Strategic Management Journal
Strat. Mgmt. J., **36**: 1205–1223 (2015)
Published online EarlyView 2 June 2014 in Wiley Online Library (wileyonlinelibrary.com) DOI: 10.1002/smj.2280
Received 19 June 2013; *Final revision received 23 March 2014*

ASSET DIVESTMENT AS A RESPONSE TO MEDIA ATTACKS IN STIGMATIZED INDUSTRIES

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In stigmatized industries characterized by social contestation, hostile audiences, and distancing between industry insiders and outsiders, firms facing media attacks follow different strategies from firms in uncontested industries. Because firms avoid publicizing their tainted-sector membership, when threatened, they can respond by divesting assets from that industry. Our analyses of the arms industry demonstrate that media attacks on the focal firm and its peers both increase the likelihood of divestment for the focal firm. Specifically, attacks on the focal firm are the most consequential, followed by attacks on peers in the same industry subcategory, and by attacks on peers in different subcategories. These findings shed new light on divestment as a response to media attacks in stigmatized industries and lead us to rethink impression management theory.

INTRODUCTION

Not all firms belong to respected or unquestioned economic sectors. Every year, a significant share of global wealth is generated by firms in such contested industries as tobacco ($500 billion), arms ($1,750 billion), and gambling ($400 billion). When it comes to addressing criticism conveyed by the media, do these firms use the same strategies as their counterparts in uncontested industries?

Impression management (IM) research shows that firms can counter media attacks by publicizing positive aspects of their activities (Dutton and Dukerich, 1991; Elsbach and Kramer, 1996; Suddaby and Greenwood, 2005). We argue, however, that this finding from studies of uncontested industries is unlikely to generalize to stigmatized sectors, characterized by social contestation, hostile audiences, and distancing between industry insiders and outsiders. In a stigmatized setting, "scrutiny makes it difficult to decouple activities […] and to engage in routine impression management" (Ashforth and Gibbs, 1990: 183) because it reinforces the outsiders' suspicion about the industry. In addition, members of stigmatized industries adopt concealment tactics (Hudson and Okhuysen, 2009) and typically avoid media coverage—whatever its tenor—that publicly reemphasizes their association with the tainted industry (Devers *et al.*, 2009).

Since traditional IM tactics are unlikely to mitigate media attacks in stigmatized industries, we ask the following question: How do firms operating in stigmatized industries respond to media attacks? We contend that, when media attacks increase against firms in a stigmatized industry, firms are likely to divest some assets from that industry, both to differentiate themselves from the alleged offenders and to reduce their dependence on a tarnished peer group. In so doing, they deflect negative spillovers and demonstrate their willingness to take action vis-à-vis their core stakeholders. Furthermore, we

Keywords: stigma; impression management; divestment; categories; reputation
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argue that incentives to divest from a stigmatized industry will be stronger for organizations that are more similar to the firms targeted by media attacks. Such organizations likely suffer more from the negative spillovers created by media attacks on industry peers and thus need to demarcate themselves more clearly.

We test our hypotheses using a unique dataset from the global arms industry that tracked, from 1996 to 2007, media attacks targeting 202 arms producers in a wide range of international newspapers. The global arms industry represents an interesting case of such a stigmatized industry (Baum and McGahan, 2013; Vergne, 2012). Often associated with negative values and questionable behavior, arms manufacturers deal with media attacks on a regular basis despite their attempts to avoid such publicity. Our study focuses on a core stakeholder, defense-expert journalists, who are pivotal for diffusing information about firms both to specialized professionals (i.e., analysts, investors) and to the general public (Deephouse, 2000; Pollock and Rindova, 2003). All firms in our sample are diversified; that is, they all realize a share of their revenues outside the arms industry. This diversification makes our empirical setting well suited to test our theory since divestment from the arms industry is both a plausible and feasible response strategy when that industry's attractiveness decreases. Precisely because the arms industry is located on the extreme end of the "legal but distasteful" spectrum, it functions well as an exploration ground to assess the boundary conditions of traditional theories such as IM.

By demonstrating that firms in stigmatized industries divest tangible assets in response to media attacks targeting them and their peers, this paper highlights the fundamental differences between strategizing in contested vs. uncontested sectors of the economy (Devers *et al.*, 2009). In particular, the ability of information intermediaries ("infomediaries") such as the news media to influence divestment and diversification calls into question the Chandlerian claim that long-term strategy formulation precedes and shapes organizational structure (Chandler, 1962). Using insights from research on categorization (Durand and Paolella, 2013; Porac *et al.*, 1995) and infomediaries (Deephouse and Heugens, 2009), this paper leads to a rethinking of both IM theory and the antecedents of strategic decisions. First, asset divestment in stigmatized industries can be interpreted as an IM effort that differs from traditional efforts, suggesting that the repertoire of responses to media attacks available in contested industries are insufficiently captured by the dichotomies of rhetoric vs. action (Suddaby and Greenwood, 2005), of the symbolic vs. the substantive (Westphal and Zajac, 1998), and of the ceremonial vs. the technical (Zavyalova *et al.*, 2012). Second, firms' substantial reaction to both direct and indirect media attacks places the social determinants of firm strategy at center stage, alongside the classical Chandlerian mechanisms. Finally, strategic divestments influence how industry members are categorized by audiences (Vergne and Wry, 2014), and we emphasize both how and why categorization holds strategic value for firms in general and for stigmatized firms in particular.

