popularity of the academics?  
- Why do they get media attention in your view?  
- Why do some academics get more media attention than others?  
- How did academics do this? | Media staff Journalists |
| | What kinds of news do the media prefer?  
- What types of scientific knowledge can have more media attention?  
- What kinds of research could get more media attention? | all |
| Difficulty | What are the main obstacles for academics/you encounter in getting media attention?  
- Why do you think it is difficult for academics to get media attention? | all |
| **Topic 2: Process of Media coverage** | | |
| Process Overview | What is the process of media attention?  
- Did you get approached (by media staff/journalists) or did you contact them?  
How much of the news coverage of the university was pushed out?  
- How much was the consequence of journalists approaching us? | Academics Media staff |
| Academics seek attention | Are you actually trying to get media attention?  
- Who initiated this process? How long does it take?  
- Did you write the press release yourself? Why did you write the PR? | Academics |
| Media contact academics | Under what circumstances does media approach you rather than you send out press release? | Academics |
| | Where & how do you get the news?  
- How do you get academics to give you some news?  
- Besides getting the news from academics, do you have any experience that external journalists want someone to give comments on some topics?  
- Any other ways to get the news? | Media staff Journalists |
| Work with other stakeholder in the process | How do you push out science news to the external media outlet?  
- What agency do you work with?  
Which part do you contact to regulate news to the public?  
How to let journalists know the university’s research?  
Do you have specific journalist you know?  
What is the process of science news?  
How do you work with the university’s media office? | Media staff Academics Journalists |
Interviewees pointed to three important determining factors of media attention. First, the media tend to prefer to cover research that has been published in prestigious journals and/or by researchers who work for reputable organizations. The assumption is that research published in more highly ranked journals or undertaken at premier universities is of excellent quality. Much of my work focuses on research excellence as signalled by the quality of the journal in which it is published, or the publication track record of the author. Second, the media prefer to write about news that aligns with the public’s interest. For example, one interviewee mentioned that within mathematics, academics’ work in big data is more likely to be covered in the media than more abstract mathematical work. Finally, interviewees mentioned that journalists prefer to engage with academics who are ‘media-savvy, i.e., those who are willing to engage with the media, have the skills to communicate clearly and respond quickly to journalists’ requests’.

Further, the interviews brought to light two of the primary ways through which academics get coverage in the media. On the one hand, academics push out their own research to another audience, namely the general public, through the media, to generate impact beyond academia. On the other hand, media staff or journalists contact academics to showcase their scientific findings or speak on certain topics related to their research areas. Media staff and journalists are intermediaries between the public and the academics. They participate in the media coverage-creating process, attempting to take the audience’s (i.e., the public’s) view in selecting what types of scientific findings or insights to cover in the media.

Therefore, the type of scientific information most likely to be covered also depends on the type of journalist. The first type of journalist prefers to cover general science knowledge that satisfies public interests. They are more likely to approach academics to speak on certain topics directly related to society. Scientific findings may be covered if they meet these criteria, but it is less likely to be the first thing they notice, as they typically prefer broader
commentary. The second and third types of journalists report scientific findings in general and for specialist outlets, respectively. These journalists are more actively browsing findings in the scientific literature to find out about scientific advancements that will likely attract the attention of these audiences. The main difference among journalists is that journalists working for specialist outlets aim to cover the stories of their audiences’ narrow interests (for example, computer magazines or space magazines cover stories within those specific topics), whereas journalists working for general-news outlets report issues more broadly, such as health, technology or environmental issues.

To conclude, research excellence and the alignment between research topics and public interests are the two issues that the interviewees often brought up with respect to whether a piece of information can attract journalists’ attention. Interestingly, if the interviewee mentioned research excellence as determining factor, they tended to play down the influence of interest alignment, and vice versa. In addition, opinions varied on why certain individuals would be more likely to receive high levels of media attention over longer time. Some pointed out that it is a matter of research excellence, whereas others emphasized that those who actively seek out attention in the media will gain frequent media attention over time—contrasting views of why certain academics or research findings capture more attention.

5. The Role of Academics in the Media

Academics appear in the news for different reasons, according to the interviews and news articles. Academics can use their research findings to deliver new scientific knowledge to the public and to inform the public of new scientific findings by commenting on research. They can actively understand what the public needs to know (Fischhoff, 2013) and shape public opinions through their findings or by commenting on relevant topics. Involvement in government decisions provides academics the opportunity to influence policy making (Scheufele, 2014).
5.1 Deliver Relevant Knowledge to the Public

*Vignette 1: Professor [name] is from the Department of Medicine. His research is in the field of diabetes, endocrinology, and metabolism and he appears in the media as an obesity expert. By speaking about his own findings or commenting on others’ research, he educates the public of new findings regarding the causes of and solutions for obesity. For example, he speaks about the hormone related to obesity, the treatment of obesity, and how new obesity drugs may end traditional bypass surgery.*

Appearing in the news to communicate scientific knowledge to the public is part of the scientist’s professional role (Peters, 2013). Sharing general scientific knowledge and encouraging public interest in science are main objectives of scientists involved in public communications (Dudo & Besley, 2016). One academic interviewee (Earth Science) mentioned:

*It is very important to get the public to understand science, the problems of energy supply, climate change, and the problems of the environment. These are all problems solved by science and we need to be outspoken about what we’ve done.*

Scientists also appear in the news to comment on certain topics. For example, organizations with which academics are involved (e.g., funding organisations, NGOs, public-sector entities) may contact them to comment on relevant stories. One academic interviewee (Surgery and Cancer) 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 could put out a press release’.

In addition, academics working in areas where the government requires experts to educate the public have more chances to speak about the topic. One academic interviewee explained:
I think particularly in the area of cybersecurity, there is a big push by many governments to actually try to educate the public about what the risks are and what’s going on, so that’s quite an important aspect of it.

By commenting on other findings or socially significant issues, scientists appear in the media and move beyond the academic community to broader audiences. The delivery of new knowledge may increase the awareness of certain fields and provide more opportunities for the academics themselves.

5.2 Shape Public Opinion

Vignette 2: [Name] is a Professor of Science and Society at Imperial College and is a world-renowned fertility expert. His research into embryology and genetics is internationally recognised. He has a reputation for taking a provocative stance on many controversial issues, such as the treatment of animals, British fertility treatment, and private fertility clinics. For example, he raised awareness of why animal experimentation is vital in opposition to the advocates for the reduction of animals used in research. In addition, he is known for his popularising his work through television series, science books, and public lectures. He facilitates the interaction between science and the public by encouraging scientists to listen to the public’s needs and participates in outreach projects to educate pupils on the importance of science. He has inspired girls to participate in science by mentioning the critical roles women play in scientific fields.

Similar to the need for mutual understanding between those working at the interface of science and policy (Sutherland et al., 2012), the science-society interface requires two-way interactions with the public, not just one-way information delivery from scientists. In many cases, scientists must fill the gap between what the public already knows and what they need to know, and then evaluate the effectiveness of the communication (Fischhoff, 2013).
Prior research has shown that public policy can stimulate firms’ abilities to innovate (McKelvey & Ljungberg, 2017). Similarly, in the context of the media, scientists participating in public policy or public communication seek to actively influence the target audience’s opinions. For example, scientists appear in the news to speak for controversial issues (Molinatti & Simonneau, 2015) or to defend science in the face of public misinformation or attack (Dudo & Besley, 2016). Johnston (2017) mentioned that scientists should stand in the public sphere, as they are more capable than other public intellectuals of identifying what is worthy and valuable for the public to know. One academic mentioned that ‘it is miserable when journalists make incorrect statements and misunderstand what’s going on. A classic example is GM food, where the media get the wrong answer and it can be really bad.’

5.3 Inform Policy

Vignette 3: Professor [name] is from the School of Public Health. He appears in the media as an epidemiologist and has addressed the issue of swine flu. His research results are often used to inform infectious disease control policy. For example, during the outbreak of H1N1, he suggested reconsidering closing schools to reduce the demand on hospitals as it could disrupt healthcare services and the rest of the economy in other ways. He is involved in the government (i.e., WHO’s emergency committee) and provides advice on vaccine-production capacity.

The most common way scientists impact society is by working as committee members or on expert panels for government or advocacy groups (Scheufele, 2014). In these roles, scientists publish peer-reviewed work and reports for the organisations or the general public. One academic interviewee (Computer Science) mentioned:

In the case of the [the Expert Group’s name], we had responsibility for the authoring of the report and this had a formal launch event. The launch event included radio and
press interviews, which were set up by the Government Office for Science—this in turn led to further approaches by the press.

In addition, journalists are more likely to contact academics who are involved in these roles to ask for comments on relevant topics. One academic interviewee (Medicine) mentioned, ‘I am involved in the UK toxicology and pesticide committee, so when people hear you are involved in this and that you are an expert in this committee, they expect you to know something.’

Scientists can act as policy advisors if they report on topics that fall within the realm of government policy (e.g., drug policy, climate change, cyber security) and can help to clarify choices and expand alternatives that aid in making policy decisions (Sarewitz & Pielke, 2007). Academics are also likely to give advice on policy making after conducting research. A press release7 sent out by an academic with policy suggestions stated that:

*The researchers argue that it is possible to expand income opportunities and reduce income vulnerability by increasing the productivity of assets. They consider the many challenges that face agricultural development such as water control, reversing soil deterioration and the effect of the free market on competitiveness, and suggest a commitment to five policy themes.*

In addition to providing suggestions on policy making or implementing policy, some academics try to stimulate research into new policy areas. Although various issues need attention when promoting new areas in public policy (McKelvey, Saemundsson & Zaring, 2018), the media is one of the main channels that scientists use to influence organisations and public policy. One academic interviewee mentioned, ‘I’m involved in trying to influence funding policy in research councils and the media is useful for that.’ In addition, news outlets are influential in shaping the national agenda (King et al., 2017). When more people

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7 Press releases: Agriculture investment is the answer to sub-Saharan Africa in crisis
participate in the conversation surrounding a certain issue, its importance will increase. One academic interviewee explained:

*If the public is interested in science and something is valuable, politicians are more likely to increase science funding. So, if they think, for example, that there is a cure for cancer coming soon, politicians are much more likely to fund the research, or if an industrial application will make Britain internationally more competitive, then they are more likely to fund the science.*

6. Current Understanding of Academics’ Media Attention

To gain a perspective on the extant literature on academic’s media attention, I identified relevant studies in the science communication and journalism literatures on academics’ dissemination of research to wider audiences, and on the views of journalists and academics in science communication. Academics seeking to build up their status in the media have to capture the attention of journalists. Journalists decide who to contact for commentary and which scientific findings to cover in the news. Therefore, journalists are the audience that judges the value of the scientific findings and chooses which academics to approach. Next, I summarize key studies in the management and organization literature on audience valuation and appreciation to extend my understanding of this topic. Finally, I look at current studies on celebrity, which is related to ‘individual capture high level of public attention’, to further understand how individual build up high level of attention in the media.

6.1 Academics’ Dissemination of Research to the Media

Given the growing emphasis on the broader impact of research beyond academia in the management field, I explored current studies on ‘dissemination of research to broader audiences (i.e. public)’ and ‘determinants of scientific knowledge or scientists being covered in the news’ from journalists’ perspective. As most of the studies are not necessarily relevant to organization and management studies or work with small scales of analysis (i.e. one year
period, or certain topics) in the science communication field, I selected three representative papers which covered larger sample sizes and emphasized the comparison of characteristics of academic research (i.e. productivity, rank) with their dissemination activities to broader audiences. For the journalists’ perspective, I chose two studies about determinants of science coverage, one is an earlier study of qualitative interviews with journalists working in national newspapers in the UK and the other is a more recent synthesis study of science and health journalists. Table 2 summarizes the key papers in both themes of research.
Table 2 Academics’ Media Attention: Selected Literature According to the Proposed Dimensions

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Article</th>
<th>Sample</th>
<th>Some Key findings</th>
</tr>
</thead>
</table>
| academic’s research dissemination to the public | Kyvik (2005)                              | • Academics in Norwegian universities (Humanities, Social Sciences, Medicine, Natural Science, Technology)  
• Period of analysis: Mail surveys in 1992 and 2001 | • Academics with more publications were more active in publishing for a lay public than less productive faculty members  
• Academics in humanities and social sciences fields publish more popular scientific articles and participate in more public debates than academics in the natural and medical sciences and technology. |
|                                               | Jensen, Rouquier, Kreimer, & Croissant (2008) | • Scientists at France’s Centre National de la Recherche Scientifique (Physical sciences, Life sciences, engineering, Chemistry, Earth Sciences)  
• Period of analysis: 2004 - 2006 | • Scientists active in wider dissemination (popularization, industrial collaboration and teaching) are also more active academically.  
• Academics dissemination activities have almost no impact (positive or negative) on their careers |
|                                               | Bentley & Kyvik (2011)                      | • Academics in 13-country (Argentina, Australia, Brazil, Canada, Finland, Germany, Hong Kong, Italy, Malaysia, Mexico, Norway, the UK and the USA.)  
• Period of analysis: 2005-2007 | • The positive relationship between scientific and popular publishing is consistent across all countries and academic fields.  
• Academic staff with popular publications have higher levels of scientific publishing and academic rank |
| Views from science journalists                | Hansen (1994)                              | • 31 semi-structured interviews in 1990  
• British National press: the Telegraph, The Times, the Independent, the Guardian, the Observer, the Mirror, the Mail and the Express  
• Science, technology, medicine, environmental issues | • News values in science coverage: ‘relevance to daily life’, ‘with a human angle’ and ‘weird and wacky’ are the most important ones  
• Credibility of sources: using senior or top-ranking sources or ‘known’ sources (research council, professional association or other sources that the journalists can use for tracking down relevant sources), etc |
|                                               | Amend & Secko (2012)                        | • Experiences of Science and Health Journalists  
• Metasynthesis  
• Period of analysis: 1994-2010 | • The first of the two major themes is ‘Sourcing Practices’, which shows that accessibility (easily reachable), reputation, communication ability of scientists and press releases, etc are all important topics in journalism study.  
• The second theme is ‘Story Selection’ which mentioned that journalists grab readers’ attention by showing understandable and interesting stories |
These studies show that academics participate in the dissemination of their research to the public much less than they engage in academic publishing. Those who engage in dissemination activities tend to be more productive or higher rank academics (Bentley & Kyvik, 2011; Jensen, Rouquier, Kreimer, & Croissant, 2008; Kyvik, 2005). In addition, these findings show that the dissemination activities are produced by a small number of academics (Bentley & Kyvik, 2011; Kyvik, 2005). These conclusions may seem to suggest that only those academics with high quality of research get into the news. However, the question of why only certain ‘research excellent’ academics are chosen remains unanswered, because the studies disregarded academics who did not engage in news dissemination in the media.

Next, I explore the determinants of science coverage from the perspective of science journalists. An earlier study conducted by Hansen (1994) showed that ‘relevant to daily life/human element’ is an important aspect of news value in science coverage; journalists also pay considerable attention to finding credible sources as they are not in the position to judge the quality of science news they report. Thus, they judge the credibility of the sources by university affiliation or the ranking of the journal. Alternatively, they rely on ‘known’ sources where they are better to keep track of the resources or gain additional information, due to the familiarity with the source. Amend & Secko (2012) have shown in the synthesis study of the experiences of health and science journalists that ‘sourcing practices’ are a major theme. The findings include that academics who are accessible, communicate clearly, and have a high reputation (i.e. reputation in the field, affiliations, past experiences with journalists, etc) are more likely to be used as an expert source. The ‘story selection’ is the second major theme, which mentioned that ‘stories need to be timely, novel, and relevant to their audiences’ for journalists to pay attention to potential news stories.

To conclude, the quality of research outputs seems to be an effective determinant of news selection, but journalists not only look at the quality of research but also take into account the
public interests when determining what kind of story to cover in the news. In the remainder of my thesis, ‘research excellence’ refers to quality signal of academics underlying research. In chapter 3, I use the impact factor of the specific journal where the underlying research covered in a press release was published as a proxy for the signal of research excellence. In chapter 4, which analyses media attention at the individual level, I rely on the quantity and quality of lifetime journal publications, as expressed by the sum of 3-year citations to all papers within an academic’s body of work, as an indicator of research quality signal.

6.2 Audience Valuation/Appreciation

Prior studies on the phenomenon of academic’s media coverage have shown that journalists have values and beliefs that are not always consistent with those of academics. Journalists have their own judgement criteria different from academics (i.e. relevant to the public), although they also emphasize the reputation of the sources (i.e. quality of research). Journalists act as an audience who make judgements of which scientific research to cover and whom to contact for comments in the news.

The process of comparing an entity (i.e. academic, scientific finding, etc.) with another by using a single or (set) of referent(s) (i.e. achievement, a product, reputation/quality, etc.) is defined as ‘valuation’ (Lamont, 2012). The audience(s) can judge the value of the entity (candidate) based on the candidate’s characteristics or the audience-specific concerns. Table 3 shows the selected current studies on audience valuation.
## Table 3 Audience Valuation: Selected Empirical Literature According to the Proposed Dimensions

<table>
<thead>
<tr>
<th>Articles</th>
<th>Context</th>
<th>Candidate-Audience relationships</th>
<th>Some key findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kim &amp; Jensen, 2014</td>
<td>• European Film industry (19 countries)</td>
<td>• Audience heterogeneity</td>
<td>• Domestic commercial performance is more likely to influence foreign commercial performance when the cultural distance is low</td>
</tr>
<tr>
<td></td>
<td>• Between 2004 and 2009</td>
<td>o High or low cultural distance</td>
<td>• Film festival participation increase foreign commercial performance when cultural distance is high (decreases when cultural distance is low)</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Giorgi &amp; Weber, 2015</td>
<td>• biotechnology and pharmaceutical industry</td>
<td>• Candidate-specific (analysts) :</td>
<td>• Resonance is effective in influencing pragmatic audience (investors); the effect of framing is less important for high-status actors</td>
</tr>
<tr>
<td></td>
<td>• between 1989 and 2012, (U.S. analysts)</td>
<td>o status</td>
<td>• Audiences also appreciate analysts that are distinctive in terms of consistency of framing over time and moderate novelty compared with framing used by others</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o Audience-specific (professional investors)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>o resonance and distinctiveness</td>
<td></td>
</tr>
<tr>
<td>Ertug, Yogev, Lee, &amp; Hedström, 2016;</td>
<td>• contemporary art from 2001 to 2010</td>
<td>• Multiple Audiences</td>
<td>• Artists’ past exhibitions with high-status audience members than with non-high-status audience members increase reputation effects with museum audience than with gallery audiences</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o Museums</td>
<td>• Artists’ greater interaction with a non-focal audience reduces reputation effects on an artist’s success with high-status museums more than with high-status galleries</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o Galleries</td>
<td></td>
</tr>
<tr>
<td>Lanzolla &amp; Frankort, 2016</td>
<td>• a large Italian online B2B marketplace between the fourth quarter of 1999 and July 2001</td>
<td>• Candidate-specific (sellers):</td>
<td>• Both sellers’ local institutional quality and their legal statuses affect a buyer’s likelihood of contacting a seller.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o quality signal (institutional quality and legal status)</td>
<td>• a buyer is progressively more likely to contact sellers the higher their local institutional quality relative to the buyer</td>
</tr>
<tr>
<td>Fini, Perkmann, &amp; Jourdan, 2017</td>
<td>• a globally leading research university between 2001 and 2012</td>
<td>• Candidate-specific</td>
<td>• scientists’ evaluation by the peer audience has an inverted U-shape relationship with their evaluation by the external (industry) audience.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o unobservable abilities</td>
<td>• this effect is moderated by the identity proximity between audiences, and the availability of previous peer evaluations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Audience-specific</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>o candidates’ deviation from expected peer identity</td>
<td></td>
</tr>
</tbody>
</table>
The above studies on audience valuation have suggested that the valuation of candidate(s) refers to the candidate’s own quality signal (Lanzolla & Frankort, 2016), audience-specific concerns (Ertug et al., 2016; Kim & Jensen, 2014) or the interplay between candidate-specific and audience-specific features (Fini et al., 2017; Giorgi & Weber, 2015; Lanzolla & Frankort, 2016).

The study of quality signal in prior work has shown that the quality signal of a candidate is often valued by audiences within the same context. For example, the quality signal of an artist is valued by museums and galleries (Ertug et al., 2016); the quality signal of sellers in B2B market is valued by buyers (Lanzolla & Frankort, 2016). Prior studies have not yet explored how the quality signal from the primary audience can transfer to another audience that operates in a different context with their own values, different from those of the primary audience.

In addition, although the audience-specific concerns may imply that audiences judge candidates’ characteristics based on their values, prior studies in the management field did not explore the concept of ‘resonance’ in great detail. One exception, Giorgi & Weber (2015) studied ‘resonance’ at an aggregate level to explain audience appreciation. In their study, resonance was defined as a candidate able to ‘fulfil the needs, expectations, and interests that arise from audience members’ tasks and goals (p.340)”.

To conclude, prior studies have not yet explored how the quality signal from the primary audience can transfer to another audience, whom are in different context that have their own values/needs different from the primary audiences. In addition, the concept of ‘resonance’ was studied in an aggregate level. Thus, I address the issue in chapter 3 by exploring the tensions between ‘quality signal’ of the candidate and ‘public resonance’ of the journalists (media) by asking the question: What is the role of research quality signals, as evidenced by journal prestige, in whether a press release is being picked up by the media?
6.3 Celebrity Status

Individuals with high level of public attention are often linked to the concept of ‘celebrity’. The study of celebrity is relatively new and is primarily discussed in the field of sociology. Current studies on celebrity in the management field refer mostly to the study of celebrity CEOs. These studies define celebrity as ‘individuals [who] capture high levels of public attention and positive response from the audiences’ (Lovelace, Bundy, Hambrick, & Pollock, 2018; Rindova, Pollock & Hayward, 2006). Many of these studies focus on empirically examine the effects of celebrity CEO.