THEORY BACKGROUND AND HYPOTHESES DEVELOPMENT

From 2004 on, military contractor Blackwater came under the media spotlight as several press articles reported on private military contracting and its damaging consequences in the Iraqi and Afghani battlefields. Media attacks on Blackwater spilled over the industry as a whole and compelled competitors to respond convincingly to the threat on their future business opportunities—they could no longer pay only lip service to the criticism by issuing a public statement (Barnett and King, 2008). The CEO of DynCorp, a diversified military firm involved in private military contracting, noted the following in a local newspaper: "Every time the *New York Times* does a story on Blackwater, we get listed. It drives me crazy" (*Fort Worth Star-Telegram*, 2007). At the time, many asked for a clear-cut ban on all private military-contracting activities. The controversy was even addressed during the 2008 Democratic primary campaign, when Senator Hillary Clinton, a candidate for the presidential nomination, noted that "Obama and I have a substantive disagreement […]. He won't rule out using armed private military contractors in Iraq to do jobs that historically have been done by the U.S. military or government personnel" (Bloomberg, 2008). In the short term, Blackwater's most significant strategic response to the media attacks was to stringently cut its portfolio of activities and refocus the firm on training services. But what about Blackwater's industry peers? Threatened by the consequences of the Blackwater

DOI: 10.1002/smj

story, were they also likely to divest their strategic assets? And if so, why?

Media attacks and firm responses

Media attacks publicly impose onto a firm a vilifying label that signals an alleged violation of norms (Adut, 2005; Desai, 2011). Studies of media attacks differ significantly from studies of organizational misconduct (Greve, Palmer, and Pozner, 2010) or wrongdoing (Zavyalova *et al.*, 2012) by focusing on alleged—as opposed to actual—violations of social norms. Interestingly, independent of whether the targeted organization actually violated social norms, a media attack generates negative consequences for the firm (Pontikes, Negro, and Rao, 2010). Attacked firms may lose legitimacy and reputation (Hudson and Okhuysen, 2009) and face increasing difficulties in acquiring resources (Weber, Rao, and Thomas, 2009) and maintaining relationships with interlock board members (Sullivan *et al.*, 2007), suppliers (Jensen, 2006), or customers (Jonsson, Greve, and Fujiwara-Greve, 2009). Whereas a court of law will typically take 4–7 years after the start of an investigation to establish a firm's guilt, media attacks can produce negative consequences immediately. And whether the firm is actually guilty is often a matter of belief among the firm's audiences—a belief that can be shaped by the preexistence of stigma.

Research has demonstrated that a significant share of the cost incurred by firms targeted in the media comes from severed business relationships, and recovery may require substantial resources. Jensen (2006) showed that Arthur Andersen progressively lost customers to competing auditing firms following media attacks. Sullivan and colleagues (2007) reported a significant decrease in the number of interlocking ties at the board level in firms publicly targeted in the media. It has thus been commonly observed that a targeted firm's suppliers, customers, and partners will choose to withdraw from transactions to avoid negative spillovers (Yu, Sengul, and Lester, 2008). Typically, firms respond to media attacks using a range of IM strategies, such as denying the facts, emphasizing positive organizational attributes, reframing the situation to attenuate negative perceptions, or accepting responsibility (Bansal and Clelland, 2004; Dutton and Dukerich, 1991; Elsbach and Kramer, 1996; Pfarrer, Pollock, and Rindova, 2010).

Yet, media attacks create negative spillovers not only for the firm's business partners but also for its peers operating in the same industry (Chatterji and Toffel, 2010; Desai, 2011). As Barnett and King (2008: 1150) put it, "a firm's error can harm other firms in its industry and thus cause all firms in the industry to share a pooled risk" (as noted above, the firm's error need not be an actual one—an alleged error is enough to create trouble). Underlying that pooled risk is the fact that competitors share a reputation commons (King, Lenox, and Barnett, 2002) that makes the industry cohesive as a whole (Weber *et al.*, 2009), thereby favorably influencing customer preferences, government policy, or regulatory oversight (Fauchart and Cowan, 2014). So, when the media attack McDonald's for serving standardized junk food that spreads obesity and other diseases among the poor, other fast food companies, such as Burger King and Wendy's, should consider those attacks as a threat to their own business (Roehm and Tybout, 2006). Because industry peers usually share many common features, audiences tend to lump all organizations together under a single umbrella category, thereby gathering the negative features that the media attributed to the attacked organization and generalizing them to the whole industry (Jonsson *et al.*, 2009; Vergne, 2012). This contamination threat requires that industry peers react when firms in their industry are attacked by the media (Barnett and King, 2008; Desai, 2011). We argue, however, that traditional IM responses such as withdrawal or scapegoating are likely to be ineffective in stigmatized industries.

Response to media attacks in stigmatized industries

Recent studies have sought to understand how firms strategize in such contested industries such as private military contracting (Baum and McGahan, 2013), big oil (Levy and Egan, 2003), big box retailing (Yue, Rao, and Ingram, 2013), and tobacco and gambling (Galvin, Ventresca, and Hudson, 2004). The social appropriateness of such industries is contested because their members either market goods and services that have questionable societal impact or market them in a way deemed inappropriate by industry outsiders (Hudson, 2008). Thus, members of such industries are subject to targeted scrutiny by "hostile audiences" (Hudson, 2008: 259), such as advocacy groups and non-governmental organizations (NGOs) seeking to influence public opinion.

DOI: 10.1002/smj

Stigmatized industries form a subset of the broad category of "contested industries" (Galvin *et al.*, 2004), characterized not only by social contestation and targeted scrutiny but also by the presence of a deeply discrediting attribute—stigma. As such, some industries are contested but not stigmatized, such as big box retailing (Yue *et al.*, 2013) and big oil (Levy and Egan, 2003). That is, the oil industry may be contested because of specific events (e.g., an oil spill) but such contestation is bounded in time and space—oil companies are not believed to overly pollute all the time and everywhere they operate. By contrast, in stigmatized industries, the blame has permanence and concerns the core of the business (e.g., arms producers' *raison d'être* is to sell devices designed to kill). In other words, stigmatized groups bear an enduring mark that prevents full social acceptance (Crocker, Major, and Steele, 1998).

Writing about Blackwater and its competitors' involvement in military contracting, Baum and McGahan (2013: 4) note that "the stigma of this association exposes them to profound distrust, and impedes broad social approval." Indeed, stigma is an enduring characteristic that is "consensually regarded as a basis for dissociating" (Leary and Schreindorfer, 1998: 15), typically resulting in mutual avoidance between a stigmatized industry's insiders and outsiders (Goffman, 1963) and explaining why some stigmatized industries can remain relatively unnoticed in the broader economy. For example, few arms industry outsiders are aware that Boeing is one of the top three largest weapons manufacturers worldwide, or that United Technologies Corp., the manufacturer of Otis elevators, is also the world's tenth largest arms company (SIPRI, 2012).

While the origin of stigma remains a subject of discussion in the social sciences, sociologists and psychologists have shown that stigmatization is nurtured by a cognitive association with physical danger, severe illness, or death (Goffman, 1963; Jones *et al.*, 1984). This association explains why past studies examined stigma in such sectors as the funeral industry (Garden, 2001), the tobacco industry (Galvin *et al.*, 2004), the cadaver trade (Anteby, 2010), ultimate fighting (Helms and Patterson, 2014), and among the "merchants of death" (Engelbrecht and Hanighen, 1934) operating in military production and contracting (Vergne, 2012).

In stigmatized industries, firms have little to protect in terms of a reputation commons, and their audiences are more likely to take media attacks at face value since they align with the already low expectations and negative image that characterize the industry. For this reason, members of such industries try to avoid negative publicity more than they seek positive coverage. In other words, these firms have strong incentives to be discreet and evade any public emphasis on their association to the tainted industry in an effort to ward off unwanted scrutiny, as Hudson and Okhuysen (2009) documented in the context of U.S. men's bathhouses.

Therefore, in a stigmatized industry, highly publicized responses to media attacks are likely to be counterproductive. Advertising campaigns and official statements attempting to deny, reframe, or establish distance from the alleged offenders (Desai, 2011; Jonsson *et al.*, 2009) publicly reemphasize the focal firm's association with the stigma, thereby attracting unwanted scrutiny. Besides, responses involving "technical actions […] that have the potential to address the causes of wrongdoing" (Zavyalova *et al.*, 2012: 1080) are likely to be ineffective in a context where the wrongdoing is not established but merely purported (i.e., such responses would amount to an admission of guilt). Finally, in stigmatized industries, the ceremonial adoption of an ethics code in response to media attacks may actually increase experts' scrutiny in the short term, resulting in more media attacks (Barnett and King, 2008; Vergne, 2011; see Bednar, 2012, for a different view). Thus, prior research findings focusing on wrongdoing and misconduct—and obtained in "uncontested" industries—do not generalize to stigmatized industries.

Confronted with the limitations of rhetorical and technical responses, a firm in a stigmatized industry may seek another way to mitigate the negative consequences of media attacks. An important but overlooked means for a firm to signal its distinctiveness to pivotal stakeholders is to loosen its association with the industry—not just rhetorically but at the resource level (Devers *et al.*, 2009; Yu *et al.*, 2008). We argue that asset divestment from the stigmatized industry signals to expert journalists, investors, and the public that the firm is determined to streamline its activities, refocus on more acceptable pursuits, and manage its long-term reputation (Love and Kraatz, 2009). Such asset divestment can shield the stigmatized industry member from media attacks as it produces tangible evidence that management is distancing itself materially from the tainted sector. Importantly, asset

DOI: 10.1002/smj

divestment involves the reconfiguration of tangible assets, thereby extending beyond merely a ceremonial or symbolic response to the attacks.

Targeted scrutiny makes decoupling ineffective because the scrutinizers are likely to reveal the act and portray it, if not as pure hypocrisy, then, at best, as lip service (Ashforth and Gibbs, 1990). Thus, in a stigmatized industry, decoupling a rhetorical response from the rest of the firm's activities is counterproductive, and asset divestment represents a viable alternative. The divestment move need not be massive or definitive; for instance, the firm does not need to exit the contested industry altogether. Rather, the divestment only needs to be sufficiently substantial for management to plausibly argue that the firm is redefining its means and ends to espouse more socially accepted goals in the midterm. Therefore:

Hypothesis 1: As media attacks on a focal firm increase in a stigmatized industry, the focal firm is more likely to divest assets from that industry.

Because of the negative spillover effects identified in previous research (Barnett and King, 2008; Sullivan *et al.*, 2007) and the specific constraints discussed above that prevail in contested industries, we extend our argument to responses to media attacks targeting a focal firm's *peers*. As demonstrated by Jonsson *et al.* (2009), by way of generalization, media attacks can contaminate the entire sector—that is, even firms not mentioned in the media reports can be negatively affected (see also Mackie *et al.*, 1996; Mastro and Tukachinsky, 2011). Any event reported by the media that reinforces negative perceptions can lead to detrimental consequences for all firms that participate in the industry at large (Negro, Hannan, and Rao, 2011).