Less attention has been paid to distinguishing what types of attention CEOs attract. Rindova et al. (2006) mention that, conceptually, there are contrasting views of individual celebrity, some of whom attain this status through achievement, whilst others are ‘made’. In a recent conceptual discussion of celebrity CEOs (Lovelace et al., 2018), a link was made between the different types celebrity and the stages of the organization. As CEOs are often representatives of the firm, the construction of celebrity status is to certain extent linked to firm-level or industry-level factors. The study of celebrity in celebrity CEO may not be sufficient to explain individuals who seek to attract high level of public attention.

Another stream of research which also looks at celebrity is ‘celebrity endorsement’ in marketing studies. These studies have assumed ‘celebrities’ already had higher achievements in a certain field that generated a positive link to the brand/product. A recent study by Hackley & Hackley (2015) also suggest the importance of distinguishing the differences of celebrity between ‘achievement-based’ and ‘publicity-seeking’ in further analysis of endorsement effectiveness, because different types of celebrity may viewed differently by consumers/brands. Table 4 summarizes the selected key studies of celebrity in management and marketing literature.
<table>
<thead>
<tr>
<th>Article</th>
<th>Definitions</th>
<th>Measurements</th>
<th>Antecedents or Effects</th>
<th>Some key findings</th>
</tr>
</thead>
</table>
| Rindova, Pollock, Hayward (2006)         | large scale of public attention and positive emotional response             | (conceptual study)                                                           | Antecedents                                                                             | • Antecedents: ‘known for knownness’ or ‘achievement, talent’ (Gamson, 1994)  
• Extend the concept of celebrity from individual to firm level                                                                         |
| Pfarrer, Pollock, Rindova (2010)         | high levels of public attention and positive emotional responses from stakeholders | • the total number of articles published about the firm each year in BusinessWeek 
• Positive/neutral/negative tone of article                                                                                       | Effects                                                                                | • Firms that have achieved celebrity (celebrity firms) more likely to announce positive surprises than firms without these assets |
| Park, Kim & Sung (2014)                 | the extent to which a CEO is known to the public through the media in a positive way | • 240 CEOs from the sample firms in 10 major newspapers nationwide 
• Positive/neutral/negative tone of article                                                                                         | Effects                                                                                | • CEO celebrity weakens the likelihood of CEO dismissal but strengthens the likelihood of executive dismissal in the face of poor firm performance |
| Hackley & Hackley (2015)                | key assumption of ‘celebrity’ in celebrity endorsement research is: the celebrity acquires positive associations through success in an exogenous field of endeavour before becoming linked through advertising and public relations (PR) to the brand | (conceptual study)                                                             | Effects                                                                                | • This study emphasize the current assumption of celebrity may have to be reconsidered because different types of celebrity (deserved of renown or who own the best publicist) used in the endorsement is likely to influence the endorsement effects |
| Lovelace, Bundy, Hambrick, & Pollock, 2018 | Rindova et al (2006)                                                        | (conceptual study)                                                            | Antecedents and (effects)                                                                | • Antecedents of celebrity CEO: different types of celebrity CEO according to the stages of the organizations |

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8 Another stream of study looking at how celebrity influences outcome in negative way which is not the interest of this study
Taken together, prior studies in marketing and management have both suggested that there are different types of mechanisms underlying the ‘high level of public attention.’ However, to my knowledge, prior studies have not empirically explained the mechanisms of individual’s celebrity. As the academic context is ideal for explaining the different types of celebrity status (achievement and non-achievement based), I explore the antecedents of celebrity status empirically in chapter 4 by asking: through what pathways do academics become celebrities in the media? To what extent academics who are frequently covered in the media are “discovered” based on their academic excellence or “manufactured” based on extensive efforts to push for media attention?

7. Conclusion

As the growing importance of demonstrating societal impact of research, academics disseminate their research to the media is an important and underexplored phenomenon in management studies. The main insights from the interviews are that media attention results from a combination of actively pushing for media attention and the desire to cover high-profile research findings. Alignment with the public’s interests and media savvy are also mentioned as important determinants of media attention.

To further understand current studies on academic’s media attention, I summarize key papers from academics’ and journalists’ sides to explore how academics be achieved high level of attention in the media. In addition, these studies also imply that academics and journalists are from different contexts whom have their own values. Therefore, I look at current studies on audience valuation (chapter 3) and celebrity (chapter 4) to further understand how individuals achieves high level of public attention.
CHAPTER 2: ACADEMICS IN THE MEDIA: A DATA OVERVIEW

In preparation for Chapters 3 and 4, which will examine the antecedents of media attention on academics, this chapter will provide a description of quantitative data used in those chapters, including a detailed account of how the data were collected and the descriptive statistics that yield basic patterns in the data. I collected quantitative data on the media attention to academics at a major research-intensive university. I collected data on all press releases the university sent out between 2000 and 2013, and news articles in which its academics were mentioned over the same period. I linked these data to each other—i.e., linking press releases to the subsequent media attention that was generated—and to an HR database with personal details and publications of all academics. I describe how I collected and linked these datasets, one at the level of the press release and subsequent news coverage (Chapter 3), and one at the level of the person-year, capturing individual differences in levels of attention in the written media (Chapter 4). In these descriptions, I also provide a comparison of how the academics/news articles included in the sample compare to the full population of academics/news articles.

1. Data Collection of News Articles

In this section, I explain the process of downloading and cleaning news articles from Factiva, and obtaining the sample I used in Chapter 4. Since some of the articles have been excluded in the analysis in that chapter, I use three steps to compare the final dataset to the full set of downloaded articles, to understand whether the data differ along critical dimensions after exclusion.

In order to identify academics’ media coverage, I obtained a name list of all faculty and research staff at this university. The name list used for this study includes 2,520 academics, consisting of senior faculty (readers and full professors), junior faculty (lecturers and senior lecturers) and senior researchers (senior research fellows and principal research fellows). Based on this name list, I collected data on academics’ media coverage by
downloaded relevant news articles from Factiva, which is a Reuters and Dow Jones news and business information service. I identified and checked different search terms, 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. After the initial download, I cleaned the data in three steps.

First, I removed any non-news items and all duplicates. Factiva included many entries that were other types of documents than news—for example memorials or obituaries. Therefore, I removed all records that were not in news format or clearly non-research related. Articles that exceeded 3,000 words are more likely to be full reports included in Factiva and not news articles. In terms of the duplications of news articles, I retained only one entry if at least three of the following pieces of information were exactly the same: news title, word count, news outlet, news date.

Second, the initial download included articles that were not really about this university’s academics. In order to avoid wrongly attributing news coverage of a different person with the same name to the university’s academics, I manually examined the news articles of the top 500 most common surnames from official records of popular surnames in the US\(^9\) and the UK,\(^11\) and manually removed those articles related to different people by checking the content and disciplines.

Third, to ensure the academics had joined the university or were still working\(^12\) at the university in the focal year, I identified the ‘person-year pairs’ by triangulating data sources from salary, position and leaver records. I removed all records of academics no longer associated with this university at the time of the news article. Academics leaving the

---

\(^9\) ‘First name and [university name], surname and [university name]’, ‘First name and surname’ – which yielded a number of articles more than half of which were not related to the particular academic. Adding the title ‘Dr’ or ‘Professor’ or middle names ‘First name, middle name and surname’ in the search term limited the results.

\(^10\) https://www.census.gov/topics/population/genealogy/data/2010_surnames.html


\(^12\) I excluded the ‘years’ when an academic appears in ‘leavers’ record, and no salary and position information is in the HR record. Most of the records result from academics who left the university for another. I still include the information if academics retired in the focal year and I used a dummy variable to control part time/full time at university.
university due to retirement or who retained connections with this university, such as honorary, visiting, and adjunct positions, are included in the analysis. After these three cleaning steps, the final sample of news articles as used in Chapter 4 was 61% of the articles originally retrieved (including wires, industry news and general news).

After this cleaning process, there are different types of research-related media attention in the data. First, ‘research-related’ news articles take different forms, such as reports on research, inventions or experiments, which show research findings to the public. They can also concern ongoing research like clinical trials. Research stories that mention an academic’s name are not only about the research they are doing at the moment, but also what they plan to do in the future or what they have done in the past. News articles may also refer to academics’ involvements in companies or external organisations. Public meetings are also included as issues relevant to the academic’s research field. Table 5 summarizes several types of news articles mentioning academics’ names.

Table 5 Types of news articles mentioning academics’ names

<table>
<thead>
<tr>
<th>Type</th>
<th>Descriptions</th>
</tr>
</thead>
</table>
| Research (results) + Paper (journal) + Report (ongoing) + Experiment + Project + Clinical trial | - research results solely conducted by an imperial-college-researcher/research-teams
- research results solely conducted by collaborations involving imperial-college-researcher/research-teams/research-branches
- mention of ‘old’ research resulting from an imperial researcher in an article about a new research result from another institution
- mention of future strategy for imperial-college-research
- mention that an imperial researcher should be assigned to a future research
- mention that an imperial researchers’ scheme of future research was chosen (out of various researcher suggestions) for a specific task |
Table 5 (cont’d) Types of news articles mentioning academics’ names

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investment</td>
<td>● mention of money investment in specific imperial-college-research</td>
</tr>
<tr>
<td></td>
<td>● mention of new machinery investments at imperial college</td>
</tr>
<tr>
<td>Company</td>
<td>● mention of imperial college as research site of independent researcher</td>
</tr>
<tr>
<td></td>
<td>● Positions in company <em>Company, co-founded</em></td>
</tr>
<tr>
<td></td>
<td>● Positions in research <em>head of the group/co-founded</em></td>
</tr>
<tr>
<td>Comparison</td>
<td>● mention of a researcher explaining how imperial college is doing in</td>
</tr>
<tr>
<td></td>
<td>general compared to other universities and similar research facilities</td>
</tr>
<tr>
<td>Conference/Congress/Public Meeting</td>
<td>● mention that a researcher from imperial college is assigned to speak public</td>
</tr>
<tr>
<td>Honours/Prize</td>
<td>● an imperial researcher wins/nominated for an award/applauded at a</td>
</tr>
<tr>
<td></td>
<td>ceremony/are member of award jury</td>
</tr>
<tr>
<td>Comment</td>
<td>● an imperial researcher is an expert/director/head/chairman/</td>
</tr>
<tr>
<td></td>
<td>committee member of specific organisation and speaks for certain topics</td>
</tr>
</tbody>
</table>

The descriptions above show the process of downloading and cleaning articles, as well as the types and parts of articles used in Chapter 4. As some of the articles were discarded for different reasons, I next compare the pattern of news articles used in the analysis and the “raw” dataset of news articles, and the three steps to check the validity of the articles used in analysis. First, I compared the number of articles over time. Then I compared the percentage of articles in three types of outlets. Finally, I looked at the distribution of outlets within general-news outlets.

Figure 1 shows the number of articles from 2001 to 2013. The number of articles increased from 951 per year in 2001, to 2,662 by 2013, whilst the number of articles used in Chapter 4 increased from 607 to 2,242. The result shows that the pattern of articles in Chapter 4 is similar to the raw articles in each year.
Next, I explored the different types of outlets that published the articles. Each of the articles fits into one of three types of outlets: general newspapers, industry news outlets or press wires. I classified each article based on the index system or descriptions of the specific outlet in Factiva. I included articles as ‘general news’ if the articles were associated with ‘major news and business publications’ or ‘newspaper’. ‘Industry news’ referred to those under ‘industry sources’ or ‘trade publications’ or ‘magazines and journals’. Articles appearing under ‘PR wires’ or ‘newswires’ were included in ‘press wires’. Table 6 shows the percentages of articles among the three types of outlets that appear in the Chapter 4 discussion and in raw news. Articles in general-news outlets account for half of the outlets in which articles appeared; around 30% were in industry outlets and 20% in wires. The percentages of the three types discussed in Chapter 4 are similar to the percentages for the three types of raw data.

Table 6 Comparison of Articles in the three outlets

<table>
<thead>
<tr>
<th></th>
<th>Raw Articles</th>
<th>Articles in Chapter 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>General news</td>
<td>51% (13,853)</td>
<td>48% (7,930)</td>
</tr>
<tr>
<td>Industry news</td>
<td>28% (7,470)</td>
<td>31% (5,026)</td>
</tr>
<tr>
<td>Press wires</td>
<td>21% (5,791)</td>
<td>21% (3,497)</td>
</tr>
<tr>
<td>Total</td>
<td>27,114</td>
<td>16,453</td>
</tr>
</tbody>
</table>

For example, there is no index system if a certain outlet ceases publications but it does exist at a certain point. In this case, I will classify the outlets based on their descriptions.
The final exploration of the data was to take the largest category among the three types of articles—general-news outlet—and compare the distribution of news articles in each news outlet within this type. Table 7 shows the top 10 general-news outlets represented in Chapter 4 and among the raw articles. The top 10 outlets are all major newspapers in the UK and account for half of news coverage in both datasets. The distribution of news articles among the 10 outlets are almost the same, with only slight changes in percentages among three news outlets.

### Table 7 Top 10 general news outlets in both news dataset

<table>
<thead>
<tr>
<th>Rank</th>
<th>General Outlets</th>
<th>Articles in Chapter 4</th>
<th>Raw Articles</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The Guardian</td>
<td>12%</td>
<td>11%</td>
</tr>
<tr>
<td>2</td>
<td>The Times</td>
<td>8%</td>
<td>8%</td>
</tr>
<tr>
<td>3</td>
<td>The Daily Telegraph</td>
<td>7%</td>
<td>7%</td>
</tr>
<tr>
<td>4</td>
<td>Financial Times</td>
<td>6%</td>
<td>8%</td>
</tr>
<tr>
<td>5</td>
<td>Daily Mail</td>
<td>5%</td>
<td>6%</td>
</tr>
<tr>
<td>6</td>
<td>The Sunday Times</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>7</td>
<td>The Daily Express</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>7</td>
<td>The Independent</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>7</td>
<td>The Evening Standard</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>7</td>
<td>The Observer</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>others</td>
<td></td>
<td>51%</td>
<td>49%</td>
</tr>
</tbody>
</table>

To conclude, the distribution of articles over time, the percentage of articles in three types of outlets and the distribution of articles within general-news outlets all show a consistent and similar pattern in the articles used in Chapter 4 and the raw articles. Thus, I conclude the news dataset used in Chapter 4 is representative. The next section turns to the steps of data collection for press releases.
2. Data Collection of Press Releases

In this section, I explain the collection of press releases and the identification of ‘journal-related’ press releases used in Chapter 3. Since press releases are issued for only a small percentage of journal articles, it is important to understand the differences between ‘journal distribution’ and ‘quality’ of publications related to the press releases, and the overall pattern in total publications.

Press Releases. In addition to the news articles, I collected a press-release dataset from the university’s media office, containing 1,215 press releases sent by academics to media-relations officers. The press releases covered the same period as the data collection from Factiva. The press releases were in the format of an unstructured archive, so I identified the linkage between press releases and specific academics by the name mentioned in the content of the press release. All press releases without any name in the content were excluded as events on the school level. Most press releases with a name mentioned in the content are not related to academic-research publications. Individuals involved in a centre at this university or external organizations are likely to be mentioned in the press releases (e.g., new centre opening, appointment). Individuals obtaining grants, prizes or awards are likely to appear in the press releases. Courses or attendance at public events are also sources of press releases. Some research-relevant press releases are ongoing research, such as research-project development or clinical trials, which do not have final results or quality signal indicated in the press releases. Therefore, these press releases were discarded in the later analysis because our interest is not in the study of ‘news in relation to quality signal of research’.

Journal-Related Press Releases. Latest research findings published in journals are often sent out in the form of a press release to the media. In order to link the press release to the corresponding academic’s journal publication that describes the research covered in the press release, I matched all press releases to the corresponding journal publications by
manual identification. Publication data were obtained from a dataset with a list of publications by academics at this university. I identified these journal-related press releases based on references to journal publication mentioned at the end of the press release. I also searched through the main content of press releases to find further mentions of academic articles. If there was a journal name in the content but no exact reference at the end of the article, I referred to the publication data and matched the press release to a specific academic article based on the time of publication and the name of the academic. I also used information from the journal publications dataset to account for other publications or academic performance-related variables in this study. Out of 1,215 press releases, 389 (32%) were related to academics’ journal publications.

Figure 2 below shows the distribution of the 389 journal-related press releases over time. In 2012 and 2013, fewer press releases were sent, which may have been due to two reasons—first, because the overall publications increase over time, although in these two years they remain constant; second, due to the rise of social media, academics may not send out press releases through the university’s media office, but use alternative ways to reach the public.

**Figure 2 Journal-Related Press Releases Over time**

![Figure 2 Journal-Related Press Releases Over time](image)

For each journal-related press release (i.e., those that describe research findings published in journals), I obtained the ‘quality signal’ of the underlying research by relying on the impact factor of the journal. In the press-releases dataset, 60% of publications are
associated with journals that have an impact factor higher than 20. However, only 5% of the journal publications in the total publications of academics at the university have an impact factor higher than 20. This shows that higher-impact journal publications are more likely to be made into press releases, which is in line with expectations, as high-impact papers would normally represent the ‘important achievements’ in science.

Further exploring the type of journals mentioned in press releases, there are 124 different journals in the press-release (PR) dataset, whereas there are more than 5,500 different journals in total publications. For the journals that appear most frequently in the PR dataset, the top five most frequent—Science, Nature, PNAS, Nature Genetics, and PLOS ONE (Figure 3)—comprise 44% of the press releases sent out. These five journals comprise only 2% of the distribution of journals in the total set of publications.

**Figure 3 Top 5 most frequent journals in PR dataset**

![Figure 3 Top 5 most frequent journals in PR dataset](image)

However, the top five journals covered by the university’s press releases do not necessarily lead to much higher media coverage. Fifty-seven percent of the press releases related to these five journals obtained media coverage, which is only slightly higher than the percentage of the press releases overall in the dataset, which were covered in the news (52%). Therefore, there does not seem to be a very strong relation between journal frequency in press releases and generated media coverage.
The analysis shows that the journal mentioned in press releases is more likely to be a prestigious journal. It is expected that only important findings are made into press releases. The results show that although research published in higher-impact journals is more likely to be included in the PR dataset, it is not necessarily more likely to be covered in the media due to the alleged higher quality of research.

3. The Distribution of Subjects in PR and News Dataset

In this section, I explore the subject of press releases and news articles used in both empirical chapters with respect to the complete population of academics. Since certain departments may send out more press releases and/or achieve news coverage, it is important to understand whether those press releases or news articles differ among the departments.

Among all the journal-related press releases sent out, the majority of academics are in Medicine (57.3%), Natural Science (30.6%), Engineering (11.1%), Business School and others (1%). In the total sample of academics, the majority are in Medicine (42%), Natural Science (25.5%), Engineering (23.5%), Business School and others (9%). The results are consistent with the interview findings that show academics in Engineering tend to send out fewer press releases, whereas media staff has a plentiful of supply of press releases from the field of Medicine.

Table 8 shows the comparison by percentage of PR, news coverage, and population in the top six departments with PR/news among all departments. In this university, the School of Public Health, Department of Medicine, National Heart & Lung Institute, and departments of Surgery & Cancer, Physics and Life Sciences are the top six departments that send out the most press releases. Furthermore, these six departments are also the departments that capture the largest proportion of (journal-related) media coverage.
Table 8 Top 6 departments with number of press releases, volume of journal-related/overall news coverage and the overall population

<table>
<thead>
<tr>
<th>Department</th>
<th>Journal-related</th>
<th>Overall news</th>
<th>Overall population</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Press Releases</td>
<td>News</td>
<td></td>
</tr>
<tr>
<td>School of Public Health</td>
<td>20%</td>
<td>34%</td>
<td>17%</td>
</tr>
<tr>
<td>Life Sciences</td>
<td>20%</td>
<td>13%</td>
<td>7%</td>
</tr>
<tr>
<td>Medicine</td>
<td>16%</td>
<td>12%</td>
<td>16%</td>
</tr>
<tr>
<td>Heart &amp; Lung</td>
<td>10%</td>
<td>14%</td>
<td>13%</td>
</tr>
<tr>
<td>Surgery &amp; Cancer</td>
<td>10%</td>
<td>10%</td>
<td>11%</td>
</tr>
<tr>
<td>Physics</td>
<td>7%</td>
<td>8%</td>
<td>9%</td>
</tr>
<tr>
<td>All other departments</td>
<td>17%</td>
<td>9%</td>
<td>27%</td>
</tr>
</tbody>
</table>

Theses six departments send out 83% of press releases and account for 73% and 91% of the total news and journal-related news coverage, respectively. Therefore, it seems that the news coverage is skewed to certain subject areas. However, this distribution is likely to be influenced by total numbers of individuals working in each department. Departments with more academics are expected to have a larger volume of news coverage. In Table 8, the Department of Medicine has the largest population among the departments, but the press releases they send out and journal-related or overall news they attract are consistent with the number of academics. However, the School of Public Health only comprises 5% of the total population, but sent out 20% of the press releases and obtained 17% of news coverage and 34% of journal-related news coverage. This implies academics in this department obtain much more media coverage than expected. Therefore, there is a difference between the ‘expected news’ and the ‘actual news’. I adjusted the calculation by subtracting from the expected news the actual news, to reduce the inflation effect by the number of academics in each department. I further explored the differences in expectations of the volume of media coverage among the departments in Figure 4.
For the overall news, the distribution of news articles has a similar pattern to the number of academics in that department. Larger fluctuations are reflected in the journal-related news. For example, academics who published papers in Mathematics are less likely to be covered in the media. For both datasets, the two departments receiving more media coverage than expected are School of Public Health and National Heart & Lung Institute. This may relate to academics in these departments working on society-relevant and timely health issues, which are more likely to be covered in the news.