As such, divesting assets from a contested industry enables firms to differentiate from the alleged offenders, deflect negative spillovers toward others, and demonstrate their willingness to take action in anticipation of a probable increase in public scrutiny (Zavyalova *et al.*, 2012). For instance, in 2008, Altria, owner of Philip Morris, decided to spin off all of its non-U.S. tobacco assets. This strategic move originated from the intense media attacks targeting other European tobacco producers. By decreasing the intensity of membership in the contested industry, asset divestment both mitigates the contamination threat ignited by attacks on peers and partially shields the firm from subsequent negative spillovers. Relative to the effect of a media attack specifically targeting the focal firm, we expect an attack targeting one of its peers to have a weaker effect. When the firm is targeted directly (e.g., its name appears in a negative press article), it will likely represent a bigger threat, thereby prompting a stronger response. When a focal firm is not mentioned in a media attack targeting one of its peers, it is likely—but not certain—that the negative evaluation will contaminate the focal firm, so the need to respond is less pressing. Therefore:

Hypothesis 2: As media attacks on a focal firm's peers increase in a stigmatized industry, the focal firm is more likely to divest assets from that industry. The effect of a media attack on asset divestment is weaker when it targets a focal firm's peer than when it targets the focal firm directly.

Categories within industries: different peer groups, different effect strength

So far, our theory predicts a relationship between media attacks on a focal firm and its peers and the likelihood of asset divestment. Firms are not, however, equally threatened by media attacks spillovers (Desai, 2011; Jonsson *et al.*, 2009; Mishina *et al.*, 2010), and the existence of intermediate subcategories of firms within industries explains why the diffusion of bad news is not homogenous across all industry members (Vergne, 2012). For instance, in Porac *et al.* (1995), intermediate subcategories in the knitwear industry correspond to countries (Scottish vs. non-Scottish firms) and product types (firms that use hosiery vs. knitwear vs. lace). Other works on organizational similarity and categorization have confirmed that firms are further classified in subgroups, depending on core attributes labeled under a same category (Hsu, 2006; Wry and Lounsbury, 2013; Wry, Lounsbury, and Jennings, Forthcoming). Within the global arms industry, private military contractors, such as Blackwater, or missile manufacturers, such as Raytheon, form distinct subgroups that may overlap only partially, and each firm is more or less associated with various subgroups depending on its portfolio of activities (SIPRI, 2012).

Amid intense media attacks, negative spillovers occur, tainting with little discrimination industry members deemed similar to the alleged offender(s) (Jonsson *et al.*, 2009; Negro *et al.*, 2011). But we

DOI: 10.1002/smj

can expect the pressure exerted by media attacks on peers to be heightened when a focal firm shares core attributes with the attacked peers. For instance, the negative spillovers emanating from a media attack targeting a missile manufacturer generalize more readily to other missile manufacturers than to, say, manufacturers of armored vehicles. The need for a firm to signal its distinctiveness and take action will thus depend on its association to particular industry subcategories.

Hypothesis 3: *Media attacks targeting peers have a stronger effect on a focal firm's asset divestment when the targeted peers belong to the same industry subcategories as the focal firm.*

INTRODUCING THE GLOBAL ARMS INDUSTRY

In 2011, global defense spending amounted to $1.7 trillion, or nearly 2.5 percent of the gross world product (SIPRI, 2012). Despite the arms industry's economic and political significance, few organizational scholars and sociologists have investigated the inner dynamics of this sector of the economy (exceptions include Baum and McGahan, 2013; Suchman and Eyre, 1992; Vergne, 2012). Prominent observers of the arms industry, such as the Stockholm International Peace Research Institute (SIPRI), have agreed on defining an arms producer as a firm that devotes a significant share of its activities to the design, manufacture, and selling of products and services intended specifically for military use (the terms *arms producer*, *weapons producer*, and *defense firm* are typically seen as equivalent) (Markusen and Costigan, 1999). Thus, arms producers include organizations that design and manufacture rocket launchers, battle tanks, bombers, destroyers, combat helicopters, or cruise missiles and those that provide related services such as cyber-warfare capabilities, simulation and training programs, or battlefield support and logistics (SIPRI, 2012). More than 4,000 years old, the arms trade has always represented a key aspect of geopolitics (Engelbrecht and Hanighen, 1934).

A stigmatized industry under global scrutiny

Recently, social forces in various countries have called for increased control over an industry whose controversial nature became even more problematic after it gained independence from sovereign states and national governments (Bromley *et al.*, 2009). Over the past two decades, observers have stigmatized the arms industry for embodying questionable values, nurturing the aggression of nondemocratic states, amplifying the already tragic consequences of war, directing public spending to nonessential projects, and creating conflicts of interest at the highest level when government regulators use the "revolving door" to land jobs as lobbyists for military firms (Roeber, 2005). For example, Campaign Against Arms Trade (CAAT), a transnational NGO endorsed by Noam Chomsky, advocates the end of the arms trade, because it "is a deadly, corrupt business. It supports conflict and human rights abusing regimes while squandering valuable resources" (CAAT, 2011). CAAT activists note that almost 75 percent of global arms exports are produced by the five permanent members of the U.N. Security Council and that the exported weapons were used across the Middle East and North Africa to suppress waves of protest against various dictators (i.e., during the 2011 "Arab Spring"). For partisans of this view, the arms industry, once a pillar of economic development, now appears increasingly less necessary to social, material, and scientific progress. Nation-states such as Costa Rica, Iceland, and Panama advocate for a weapons-free world and gave up on having permanent armies.