To conclude, the above findings suggest that certain subjects may tend to be covered in the news while others are not. In the next section, I further explore the media involvement in each department and self-selection issues.
4. PR and News Dataset Compared to the Total Population

In this section, I explore the media involvement among the departments and compare the sample of press releases and news articles with the total population by research excellence and seniority. Figure 5 shows the number of academics in each department and the percentage of academics involved in the news or not. The number of academics among departments varies. In general, more academics are in departments related to Medicine.

**Figure 5 Media-Involvement across departments/fields**

Regarding the distribution of the percentage of media mentions among the four fields, the 45% of academics in Natural Science have the highest percentage of media involvement, followed by Medicine at 37.6%, Engineering at 35.9% and Business School and others at 25.8%. In total, 37.3% of academics had been mentioned in the news, whereas 62.7% were not covered. Table 9 shows the number of academics in PR and the news dataset. From the total population of academics in this university, only 9.3% of academics send out press releases mentioning their journal publications. However, within the same population, 37% get media attention; therefore, not all media attention results from press releases. Of those who write press releases, 58.9% get media attention.
As only some individuals are included in our PR/news dataset, I performed an independent samples $t$-test to check for self-selection bias. Specifically, I compare those who excel in their research and are more likely to appear in the news/PR with those who do not. The measure\(^{14}\) of ‘research excellence’ I use is consistent with the measure in Chapter 4. I found significant differences in research excellence between academics sending out PR and those who do not send out journal-related PR ($t = -14.19$, PR, $M=8.00$; non-PR, $M=5.18$); similar results are obtained for those who appear in the news and those who are not covered in the news ($t = -25.69$, News, $M=7.21$; non-news, $M=4.39$).

To further explore these differences, I split the sample in different ways. First, in order to further explore whether high research quality is a determining factor in predicting PR/news, I split the sample by the median of research excellence and the top 10% of research-excellence citations in Table 10.

### Table 9 Number of academics in the PR/News Dataset

<table>
<thead>
<tr>
<th>In News or/and PR</th>
<th>News</th>
<th>PR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>940</td>
<td>234</td>
</tr>
<tr>
<td>No</td>
<td>1,580</td>
<td>2,286</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>PR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>940</td>
<td>234</td>
</tr>
<tr>
<td>No</td>
<td>1,580</td>
<td>2,286</td>
</tr>
</tbody>
</table>

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To further explore these differences, I split the sample in different ways. First, in order to further explore whether high research quality is a determining factor in predicting PR/news, I split the sample by the median of research excellence and the top 10% of research-excellence citations in Table 10.

### Table 10 The Inclusion/Exclusion of Academics in News/PR, Sample Split by Research Excellence

<table>
<thead>
<tr>
<th>Type</th>
<th>In news/PR</th>
<th>News</th>
<th>PR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher Research Excellence</td>
<td>Yes</td>
<td>706</td>
<td>56%</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>553</td>
<td>44%</td>
</tr>
<tr>
<td>Lower Research Excellence</td>
<td>Yes</td>
<td>234</td>
<td>19%</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>1,027</td>
<td>81%</td>
</tr>
<tr>
<td>Top 10% Research Excellence</td>
<td>Yes</td>
<td>187</td>
<td>74%</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>66</td>
<td>26%</td>
</tr>
</tbody>
</table>

\(^{14}\) Quantity and quality of the publications: sum up the lifetime publications research quality by their three years since publications year onward, and use log transformation of this variable.
The results show that of the academics with higher research excellence, 56% are in the news. For academics with lower research excellence, only 19% are in the news. Academics with top research performance (top 10% of the ‘research excellence’ category) are even more likely to be in the news (75%) than those with ‘higher research excellence (56%)’.

The PR group also had similar results, as only 9.3% of academics in the journal-related PR, higher research excellence and top 10% performance have higher chances of sending out PR, 17% and 29%, respectively.

Second, as 87% of the overall news coverage is attributed to senior faculty, the higher research excellence in the sample likely to be related to the news is more related to senior academics. Table 11 shows the sample split by seniority. The results are similar to the ‘research excellence’ analysis, which indicates that 55% of senior faculty are media-active, and of junior faculty only 22% are in the news dataset.

### Table 11 The inclusion/Exclusion of academics in News/PR, Sample Split by Seniority

<table>
<thead>
<tr>
<th>Sample Split by Type</th>
<th>In News or PR</th>
<th>News</th>
<th>PR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Senior Faculty</strong></td>
<td>Yes</td>
<td>632</td>
<td>55%</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>512</td>
<td>45%</td>
</tr>
<tr>
<td><strong>Junior Faculty and</strong></td>
<td>Yes</td>
<td>308</td>
<td>22%</td>
</tr>
<tr>
<td><strong>Senior Researchers</strong></td>
<td>No</td>
<td>1068</td>
<td>78%</td>
</tr>
</tbody>
</table>

Therefore, there is some form of selection bias in the sample, but the bias works in line with our prediction. Excellence in research has a positive effect on the selection of sending journal-related PR or in the news; thus it is difficult to find variation within the sample on the entering journal-related PR or news because it is research excellence that predicts the selection. Therefore, I can consider my estimation conservative and the effect of research excellence underestimated.

15 45% of academics are senior faculty; 43% junior faculty; 12% senior researchers
The results have not yet shown the link between research excellence and the volume of media coverage. Although research excellence predicts the selection into PR/news, only 53% of academics above the median of research excellence are also above the median of the volume of news coverage. For the top 10% of research-excellence academics, the number is even less—only 38% are also in the top 10% of the volume of media coverage, which shows that research excellence does not necessarily predict the amount of news coverage.

Therefore, I turn to exploring the two datasets by the unit of analysis and the corresponding volume of news coverage, as well as what individuals attract more media attention in the final section.

5. PR and News Dataset: Unit of Analysis and Distribution of Academics

In the final section, I explore the sample of press releases and news articles used in both empirical chapters by the unit of analysis. In Chapter 3, the unit of analysis is press release-person (i.e., duplicating press-release entries for press releases with two or more academics from the university). The dataset includes a sample of 415 ‘person-press release/paper-year pairs’ between 2000 and 2013. The unit of analysis in Chapter 4 is the ‘person-year pair’, and the combined dataset includes a sample of 6,405 ‘person-year pairs’ with 940 distinct academics active between 2001 and 2013. (I exclude the year 2000 because I do not have access to individual position information in archival data for that year, which is an important control variable.)

Table 12 shows the skewness in the volume of media coverage in the two datasets. It shows that 48% and 58% respectively of observations did not have any news coverage in the two datasets. The ‘pairs’ with no media coverage in the news dataset is higher than the number in the PR dataset. The reason is that some individuals appear in the news only in certain year(s), but I include all years after their first media attention at this university. In
addition, 10% and 17% of the ‘pairs’ have been covered in more than five outlets in both datasets. The pairs with highest volume of media coverage (i.e., more than five occurrences) cover 68% of news coverage in the PR dataset and 42% in the news dataset. The results seem to suggest that the volume of news coverage may be highly skewed to certain ‘pairs’. Therefore, I then explore the individuals who appear frequently over time in the two datasets and the corresponding news coverage.

Table 12 Skewness of news coverage in both datasets

<table>
<thead>
<tr>
<th>Percentage of observations with…</th>
<th>PR paper-PR-person-year pair</th>
<th>News person-year pair</th>
</tr>
</thead>
<tbody>
<tr>
<td>No media coverage in specific year</td>
<td>48%</td>
<td>58%</td>
</tr>
<tr>
<td>Only 1 media occurrence</td>
<td>14%</td>
<td>16%</td>
</tr>
<tr>
<td>2 media occurrences</td>
<td>9%</td>
<td>7%</td>
</tr>
<tr>
<td>3 media occurrences</td>
<td>6%</td>
<td>4%</td>
</tr>
<tr>
<td>4 media occurrences</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>5 media occurrences</td>
<td>3%</td>
<td>2%</td>
</tr>
<tr>
<td>More than 5 media occurrences</td>
<td>17%</td>
<td>10%</td>
</tr>
<tr>
<td>total</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 13 shows the number of academics sending out different numbers of press releases over the full 13-year period. Sixty-four percent of academics send out only one journal-related PR, 18% send out two, and 9% send out three in the dataset.

Table 13 Frequency of Individuals and the corresponding volume of Journal News

<table>
<thead>
<tr>
<th>N of years each academic sends out PR</th>
<th>person</th>
<th>news coverage</th>
<th>Average news: Per person-yr</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>person</td>
<td>percent</td>
<td>cum.</td>
</tr>
<tr>
<td>1</td>
<td>149</td>
<td>63.68%</td>
<td>63.68%</td>
</tr>
<tr>
<td>2</td>
<td>43</td>
<td>18.34%</td>
<td>82.02%</td>
</tr>
<tr>
<td>3</td>
<td>20</td>
<td>8.54%</td>
<td>90.56%</td>
</tr>
<tr>
<td>4</td>
<td>11</td>
<td>4.7%</td>
<td>95.26%</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>2.14%</td>
<td>97.4%</td>
</tr>
<tr>
<td>6</td>
<td>3</td>
<td>1.29%</td>
<td>98.69%</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>0.43%</td>
<td>99.12%</td>
</tr>
<tr>
<td>12</td>
<td>1</td>
<td>0.43%</td>
<td>99.55%</td>
</tr>
<tr>
<td>14</td>
<td>1</td>
<td>0.43%</td>
<td>100%</td>
</tr>
<tr>
<td>234</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Although the results show the pattern of academics sending out more press releases having slightly more media attention, it is not necessarily the number of press releases sent out across years that directly relates to more media coverage. As the results show, those who send out press releases seven times have much more coverage than those who appear almost annually over time. This may result from certain academics staying longer in the university than others.

To further explore the volume of media coverage over time, I examine the number of academics appearing in the news dataset and the corresponding volume of news over time in Table 14. Academics are retained in the dataset, from the first year of entry until their last entry (or until they leave the university). The 12% of academics that appear almost annually (i.e., over 12 or 13 years) in the dataset account for 34% of the news coverage in the total news. Apart from individuals who occur in the dataset each year (i.e., who have higher average levels of media attention), there are only minor differences between their ‘tenure’ in the dataset and the average annual media attention.

### Table 14 Frequency of Individuals and the corresponding volume of News

<table>
<thead>
<tr>
<th>Number of years academics included the news dataset</th>
<th>Person N</th>
<th>Percent</th>
<th>Cum.</th>
<th>News Articles N</th>
<th>Percent</th>
<th>Cum.</th>
<th>Average news per person per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>67</td>
<td>7.1%</td>
<td>7.1%</td>
<td>134</td>
<td>1%</td>
<td>1%</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>93</td>
<td>9.9%</td>
<td>17%</td>
<td>258</td>
<td>2%</td>
<td>3%</td>
<td>1.39</td>
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6. Conclusion

From the analysis of the press-releases dataset, there are some selection effects, in terms of higher quality of research being more likely to prompt press releases. This is consistent with the interview insights that ‘research excellence’ is one of the criteria by which journalists select scientific achievements to report. However, the quality of research does not seem a sufficient condition for media attention. Half of the ‘high-quality’ press releases are not covered in the media. Thus, additional factors likely predict the amount of news coverage, besides the quality of research as signalled by the press release.

For the overall news dataset, similar results show that media-active individuals have higher research excellence than those who are not in the news. Even then, half of the academics with high research excellence are not in the news. Research excellence may affect academics becoming PR or media active, but it cannot fully explain the volume of news coverage they attract. Thus, it remains unclear why the volume of news coverage is highly skewed to certain individuals or journal publications. Thus, in the following two chapters, I explore the determinants of the uneven distribution of media attention.
CHAPTER 3: THE VALUATION OF ACADEMIC RESEARCH IN THE MEDIA: 
THE EFFECT OF RESEARCH QUALITY SIGNAL AND PUBLIC RESONANCE

1. INTRODUCTION

The concept and practice of valuation pervade many aspects of society (Lamont, 2012; Zuckerman, 2012). For example, professional raters and individual members of society alike constantly make implicit or explicit judgements about film performances, the conduct of cultural producers, and the quality of wine (Cattani, Ferriani & Allison, 2014; Hsu, Roberts & Swaminathan, 2012; Zuckerman & Kim, 2003). Valuation is performed not only by expert raters with relevant expertise in the same area as the candidate, but also by broader audiences who have their own opinions and concerns (Orlikowski & Scott, 2013). Most of the considerable research interest in valuation processes and outcomes operates under the assumption that valuation is based on the specific qualities of the candidate and performed by homogeneous audiences (Espeland & Sauder, 2007; Hsu et al., 2012; Waguespack & Sorenson, 2011; Zhao & Zhou, 2011). These assumptions may limit our understanding of valuation for two reasons.

First, recent research shows that not just candidate-specific characteristics, but also audience-specific concerns should figure in a more complete understanding of valuation (Giorgi & Weber, 2015; Kim & Jensen, 2014; Lanzolla & Frankort, 2016). A growing stream of research focuses on candidates who face multiple or heterogeneous audiences, examining variations in the valuation criteria those audiences use (Cattani et al., 2014; Ertug et al., 2016; Fini, et al., 2017; Kim & Jensen, 2014; Zuckerman & Kim, 2003). For example, in the context of software organisations, consumer audiences positively perceive candidates that conform to particular requirements, whereas investors pay more attention to the candidates that take initiative (Pontikes, 2012). Since reaching out to multiple audiences may help a candidate to obtain more resources, it is necessary to understand how a candidate can attract
attention from multiple audiences, which may be challenging when different audiences often raise different concerns and uncertainties.

Second, different audiences may use different valuation criteria. A professional or primary audience, which typically possesses expertise and knowledge similar to the candidate’s, is likely to judge the candidate on performance or quality. However, members of a more distant audience may find candidate quality hard to assess without the relevant resources or capabilities to make an adequate quality judgement. Under such uncertainty, distant audiences will likely look for alternative observable characteristics to make judgement decisions (Jensen, 2003; Podolny, 1994; Sauder, Lynn & Podolny, 2012; Stuart, Hoang & Hybels, 1999), while, at the same time, also will likely be influenced by other audiences, including the primary one (Salganik, Dodds & Watts, 2006; Zuckerman, 2012). However, as different audience groups use different values and beliefs when assessing candidates (Kim & Jensen, 2014; Pontikes, 2012), judgements from one audience may not be recognized by another audience. For example, an esteemed scientist is unlikely to be as highly regarded in art as a prestigious artist, who likewise may not enjoy much prestige in science. Thus, the extent to which one audience’s valuation of outcomes will transfer to another audience remains unclear.

In light of these two limitations and the limited scholarly attention to valuation across audiences, this study explores the circumstances under which quality signals relevant in one domain are also relevant for another audience. I explore this question by studying the valuation of academic publications in the news, which is increasingly relevant as academics are looking to widen their impact, influence public opinion and discourse or educate the public with new academic insights. Thus, 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 coverage of academics’ work in the news shows that an
audience (i.e., the general public) beyond the one for which their work was originally developed (i.e., the academic community) can recognize their work (The New York Times, 31 May 2015).\footnote{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} Specifically, journalists interpret academics’ work on behalf of the public, by selecting press releases describing research findings and covering them in their outlets. In this context, a subsequent audience may or may not recognize the initial valuation from the primary audience because, on the one hand, journalists may have their own selection criteria independent of those used in academia (Peters, 2013), whilst on the other hand, they still want to report crucial advancements in science, which are likely to align with the valuation criteria within academia. Therefore, the context of academia is an ideal setting to explore the interplay between using quality signals from the primary audience and using individual judgements in explaining the recognition of achievements by a secondary audience.

So, journalists may frequently look at press releases from established expert sources (Amend & Secko, 2012), such as top academic journals, when exploring which advancements in scientific knowledge to report to the public. But, as journalists may not necessarily have the relevant expertise to judge the research content and quality by themselves, they may often rely on existing quality signals in addition to their own judgement. As a result, journalists may ascribe more importance to scientific findings published in higher-impact academic journals (Van Trigt et al., 1994), as the quality of the journal may signal the level of achievement these findings represent. Thus, the extent to which the prestigious scientific outlets recognize the quality of research by publishing it may increase the likelihood that it captures journalists’ attention.

On the other hand, journalists have an incentive to write about research that fits or resonates with the public interest, and thus will use their own judgement to determine
whether research reported in a press release is relevant to the general public. Resonance plays a key role in selection decisions that match content to audience interests (Giorgi & Weber, 2015). For example, in the context of the performing arts and athletics, prior studies suggest that meeting the audience’s needs can create a positive image and drive the celebrity status of certain individuals (Adler & Adler, 1989; Gamson, 1994; McCracken, 1989). Likewise, in the context of academia, there may be aspects of research findings that journalists judge to be particularly resonant with public interest, which may lead to greater media attention. In this context, expectations for the kind of research findings that will resonate with the public may be a function of their judgement about the clarity of the press release’s title and content, the relevance of the research to the general public and the unexpectedness of the research findings.

This study aims to explore the tension between research-quality signals and public resonance in explaining which academic publications receive news coverage. As explained above, some media may ignore research despite its having been published in top journals, whereas the news may cover other research even though it appeared in lower-tier journals. Building on mechanisms discussed in the audience appreciation and sociology literatures, this study considers the circumstances under which a substitution effect or a complementarity effect occurs between the signal of research quality and various dimensions of public resonance in explaining media attention to academics.

The analyses are based on a dataset of press releases sent out by the press office of a major research-intensive university. The press releases were matched to the academic publications to which they relate, and to any subsequent news articles. In the first stage of this study, I conducted twenty exploratory interviews with academics, media staff and journalists to get a contextual understanding of how academics get media attention. The resonance construct and its four underlying dimensions emerged from these interviews, which, in a
second stage, I used to rate each of the press releases. In the final step, I conducted multivariate regression analysis predicting the media coverage of academic publications as a function of research quality and resonance. Findings indicate how the tension between quality and resonance may be resolved by showing the circumstances under which high resonance may compensate for low quality signals, and when high resonance may amplify the quality signal. I discuss the implications of these findings for individuals and organisations that seek to gain attention from multiple audiences.

2. THEORY AND HYPOTHESES

2.1 Research Context

In bridging the distance between academics and the general public, journalists act as intermediaries who shape how the public is informed about the latest knowledge. However, scientists and journalists occupy distinct arenas that obey different rules (Peters, 2013). The nature of work in academia is to add to the accumulation of scientific knowledge through the conduct of basic research (Sauermann & Stephan, 2013). Therefore, high-impact research is theoretical and often geared to very specialized academic audiences. Scientists publishing their findings in academic journals seek recognition from academic peers. The importance of scientific research is likely to become evident to the public only after many years (Summ & Volpers, 2016), and the media may prefer scientific knowledge that more directly relates to key problems faced by society.

For example, prior studies show that organisations working on the economic or social dimensions of the environment (i.e., farming, urban and suburban sprawl or statewide issues) attract more media attention than more traditional aspects of environmental issues (e.g., reservation and conservation) (Andrews & Caren, 2010). Similarly, research of high relevance to daily lives can capture a journalist’s attention. As an academic interviewee (chemistry) mentioned: ‘Our paper about the solar cell [Solar panels perform better when
listening to music], it was simply doing something which non-scientists could resonate with, and the connection to public culture which had a lot of attention [from the media]’. Many news outlets covered this story, not only because of its connection to public culture, but also because of its unexpectedness for the public, namely, showing the connection between two things not usually related to each other. Research unrelated to daily life but with unexpected content is also of public interest, as a media staff interviewee (head of research) explained: ‘People love a story about space, it might not be relevant to everyday life, it might be a WOW thing, just be very interesting’.

Despite the media’s intention to cover news items of public interest, they may also pay attention to the quality of the source of academic information. Scientific journals are perceived as reliable sources for health and science journalists (Amend & Secko, 2011). However, different journal publications are not necessarily rated equally by journalists because in the eyes of the media, some outlets take prominence over others. According to Bell (1991), ‘The more elite the source, the more newsworthy the story’ (p. 192). Publications in high-impact journals represent quality signals to the press, which they can consider when valuing scientific findings and deciding whether to cover them in their newspaper or other outlet. For example, prestigious journals such as Science, Nature and PNAS17 are the scientific journals most often mentioned by interviewees as places to get ideas and information when they want to report the latest scientific advancement.

Since the media typically look for public interest research that is also of high quality, it is unclear whether public taste (resonance) and quality always go hand-in-hand. Some high-impact research may not be selected for reporting in the media, whereas the news may cover lower-impact research despite its not having been published in particularly high-impact journals. One academic interviewee (Computing) explained:

17 PNAS = Proceedings of the National Academy of Sciences of the United States of America
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.

In sum, the quality signal used by one audience (e.g., academia) may not fit the valuation criteria of the other audience (e.g., the media). In this study, research published in top-journals sends the signal about the quality of the underlying research. This study explores the tension between research quality and public resonance in explaining which academic publications the news covers, by asking the following question: What role do research quality signals, as evidenced by journal prestige, play in whether a press release is picked up by the media? An answer to this question will have implications for our understanding of the circumstances in which the quality signal from a primary audience is relevant for a secondary audience.

2.2 Social Valuation across Audiences

Audiences performing valuations use a number of different criteria to judge the worth of a candidate in relation to others (Lamont, 2012). For instance, these criteria can be reputation, achievement, market labels or products (Dubuisson-Quellier, 2013; Ertug et al., 2016; Pontikes, 2012). The valuation process begins when audiences search for certain criteria to compare values between different candidates. However, a single audience may not have access to objective information to evaluate the candidate’s quality, nor the necessary resources to collect all the information required to assess candidates. Information asymmetry between candidate and audience occurs if the audience cannot fully obtain needed information from candidates.