At the same time, an increasing number of non-governmental, transnational organizations (e.g., Amnesty International and Transparency International) are monitoring the industry closely and reporting whether its members respect or violate global norms. Since the end of the Cold War, arms manufacturers have been in need of complementary tokens of legitimacy to supplement the fading support of the nation-state (Baum and McGahan, 2013; Harkavy and Neuman, 1994; Suchman and Eyre, 1992). As a result, arms producers now more than ever are concerned with avoiding the contagion of negative information and buffering their activities from external examination by such organizations as SIPRI, CAAT, and Transparency International. In June 2012, Human Rights Watch organized a protest outside Eurosatory, a major international arms fair, demanding that their observers be let in. The organizing committee refused, explaining that their presence could deter potential customers—defense ministry officials from all over the world—and hurt the business (*Moscow Times*, 2012).

DOI: 10.1002/smj

Arms producers attacked in the media suffer from reputational penalties, which can lead to blacklisting by both current and potential customers, in response to the pressure of taxpayers who demand a more responsible defense procurement policy. Other negative consequences for arms contractors include decreased market value, loss of business opportunities, difficulties recruiting the best engineers, and decreased negotiation power with current customers (Vergne, 2012). Investors also exert pressure on tarnished military firms—the Government Pension Fund of Norway, for instance, blacklists arms producers that misbehave (either actually or allegedly).

DATA AND METHOD

Empirical setting and data collection

We examine asset divestment from the arms industry as a response to media attacks of rivals between 1997 and 2007. We picked 1997 as our first year of observation because it marks the end of the post-Cold War consolidation period in the global arms industry. Also, 1997 is the first year of enforcement of the Organisation for Economic Co-operation and Development (OECD) Anti-Bribery Convention, which harmonizes regulation of the industry across national boundaries. Thus, from 1997 onward, the firms in our sample are formally bound by the same rules of corporate conduct, independent of their location. To identify arms producers operating at a global level, we used the two leading sources on the arms industry: SIPRI and *Defense News* (1997–2007). Any arms contractor listed by SIPRI or *Defense News* in any year between 1997 and 2007 was included in our sample, which contained 210 firms. Industry experts who were provided with our list of firms estimated that it included more than 90 percent of all existing producers of final weapon systems (as opposed to producers of subparts).

This empirical setting is well suited to test our hypotheses for several reasons. First, as argued earlier, this industry is a stigmatized one and it experiences numerous media attacks. Also, because of the secretive nature of the industry, highly visible symbolic responses, such as public statements, are unlikely to be the preferred response strategy. Second, most firms involved in arms production are also involved in civilian production of high-tech products, providing arms producers with some flexibility in balancing the two activities (on average, arms sales represent half of most military firms' revenues). Thus, for these firms, divestment from the arms industry is not constrained by the imperious financial need to keep producing weapons and weapons only—in fact, some firms rely on their civilian activities to compensate for the cyclical nature of arms purchases. Third, media attacks in the arms industry are substantially more frequent than in civilian sectors of the economy. This asymmetry makes our empirical setting particularly well suited to test our hypotheses because it reduces the amount of noise coming from media attacks related to the civilian business units of the sampled arms producers. For instance, arms producer Boeing can be attacked publicly in relation to its commercial aircraft business; yet, on average, most attacks faced by arms producers target their military activities (i.e., in our data, the corresponding ratio of attacks on military activities to attacks on civilian activities is 8:1). Media attacks make a difference to arms producers, so we expect them to respond.

The second author collected firm-level data for the period 1997–2007 at SIPRI headquarters in Sweden and from Information Base, a specialized U.S. provider of competitive intelligence for defense professionals. The latter was our main data source for firms not legally obliged to publish details of corporate events. Additional data sources included company websites and 10-Ks, reports by Transparency International and Amnesty International, and the Factiva and LexisNexis international press databases. Eight firms were excluded from subsequent analyses: six firms because of missing data and two that represented outliers in our econometric models as per Pregibon's leverage test.[1] Our final sample thus includes 202 firms and 1,982 firm-year observations, among which 40 percent concern North American firms; 29 percent, European firms; 9 percent, Russian firms; 6 percent, Japanese firms; and 4 percent, Israeli firms.

Dependent variable

Our dependent variable, asset divestment from the arms industry (hereafter, *asset divestment*),

[1] As an alternative to excluding outliers, we used a 90 percent Winsorization procedure for the independent variables, which sets all values below the fifth percentile to the fifth percentile, and all values above the 95th percentile to the 95th percentile. Results did not differ in the Winsorized models.

DOI: 10.1002/smj

captures a focal firm's decision to dissociate from the arms industry by divesting assets from the industry. Data on acquisitions and divestitures were sourced mainly from two sources: Information Base, which reports all known acquisitions and divestitures on a yearly basis, and annual company reports, which compile similar information, albeit sometimes less exhaustively and less consistently because, typically, less information is available for privately held firms. When information was available from both sources, the coding procedure showed high reliability: in more than 90 percent of the cases, the same event was mentioned in both sources on the same date. When the two sources diverged, we searched for press articles in LexisNexis and Factiva to confirm the actual occurrence of an event, or its date.