Information asymmetry causes high uncertainty for audiences in assessing candidates because the underlying quality differences are not transparent. To eliminate audience
uncertainty, candidates must convey their quality to any relevant audiences in a more active way, such as directly disclosing information to them (Stern & James, 2016). In addition, external audiences tend to rely on observable characteristics as alternative insights into quality (Sauder et al., 2012). Previous research suggests that in situations of uncertainty of judgement, the higher the uncertainty about the underlying quality of the candidates, the more audiences judge quality by relying on quality signals relating to the candidate’s status (Podolny, 1994). In a similar vein, Stuart et al. (1999) point out that new firms with connections to prominent partners accrue more resources, because in the absence of clear quality observations about the new firm, resource providers infer quality from its partners.

Beyond looking to alternative quality signals, audiences also use the opinion of other evaluators when valuing a candidate (Salganik et al., 2006; Zuckerman, 2012). This works under the assumption that both audiences have similar desires or needs (Zuckerman, 2012) and use similar valuation criteria. Therefore, the audience relies on how another audience judges a candidate as a shortcut for its own decision-making; in uncertain situations, this means a quality signal from one audience is adopted by another.

2.3 Research Quality Signal and Press Mentions

Journalists act as intermediaries in disseminating scientific knowledge across the boundary between academia and the public, but journalists do not typically browse academic journals to locate scientific findings to report, due to the time pressure of their daily work. Instead, they tend to rely on more easily accessible information, such as press releases, to discover frontier scientific achievements. Press releases are an important tool to signal information to external audiences (Petkova, Rindova & Gupta, 2013). Academics also recognise that sending out press releases from a press office is an effective route for reaching non-academic audiences (Wilkinson & Weitkamp, 2013). The function of press releases is also mentioned by journalists, as this journalist interviewee (general outlets) commented:
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 a good journal is a good reason for something to publish in a newspaper.

Faced with a supply of many new research findings from academic articles described in press releases, it is up to journalists to decide which ones are worth communicating to the public. Level of achievement is one of the criteria that journalists can use to decide whether findings are newsworthy. However, journalists typically lack the expert knowledge to be able to judge the extent of progress in a specific field (Summ & Volpers, 2016). For journalists, the quality of work is unobserved, and thus they face high uncertainty in judging the suitability for news coverage. Given their lack of technical expertise, journalists tend to resort to reliable resources to help judge the quality standard indirectly.

In searching for information about the level of recognition for scientific advancements, journalists will tend to utilise the opinions of academic audiences they believe are in a position to judge the quality of findings and provide hints that those findings have achieved important milestones and obtained approval from the original audience. A prestigious journal described in a press release is a strong signal to the media that the underlying research is of high quality and thus may increase the item’s likelihood of making it into the news. One media staff interviewee (Medicine) reiterated this, claiming: ‘. . . 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 indicate the high quality of the underlying science through reference to high-impact journals, reducing the uncertainty around the unobservable quality of the research for journalists. Press releases reporting results that show greater impact will be more attractive to multiple outlets, as journalists do not want to miss stories seen as important to their competitors (Shoemaker & Reese, 1996). Thus, I propose the
following baseline hypothesis:

*Hypothesis 1: Signals of research quality in press releases are positively related to dissemination of that press release by a greater number of media outlets.*

### 2.4 The Moderating Role of Public Resonance

Although journalists may use research-quality indicators in their selection decisions, it is unlikely that research-quality signals from the primary audience will be uniformly absorbed by a secondary audience. The media plays a critical role in deciding which topics are discussed, and achieves impact through its consideration of and interaction with the audience. So, in their news selection, they need to take into account viewing and reading behaviours (Chen & Meindl, 1991). In general, the media are interested in information that provides the basis for a 'good story' (Petkova et al., 2013), which often comes from content that can satisfy the target audiences' interests. Audiences can find resonance with information that corresponds to their needs, and resonance often comes from the alignment between an actor’s goal and the intended audiences’ values, beliefs and ideas (Giorgi & Weber, 2015; Vasi & Strang, 2009).

Resonance can be classified at message and individual levels. A message resonates with an audience if it meets the specific criteria of that audience. For example, reports framed in a way that satisfies the investor’s needs are more appreciated by investors (Giorgi & Weber, 2015). At the individual level, an audience relates to individuals if candidates take actions or possess attributes that fit the tastes of the audience. For example, actors can meet the aspirations of a certain group or social category defined by gender, class or status (McCracken, 1989). So, both through the action taken by individuals or the message conveyed to the target audiences, the concept of ‘resonance’ plays an important role in positive evaluation. Since journalists are the intermediaries who assess public needs, ‘public resonance’ in this study is based on journalists’ valuation of what the public may find
interesting. Drawing on mechanisms from audience appreciation and discussions in sociology and celebrity literature (Giorgi & Weber, 2015; McDonnell, 2014; Rindova et al., 2006), I define four dimensions of public resonance below.

First, the contribution relevance of academic research is one dimension of resonance. Research that has a direct impact on society resonates with the public, because it strongly aligns with people’s interests. In the audience appreciation literature, Giorgi & Weber (2015) suggest that the audience (institutional investors) is action-oriented and wants to act quickly on ready-to-implement information. Thus, the institutional investors resonate with the ‘financial’ framing of reports by analysts, because the clearly stated investment implications and possibility of opportunity can help then make quick decisions. Immediate application of the information indicates that the audience can respond to information with direct impact and relevance to their needs.

Second, in the audience-appreciation literature, Giorgi & Weber (2015) suggest that clarity of content is a dimension of resonance. If the content is explicit, simple and easy to grasp, it is likely to meet expectations, especially in the case of scientific findings. Scientists able to explain what they have found in a clear and simplified manner increase the likelihood that journalists will notice their findings while reading about their research in a press release.

Third, clarity of the press-release titles is also important in news selection, because this is the first information an audience uses to decide whether to continue reading the full content. Consequently, I incorporate both the clarity of titles and content of press releases in this study.

Fourth, as discussed in sociology and in literature on celebrity, unexpectedness can lead to heightened emotions for the audience, and this is when people experience resonance (McDonnell, 2014). Unexpectedness is a typical trait of potential news items that helps attract media attention (Hansen, 1994). Out-of-norm actions attract interest because they deviate
from what other firms or individuals consider normal, and are ingredients of a ‘good story’ for journalists to dramatise (Rindova et al., 2006). The element of unexpectedness arouses the curiosity of the public, increasing the news value by satisfying human imagination. I will explain each of these dimensions in more detail below.

2.4.1 Contribution Relevance

A message relevant to audience needs tends to be more appealing, because audiences are likely to pay more attention to information that is relevant to their experiences. Furthermore, the relevance escalates when it can demonstrate immediate utility or feasibility for the audience, while meeting expectations. For example, stories of entrepreneurs are more likely to gain investors’ support if they emphasize how competencies and resources can facilitate the success of a new venture (Lounsbury & Glynn, 2001).

When a message contains relevant information that might have an impact on the target audience, its recipients likely will be more critical and want to find more evidence to support the importance and validity of the message. In wine valuation, for example, tasting scores from critics are the most relevant indicator, and if these scores are consistent with other high-quality indicators, it makes for a greater valuation than if the two indicators show inconsistent results (Zhao & Zhou, 2011). Similarly, in Stern, Dukerich & Zajac’s (2014) study, scientists’ own credentials are the most relevant information in the evaluation of new firms by incumbents in alliance-formation decisions. The congruence of this indicator with other quality signals amplifies the valuation in alliance-formation decisions. Therefore, when an indicator is most relevant for audience assessment; the audiences are more critical, so an additional quality indicator can amplify the judgements in valuation.

In addition, issues that can make the greatest impact on audiences are likely to be strengthened. Rindova et al. (2006) 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 (p.57).’ Similarly, protests about how labour or consumer-related issues affect the needs of critical stakeholders tend to earn greater media attention (King & Soule, 2007). Also, CEOs of larger firms will be more noticeable than those heading smaller firms, because large firms affect the interests of a greater number of people (Hayward, Rindova & Pollock, 2004). When this potential impact can influence a target audience broadly or widely, the CEOs are more likely to be noticed.

I argue that reliance on research-quality signals, such as prestige of the journal in which the research is published, are more important for research with high contribution relevance than for research with low contribution relevance, for two reasons. First, if research findings concern people’s lives directly, journalists want to report the major achievements that are more likely to be published in higher-impact journals. For example, a study entitled ‘Body clock receptor linked to diabetes in new genetic study’ is research that is published in a high-impact journal and relevant to the public. This story is likely to attract attention from journalists not only because of the relevance of the findings, but also the scale of impact on their audiences.

Second, journalists want to make sure the research underpinning major findings is robust and the results reliable, and that the findings directly relate to people’s lives and interests. Quality assurance of the underlying research is crucial if the message conveyed in a press release will have direct repercussions on people’s lives. For example, a study about ‘Lessons for the future from “most thorough” analysis of Foot and Mouth epidemic yet’ is a piece published in a high-impact journal and directly relevant to the public. Journalists paid attention to this study not only because the epidemic is directly related to health, but also because it was published in Science, providing quality assurance of the results.
Conversely, research with high relevance published in a low-impact journal is less likely to be noticed. So, the study ‘Brain chemical finding could open door to new schizophrenia drugs’, published in a lower-impact journal, was less appealing to journalists, as it may imply findings are at an early stage, offering less quality assurance. Journalists tend to look for other materials which are also of ‘higher relevance’ than a finding that, without quality assurance, is not attractive enough to report. Generally speaking, research with low levels of contribution relevance has less chance of being covered in the media, regardless of the journal in which it is published.

As the supply of information with direct impact on the public is plentiful, journalists tend to pay more attention to higher-quality research. So, research with contribution relevance, but published in lower-impact journals, has less chance of being noticed. For these reasons, I posit that findings published in lower-impact journals receive limited media attention, even if their contribution is relevant to the public. Thus, I argue that the contribution relevance of a press release concerning higher research quality matters much more than a press release reporting lower research quality, so I hypothesize that:

**Hypothesis 2a:** The effect of research-quality signals in the wider dissemination of press releases to a greater number of media outlets increases with the contribution relevance of the underlying research.

The previous discussion focused on how the contribution relevance indicated in press releases can amplify the effect of the research-quality signal on press mentions. This mechanism cannot explain the circumstances under which the research published in low-tier journals also captures journalists’ attention. In the following section, I turn to other dimensions of public resonance.
2.4.2 Clarity of Presentation

Audiences appreciate a message that is clear and coherent. In this case, audiences are likely to find that the message fits with their tastes or interest if they can easily filter out ambiguous information. Films targeting more genres are less appealing to audiences who find it difficult to make sense of them, with whose tastes it shows poor fit (Hsu, 2006). Similarly, audiences are more likely to pay attention to a message when the idea is made explicit and is easy to follow (Giorgi & Weber, 2015).

Clarity and coherence can increase the attention value of a message, even if it might not be considered important in the first place. A message that already shows certain evidence of quality is less likely to benefit from clarity of presentation. For example, organisations with established institutional linkages can leverage these as a quality signal to their audiences—i.e., the quality is sufficient to demonstrate their importance to the audiences. In contrast, organisations without these linkages are more likely to benefit from additional indicators or signals that make them more visible and reduce the “fuzziness” of their identities (Kuilman & Wezel, 2013). Therefore, the clarity of presentation in a message helps audiences to assess value.

In a similar vein, for information that requires a certain level of expertise, audiences will prefer a message that is well-articulated, as this can reduce the uncertainty when reading. Thus, the communication of science from experts to the general audience will be more effective with less jargon (Sharon & Baram-Tsabari, 2014). Journalists must process much information when selecting press releases and are not familiar with the specific details of scientific achievements; thus, they are less able to understand and interpret scientific outputs (Summ & Volpers, 2016). One media staff interviewee (Medicine) suggested:

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

As journalists face ongoing pressures to meet deadlines (Andrews & Caren, 2010), the title of the press release is the first thing they use when deciding whether they would like to explore the information in greater depth and consider writing about it. A clear frame is important to convince the audience to continue reading the content, so the main body of content needs to be explicit and coherent (Giorgi & Weber, 2015). Making the scientific findings explicit and coherent, thus making it easier for journalists to write the story, will give the press release a greater chance of being covered. Clarity of content in the press-release body text also helps journalists relate to prior stories they have covered, again increasing the likelihood of coverage where continuity of stories is important in news selection (Galtung & Ruge, 1965). In addition, the clarity of press releases also leads journalists to infer that the academics involved might be good at communicating their research to the public, and to be more likely to contact them for further explanations.

I posit that the research-quality signal is more important to media selection for research with low clarity of presentation than for research with high clarity of presentation. For low-impact research with high-clarity relevance, journalists face lower uncertainty about the quality and thus become less reliant on journal prestige as an alternative quality assessment. For high-impact research, the clarity element is less important, as journalists are more willing to expend effort in reading research and judging the message by themselves. The alleged importance of the findings is a sufficient condition, meaning attention and clarity is less necessary to increase the probability of media attention.

The two examples below explain the clarity of presentation and its relationship with different quality levels of research. A study called ‘Public health interventions could cut deaths in event of flu pandemic, say researchers’ was not published in a high-impact journal,
but this message attracted journalists’ attention, clearly demonstrating the main purpose of the study. Another study entitled ‘One in seven cases of bird flu could be prevented by closing schools in the event of a pandemic, says study’ was published in a high-impact journal. The two examples are flu studies highly relevant to the public, and both use similar headline structures. However, the latter was published in fewer media outlets than the former, which supports the argument that high clarity may disproportionately help lower-quality research to gain traction.

In sum, the clarity of the press-release title and content can reduce journalists’ reliance on the research-quality signal indicated in the press releases. If research results are presented clearly, journalists are capable of judging whether they want to cover the story. Thus, I argue that the clarity of title and content in a press release with lower research-quality signal matters more than it would for a press release with a higher research-quality signal, and I hypothesize that:

\[ \text{Hypothesis 2b: The effect of research-quality signals in the wider dissemination of press releases to a greater number of media outlets decreases with the clarity of the press-release title} \]

\[ \text{Hypothesis 2c: The effect of research-quality signals in the wider dissemination of press releases to a greater number of media outlets decreases with the clarity of the press-release body text} \]

**2.4.3 Unexpectedness of the Research**

A message that shows some elements of unexpectedness meets the audience’s need for imagination. Unexpectedness results from novelty or originality of information; a message that shows ‘the next new thing’ is attractive to investors who look for organisations with potential to cause industry change (Pontikes, 2012). The originality of the message provides information that deviates from what the audience had known or assumed until now,
raising their curiosity further (Pieters, Warlop & Wedel, 2002). Unexpected elements in a message create the ‘aha! moment’ to which audiences will have a higher emotional attachment (McDonnell, 2014), thus increasing the attention value of the message.

Unexpectedness in research can take three main forms. The first is found in research that demonstrates relations between things that are usually unrelated. For example, a study called ‘Go to work on a Christmas card: UK’s wrapping paper and festive cards could provide energy to send a bus to the moon more than 20 times’ is not breakthrough science, yet it attracted public attention because it was not the typical, expected research. The second type of unexpectedness can be found in research that deviates from previous common knowledge and provides a good resource for ‘expert controversy’. If research is published or ongoing, journalists will consult several expert sources with conflicting views in order to invoke a so-called expert controversy, an important journalistic strategy for communicating scientific uncertainty in the mass media (Boykoff & Boykoff, 2004; Ren, Peters, Allgaier & Lo, 2014). For example, a study called ‘Cannabis more damaging to health than previously thought claim doctors’ would provide a good basis for journalists to ask the opinions of experts in relevant fields. Expert controversy also figures in a business context, when reporters seek to find balance perspectives to report a story (Deephouse, 2000). The third type of unexpectedness comes from the content of research containing ‘unknown’ elements of the past, the future and outer space. A study called ‘Was there life on Mars? Shiny rock coating may hold the answer’ earned high levels of attention because it fed the human desire to know the unknown world.

Unexpectedness can serve as an alternate substitute signal for a low-quality message and could be sufficient for an audience attracted by the message without looking at other indicators. Alternatively, a high-quality message can convey important information to audiences and would typically need to be less entertaining to warrant audience attention.
Therefore, an unexpected element in a high-quality message may not be necessary for audience appreciation of higher-quality messages. For example, highly evaluated organisations are expected to be reliable, so organisations taking other actions that disrupt these expectations cannot receive more positive evaluations (Durand, Rao & Monin, 2007).

People feel excited if the information contains originality and novelty to which they can relate, and as these tend to work as good sources for news, journalists seek out organisations that take bold or unusual nonconformist actions (Rindova et al., 2006; Treadway et al., 2009) and turn them into news. The unexpectedness element arouses the curiosity of the public, increasing the news value by satisfying human imagination. Specifically, in the context of academic media attention, scientific findings are typically assumed to be advancements in a specific domain, and in most cases comprise basic research to whose findings audiences are less likely to have emotional attachment. Therefore, an unexpected element in research acts as an alternative signal to attract audiences’ attention, and therefore journalists’ attention.

For low-impact research, an element of unexpectedness in the underlying research is important, as it gives journalists more options to tell an appealing story. Thus, for research with unexpected elements, they do not have to rely so heavily on the research-quality signal. 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 to complement the inherent merit of the research itself. Major findings are of sufficient interest, and a degree of unexpectedness is less necessary for attracting media attention. In sum, unexpectedness in research findings feeds the human imagination and makes it easier for journalists to dramatise the story and thereby instigate higher public interest. In this case, the quality signal in the press releases becomes less important for journalists, where their hunger for ‘drama’ may exceed their need for assurance of research quality. Conversely, high levels
of unexpectedness can compensate for a potential lack of quality. In sum, I argue that the level of unexpectedness of research findings conveyed in a press release signalling lower research quality matters much more than for an equivalent press release with a higher research-quality signal, and I hypothesize that:

*Hypothesis 2d: The effect of research-quality signals in the wider dissemination of press releases to a greater number of media outlets decreases with the unexpectedness of the underlying research.*

3. DATA AND METHODS

The unit of analysis is the ‘journal publication-press releases (person-year) pair’. To link these pairs with the news articles, I identified the linkage between press releases and news articles based on the name of the academics, and then checked the similarity of the press release titles with the titles of all news articles released within a one-month window after the date of the press release. I obtained information from the university’s official HR database and archival data to account for individual related variables. The combined dataset includes a sample of 415 ‘journal publication-press release (person-year) pairs’, and 1,248 news articles published in general news outlets and based on these press releases. The timeframe of the analysis is between 2000 and 2013, and includes press releases that relate to 234 academics.

3.1 Measures

**Dependent Variable**

*Number of Press Mentions.* I used two steps to identify the number of academic research mentions in news outlets. First, I collected news articles from the Factiva Database and articles that appeared under ‘Newspaper’ were counted in the number of press mentions. I focused on the ‘Newspaper’ category because the media outlets under this category reach

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18 I expand the timeframe of selection to where there is a visible pattern in the news dataset.

19 This number only counts the times selected by general media outlets. These press releases are selected 1,287 times by industry news outlets and 694 times by press wires.
the general public. I excluded industry news outlets because the target audience strongly varies by outlet, and I reviewed the list of public resources to ensure that the media outlets were accurately categorised. About half of all press releases in the sample (47.94%) attracted no news coverage, whereas others attracted high levels of coverage. This created a skewed sample; therefore, I logged the dependent variable (ranging between 0 and 3.892).

**Independent Variables**

**Research-Quality Signal.** The research-quality signal in each press release is defined as the level of prestige of the academic journal where the underlying research was published. The quality signal is equal to 1 if the impact factor of the journal was within the top 1 percentile of all science journals in the ISI Web of Science in the focal year, and 0 if not in the top 1 percentile. I used a binary variable rather than the full impact factor since journalists would recognize research published in some ‘stand-out’ journals as outstanding, but would not discern in detail the quality and the rank of all journals. The top 1 percentile of journals represents half of the paper-related press releases in my data, since high-impact journals are overrepresented among the publications of the focal population of scientists.

**Public Resonance.** The extent to which the content of press releases or the underlying research satisfies the public’s need or curiosity for new knowledge or insights is defined as public resonance. I followed two steps suggested by Giorgi & Weber (2015) to identify the dimensions that characterise public resonance in press releases. First, I read the press releases and identified recurring dimensions of resonance, which I then compared and adjusted using the interview material. Second, during the interviews, I asked four different groups of people (academics, media staff, journalists and the public) with no knowledge of these preliminary

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20 The lowest Impact Factor of top 1 percentile is 11.158 in 2000 and 14.723 in 2011. The percentage looks extreme although by looking at Impact factor it is reasonable.

21 The distribution of the articles published in this university will not be equal to the articles published in all other universities.
dimensions of public resonance to describe what they thought the public would want to find in the news and coded the needs that they articulated in the interviews. Four dimensions are summarised based on my reading of press releases and information from interviews. I then resorted to manual coding and used two coders to code a random sample of 15% of all press releases in the sample. I then used the Krippendorff’s alpha (Krippendorff, 2012) to evaluate the inter-coder reliability for the different dimensions of public resonance. All values for the four dimensions are in the range of 0.65-0.80, which is acceptable (Giorgi & Weber, 2015). In the final step, I then coded the rest of press releases.

Based on these procedures, I identified four distinct dimensions of public resonance. Table 15 summarizes the examples of press releases that are scored High or Low for each dimension. Contribution Relevance refers to the extent to which the findings described in a press release will affect people's lives, a measure of importance represented as a combination of how substantial the impact is and the number of people affected. Contribution relevance will be considered high, for example, if a press release describes a breakthrough in a certain disease area (which influences a small group of people with deep impact) and if a finding might be applicable to everyone (such as new insights into a healthy diet, which influences a large group of people but with smaller impact). The Clarity of Title refers to the extent to which the findings or the aim of the research described in a press release are easy for the target audience or journalists to deduce from the press-release title. The Clarity of Content refers to the extent to which the body text of the press-release story is coherent and the main points explicit. The Unexpectedness of Research refers to the extent to which the research findings in the press release are unexpected from the audience’s point of view—something that is different from what one would have previously thought, something that shows relations between things one would have expected to be unrelated or something that represents insights into a completely unknown world.
A number of control variables were included in the analyses, including media-related, individual and message-level factors. Individual-level controls came from the official HR database of the university. I controlled for the number of press wires to which each press release has been distributed, because the more press wires selected for a press release, the higher is its chance of being noticed by news outlets. I controlled for prior media coverage of individuals up to the focal year (i.e., news articles mentioning the name of the focal academic) to account for path dependence in an academic’s media success. Prior media visibility could potentially influence current attention (Vergne, 2012). I used a log transformation to reduce the skewness of this variable. I also included a dummy variable (media friendly) equal to 1 if the academic is included on the list in the university’s media guide, showing their willingness to reach out to the public. This enabled me to control for the academic’s proactivity in looking for media attention. Academics who have a stronger record in academia have a higher chance of being noticed (Bentley & Kyvik, 2011; Kyvik, 2005) and may be considered more authoritative in the media, so I considered their prior research impact by measuring the average impact factor of a researcher’s work divided by the total number of publications up to the focal year. Finally, I controlled for tenure because the duration of employment in a

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22 Clarity of content (body text) did not include in the table as it was not clear whether it is H or L of clarity without reading the body text.
given institution may influence the academic’s media attention, since recently hired academics may have a lower likelihood of being noticed by the media.

The characteristics of the content of the research described in the press release can also influence the likelihood that it will receive media coverage. To account for the appliedness/basicness of an academic’s research at the individual level, I considered the basicness (appliedness) (average research level: 1 applied; 4 basic; based on Boyack et al., 2014) up to the focal year. Scientists publishing in a greater diversity of journals may be more oriented toward applied research, and more likely to have been recognised by more media outlets, so I controlled for the publication narrowness by using the Herfindahl-Hirschman Index (HHI). I also considered the number of contracts awarded to PIs funded by industry and funded by government and charities. Contracts are more applied in nature than academic grants and thus signal academics’ visibility in society, which the media is more likely to notice. Therefore, I included the number of contracts funded by industry that imply practical impact, whereas government and charity fund contracts to create societal impact. The latter two variables were measured as the cumulative number of contracts in a five-year window preceding the focal year. I focused on this time window because I want to control for the recent publicity of an individual’s research. All other variables are a lifetime measure to capture the overall characteristics of academics, and/or the experience and reputation they accumulated over their careers.

Characteristics of the journal indicated in press releases can also influence the likelihood that the press release will receive media coverage. I controlled for the number of ISI categories in which the journal has been included. ISI subject categories indicate greater diversity of relevant expertise areas, and higher chances of reaching wider audiences. I included 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.

3.2 Estimation Methods

I use linear regression models as the main analyses 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. I also use probit model, negative binomial model, and alternative measures of quality signal to test the robustness of my results.

4. RESULTS

Table 16 presents descriptive statistics and correlations. The level of correlation among the key variables is relatively low. The high correlation between the variables for number of press wires and total press mentions \((r=0.63)\) was expected, given that the more press wires cover a press release, the more likely it is that more media outlets mention the press release. The maximum variance inflation factor is less than 2, signalling that multicollinearity is not a problem in the data.
Table 16 Descriptive Statistics and Correlations (Study 1)

<table>
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<tr>
<th></th>
<th>Mean</th>
<th>S.D.</th>
<th>Min</th>
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<th>13</th>
<th>14</th>
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<td>3</td>
<td>Number of Press Wires</td>
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<td>Prior Media Coverage</td>
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<td>Prior Research Impact</td>
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<td>-0.156</td>
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<td>6</td>
<td>Media Friendly</td>
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<td>0</td>
<td>1</td>
<td>0.03</td>
<td>0.203</td>
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<td>0.010</td>
<td>-0.072</td>
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<td>7</td>
<td>Publication Narrowness</td>
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<td>0.099</td>
<td>0.02</td>
<td>1</td>
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<td>-0.133</td>
<td>-0.212</td>
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<td>8</td>
<td>Basicness</td>
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<td>0.731</td>
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<td>4</td>
<td>-0.102</td>
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<td>-0.089</td>
<td>0.219</td>
<td>0.010</td>
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<td>9</td>
<td>Number of Contracts from Industry</td>
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<td>-0.010</td>
<td>-0.027</td>
<td>0.358</td>
<td>-0.154</td>
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<td>10</td>
<td>Number of Contracts from Government and Charities</td>
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<td>23</td>
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<td>0.072</td>
<td>0.088</td>
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<td>-0.008</td>
<td>-0.100</td>
<td>-0.227</td>
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<td>11</td>
<td>Number of ISI subject categories</td>
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<td>6</td>
<td>-0.064</td>
<td>0.002</td>
<td>-0.007</td>
<td>-0.085</td>
<td>-0.107</td>
<td>0.055</td>
<td>-0.045</td>
<td>-0.005</td>
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<td>12</td>
<td>Resonance: Unexpectedness</td>
<td>2.073</td>
<td>0.511</td>
<td>1</td>
<td>3</td>
<td>0.201</td>
<td>-0.027</td>
<td>0.125</td>
<td>0.060</td>
<td>0.057</td>
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<td>0.085</td>
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<td>13</td>
<td>Resonance: Contribution Relevance</td>
<td>2.266</td>
<td>0.729</td>
<td>1</td>
<td>3</td>
<td>0.185</td>
<td>0.045</td>
<td>0.105</td>
<td>0.139</td>
<td>0.062</td>
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<td>-0.109</td>
<td>-0.410</td>
<td>0.144</td>
<td>0.113</td>
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<td>-0.022</td>
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<td>14</td>
<td>Resonance: Clarity of title</td>
<td>2.564</td>
<td>0.566</td>
<td>1</td>
<td>3</td>
<td>0.395</td>
<td>0.037</td>
<td>0.212</td>
<td>0.168</td>
<td>-0.017</td>
<td>0.042</td>
<td>-0.021</td>
<td>-0.207</td>
<td>0.041</td>
<td>0.128</td>
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<td>0.103</td>
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<td>15</td>
<td>Resonance: Clarity of content</td>
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<td>3</td>
<td>0.181</td>
<td>0.027</td>
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<td>-0.084</td>
<td>-0.211</td>
<td>0.005</td>
<td>-0.100</td>
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</table>
Table 17 shows the analyses of 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, the number of press wires and the level of prior media coverage are strong predictors of press mentions. Model 2 introduces the research-quality signal and the overall variance explained increases slightly from 50% to 50.2% (note that inclusion of a lagged dependent variable among the predictors accounts for the lion’s share of explained variance). Although the explanatory power seems small, research-quality signal has a positive and significant effect (p < .1) on press mentions: one standard-deviation increase in research-quality signal from its mean value increases the outcomes variable (log transformation of number of press mentions) by 5.75%.

Model 3 includes all independent variables, and overall variance explained increases from 50.2% to 57.5%. The research-quality signal has a stronger positive and significant effect (p < .05) on press mentions: one standard-deviation increase in research-quality signal from its mean value increases the outcomes variable (log transformation of number of press mentions) by 11.49%. Model 2 and Model 3 both show that research-quality signal has a positive and significant effect on press mentions, and this provides support for Hypothesis 1.

In Models 4-7, I test Hypotheses 2a-2d, which state 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 is amplified if the content of research has high relevance contribution. This supports Hypothesis 2a. In Model 5, the interaction term is positive and significant. Later plotting shows these results as seeming not very strong, but this could be due to an outlier in the data. In Model 6, the interaction term is not significant. Neither Hypothesis 2b nor 2c is supported, suggesting that the effect of research-quality signal is not contingent on the level of clarity of content and title. In Model 7, the interaction term is
negative and significant, suggesting that the effect of research-quality signal is dampened if the content of research is unexpected. This supports Hypothesis 2d. Model 8 includes both significant interaction terms (i.e., in relation to Hypotheses 2 and 2d). Both effects remain significant and the overall estimate results in increases from 50.0% in the control-only models (Model 1) to 60.4% (Model 8).
### Table 17 Impact of Research Quality Signal on Press Mentions and the Moderating effect of Public Resonance

<table>
<thead>
<tr>
<th>MODELS</th>
<th>Variables</th>
<th>Model1 OLS</th>
<th>Model2 OLS</th>
<th>Model3 OLS</th>
<th>Model4 OLS</th>
<th>Model5 OLS</th>
<th>Model6 OLS</th>
<th>Model7 OLS</th>
<th>Model8 OLS</th>
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<td>Tenure</td>
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<td>0.00436</td>
<td>0.00452</td>
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<td>0.00467</td>
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<td></td>
<td>Number of Press Wires</td>
<td>0.801***</td>
<td>0.795***</td>
<td>0.691***</td>
<td>0.660***</td>
<td>0.691***</td>
<td>0.693***</td>
<td>0.686***</td>
<td>0.653***</td>
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<td></td>
<td>Media friendly</td>
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<td>0.0526</td>
<td>0.0696</td>
<td>0.0680</td>
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<td>0.0699</td>
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<td>Prior Media Coverage</td>
<td>0.162***</td>
<td>0.157***</td>
<td>0.123***</td>
<td>0.118***</td>
<td>0.125***</td>
<td>0.122***</td>
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<td>-0.157***</td>
<td>-0.0985**</td>
<td>-0.0839**</td>
<td>-0.109**</td>
<td>-0.0981**</td>
<td>-0.0838**</td>
<td>-0.0680*</td>
</tr>
<tr>
<td></td>
<td>Number of Contracts from Industry</td>
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<td>-0.000377</td>
<td>-0.00212</td>
<td>-0.000992</td>
<td>0.000634</td>
<td>-0.000298</td>
<td>-0.00202</td>
<td>-0.00289</td>
</tr>
<tr>
<td></td>
<td>Number of Contracts from Government and Charities</td>
<td>0.0458***</td>
<td>0.0464***</td>
<td>0.0382**</td>
<td>0.0428***</td>
<td>0.0402**</td>
<td>0.0376**</td>
<td>0.0420**</td>
<td>0.0469***</td>
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</tr>
<tr>
<td></td>
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<td>0.109*</td>
<td>0.207**</td>
<td>-0.543**</td>
<td>-0.390*</td>
<td>0.314</td>
<td>1.258***</td>
<td>0.510</td>
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<tr>
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<td>Contribution Relevance</td>
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<td>0.198**</td>
<td>0.198**</td>
<td>0.188**</td>
<td>0.410***</td>
<td>0.427***</td>
<td>0.269**</td>
<td>0.269**</td>
</tr>
<tr>
<td></td>
<td>Resonance: Unexpectedness of research</td>
<td>0.0734</td>
<td>-0.0925**</td>
<td>0.0698</td>
<td>0.0736</td>
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<td>-0.101**</td>
<td>-0.101**</td>
<td>-0.101**</td>
</tr>
<tr>
<td></td>
<td>Resonance: Contribution Relevance</td>
<td>0.403***</td>
<td>0.415***</td>
<td>0.270***</td>
<td>0.402***</td>
<td>0.391***</td>
<td>0.404***</td>
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<td>Resonance: Clarity of title</td>
<td>0.128</td>
<td>0.128</td>
<td>0.124</td>
<td>0.150*</td>
<td>0.134</td>
<td>0.134</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Resonance: Clarity of content</td>
<td>0.333***</td>
<td>0.0810</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.347***</td>
</tr>
<tr>
<td></td>
<td>Research Quality Signal x Contribution Relevance (H2a)</td>
<td>0.232**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.0880</td>
</tr>
<tr>
<td></td>
<td>Research Quality Signal x Clarity of title (H2b)</td>
<td>-0.0424</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Research Quality Signal x Clarity of content (H2c)</td>
<td>0.570</td>
<td>0.449</td>
<td>-1.469***</td>
<td>-1.204**</td>
<td>-1.105**</td>
<td>-1.524***</td>
<td>-2.038***</td>
<td>-1.780***</td>
</tr>
<tr>
<td></td>
<td>Constant</td>
<td>0.500</td>
<td>0.502</td>
<td>0.575</td>
<td>0.587</td>
<td>0.579</td>
<td>0.575</td>
<td>0.591</td>
<td>0.604</td>
</tr>
</tbody>
</table>

Year Dummy; Field Dummy Included

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1
4.1 Additional Analysis

The above analyses were performed with a dependent variable with a log transformation to reduce skewness. To assess the potential impact of this choice, I further tested the robustness of the main findings by using alternate specifications of dependent variables. Table 18 below shows the results of additional analysis. First, I replicated the results of Model 8 in Model 9 using a probit model, with press mentions measured as a binary variable (1 if press release is selected by one or more media outlets, 0 otherwise). Most of the results are consistent with the general empirical patterns in Model 8 (‘Resonance: clarity of content’ has no effect in Model 8, but is positive and significant in predicting outcomes in Model 9).

Second, I ran a negative binomial model in Model 10 to check the consistency of the results by using an untransformed count dependent variable. Poisson Model is also used to analyse the untransformed count dependent variable; however, the assumption of this model is that the mean and variance of the variable should be the same (alpha=0). However, alpha is not equal to 0 in the analysis results. Thus, I use negative binomial Model instead of Poisson Model for the robustness check. The results in Model 10 show that ‘Resonance: clarity of content’ and ‘Research Quality Signal’ both became positive and significant, but the interaction terms confirmed the pattern in Model 8.

In addition, I used three alternative specifications of the main independent variable to check the robustness of the findings. First, in Model 11, I narrowed down the indication of what a good-quality journal is by only including the top 0.5 percentile\(^\text{23}\) compared to all science publications in ISI Web of Science in the focal year. Second, I expanded the indication of a good-quality journal in Model 12 by including instead the top 2 percentile\(^\text{24}\) in

\(^{23}\)The lowest Impact Factor of top 0.5 percentile is 15.236 in 2000 and 21.147 in 2013. The top 0.5 percentile of journals represents 40% of the paper-related press releases in this dataset.

\(^{24}\)The lowest Impact Factor of top 2 percentile is 7.082 in 2000 and 10.266 in 2013. The top 2 percentile of journals represents 66% of the paper-related press releases in this dataset.
Table 18 Additional Analysis: Impact of Research Quality Signal on Press Mentions and the Moderating effect of Public Resonance

<table>
<thead>
<tr>
<th>Models</th>
<th>Model 8 OLS (Original)</th>
<th>Model 9 Probit</th>
<th>Model 10 Negative Binomial</th>
<th>Model 11 Top 0.5%</th>
<th>Model 12 Top 2%</th>
<th>Model 13 Journal IF</th>
</tr>
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<tbody>
<tr>
<td>Variables</td>
<td>H2a, H2d</td>
<td>H2a, H2d</td>
<td>H2a, H2d</td>
<td>H2a, H2d</td>
<td>H2a, H2d</td>
<td>H2a, H2d</td>
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<td>Tenure</td>
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<td>0.0175***</td>
<td>0.00774</td>
<td>0.005003</td>
<td>0.00424</td>
<td>0.00463</td>
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<tr>
<td>(0.00378)</td>
<td>(0.00603)</td>
<td>(0.00755)</td>
<td>(0.00383)</td>
<td>(0.00372)</td>
<td>(0.00397)</td>
<td></td>
</tr>
<tr>
<td>Number of Press Wires</td>
<td>0.653***</td>
<td>1.244***</td>
<td>0.995***</td>
<td>0.672***</td>
<td>0.690***</td>
<td>0.671***</td>
</tr>
<tr>
<td>(0.0681)</td>
<td>(0.156)</td>
<td>(0.0913)</td>
<td>(0.0839)</td>
<td>(0.0732)</td>
<td>(0.0826)</td>
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</tr>
<tr>
<td>Media friendly</td>
<td>0.0905</td>
<td>-0.0775</td>
<td>0.175</td>
<td>0.0872</td>
<td>0.0723</td>
<td>0.0839</td>
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<td>(0.0647)</td>
<td>(0.133)</td>
<td>(0.136)</td>
<td>(0.0722)</td>
<td>(0.0649)</td>
<td>(0.0756)</td>
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<tr>
<td>Prior Media Coverage</td>
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<td>0.327***</td>
<td>0.252***</td>
<td>0.118***</td>
<td>0.134***</td>
<td>0.122***</td>
</tr>
<tr>
<td>(0.0296)</td>
<td>(0.0813)</td>
<td>(0.0832)</td>
<td>(0.0298)</td>
<td>(0.0325)</td>
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<td>Prior Academic Performance</td>
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<td>0.00417</td>
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<td>(0.00921)</td>
<td>(0.0329)</td>
<td>(0.0181)</td>
<td>(0.00995)</td>
<td>(0.0111)</td>
<td>(0.0117)</td>
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<td>Publication Narrowness</td>
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<td>-0.245</td>
<td>0.243</td>
<td>0.189</td>
<td>0.263</td>
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<tr>
<td>(0.306)</td>
<td>(0.723)</td>
<td>(0.792)</td>
<td>(0.330)</td>
<td>(0.387)</td>
<td>(0.356)</td>
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<td>Basicness of Research</td>
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<td>-0.269***</td>
<td>-0.0860**</td>
<td>-0.0717</td>
<td>-0.0850**</td>
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<td>(0.0325)</td>
<td>(0.123)</td>
<td>(0.0307)</td>
<td>(0.0259)</td>
<td>(0.0392)</td>
<td>(0.0346)</td>
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</tr>
<tr>
<td>Contracts from Industry</td>
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<td>-0.00532</td>
<td>0.00284</td>
<td>-0.00233</td>
<td>-0.00519</td>
<td>-0.00358</td>
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<td>(0.00437)</td>
<td>(0.0105)</td>
<td>(0.0117)</td>
<td>(0.00474)</td>
<td>(0.00569)</td>
<td>(0.00417)</td>
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<td>Contracts from Government and Charities</td>
<td>0.0469***</td>
<td>0.0879*</td>
<td>0.0578***</td>
<td>0.0451***</td>
<td>0.0464***</td>
<td>0.0492***</td>
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<tr>
<td>(0.0100)</td>
<td>(0.0493)</td>
<td>(0.0176)</td>
<td>(0.00939)</td>
<td>(0.0102)</td>
<td>(0.00834)</td>
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<td>0.0231</td>
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<td>(0.0363)</td>
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<td>(0.0708)</td>
<td>(0.0343)</td>
<td>(0.0321)</td>
<td>(0.0375)</td>
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<tr>
<td>Research Quality Signal</td>
<td><strong>0.510</strong></td>
<td><strong>1.309</strong></td>
<td><strong>1.326</strong>*</td>
<td><strong>0.599</strong></td>
<td><strong>0.670</strong></td>
<td><strong>0.0172</strong></td>
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<tr>
<td>(0.269)</td>
<td>(0.902)</td>
<td>(0.383)</td>
<td>(0.291)</td>
<td>(0.316)</td>
<td>(0.0113)</td>
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<tr>
<td>Resonance: Unexpectedness of research</td>
<td>0.427***</td>
<td>0.852***</td>
<td>0.981***</td>
<td>0.374***</td>
<td>0.473***</td>
<td>0.505***</td>
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<td>(0.0944)</td>
<td>(0.160)</td>
<td>(0.195)</td>
<td>(0.0925)</td>
<td>(0.109)</td>
<td>(0.120)</td>
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</tr>
<tr>
<td>Resonance: Contribution Relevance</td>
<td>-0.101**</td>
<td>-0.306*</td>
<td>-0.316**</td>
<td>-0.0438</td>
<td>-0.0734</td>
<td>-0.164**</td>
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<td>(0.0324)</td>
<td>(0.178)</td>
<td>(0.161)</td>
<td>(0.0468)</td>
<td>(0.0433)</td>
<td>(0.0628)</td>
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<tr>
<td>Resonance: Clarity of title</td>
<td>0.404***</td>
<td>0.776***</td>
<td>1.160***</td>
<td>0.382***</td>
<td>0.392***</td>
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<td>(0.0509)</td>
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<td>(0.0521)</td>
<td>(0.0581)</td>
<td>(0.0542)</td>
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<tr>
<td>Resonance: Clarity of content</td>
<td>0.134</td>
<td>0.359*</td>
<td>0.329*</td>
<td>0.128</td>
<td>0.127</td>
<td>0.122</td>
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<tr>
<td>(0.0756)</td>
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<td>(0.172)</td>
<td>(0.0697)</td>
<td>(0.0751)</td>
<td>(0.0735)</td>
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</tr>
<tr>
<td>Research Quality Signal x Contribution Relevance (H2a)</td>
<td><strong>0.347</strong></td>
<td><strong>0.745</strong></td>
<td><strong>0.490</strong></td>
<td><strong>0.241</strong></td>
<td><strong>0.173</strong></td>
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<td>(0.0080)</td>
<td>(0.208)</td>
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<td>(0.104)</td>
<td>(0.0433)</td>
<td>(0.00444)</td>
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<tr>
<td>Research Quality Signal x Clarity of content (H2c)</td>
<td><strong>0.263</strong></td>
<td><strong>0.263</strong></td>
<td><strong>0.263</strong></td>
<td><strong>0.263</strong></td>
<td><strong>0.263</strong></td>
<td><strong>0.263</strong></td>
</tr>
<tr>
<td>(0.0140)</td>
<td>(0.313)</td>
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<td>(0.152)</td>
<td>(0.145)</td>
<td>(0.00543)</td>
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<tr>
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<td>-5.277***</td>
<td>-1.605***</td>
<td>-1.765***</td>
<td>-1.632***</td>
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<tr>
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<td>(0.389)</td>
<td>(0.385)</td>
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<td>415</td>
<td>415</td>
<td>415</td>
<td>415</td>
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<tr>
<td>R-squared</td>
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<td>0.203</td>
<td>0.591</td>
<td>0.584</td>
<td>0.595</td>
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</table>
the focal year. Third, I used the raw journal impact factor score in Model 13 to check if the results would be specific to my choice to use a binary dependent variable. Although some coefficients of control variables have changed slightly and some estimated coefficients lost significance in these alternative specifications, all hypothesized results are consistent with the general empirical patterns in the main results.