Responses to media attacks need to send sufficiently strong signals to be noticed by industry stakeholders. In the context of corporate activity, we considered significant asset divestments to be divestitures accounting for 5 percent (or more) of firm revenues to represent visible signals likely to modify the perception of a firm's business commitments. Consistent with this threshold, we noticed that data on smaller divestitures were not equally available across firms or were more difficult to triangulate across sources. In fact, it is often unclear whether smaller divestments represent sales of whole businesses or sales of only insignificant parts. Using 10 percent as an alternative cut-off value did not affect the regression results in any significant way. When, in any given year, an arms producer divested an arms business unit, the variable was coded 1 (0 otherwise). In less than 5 percent of cases, arms producers divested more than one business. Because this level of divestment remained a rare event, we decided to keep the dependent variable binary, which was thus coded 1 when divestment of more than one business occurred. A robustness check reported below discusses the sensitivity of our results to this coding procedure. In less than 3 percent of cases, arms producers both acquired and divested arms business units in the same year. When the number of divested businesses exceeded that of acquired businesses, we coded the dependent variable as 1 (0 otherwise). Excluding these observations from subsequent analyses did not affect our results. Note that, in our data, no arms producer exited the contested industry altogether by divesting all of its military assets.

Independent variables

Media attacks on focal firm (Hypothesis 1). Our main independent variable, media attacks, captures on a yearly basis the media attacks conveyed by multiple international newspapers against arms producers. Consistent with past research (Deephouse and Carter, 2005; Vergne, 2011), we used high-circulation, independent, and authoritative press outlets to collect data on media attacks. Our sources were carefully selected and include 12 daily newspapers based across five continents to mitigate potential bias stemming from cross-country norm differences.[2]

We used appropriate keywords—such as *complain**, *blame**, *critic**, *unethical, corrupt*, violat**—in combination with the sampled firms' names and their variants to search for all articles wherein any of the sampled firms was attacked for the period 1997–2007. In an iterative process, we matched press article content with the four most common negative stereotypes identified in our readings on the industry, and refined our list of keywords accordingly. Negative stereotypes were then grouped in the following categories: (1) the arms industry relies on black market transactions and evades taxation, (2) the arms industry violates civil liberties and human rights, (3) the arms industry endangers world peace and/or nurtures warfare, and (4) the arms industry is corrupt and exerts illegitimate influence on governments.

Of the roughly 3,000 articles extracted, 1,166 represented attacks on one of the firms. When a random sample of 10 percent of the extracted articles was recoded by an independent coder, the agreement level was greater than 93 percent, a highly acceptable level. A typical excerpt took the following form: "Firm X should be sanctioned for … [reference to a negative stereotype]." For every media attack on a given firm regarding its alleged activities, values, or behavior, we added 1 to the variable *media attacks on focal firm* in the year the article was published.

[2] We chose at least one newspaper per region of the world where the sampled firms had headquarters so that at least one local media source was represented for each firm. The final list included *The Financial Times*, *The New York Times*, *The Wall Street Journal*, *The Independent* (UK), *Turkish Daily News*, *Jerusalem Post*, *The South China Morning Post*, *The Australian*, *The Moscow Times*, *The Hindustan Times* (India), *Kommersant* (Russia), and *Business Day* (South Africa).

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Media attacks on peers (Hypothesis 2). We computed media attacks on peers by first summing media attacks on focal firms across all firms and then subtracting the total number of attacks targeting the focal firm. Thus, media attacks on peers represents the total number of articles attacking any firm in the industry but the focal firm. More than 85 percent of the coded material concerns firms' military activities. Adding a control variable for attacks related to other activities did not affect the results, and the coefficients were never significant at the 10 percent level. For the sake of simplicity, we did not include this variable in the reported models. The mean value of media attacks on peers is 103.8 ($s.d.$ = 50.4). Weighting each coded unit by the readership size of the newspaper did not change the subsequent results. Media attacks variables and other right-hand side variables were lagged by one year in all models to enhance causal inference.

Moderating effect of subcategory structure (Hypothesis 3). Our dependent variable being binary, we used a nonlinear model in our subsequent econometric analyses. While nonlinear models, such as the logistic regression used below, can accommodate the panel structure of our data, they have limited ability to test for interaction effects (Allison, 1999; Hoetker, 2007). In logistic regressions, the magnitude and sign of the marginal effects differ across observations, and significance levels (or p-values) on the interaction coefficients are insufficient to infer robust conclusions in terms of hypothesis testing. In anticipation of these difficulties, we captured membership in industry subcategories in a way that enables us to test the moderating effect hypothesized in Hypothesis 3 without relying on multiplicative interaction effects.

First, we assessed the focal organization's similarity with its attacked peers. Based on our analysis of authoritative sources in the industry, such as Infobase, SIPRI, and *Defense News*, we identified a consensual segmentation of the global arms industry along eight subcategories (*Defense News*, 1998–2007; SIPRI, 2009): (1) electronic warfare, (2) artillery and missile, (3) military aircraft, (4) military ground vehicles, (5) military space technology, (6) military ships and submarines, (7) military-grade propulsion systems, and (8) combat training, simulation, logistics, and services. Based on this categorization, we distinguished between media attacks on proximate vs. distant peers. A distant peer is defined as a firm that has no direct product category overlap with the focal firm. Distant peers do not compete directly in the same product lines, yet they compete for the same defense budget allocations and for the same customers, who consider different types of weapon systems as substitutes (e.g., the Pentagon recently reallocated procurement credits from military aircraft to electronic warfare systems). By contrast, a proximate peer has at least one overlapping segment with the focal firm. Accordingly, we computed *media attacks on distant peers* as the sum of all media attacks across distant peers, and *media attacks on similar peers* as the sum of all media attacks on proximate peers. These two variables are linked with our main independent variable in the following way:

$$\begin{aligned} &\textit{media attacks on peers} \\ &= \textit{media attacks on similar peers} \\ &+ \textit{media attacks on distant peers} \end{aligned}$$

Segment-level data were obtained from Infobase, SIPRI, and company annual reports. To assess the moderating effect hypothesized in Hypothesis 3, we tested separately the effects of media attacks on proximate vs. distant peers. As per Hypothesis 3, the effect of media attacks on proximate peers is expected to be significantly stronger.