4.2 Interpretation

To interpret these moderation effects, I derive plots 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 6A shows that for press releases with a high research-quality signal, a high level of contribution relevance increases the number of press mentions; whereas for press releases with a low research-quality signal, a high level of relevance of contribution does not affect the number of press mentions. Consistent with Hypothesis 2d, Figure 7A shows that at low research-quality signal, a high level of unexpectedness increases press mentions, whereas at high research-quality signal, high levels of unexpectedness do not affect the chances of more press mentions.

Figures 6B-6F interpret the results obtained with different estimation methods and all of them show similar patterns to Figure 6A (main results). Similarly, Figures 7B-7F interpret the results under different estimation methods, and all of them show similar patterns in comparison with Figure 7A (main results).
Figure 6A-6F Research Quality Signal and Press Mentions moderated by the Contribution Relevance

1A (Main result) 1B (Probit) 1C (Negative Binomial)

1D (Quality top0.5%) 1E (Quality top2%) 1F (Impact Factor)
Figure 7A-7F Research Quality Signal and Press Mentions moderated by the Unexpectedness of Research

2A (Main Result)  
2B (Probit)  
2C (Negative Binomial)  
2D (Quality top0.5%)  
2E (Quality top2%)  
2F (Journal Impact Factor)
5. DISCUSSION

The goal of this study was to explore the valuation of quality across multiple audiences. Specifically, I investigated the circumstances under which a quality signal from the focal audience is relevant for a secondary audience. I found that sending out press releases that describe findings in prestigious journals enhances media attention, and that the effect of journal prestige as a signal is stronger for research with greater contribution relevance, but weaker for research with unexpected findings.

These findings suggest that when determining the worth of a candidate, the secondary audience is influenced by the quality signal from the primary audience. Drawing on mechanisms from the audience-appreciation literature, I suggest that the effect of a focal audience’s opinion is contingent on different dimensions of valuation used by another audience. On the one hand, the study suggests that there is a complementarity effect between the research-quality signal (i.e., the quality signal used by the primary audience) and contribution relevance of the research (i.e., a criterion used by the secondary audience). That is, high levels of contribution relevance when valued by secondary audiences will give greater attention to the research if it signals high quality to the primary audience. On the other hand, this study suggests that there is a substitution effect between the research-quality signal and the unexpectedness of the research content, showing that high unexpectedness when valued by the secondary audience can help research with a low-quality signal to attract more attention from the secondary audiences. In this situation, the quality indicator used by the primary audience diminishes in importance in the valuation decisions of the secondary audience.

The analysis did not show support for the moderating role of the clarity of content and title in the relation between quality signal and press mentions. One explanation for this result may be that clarity alone cannot explain the values and concerns of secondary audiences who
look for more reliable information to judge value if the quality signal is low. The media prefers information that works as ‘a good story’ that includes consistency, vivid details and human interest in the content (Petkova et al., 2013). The clarity of content itself may show the consistency of the information, but it is not sufficient to explain that the research findings contain values appreciated by the audience.

To conclude, research quality provided by the focal audience can affect the selection by secondary audiences. However, research-quality signal itself does not have a very strong effect on the selection by a secondary audience; it is very strongly contingent on the two types of resonance. Contribution relevance has a complementary effect and unexpectedness of research has a substitution effect on research-quality signal in determining press mentions. The third dimension, clarity of contents, is not an effective alternative signal to help lower-quality research get noticed by journalists. In addition, half of the press releases are not picked up by the media. This implies that only sending out clearly written press releases may not be effective for getting selected and covered in the news. ‘Contribution relevance’ and ‘unexpectedness of research’ are more important in journalists’ consideration of press releases. In addition, although clarity of titles does not help lower-quality research gain more traction, the clarity of title itself has direct influence on the press mentions. This implies that the ‘clarity of title’ is also an important criterion to which a secondary audience (journalist) would pay attention, regardless of high or low research-quality signal provided by the primary audience.

5.1 Theoretical Contributions

Candidate and Audience. The findings suggest that secondary audiences with audience-specific concerns can appreciate candidate-specific signals issued by a primary audience. In the literature on audience appreciation, both candidate-specific and audience-specific factors are considered critical to audience appreciation. Studies have suggested that audiences
appreciate candidates when they show their embeddedness within the field and do not rely on external stakeholders (Cattani et al., 2014; Shymko & Roulet, 2016). Yet, different audiences use their own preferences to judge the candidates’ characteristics (Ertug et al., 2016; Kim & Jensen, 2014; Pontikes, 2012). These accounts imply that audiences look at either the candidate-specific features or audience-specific features as evaluators. However, more recent research suggests that audiences focus on the interplay between candidate-specific and audience-specific features (Fini et al., 2017; Giorgi & Weber, 2015). This study is in line with recent research that shows such an interplay between candidate-specific and audience-specific features and goes further in exploring when a signal spills across audiences.

**The Transfer of Quality Signal from Primary Audience to Secondary Audiences.** This study suggests that not only a high-quality signal but also a low-quality signal can receive attention from audiences. Prior research shows that signals are most important if it is difficult to evaluate the quality of a product or candidate, but the audience has to make a judgement (Jensen, 2003; Podolny, 1994; Sauder, Lynn & Podolny, 2012; Stuart et al., 1999). Although a quality signal could be interpreted simply as an efficient indicator for a primary audience, this interpretation fails to account for why low-quality candidates may receive much attention from secondary audiences, thus implying that the results cannot be explained by uncertainty reduction alone. Prior studies have shown that signals may affect multiple receivers (Stern & James, 2016) and signals work differently in different contexts with different audiences (Kim & Jensen, 2014). This study adds to this stream of research by examining when the signal from one audience is used by intermediaries for selection decisions by another audience. In this case, the quality signal is not taken equally by the secondary audience, and the way in which this valuation travels to the secondary audience depends on their specific concerns.
**Resonance.** The findings suggested that different forms of resonance with a second audience can weaken or strengthen the importance of quality signals used by the primary audience. Prior research shows that resonance is a fundamental mechanism for effectiveness of framing (Benford & Snow, 2000; Cornelissen & Werner, 2014). However, on the whole, resonance has been studied conceptually or at an aggregate level to explain audience valuation (Giorgi & Weber, 2016; McDonnell, 2014; Rindova et al., 2006). This study disentangled the concept of resonance, and empirically examined how different dimensions of the second audience’s concerns (public resonance), as well as its effects on the relevance of high- and low-level quality signals, affect the secondary audience’s valuations.

**Status and Valuation.** Although the main theoretical contributions are to valuation research, this study also has implications for status research. I found partial support for the Matthew effect in this study, and there is evidence to suggest that the rich get richer as the Matthew effect indicates (Merton, 1968b): namely, the high-quality signals from the primary audience are also received as recognitions in secondary audiences.

Yet, the poor might also get richer in some cases. As the study shows, lower-quality signals from one audience may yield high attention from a secondary audience. By examining the signal effects, this study complements recent work, not only on the advantages associated with status, but also the limit of such benefits (Bothner, Kim & Smith, 2012). This study responds to the call for more research on status that appeals to different domains of audiences (George et al., 2016), and seeks to explain why quality signals do not apply uniformly across different audiences.
5.2 Managerial Implications

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 et al., 2013). The media are also important for the dissemination of research findings in society, enabling academics to make an impact (Summ & Volpers, 2016). Scientists are expected to disseminate scientific advancements and increase the public value of scientific knowledge (McNie, Parris & Sarewitz, 2016). This study provides an understanding of how academics attract media attention related to their journal publications by sending out press releases.

The use of quality signals issued by a primary audience and used by a secondary one has important managerial implications. Being highly valued by a primary audience does not necessary generate the same value for the secondary audience. Highly valued characteristics are not taken equally by the second audience, which also has its own valuation criteria. Contribution relevance is more beneficial to research findings with high impact. Findings published in low-impact journals still garner attention from secondary audiences, as unexpectedness can compensate for lower research quality. Noting that the effectiveness of signals may vary depending on the specific criteria of a second audience, I suggest it is important for individuals to carefully match their quality signal to different dimensions of resonance for a second audience. Therefore, I recommend that academics highlight the relevance of their research to the public when the research is published in a high-impact journal. If the research is published in a lower-impact journal, academics can work with press offices to emphasize the unexpected elements of their research.

By showing the interplay of quality signal and public resonance in journalists’ valuations, this study provides practical implications not only for academics seeking media attention but also for those individuals or organisations using quality signals in their own field to seek media coverage. Although the academic environment in many respects is unique,
the study could be informative for other individuals in other contexts who want to attract greater attention. In addition, the findings may also apply to organisations or individuals turning to new audiences for resources—e.g., universities developing resources with the public—that secondary audiences may evaluate differently. As the arguments and findings suggest, to be evaluated by the secondary audience, it would also be important to consider the concerns and preferences of that audience. If secondary audiences value certain attributes, a quality signal may be less important for the new audience that is targeted when diversifying activities. In addition, if the secondary audience were more concerned about a quality signal in certain circumstances, organisations or individuals would also need to be mindful that it is even more important to signal high quality in their dealings with them.
CHAPTER 4: PATHWAYS TO BECOMING A CELEBRITY ACADEMIC:
CONTRASTING THE EFFECTS OF DISCOVERY AND MANUFACTURE

1. INTRODUCTION

How individuals achieve recognition from external audiences is a central discussion in the celebrity literature (Rindova et al., 2006). Researchers examining various outcomes of celebrity status, ranging from individual compensation (Hayward, Rindova & Pollock, 2004; Graffin, Wade, Porac & McNamee, 2008), discretion and accountability (Ranft, Ferris & Perryman, 2007) and management dismissal (Park et al., 2014) to broader influence on stock markets (Pfarrer et al., 2010), consumer choices (Derdenger, Li, Srinivasan, 2018) and knowledge creation in certain fields (Kang & Lee, 2016), have shown that celebrity status is likely to attract greater privileges (Kurzman et al., 2007). This body of research has advanced our understanding of the consequences of celebrity status, yet it suffers from two main shortcomings.

First, most of this research has operated under the assumption that individuals have an aggregate celebrity status for predicting outcomes. However, recent research into celebrity CEOs has shown that different types of celebrity cause different behaviours (Lovelace et al., 2018). This development allows for the possibility that even when individuals have built a positive public profile, the outcomes from such celebrity status may not be uniform and may depend on the type of attention they build. Second, little attention has been given to the determinants of celebrity status beyond the discussion of CEO celebrity (Hayward et al., 2004; Lovelace et al., 2018). CEOs are an ideal tool for journalists to promote their firms; however, many individuals build up singular celebrity status that is very different from the CEO’s context.

In broader studies of celebrity status, prior research highlights conflicting views of who celebrities are (Driessens, 2013; Gamson, 1994; Hackley & Hackley, 2015; Rindova et
al., 2006). One perspective contends that celebrities are individuals with real talent that helped them achieve fame with an identifiable quality and performance underlying their celebrity status. Therefore, celebrity is accumulated media visibility and well-knownness of an individual (Driessens, 2013). The other perspective emphasizes that celebrities are often individuals who attract attention not necessarily based on real achievements, whose fame is artificially made (Boorstin, 1992; Gamson, 1994; Kurzman et al., 2007; McCracken, 1989). Individuals can actively pursue the use of ‘publicity machines’ to promote themselves or take unusual actions (Rindova et al., 2006; Treadway, Adams, Ranft & Ferris, 2009) to attract media attention, without substantial achievements. In other words, whether celebrities tend to be ‘discovered’ based on merit or ‘manufactured’ based on active efforts to generate publicity remains ambiguous.

Therefore, in this study, I address the notion of celebrity status and how individuals achieve it by different pathways: discovery or manufacture. I start the theoretical development by distinguishing two types of celebrity status in the context of academia: frequent coverage of academics’ own research in the media (i.e., where there is an evident link between research coverage and a specific piece of research); and frequent commentary by academics on relevant topics related to their research or society (i.e., where media attention is less directly related to a specific research output). I then extend my theory by considering how one’s prior media track record matters for achieving research coverage and public commentary, to reveal how the pathways for these two types of academic celebrity differ. I will argue that a certain type of academic celebrity status can be ‘manufactured’, whilst other types are ‘discovered’. The relative dominance of these two pathways depends on the type of celebrity status.

I use data on academics and their media coverage to analyse the relative roles of the manufacture and discovery pathways in making celebrities. The context of academics seeking
media attention is perfectly suited to differentiating the two types of celebrity status. News coverage of research is achievement-based because the news content relates to a certain extent to the academic’s research achievements, while news commentary is non-achievement based. For example, the attractiveness of celebrity artists is often related to their combined substance (i.e., talents, attributes, achievements) along with the creation of style (i.e., appearance, voice), which appeal to the taste of audiences (Kotler, Hamlin & Stoller, 2006). Thus, it is difficult to distinguish between the discovered and the manufactured parts of their celebrity status. However, in the context of academics, I can capture the ‘discovery’ mechanism by measuring their quality of research publications and the ‘manufacture’ mechanism by collecting information on academics’ active pushing for media attention (i.e., press releases and writing to the press). In sum, I can separately measure the antecedents of achieving celebrity status and their types.

To analyse the above questions, I collected data from three sources: academic’s news coverage, press releases and individual archival data in a major research-intensive university. I linked the news coverage and press releases by academic’s name, time published, and title similarities between specific news coverage and press releases. Subsequently, the final dataset was anonymised by encrypted identifier to match the news/press releases and individual archival data. I also conducted 20 exploratory interviews with academics, media staff and journalists to get a contextual understanding of the pathways and types of media attention. The two types of media coverage—research and commentary—that feed into celebrity status emerged from the interviews. I took a dictionary-based content-analysis approach to coding each news article as ‘research’ or ‘commentary’ and measured the two types.

The findings show that academics can achieve ‘research’ celebrity status through ‘discovery’ by the media, based on the quality of their research; whereas the ‘manufactured’
pathway is more important for achieving ‘commentary’ celebrity status. Academics have difficulty switching from one type of media attention to the other; as a result, only academics who demonstrate leading academic performance and actively push for media attention can become true ‘celebrity academics’ and achieve both high research coverage and commentary status in the media.

2. THEORY AND HYPOTHESES

2.1 Research Context

Scientists today 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). This broad communication remit has become part of the professional role of the scientist (Peters, 2013), who is expected to take an active role in stimulating media coverage and showcasing research findings to the public. At the same time, journalists may actively approach scientists and ask them to comment on relevant issues, because they are seen as public experts.

On the one hand, academics can appear in the media from the point of view of a focus on science (Bucchi & Trench, 2014). They appear in news articles in the role of ‘researchers’ by disseminating their research findings, research projects and achievements to the public. One academic interviewee (Physics) said, ‘I think it is because the paper I’ve written on the subject, which is well-known, so people naturally approach [you] and talk about this.’

The excellence of research findings often captures journalists’ attention since scientific achievements are worth reporting. An external journalist interviewee (specialist outlet) focusing on reporting scientific advancement mentioned, ‘I’m mostly writing news, for me, when some results have been released, discoveries being made, research being published, it’s very likely to be covered because it’s something very important’.
In addition to the excellence of specific research findings, their overall reputation also increases academics’ chances of being approached. Journalists discover academics by their research excellence in academia, as illustrated by the following quote about the recognition of academic expertise from a journalist interviewee (general outlet):

*I would expect they have very high quality. Generally, I only talk to professors at really good universities and I would hope they have published in the area [I’m looking for]. Then I think generally people’s reputation [matters]. You know I mix a lot with scientists. So I also trust people. If I chat with someone [in a relevant organization in the field who can refer me] and I say well I’m looking for a really good nanoscientist, then I will expect them to give me a good one, someone who is a professor at a good university or someone with a major research.*

The visibility of academics in the media can naturally come from their reputation in academia. Another academic interviewee (Physics) confirmed that the journalist contacted him due to his past research excellence by saying, ‘Journalists will talk to whoever they know, those people will mention who they can talk to and so if you have a strong reputation in the community, your name will get mentioned and they will contact you’.

The concept of research excellence mentioned by different interviewees mostly refers to overall reputation of academics in certain fields. Therefore, ‘research excellence’ is about the signal that the citations of an academic’s volume work (3-years of citations of all an academic’s publications) send, which is about the quality of their body of research.

On the other hand, academics appear in the media from the point of view of media focus by acting as ‘commentators’ on relevant issues, for different reasons—for example, they are willing to talk to the media, and they work on topics of public interest. In this case, academics’ achievements in academia are less important in determining whether they appear in the media. One academic interviewee (Life Sciences) mentioned, ‘I know one scientist
who is working on [the research area] and gained huge media attention even though she doesn’t publish in journals. She has a very high media profile even though she doesn’t publish well’.

Additionally, good relationships with the media often provide academics with more chances to comment, and journalists are more likely to approach academics who have already appeared in the news, as one media officer (Head of Research) explained, ‘Some people just end up being approached again and again, the more they do stuff, the more different journalists will be aware that they are the person to talk to’.

In sum, academics become popular in the media on the basis of their achievements in science or other efforts they make to get journalists’ attention. The academic context shows the different types of attention attracted by academics exposed to the media. In the next section, I explore the phenomenon of ‘public attention’ in celebrity studies from management and marketing perspectives.

2.2 Celebrity Status

Scholars in management have defined celebrity status as individuals who attract ‘high levels of public attention and positive emotional response’ (Rindova et al., 2006). Previous studies have taken the concept of celebrity status as a determining factor in predicting individual or organisational outcomes. From a marketing perspective, the concept of celebrity is often studied by researching celebrity endorsement, where the individual’s celebrity status is presumed, and the advertising and financial effects can be examined (Bergkvist & Zhou, 2016; Knoll & Matthes, 2017). From an organisational perspective, CEOs who achieve celebrity status have the potential to increase their discretion while decreasing their accountability (Ranft et al., 2007) and their likelihood of dismissal, even in the face of poor firm performance (Park et al., 2014). Celebrity CEOs can help to create investor confidence
through optimistic forecasts (Wade et al., 2006) and translate their referent power into benefit for firms or stakeholders (Treadway et al., 2009).

These studies viewed celebrity status as an aggregate concept in explaining outcomes, without further exploring how individuals achieve celebrity status. However, recent research has shown that celebrity status may not be a monotype, as celebrity style may differ according to the stages of their organisations (Lovelace et al., 2018). In this study, CEOs can build up their celebrity type by creating new opportunities that other CEOs cannot in the organisation’s founding stage. In the growth/mature stage of the organisation, CEOs take new strategic actions to avoid future problems or to challenge industry norms associated with different types of celebrity status. For example, CEOs can achieve celebrity status by rescuing a company from failure. This development offers the chance to explore different types of attention that accompanies achieving celebrity status.

Although the types of celebrity status are related to CEO behaviours and a firm’s life cycle, they imply that the CEO possesses underlying abilities to achieve (Lovelace et al., 2018). In addition, besides the CEO’s achievements, self-promotion (such as eagerness to be interviewed or mentioned in press releases) is also likely to increase chances of becoming a celebrity (Lovelace et al., 2018). Companies with high levels of advertising expenditures often use their CEO as a spokesman, thus increasing his/her celebrity status (Treadway et al., 2009), and CEOs create their celebrity status primarily by using corporate advertising to promote themselves (Sinha, Inkson & Barker, 2012). Therefore, CEO celebrity type comes from not only real achievements but also active promotion of their actions, with the two types potentially coming from different determinants. In a broader context, individuals achieving celebrity status also capture different types of attention. I explore different achievement-based and non-achievement-based celebrity status and the determinants of each type in this study.
First, attention is generated by an individual’s excellence in talent, quality and ability to achieve certain things, which is defined as achieved celebrity (Rojek, 2001). Organisational studies describe CEOs that achieve celebrity status through distinctive and consistent actions that differentiate them from those at other firms or their predecessors (Hayward et al., 2004). CEOs are often praised for actions that lead to the success of the firm. In marketing studies, talent is one of the factors in predicting celebrity authenticity (Moulard, Garrity & Rice, 2015), which implies the real, genuine and true fame or the advanced ability to manufacture it. Artists build up their celebrity status using their talents in a specific field. Similarly, academics are likely to be in the media based on excellent research achievements, and their celebrity status may come from outstanding scientific achievements and their engagement with the public sphere (Kang & Lee, 2016).

Second, attention comes from the prearranged and carefully chosen information in the process of mass communication, leading to the possibility that celebrities are only ‘known for their well-knownness’ (Boorstin, 1992). Thus, individuals may obtain celebrity status without substantial achievements, which is defined as attributed celebrity (Rojek, 2001). Organisational studies show that CEOs can achieve celebrity status by taking deviant actions. While not based on a real achievement, the unusual action itself provides a good story for journalists’ dramatised narratives (Treadway et al., 2009). In the context of entertainment, celebrity status can be crafted without any requirement for real underlying talent, and in certain circumstances, ordinary people can become famous without real achievement, but only a desire for fame (Gountas, Gountas, Reeves & Moran, 2012). Similarly, the media may also cover academics without requiring research excellence. In these instances, individuals appear in the media by commenting on topics that align with their interests, but without necessarily being particularly well known for their scientific excellence.
Therefore, celebrity status may be multidimensional because individuals appearing in the media can attract different types of attention. Although prior studies have provided some understanding of different types of CEO celebrity in the media, they have not empirically examined the question. In addition, the context of academics is quite different. Unlike the types of celebrities studied in prior contexts, who are not easily accessible, academics are generally more approachable. In organisational contexts, CEOs achieve celebrity status when journalists ignore situational factors and cultural or other relevant information, attributing firm performance to the CEO’s own actions. While a CEO can be considered the best person to speak about a specific firm, many academics work in the same areas, and it is not clear how journalists choose to whom they will speak on some topics, or who can achieve celebrity status. Journalists identify academics based on their research rather than external factors. It is ideal to measure achievement and non-achievement based on celebrity status in this context, because academics’ achievements are also appreciated by the media. I extend the study of celebrity status from organisation and marketing studies to the context of academia by exploring two different types of celebrity status, achievement-based (research) and non-achievement based (commentary), as well as the pathways to celebrity status, by asking the question: ‘Through what pathways—discovery by excellence in research or manufacture by active efforts to push for attention—do academics become celebrities in the media’?

2.3 Prior Track Record

To a certain extent, individual celebrity status is connected to past actions. The two types of celebrity status in an academic context—research or commentary—are often related to the individual’s personal history of engagement with the media. An individual may receive news coverage by these two routes, one of which is based on a research track and willingness to disseminate research results. For example, some researchers appear in the news because of their involvement in research projects and findings, and their scientific achievements bring
these academics more media coverage in their fields. Within this news coverage, they are less likely to appear as ‘commentators’ on general topics. The other option is the commentary track, where the individual is frequently interviewed by the popular news media. Some researchers appear in the news on this track by commenting on many topics that are society driven, but the coverage is less likely related to their own research findings or research-driven events. Because the two types of media attention to past choices relate to an academic’s intention to engage with the media at all and prior interactions in the media, I argue that a strong track record in research-related media attention makes it more difficult for academics to become commentary-based celebrities, and vice versa.

Academics with a research media-attention track record are more likely to continue the same role in research dissemination. First, these academics are more likely to engage with the media in research-relevant events because they prefer to act in an ‘information-delivery’ role by informing the public of the advancement of scientific knowledge (Secko, Amend & Friday, 2013). They emphasize this rather than other dimensions, and are less willing to speak about things unrelated to research. They therefore prefer to be ‘researchers’ in the media. Second, because less news coverage relates to research projects than to those researchers appearing as expert sources commenting on different topics (Wien, 2014), academics who focus on researcher’s roles are more likely to have relatively limited prior interactions with journalists. They are less likely to become commentators because they have not built up the experience of working with journalists or the media.

By contrast, academics with a prior commentary track record are more likely to keep their ‘commentator’ roles. First, these academics perceive that knowledge outside of science advancement is more important (Secko et al., 2013), so they engage with the public by speaking on wider topics. Second, journalists tend to contact researchers who have been quoted by other journalists or with whom they have previously spoken (Wien, 2014).
Therefore, academics with a prior commentary track record are more visible in the media; journalists notice the academic and are more likely to come back to the same academic from time to time. These academics are less likely to switch back to research-oriented exposure, because research findings are not what they have used in the past to present themselves in the media.

In sum, academics have some resource constraints, such as time and connections; thus, it is difficult for people to switch from one pathway to the other. Due to the path-dependent nature of the attention accumulated in achieving celebrity status, academics with research-oriented media-attention track records will more likely reach research celebrity status. Likewise, academics with an orientation toward commentary-based media attention will more likely become commentary celebrities. I predict that academics who accumulate a certain type of experience have greater difficulty in becoming a celebrity in the other type at a later point in time. Therefore, I propose the following hypotheses:

\[ H1: \text{Academics with a commentary-oriented media-attention track record will be less likely to achieve research-celebrity status.} \]

\[ H2: \text{Academics with a research-oriented media-attention track record will be less likely to achieve commentator-celebrity status.} \]

Taking the prior media track record into account only leads to the prediction of two types of celebrity status. Additional complexity in achieving celebrity status is due to differences in the ways people acquire it on these two tracks. In what follows, I will argue that the pathways for gaining research and commentary celebrity status are different: one is ‘discovered’ relating to the academic’s media coverage, through the ‘discovery’ of their research excellence by journalists; the other is ‘manufactured’, which is about actively pushing out calls for media attention to ‘manufacture’ their presence in the media. I will explain the two pathways in the next section.
2.4 Pathways to Celebrity Status

Celebrity status can be achieved by being ‘discovered’ by the media due to quality, talent and previous successful achievements. From a marketing perspective, high-achieving individuals can claim their fame with substance instead of being known for their ‘knownness’ (Hackley & Hackley, 2015). An individual’s personality, style, ability to resonate with the audience, and attractiveness in the audience's view are important criteria for earning media attention. In organisation studies, journalists seek evidence of consistent behaviour that suggests the celebrity CEO will demonstrate extreme performance and use the same tactics, regardless of the organisational setting (Hayward et al., 2004). Consistency of behaviour signals the potential personal importance of the CEO to successful firm performance, rather than other firm factors. These consistent actions imply that these CEOs possess some appeal and achievements around which journalists can build their stories (Lovelace et al., 2018). The achievements are often broadcast in the media because the public expects stories about human efficacy (Hayward et al., 2004).

Although achievement might attract media attention, it must be accompanied by prearranged information to increase journalists’ attention. So, the alternative pathway is ‘manufacture’, whereby an individual’s appearances in the media result from actively pushing for attention. From a marketing perspective, prior studies on celebrity status focus on the combination of praise of achievements and the selection of information to create a ‘persona’ (Adler & Adler, 1989; Kotler et al., 2006; Marshall, 2014; McCracken, 1989). Summers & Morgan (2008) have studied the context of sporting celebrity, suggesting the importance of PR professionals taking proactive actions to shape their sporting celebrity. In organisational contexts, CEOs with high levels of advertising expenditures and publicity machines are more likely to increase their celebrity status (Sinha et al., 2012; Treadway et al., 2009). In broader media-attention studies, press releases are often used as a tool for publicity.
To attract journalists’ attention, diverse information on an individual’s activities, leadership and culture is likely to increase the opportunities for journalists to cover in their news (Rindova et al., 2006). Petkova et al. (2013) have studied the use of different communication activities to attract specialized or general media attention to new firms, emphasising the role of an ‘active push’ for media attention.

In sum, there are two pathways for individuals to achieve celebrity status. One is ‘discovery’ by research achievement and the other is ‘manufacture’ by active push for attention. Now I take the different types of celebrity status—‘achievement’ and ‘non-achievement’—into consideration. On the one hand, individuals with real talent or achievements can reach authentic celebrity status by ‘discovery’ through the media; they are also likely to capture some attention by actively pushing out their achievements to the media. On the other hand, individuals who ‘manufacture’ their celebrity in the media, mostly by active attention-seeking, might occasionally have some achievements in the media. My claim is that building one type of celebrity status does not entirely disregard the other pathway and, although both pathways might affect celebrity status, I argue that one pathway is more valuable for building up one type of celebrity status than to build up the other. Therefore, I predict that real achievements can help individuals to be ‘discovered’ as celebrities, while ‘manufacture’ works better for individuals seeking celebrity status without substantial achievements. I explain the ‘discovery’ and ‘manufacture’ pathways along with ‘achievement’ and ‘non-achievement’ types of celebrity status in the context of academics below.

To obtain research-relevant coverage, academics involved in more research projects are likely to increase their chance of obtaining coverage of their research by the media. Academics publishing in high-impact journals are likely to be noticed by journalists because the advancements of knowledge are worth reporting. Academics building up research portfolios with high quality and quantity of publications can obtain wider recognition in the
academic community. Visibility in academia is likely to transfer to journalists when journalists explore the academic domain for research-relevant topics and new insights. Therefore, academics are likely to be ‘discovered’ because of their research excellence. Academics with good research quality will also push out press releases for their research findings, but this will only constitute a small part of media attention, because research-celebrity status is more likely to be obtained from broader research-relevant achievements, rather than dissemination of one piece of research. Thus, I posit that research excellence is the primary pathway for academics to achieve research-celebrity status.

H3: Discovery based on past research excellence is more strongly related to an academic’s research-celebrity status than past media attention-manufacturing efforts.

In addition, journalists also look for academics responding to socially relevant topics that focus on conveying general scientific knowledge rather than scientific advancement. When journalists look for potential academics to comment, based on their past appearances in the media, either directly speaking to journalists or being quoted in the news are the primary reasons that journalists approach certain academics (Wien, 2014). Thus, academics’ prior visibility in the media is very important for journalists. Individuals can increase their visibility by actively writing to the press, which increases journalist attention. In addition, press releases are the sources on which journalists rely because they have time pressures on them to report (Lewis, Williams & Franklin, 2008; McConway, 2016). Therefore, academics should increase their visibility by using press releases or writing to the press. Academics with more press releases or greater frequency of writing to the press increase their familiarity to the journalists, and are more likely to be remembered and contacted by journalists for later commenting opportunities. Academics with research excellence are also more likely to be ‘discovered’ by journalists to comment on other people’s research, but this only covers the ‘research commenting’ part, so it is less important for journalists in searching for
commentators. I posit that those pushing out efforts for media attention are more likely to ‘manufacture’ their space in the media than be ‘discovered’ for research excellence. Therefore, I hypothesize as follows:

**H4:** *Discovery based on past research excellence is less strongly related to an academic’s commentary-celebrity status than past media-attention manufacturing efforts.*

### 2.5 Research and Commentary Celebrity Status

I have argued that academic excellence is the major driver of research-celebrity status and media-attention manufacturing effort is the major driver of commentary-celebrity status. Yet, these arguments do not explain how academics achieve both commentary- and research-(overall) celebrity status. Given the prior prediction that it is difficult to switch from one type of celebrity status to the other, academics have to achieve both excellence in research and high levels of media-attention manufacturing effort to simultaneously achieve two types of celebrity status. Therefore, I hypothesise as follows:

**H5:** *Academics with a high level of both media-attention manufacturing efforts and research excellence will be more likely to achieve both commentary- and research-(overall) celebrity status*
3. DATA AND METHODS

3.1 Sample and Data Collection

The news-article dataset for this study was put together from the following resources. News articles were used for the dependent variables and news-related independent variables; press releases and journal publications were included for the two pathways, ‘manufacture’ and ‘discovery’; university archival data were obtained to account for individual related variables. I identified the linkage among different resources by the name of the academics, and the final dataset is anonymised with the linking done through an encrypted identifier. The combined dataset includes a sample of 6,405 ‘person-year pairs’ with 940 distinct academics active between 2001 and 2013. The built-up process of ‘person-year pairs’ was described in Chapter Two.

3.2 Characterizing News Articles as Research- or Commentary-Related

Types of News Article. In order to identify the major types of news articles, two coders read a random subsample of 500 news articles and discussed the types of articles before manual and automated coding. Two main types emerged from the articles—research and commentary—which also correspond with my exploratory interview results. The first concerns research-driven events, research-findings disseminations, research-project involvement and appointment to research-related positions. The second is commentary-driven and mostly comes from society-driven topics about which academics are sought for their insights. Below I introduce each stage of the coding processes.

In the first stage of the coding process, I manually classified the role of the protagonist as either a ‘research’ or a ‘commentary’ article. The articles are classified as ‘research’ if the content is related to research projects, findings, or events involving this academic/university or appointment of research-related positions. The articles are classified
as ‘commentary’ if the content is related to socially relevant events, where academics are contacted by the media directly for comments on issues related to their areas of expertise.

In the second stage, I looked into the articles that are not easily classified as either research or commentary. For example, a news article is driven by a research finding, but the role of the academic in focus may be to comment on other academics’ findings. Another exemplar of the research and commentary mixed case is if an academic’s research might be incorporated into an article that explains a phenomenon, but the article was written in a ‘commentary’ style. In both cases, the role of the academic as an expert commenting (research-findings dissemination) in a given news article may be different from the main theme of the news article, which may be research-findings dissemination (commentary article). In my dataset, unclear classifications occur when an academic appears as a researcher (commentator) in a commentary (research) context, which corresponds to Wien’s (2014) study of the role of researchers in news coverage. Therefore, I added an additional category as ‘both research and commentary’. According to the three categories, an inter-rater agreement of 91% was obtained and consensus was reached for the disagreement.

In the third stage, I checked the content and ensured the appropriate text extraction for later automation coding. While many mixed-case news articles were identified, the part of the content to be analysed emerged as an important issue. Because the purpose of this study is to look at the role of academics as researchers or commentators rather than at the types of news articles, a qualitative inspection of the articles revealed that in most cases, the role of the academic (the protagonist from the data-extraction perspective) in the news articles could be inferred from the first occurrence of the protagonists’ name in the article. Around this point, a substring of the news article was extracted starting up to 500 characters before the first occurrence and ending up to 500 characters after the first occurrence. If less than 500
characters was available before/after the first occurrence of the protagonist’s name, then less data was extracted for analysis.

In the fourth stage, I obtained a set of keywords for the research and commentary categories in preparation for later automation coding for each news article. As the major types of articles (research or commentary) can be defined, I used a supervised/dictionary\textsuperscript{25} approach to build the dictionary for these two types of articles. Based on the clearly differentiated research or commentary articles, I explored research-related keywords for research articles and commentary-related keywords for commentary articles. I cross-referenced keywords in the ‘research’ category with the ‘commentary’ articles, to see if those belonging to the ‘research’ category largely (>60%) appeared in research-related articles. I adopted that threshold because mutually exclusive keywords lead to fewer hits in each category. Table 19 presents the list of keywords I used in three categories.

\textsuperscript{25} The other approach is ‘Unsupervised’: it is used when the emerging categories are unclear through manual reading and a computer decides the categories of articles and which keywords to use.
### Table 19 Keywords of Research, Commentary, and others

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<th>Comment</th>
<th>Other</th>
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<td>school</td>
</tr>
<tr>
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<td>avoid</td>
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<tr>
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<td>graduat*</td>
</tr>
<tr>
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<td>masters</td>
</tr>
<tr>
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<td>claim</td>
<td>tutor</td>
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<td>confirm</td>
<td>teach</td>
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<td>consulta*</td>
<td>wife</td>
</tr>
<tr>
<td>estimat*</td>
<td>controvers*</td>
<td>husband</td>
</tr>
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<td>convinc*</td>
<td>Admissions</td>
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<td>Has shown</td>
<td>critic</td>
<td>educat*</td>
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</tr>
<tr>
<td>Have shown</td>
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<td>a.m</td>
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<td>generation</td>
<td>Saturday</td>
</tr>
<tr>
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<td>government</td>
<td>Sunday</td>
</tr>
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<td>harmful</td>
<td>January</td>
</tr>
<tr>
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<td>histor*</td>
<td>February</td>
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<td>march</td>
</tr>
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<td>June</td>
</tr>
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<td>problem</td>
<td>July</td>
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<td>question</td>
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<td>rare</td>
<td>September</td>
</tr>
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<td>recall</td>
<td>October</td>
</tr>
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<td>recommend</td>
<td>November</td>
</tr>
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<td>stress</td>
<td>December</td>
</tr>
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<td>scheme</td>
<td></td>
</tr>
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<td>Led by</td>
<td>suspect</td>
<td></td>
</tr>
<tr>
<td>Who led</td>
<td>told</td>
<td></td>
</tr>
<tr>
<td>tech</td>
<td>Worr*</td>
<td></td>
</tr>
<tr>
<td>laboratory</td>
<td>worse</td>
<td></td>
</tr>
</tbody>
</table>
In the fifth stage, I determined the best approach for applying keywords in each news article for automation coding, using a combination of raw and standardised keywords to define the type of article. I classified an article as ‘Research’ type if (a) these were only research keywords and no commentary keywords; or (b) there was a research standardisation score larger than 0, but a commentary standardisation score smaller than 0; or (c) the research standardisation score minus the commentary standardisation score was larger than 0.5. For the remaining articles where ‘research’ keywords did not outweigh ‘commentary’ at a certain level, I classified them as ‘both’ and counted 0.5 research and 0.5 commentary for each article.

I tried only using raw or standardised keyword counts to define the type of news articles, but the combination of both turned out to be the best approach. Using raw counts of research and commentary keywords led to too many ‘research’ articles, many of which were ‘commentary’ in human coding, because raw research keywords are greater than commentary keywords on average in each article, regardless of the types of articles. Then I used a standardised research and commentary score, rather than raw average keyword counts. For greater accuracy of type, I classified the news articles by the number of standardised research keywords larger than the standardised commentary keywords as ‘research’ (otherwise, commentary). However, using this method there would be more commentary articles than expected.

In the final stage, I checked the validity of the current automation method. First, I examined the validity of automation coding with manual coding. The manual coding of 500 news article contains 54% research articles, 26% commentary articles, 13% both research and

---

26 The average number of ‘research’ keywords was 3.54 words and 1.15 ‘commentary’ words.
27 Research standardization score = \(\frac{\text{Number of Research keywords} - \text{average number of R keywords}}{\text{standard deviation of research-related keywords}}\).
commentary\textsuperscript{28}, and 7% others\textsuperscript{29} with manual coding. Agreement of the 500 articles reached 85% between the automatic classification and the joint classification of the two researchers, suggesting a satisfactory performance of the algorithm. The automatic classification of 500 news articles contains 49% research articles, 27% commentary articles, 19% both research and commentary\textsuperscript{30}, and 5% others. With this approach, I can achieve a clear distinction between research and commentary articles, and the percentage that are research/commentary articles matches the original pattern in manual coding.

Second, in order to test the sample validity, the same keywords were applied to categorise a validation sample of 100 additional random news articles. It contained 52% research articles, 23% commentary articles, 20% both research and commentary, and 4% others. I found similar patterns of article type between the original 500 news articles and the additional 100 articles. The validity check of sample and keywords means that the 500 articles and keywords extracted are representative of overall news articles.

3.3 Measures

Dependent Variables

\textit{Research- or Commentary-Celebrity Status}. The celebrity literature defines celebrity as the combination of large-scale public attention and positive emotional responses (Rindova et al., 2006). To capture the overall effect of media coverage, prior research measures the total number of articles and the favourability of their content using the Janis-Fadner (JF) coefficient of imbalance (Pfarrer et al., 2010). In the present research, according to the steps mentioned in the prior section, each article is classified as research, commentary, or both (0.5 for each). I summed the number of research or commentary articles in the focal year and

\textsuperscript{28} I classified the article as ‘balanced’ when the number of research keywords was equal to the number of commentary keywords.

\textsuperscript{29} I found the smaller category and classified it as ‘others’ because it includes teaching, personal activities, and other school-related news, not related to commentary or research.

\textsuperscript{30} I classified the article as ‘balanced’ when the number of research keywords equalled the number of commentary keywords.
counted the number of news articles instead of the combination of content favourability in the particular scientific area, since it is unlikely to show negativity\(^{31}\) toward the academics when they are mentioned in relation to their research or commenting on some topics in the news.

**Overall Research- and Commentary-Celebrity Status** To capture both high research- and high commentary-celebrity status, I multiplied research and commentary articles in the focal year by the following calculation: 
\[
(R+1) (C+1)
\]
(R=number of research news articles; C= number of commentary news articles). I choose to multiply research- and commentary-celebrity status because that can capture both high values in research and commentary status, whereas summing up the two values can obtain high value by only capturing a single dimension of celebrity status, which is not the measure that I tried to capture in this study. However, simple multiplication of research- and commentary-celebrity status would exclude certain individuals with only research or commentary status, even when they obtain high celebrity status in a single dimension; thus I added 1 for each celebrity status in the calculation to capture high values in both research- and commentary-celebrity status.

I logged the three counted dependent variables (research-celebrity status, commentary-celebrity status and overall celebrity status) because a certain number of press releases attract singular news coverage and some high levels of coverage, which created a very skewed distribution of the variable.

**Independent Variables**

**Prior Research or Commentary Track Record.** To measure the prior research and commentary track record, I calculated it according to lifetime research or commentary news articles up to the focal year and used the following calculation\(^{32}\) 
\[
\frac{R^2}{(R+C)}-\frac{C^2}{(R+C)}
\]
(R=number of research news articles; C= number of commentary news articles).

---

\(^{31}\) When I verified the results within the 500 articles, less than 1% of the articles were related to negativity coverage. Only one professor committed a crime and it was reported in the news.

\(^{32}\) min: -258 (Strongly Commentary); max: 146 (Strongly Research)
The academic is more research oriented if the subtraction is positive (negative indicates commentary oriented). In the calculation of $\frac{R^2}{(R+C)}$ and $\frac{C^2}{(R+C)}$, I took the percentage and scale effect into consideration instead of including only the percentage effect ($\frac{R}{(R+C)}$ and $\frac{C}{(R+C)}$) because prior track record is characterised not only by the types of news coverage (percentage effect) but also the volume of news coverage.

**Research Excellence.** To measure the ‘discovery’ by the media of an academic’s excellence of research, I took the quantity and quality of the publications into account, because both of them constitute an academic’s prior research achievements. Thus, I measured the quality of lifetime publications up to the focal year. To obtain each publication’s quality, I calculated each publication’s subsequent three years’ citations from the published year onward. Then I summed up the three years’ citations for each publication and used log transformation of this variable.

**Media Attention Manufacturing Effect.** To measure the active push for media attention and ‘manufacture’ into media, I measured the ‘manufacture’ based on two types of events. The first is calculated as the number of internal press releases sent out by academics to the university’s press office. The second is the academic’s active push by writing to the press. I counted the number of times the academic’s name appeared in the author column and looked for phrases including ‘letter to editor’ and ‘letter’ appearing in news headlines or section headings in the Factiva news dataset. Then I summed the lifetime number of events from the two types up to the focal year (not inclusive), press releases and writing to the press.