Control variables

Because more experienced and larger arms producers may be more inert and thus less likely to fail, they can be less prone to respond to media attacks. Thus, we controlled for *age* and *size* using logged measures of both years spent in the arms industry and total sales. We controlled for ownership type by adding a dummy coded 1 for *publicly held* firms. Because high-performing organizations might be shielded from media attacks, we controlled for *performance* as measured by return on sales (return on assets were not consistently available in our data sources).

We controlled for other strategic aspects, using dummy variables. Firms that are vertically *integrated into manufacturing* final weapons systems and their subcomponents are longer-term capital commitments and thus may have less flexibility in terms of divestment. Firms involved in contract-based *government research* may be more prone to cyclically divest businesses from the arms

DOI: 10.1002/smj

industry as contracts are renewed or cancelled. Firms that produce readily *lethal weapons*, such as bombs or missiles, may face more societal pressure to divest, independent of media attacks. Firms that have just completed a *CEO change* may be implementing a new strategy involving a different business focus, which may affect divestment. For similar reasons, we also controlled whether firms had recently experienced a *name change*. Finally, we controlled for the effect of institutional imprinting by checking if the firm was a contested industry *member at founding* (as opposed to a firm originally operating outside defense that later diversified into arms).

We also controlled for several aspects of the industry environment. Global demand for weapons could affect asset divestment, so we controlled for *defense spending growth*, a variable that captures the year-to-year growth rate in global defense spending (SIPRI, 2009). Formally, the firms in our sample have followed the same norms of conduct since the 1997 OECD Convention; however, it would be unrealistic to assume no differences in enforcement levels across countries. To capture this variation, we controlled for *home market transparency*, which represents the size of the official economy as a percentage of the gross domestic product (GDP) of the firm's home country (Schneider, Buehn, and Montenegro, 2010). Higher values indicate a smaller black market, i.e., a better capacity for a state to enforce the law. To account for heterogeneity in the industry's globalization, we included six dummy variables that capture the specific characteristics of major regional blocs (Europe, Russia/C.I.S., North America, Oceania, Middle East, and Southeast Asia). We also included a set of eight dummy variables to capture segment-specific characteristics of the industry, using the same industry segmentation as above. Finally, to control for time-varying characteristics of the broader environment, we included a set of year dummies. Table 1 reports summary statistics and correlations.

Model

Because our dependent variable is binary, we opted for a panel logistic regression model. We included random effects to control for firm heterogeneity. We tested the models' specification validity using STATA's linktest program and found no evidence of misspecification or omitted variable bias. Table 2 reports our regression results.

HYPOTHESIS TESTING AND ROBUSTNESS OF THE RESULTS

Model 1 includes controls only. Results show that publicly held firms divest assets significantly more than other firms. This can be explained by their easier and more reliable access to capital markets, which fuels corporate activity. The same explanation can be used to interpret the more frequent divestment by arms producers based in more transparent countries. Firms vertically integrated in manufacturing have typically invested in fixed, co-specialized assets, which, understandably, make divestment less likely. For similar reasons, firms operating in the arms industry since founding divest less often than diversifying entrants, a tendency that may be reinforced by an institutional imprinting effect (Stinchcombe, 1965). Global defense spending growth makes the arms industry more attractive and decreases the likelihood of asset divestment.

Model 2 provides support for Hypothesis 1. We find that media attacks on a focal firm significantly increase the odds of asset divestment ($\beta = 0.077$, $p < 0.01$). Each additional media attack on a focal firm increases the odds of asset divestment by a factor of $e^{0.077} = 1.08$, that is, 8 percent. Model 3 provides strong support for Hypothesis 2. Not only do media attacks on peers increase the odds of asset divestment for the focal firm ($\beta = 0.012$, $p < 0.01$), but that effect is also significantly weaker than the effect of attacks directly targeting the focal firm (the difference is significant at $p < 0.01$). More specifically, each additional media attack on a focal firm's industry peers increases the odds of asset divestment for the focal firm by a factor of $e^{0.012} = 1.012$. When the value taken by *media attacks on peers* increases by 1 standard deviation from its mean, the predicted probability of asset divestment increases from 4.6 to 7.9 percent—a 71 percent increase (This percentage is calculated with all other variables held at their mean and the random effects held at 0). Model 4 provides support for Hypothesis 3. We find that the positive effect of *media attacks on similar peers* is significantly greater than that of *media attacks on distant peers* (the difference between the two coefficients is significant at $p < 0.05$).