**Research Excellence and Manufacturing Efforts.** To capture academics who excel in both pathways, I obtained the percentile for each observation on research excellence and media-attention manufacturing effort, respectively, comparing each to all other observations. Because research excellence and manufacturing are calculated by a different unit of measure, research excellence is a log transformation of citations, and manufacturing efforts is the
number of events. The difference in measurement units was solved by using the percentile of the research excellence and media-attention manufacturing effort. Also, by multiplying the percentile of the two, I captured both high values in research excellence and media-attention manufacturing efforts, while adding up the value would capture either high value in research excellence or media-attention manufacturing efforts. All variables are lagged variables and measured by lifetime effect excluding focal year.

Control Variables

**Focal Year Related Variables.** In this study, I explored the pathway effects (i.e., what they did in the past) so I controlled the things that happened in the focal year, which may attract more attention. To control the immediate push, I measure the *media-attention manufacturing efforts only in the focal year*. To account for the media attention caused by high-impact research in the focal year, I calculated the *relative research impact* in a measure that divided the research impact of all publications published in the focal year by the annual historical publications’ research impact in the preceding five years (score>1: higher impact in focal year). I used three-year citations to measure each publication’s research impact. Finally, I included the *number of press wires* distributed, interpreting that measure as the more press wires used in the focal year, the higher the chance of news outlets noticing the release.

**Media-Related Variables.** To control for the potential effect of relevant media-seeking efforts, I included a dummy variable *(onlist)* equal to 1 if the academic was on the list of this university’s media guide, showing willingness to reach out to the public. To account for broader attention-seeking efforts, I include four different types of attention-seeking activities,\(^{33}\) which academics actively disclose on their personal webpage. The four types are *public recognition, industry recognition, academic, and teaching activities*, and I took a lifetime measure by summing the number of activities up to the focal year for each type. In

---

\(^{33}\) Public = 2:Award 8: Fellowship 12: Membership of a professional body; Industry = 4: Commercial spinoff 7: External committee 10: Industrial connection; Academic = 6: Editorial board 11: Link with another academic body 3: Collaboration 13: Research Staff; teaching & training = 1: Academic Training Programme 5: Course/Module 9: Guest lecture 14: Research Student Supervision
addition, because the visibility of the academic might result from previous experiences with the media, I controlled for the amount of prior media coverage in major outlets\textsuperscript{14} up to the focal year, measuring the number mentioning the name of the focal academic. To account for the possibility that academics are likely to get more coverage for applied research, I obtained the basicness (appliedness) information for each journal publication from the Patent Board, which assigned each journal publication a research level (average of research level: 1=applied; 4=basic; based on Boyack et al., 2014). I calculated this measure by taking the average research level up to the focal year.

**Individual Related Variables.** Individual related variables are collected from the university’s HR record. To account for the possibility that academics involved in administration might have more opportunity to speak to the media, I included a dummy variable (administrative role) equal to 1 to indicate ‘head’ of department in the focal year in the official record. I controlled for tenure, since the duration of employment in a given institution may influence the likelihood of being approached, and recently hired academics may have a lower likelihood of being noticed by the media. To capture the likelihood of being approached, I used a measure to indicate full-time or part-time. Retirees and visiting or honorary researchers not fully employed at the university might have less likelihood of reaching the media. I controlled for academic rank, since a higher position may influence the likelihood of approach, and I also controlled for gender because male academics are more likely to be preferred when speaking about science (Niemi & Pitkänen, 2017). I included a department dummy variable to denote the field of each academic in the analysis.

3.4 Estimation Methods

To test the hypotheses, I focused on the two pathways (Discovery by research excellence and Manufacture by media-attention efforts), and two types (Research and Commentary) of

\textsuperscript{14} Factiva has a category for major news and business publication.
celebrity status. I compared the coefficients of research excellence and manufacturing efforts within the same model to identify the magnitude of the two pathways. I introduced the composite variable for research excellence and manufacturing efforts to analyse overall celebrity status. I used linear regression models as the main analyses because the dependent variables are logged-count variables. All equations were estimated, clustering the errors by year and individuals. Celebrity Status (amount of media coverage) has a different distribution across different years and individuals, which could introduce correlations in the error terms, for each observation at the same year and for multiple observations for the same individual. In addition, I used two alternative specifications of the main independent variable and removed some control variables to check the robustness of the findings.

4. RESULTS

Table 20 presents descriptive statistics and correlations. The level of correlation among the key variables is low. The high correlation between the variables for number of press wires and total media celebrity status (r=.61) was expected, given that the more press wires that cover press releases, the more likely it is that more media outlets mention the press release. The maximum variance inflation factor is less than 2, signalling that multicollinearity is not a problem in the analysis.
Table 20 Descriptive Statistics and Correlations (Study 2)

<table>
<thead>
<tr>
<th>Description</th>
<th>Mean</th>
<th>S.D.</th>
<th>Min</th>
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<td>Commentary celebrity status</td>
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<tr>
<td>Overall celebrity status</td>
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<td>0.89</td>
<td>0.693</td>
<td>8.269</td>
<td>0.879</td>
<td>0.839</td>
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<td>Prior R/C Track Record</td>
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<td>0.312</td>
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<td></td>
</tr>
<tr>
<td>Excellence &amp; Efforts</td>
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<td>0.996</td>
<td>0.234</td>
<td>0.167</td>
<td>0.241</td>
<td>0.224</td>
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<td>Number of wires at t</td>
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<td>0.469</td>
<td>0.612</td>
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<td>0.171</td>
<td>0.236</td>
<td>0.229</td>
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<tr>
<td>Relative Research impact at t</td>
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<td>125</td>
<td>0.072</td>
<td>0.042</td>
<td>0.065</td>
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<td>-0.078</td>
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<td>0.058</td>
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<td>1</td>
<td>0.053</td>
<td>0.077</td>
<td>0.069</td>
<td>-0.004</td>
<td>0.081</td>
<td>0.081</td>
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<td>0.047</td>
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<td>0.143</td>
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<td>0.085</td>
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</table>

113
Table 21 provides the results of my modelling. Model 1, Model 5, and Model 9 have control variables for three dependent variables (research, commentary and overall celebrity status). For events in the focal year, the number of manufacturing efforts and the number of wires are positive and significant across the three models. Relative research impact in the focal year is positive and significant for the two dependent variables (research and overall celebrity status), which means that higher-impact research in the focal year is related to both types of celebrity status except for commentary-celebrity status (no effect). Regarding the prior attention-seeking activities, public recognition is positive and significant for research- and overall celebrity status. Industry recognition is positive and significant for research-celebrity status, while academic activities are positive and significant for commentary-celebrity status. Volume of news coverage in major outlets, basicness/appliedness, and tenure are all significant across the three models. Administrative role is positive and significant for commentary-celebrity status.

In Models 2, 6, and 10, I first introduce the independent variable ‘prior track record’, finding that it is positively related to research-celebrity status and negatively related to commentary-celebrity status and overall celebrity status. In Model 3 and Model 7, I introduce the second independent variable (research excellence), showing that research excellence is positive and significant for research-celebrity status but has no effect on commentary-celebrity status.

In Models 4 and 8, I explore the effects of prior track record on research- and commentary-celebrity status, respectively. In Model 4, I test Hypothesis 1, which states that academics with a commentary-oriented media-attention track record will be less likely to achieve research-celebrity status. I find support for Hypothesis 1, since the coefficient of prior track record is positive and significant. One standard deviation increase in research-

35 Strongly Positive= Strongly Research ; Strongly Negative = Strongly Commentator
oriented media-attention track record from its mean value increases the outcomes variable (research-celebrity status) by 3.2%. In Model 8, I test Hypothesis 2, which states that academics with research-oriented media-attention track records will be less likely to achieve commentary-celebrity status, which indicates that one standard deviation increase in research-commentary-oriented media-attention track record from its mean value decreases the outcomes variable (research-celebrity status) by 8.1%. I find support for Hypothesis 2, since the coefficient of prior track record is negative and significant.

In Model 4 and Model 8, I also explore the effect on the pathways of ‘discovery’ and ‘manufacture’ for the two types of celebrity status, respectively. In Model 4, the effect of ‘discovery’ by research excellence shows a positive and statistically significant (p <.01) effect on research-celebrity status, which indicates that a 10-percent increase in research excellence (log lifetime citations) will increase the outcomes variable (research celebrity status) by 3.6%. I find no statistically significant effect of ‘manufacture’ by active pushing for media attention. This supports Hypothesis 3. In Model 8, I test Hypothesis 4, and the ‘manufacture’ by active pushing for media attention shows a positive and statistically significant (p <.05) effect on commentary-celebrity status. One standard deviation increase in manufacturing effort (number of press releases and writing to the press) increases the outcomes variable (commentary-celebrity status) by 1.7%. This effect appears small, however given that the variable is highly skewed (70% zeros, and a maximum of 33), a typical increase of 0 prior press releases to 4 (90th percentile) would be associated with an increase in commentary-celebrity status of 3.8%. I find no statistically significant effect of ‘discovery’ by research excellence. This supports Hypothesis 4.

In Model 11, I find that prior track record is negatively related to overall celebrity status, which indicates that one standard deviation increase in research-oriented media-attention track record from its mean value decreases the outcomes variable (overall celebrity

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status) by 4.5%. This shows support of commentary orientation is likely to result in overall celebrity status. Excellence and efforts are positive and significant for overall celebrity status, suggesting that both high academic excellence and manufacturing efforts are related to overall celebrity status: A one-standard-deviation increase in excellence and efforts from its mean value increases the likelihood of more overall celebrity status by 2.8%. This provides support for Hypothesis 5.

The estimation results rise from 43.1% (Model 1) to 43.7% (Model 4) in predicting research-celebrity status, and from 56.0% (Model 9) to 56.2% (Model 11) in predicting overall celebrity status after the independent variables are introduced. The effect size after adding the independent variables seems small; one possible explanation of the effect size is that many of the variances are captured by prior major media coverage and the number of wires used at the focal year, which are important media-related control variables. Overall, I can conclude that the hypotheses that link prior media track record, and compare the magnitude of the effects between manufacturing efforts and research excellence with different celebrity status, receive support in the analysis.
### Table 21 Regression Results of Celebrity Status

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<tbody>
<tr>
<td>Prior R/C Track Record (H1/H2)</td>
<td>0.00242*** 0.00144*** 0.00213***</td>
<td>-0.00534*** -0.00534*** -0.00528***</td>
<td>-0.00529*** -0.00529***</td>
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<tr>
<td>Number of wires at t (H3/H4)</td>
<td>0.0451*** 0.0454*** 0.0453*** 0.0455***</td>
<td>0.312*** 0.365*** 0.305*** 0.296***</td>
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<tr>
<td>Relative Research impact at t (H5)</td>
<td>0.00727*** 0.00739*** 0.00794*** 0.00759***</td>
<td>0.00192 0.00185 0.00186 0.00195</td>
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<tr>
<td>Media/Leslie</td>
<td>0.00217 (0.00209) 0.00194 (0.00200)</td>
<td>0.00123 (0.00122) 0.0142 (0.0146) 0.0136 (0.0146)</td>
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<tr>
<td>Public Recognition Activities</td>
<td>0.00070*** 0.00262*** 0.00546*** 0.00547***</td>
<td>0.00170 (0.00171) 0.00361*** 0.00357** 0.00017*** 0.00794*** 0.00769***</td>
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<tr>
<td>Industry Connection Activities</td>
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<tr>
<td>Academic Activities</td>
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<td>0.00215** 0.00165* 0.00164* 0.00175**</td>
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<td>Teaching Activities</td>
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<td>-0.00329 (0.00281) -0.00208 (0.00204) -0.00042 (0.00046)</td>
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<td>Prior Major Media Coverage</td>
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<td>Basicness</td>
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<td>-0.00525*** -0.00525*** -0.00525*** -0.00525***</td>
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<td>-0.006085 0.00457 0.00457 0.00457</td>
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Years, Department, Position, Part time/Full time; Dummies are included

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1
4.1 Additional Analyses

Table 22 provides the results of additional analyses. I used two methods to reduce the scale effect in the current measure of the research and commentary track record. First, in Model 1-3, I took the log transformation of the Research \(R^2/(R+C)\) and commentary track record \(C^2/(R+C)\) respectively, before subtracting the value. The original measure did not take the log transformation of the raw number, which might imply the results are caused by a larger scale of this variable. I find no effect on Hypothesis 1, and other hypotheses are all supported. Second, in order to control for the effects of extreme observations, those in my dataset, R/C track record larger than 100 or smaller than -100, have been omitted in Models 4-6. I find no effect on Hypothesis 4, and other hypotheses are all supported.

Because celebrity may be produced in a shorter time span by events that happened around the focal year, Models 7-9 show the results without controlling for relative research impact in focal year. Results show that while some coefficients have changed slightly and some control variables have lost significance in these alternative specifications, all hypothesized results are consistent with the general empirical patterns in the main results.

In order to observe the effects of pathways in predicting different outcomes, I compared the coefficients of research excellence and manufacturing efforts across research- and commentary-celebrity status in Models 10 and 11. In Model 10, I find the effect of research excellence is positive and significant, while it has no effect in Model 11. This indicates that research excellence helps research-celebrity status more than commentary-celebrity status, consistent with my prediction that research excellence underpins research-celebrity status rather than commentary-celebrity status. However, manufacturing efforts have no significant effect between research-celebrity and commentary-celebrity status in Models 10 and 11, which means that manufacturing efforts have no effect on research- or commentary-celebrity status.
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<th>Model 1 Research Celebrity</th>
<th>Model 2 Commentary Celebrity</th>
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<th>Model 7 Research Celebrity</th>
<th>Model 8 Commentary Celebrity</th>
<th>Model 9 Overall Celebrity</th>
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<th>Model 11 Commentary Celebrity</th>
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<td>(0.00834)</td>
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<td>0.0942**</td>
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<td>0.0859**</td>
<td>0.0904**</td>
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<td>0.01622</td>
<td>0.02252</td>
<td>0.02042</td>
<td>0.01632</td>
</tr>
<tr>
<td>Constant (H15)</td>
<td>0.336**</td>
<td>0.436**</td>
<td>1.304**</td>
<td>0.344**</td>
<td>0.492**</td>
<td>1.337**</td>
<td>0.365**</td>
<td>0.507**</td>
<td>1.352**</td>
<td>0.355**</td>
<td>0.504**</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.435</td>
<td>0.418</td>
<td>0.565</td>
<td>0.434</td>
<td>0.399</td>
<td>0.556</td>
<td>0.435</td>
<td>0.416</td>
<td>0.562</td>
<td>0.435</td>
<td>0.416</td>
</tr>
</tbody>
</table>

Year, Department, Position, Part time/Full time Dummies are included.
Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1.
5. DISCUSSION

This study set out to examine how individuals can achieve celebrity status (high level of public attention) through different pathways. I distinguished two different pathways—‘discovery’ by excellence in research or ‘manufacture’ by active pushing for media attention—and investigate how academics achieve different types of celebrity status through the two pathways.

The findings suggest that ‘research’ celebrity status (achievement based) tends to be discovered, based on the quality of academics’ research, rather than manufactured (Hypothesis 3); and ‘commentary’ celebrity status (non-achievement based) is more likely to be manufactured, based on the active push for media attention, rather than discovered (Hypothesis 4). The analysis did not show support of discovery by excellence in achieving ‘commentary’ celebrity status (non-achievement based), nor any effect of ‘manufacture’ by active pushing for media attention in reaching ‘research’ celebrity status (achievement based). These imply strong support for the specific pathway in determining one type of celebrity status and not the other.

In addition, I found that it is difficult to switch between ‘research’ and ‘commentary’ (Hypothesis 1 & 2), so academics with a research media track record are less likely to obtain commentary status, whereas those with a commentary media track record are less likely to achieve research celebrity status. This means achievement-based routes are more likely to continue to be covered, due to the academic’s achievements, instead of non-achievement stories. Similarly, non-achievement-based routes are less likely to switch to achievement-based, and more likely to continue to generate celebrity in the same way. It seems quite difficult for them to leverage the media attention they build up for one type to support the other type. Finally, I suggested that individuals must be both academically excellent and actively push for media attention to become celebrities with research coverage and public-
commentary experience (Hypothesis 5). In this case, a prior non-achievement-based route (commentary-oriented) is more likely to help academics in achieving both types.

A potential limitation of the study is that we only use ‘writing to the press’ and ‘sending out press releases’ as two types of events in ‘manufacture’ of media attention. Other types of active pushing for media attention—for example, attending many events or activities—are also likely to attract the media. In the analysis, public recognition, industry recognition, academic activities, and teaching activities have been added as control variables, as they are not of interest in understanding different types of attention-seeking activities. Furthermore, more recent attention-seeking tools, such as writing blogs and using social-media platforms, are not included in the analysis, as I studied celebrity status over the period 2001 to 2013, when social media was not an important tool in seeking media attention.

5.1 Theoretical Contributions

Empirically Unpacking the Pathways to Celebrity. This study suggests that there are two pathways to celebrity: ‘discovery’ by excellence in prior achievements or ‘manufacture’ by active pushing for attention. In the literature on celebrity, the concept is either qualitatively based or operationalized as an independent variable to examine its influence on performance (Hayward et al., 2004, Park et al., 2014, Pfarrer et al., 2010, Rindova et al., 2006). To my knowledge, few if any studies examine the mechanisms explaining celebrity. This study empirically examines the construction of celebrity and adds to the literature by examining the tension within the notion of celebrity status, whether it is real or constructed fame (Boorstin, 1992, Driessens, 2013; Gamson, 1994; Hackley & Hackley, 2015; Kurzman et al., 2007; McCracken, 1989; Rindova et al., 2006).

Two Types of Celebrity Status. The findings suggest that there is not only one type of celebrity status. In line with the qualitative study of different types of celebrity CEOs (Lovelace et al., 2018), prior studies that assume celebrity status is a single and aggregate
construct might be reconsidered, as a multidimensional view of celebrity is needed to fully grasp how the different pathways affect celebrity. The types of research- and commentary-celebrity status are context specific in this study, but I believe it is generalisable for use in unpacking the concept of celebrity and examining its achievement-based or non-achievement-based types.

**Sustainable or Transient of Celebrity Status.** This study also responds to the call for more work on the nature of celebrity status, whether it is transient or sustainable (Rindova et al., 2006), and the tensions resulting from short-term attention (Kurzman et al., 2007) or long-term capital (Driessens, 2013). This study also finds that it is difficult for individuals to switch between the two types of celebrity status: Research-oriented celebrity is less likely to result in commentary-celebrity status, and vice versa. According to the interviews and empirical analysis, a celebrity academic is someone who receives public attention in the long-term. In this context, media attention is path-dependent and an individual builds-up celebrity status in a long process. This finding implies that celebrity status for academics may not be short-term attention, but a more sustainable asset, which is in line with Van de Rijt, Shor, Ward & Skiena’s (2013) results that ‘noteworthy people’ can obtain more sustainable coverage over a longer time than the attention people can obtain from ‘noteworthy events’.

**Studying Celebrity in an Academic Context.** Current research in management and organisation studies focuses on the individuals that represent a group of audiences or speak or act on behalf of the firm (Hayward et al., 2004). For example, if there are changes or uncertainties in the environment, journalists will search for firms or individuals to provide explanations, where CEOs are often the representative of the firm. In those studies, media attention is exogenously generated to a large extent. In addition, prior discussions of how individuals attract media attention show that unusual activities, vivid images and personal charisma are attractive for the media (Hayward et al., 2004; Rindova et al., 2006).
Within science, the media favour trustworthy and knowledgeable sources, and while many academics work on similar areas, one may generate more media coverage than another. This study complements prior studies on celebrity by examining media coverage that was produced endogenously here. The present research provides a different lens through which to view celebrity and should add to research on celebrity by including academics, allowing the study of celebrity to evolve from marketing or other organisational contexts. Although the academic environment in many respects is unique, this work is relatable to individuals in similar contexts (i.e., professional workers) who want to attract public attention.

5.2 Managerial Implications

This research helps to explain how academics attract media attention. While some academics might see the media as an enabler in meeting these requirements to educate the public, other academics see media attention as a valuable strategy to obtain more research funding. Since external funding has become more necessary (Gulbrandsen & Smeby, 2005), many academics need to establish relationships with the private sector in order to finance their ongoing research. Increased media attention can provide access to opportunities for cooperation and resources.

Therefore, this study provides an understanding of how academics transfer recognition from a focal audience to another audience (the media), and the paths to building higher levels of attention in a distant audience. In building celebrity status, an individual should be aware that the type of prior media record may not be relevant for a different type of celebrity status. As it is difficult to switch from one type of celebrity to the other, I suggest that it is important for individuals to carefully choose their track, as well as the pathways to achieving attention.

Because the pathways of ‘discovery’ and ‘manufacture’ work differently, the value of each for bringing success to an academic will differ with each type of celebrity status. It
should be noted that research excellence helps academics be discovered and achieve research-celebrity status. In addition, academics pushing for more attention and choosing to ‘manufacture’ their space can also gain research-celebrity status. As ‘discovery’ by research excellence plays a dominant role in winning research-celebrity status, I recommend academics seeking this attention highlight the role of their research quality. Academics without a high level of research achievement can ‘manufacture’ their own presence by pushing for media attention that is likely to succeed in conferring commentary-celebrity status. Hence, such people would need to manage their careers to focus on one pathway over the other, depending on the attributes for which their celebrity status is relevant.

To be an overall media star who both obtains high levels of research- and commentary-celebrity status, academics must possess high research excellence and make media-attention manufacturing efforts. Beyond the focus on public attention, this study sought to understand whether different types of audiences can accept academic actors, while also making a preliminary examination of the tension between scientific status and public recognition (Bucchi & Trench, 2014). Excellence in research is also likely to be recognized in the media, and this study provides implications not only for academics, but also professionals who attract celebrity status to themselves.
REFERENCES


McNie, 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