DOI: 10.1002/smj

Table 1. Summary statistics and correlation matrix

Variable	Mean	*S.D.*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Asset divestment	0.12	0.33																
2. Age	3.70	0.92	−0.06															
3. Size	8.60	1.87	0.09	0.06														
4. Publicly held	0.70	0.44	0.13	−0.16	0.26													
5. Performance	0.03	0.11	−0.00	0.08	0.08	0.05												
6. Integrated into manufacturing	0.92	0.27	−0.06	0.17	0.03	−0.02	0.05											
7. Government research	0.90	0.31	0.07	0.02	0.14	0.04	−0.02	0.04										
8. CEO change	0.10	0.30	0.00	0.01	−0.01	0.02	−0.09	0.01	0.02									
9. Lethal weapons	0.30	0.31	−0.02	0.09	−0.08	−0.16	−0.02	0.21	0.05	0.01								
10. Name change	0.11	0.32	−0.01	0.02	−0.04	−0.07	−0.09	−0.02	−0.04	0.00	0.04							
11. Member at founding	0.63	0.48	0.13	−0.23	0.24	0.23	0.03	−0.04	0.01	−0.02	−0.15	−0.04						
12. Home market transparency	83.2	11.7	0.16	−0.12	0.23	0.44	−0.04	−0.20	0.08	−0.01	−0.22	0.00	0.20					
13. Defense spending growth	2.92	2.49	−0.02	0.08	0.09	0.01	0.01	0.00	−0.01	0.08	−0.01	0.02	0.01	−0.02				
14. Media attacks on focal firm	0.43	1.33	0.08	−0.04	0.01	−0.03	−0.03	0.01	0.03	0.04	−0.02	−0.01	0.00	−0.01	0.04			
15. Media attacks on peers	103.8	50.4	0.06	0.09	0.12	0.01	0.09	0.01	0.00	0.03	−0.01	−0.06	0.01	−0.02	0.34	0.07		
16. Media attacks on similar peers	26.4	28.5	0.10	0.07	0.15	−0.04	0.06	0.02	0.12	0.03	0.06	−0.03	−0.08	0.10	0.21	0.24	0.54	
17. Media attacks on distant peers	77.3	42.6	0.00	0.05	0.04	0.04	0.07	0.00	−0.08	0.01	−0.05	−0.05	0.06	−0.09	0.26	−0.08	0.72	−0.14

Robustness checks

In unreported models, we included the quadratic term for *media attacks on peers* and found no evidence of a curvilinear relationship between our independent variable and asset divestment. We also investigated further whether some other unobserved effects could affect our results.

Unobserved heterogeneity at the level of media attacks

To ensure that unobserved characteristics of the media attacks were not driving our results, we included additional controls in unreported models. We controlled for the *number of peers attacked* to test whether the distribution of the attacks across industry peers influenced a focal organization's response. The effect of this variable was not significant, and the rest of our results remained unchanged.

We also controlled for *media consensus*. We expected that, when different newspapers attack the same firms at the same time, an international consensus builds, further reinforcing the diffusion of negative stereotypes about the industry. To measure consensus across the 12 daily newspapers, we used Fleiss's kappa (κ), a robust measure of interrater agreement that takes into account the probability that agreement occurs by chance (Gwet, 2010). We considered that two newspapers agreed to attack a firm in a given year when both attacked it at least once during that year. For each year, κ was calculated across all sampled firms and all newspapers and had a mean of 0.24 ($s.d. = 0.18$), a signal of "fair agreement." This agreement means that norm differences across countries are not a major concern in our data. *Media consensus* had a positive and significant effect on asset divestment. Adding this variable did not affect other coefficients and significance levels and resulted in only a marginal improvement of the model ($p = 0.12$).

Endogeneity

Firm heterogeneity may not be fully captured by control variables and the firm-level random effects. To model asset divestment as an endogenous decision, we used the yearly number of military business units divested by firms. This number, net of military business unit acquisitions, ranges between 0 and 3. Because our theory predicts asset divestment as a strategic response to media attacks on peers, we have so far used a binary dependent variable

DOI: 10.1002/smj

Table 2. Random-effects logistic regressions of asset divestment

Variable	Control Model 1	H1 Model 2	H2 Model 3	H3 Model 4
Age	0.098	0.058	0.041	0.024
	(0.21)	(0.20)	(0.21)	(0.20)
Size	−0.002	−0.008	−0.025	−0.039
	(0.07)	(0.07)	(0.07)	(0.07)
Publicly held	0.88***	0.82**	0.83**	0.85***
	(0.35)	(0.35)	(0.35)	(0.35)
Performance	−0.27	−0.27	−0.63	−0.58
	(0.83)	(0.82)	(0.80)	(0.81)
Integrated into manufacturing	−0.70*	−0.74*	−0.77**	−0.73*
	(0.40)	(0.40)	(0.40)	(0.40)
Government research	0.97**	1.09**	1.12**	1.03**
	(0.47)	(0.48)	(0.49)	(0.48)
CEO change	−0.049	−0.076	−0.12	−0.11
	(0.29)	(0.29)	(0.30)	0.30)
Lethal weapons	0.27	0.38	0.39	0.46
	(0.52)	(0.52)	(0.52)	(0.52)
Name change	−0.20	−0.22	−0.24 ∗	−0.24 ∗
	(0.14)	(0.14)	(0.14)	(0.14)
Member at founding	−0.94***	−0.90***	−0.93***	−0.95***
	(0.26)	(0.26)	(0.26)	(0.26)
Home market transparency	0.12***	0.13***	0.13***	0.13***
	(0.03)	(0.03)	(0.03)	(0.03)
Defense spending growth	−0.19**	−0.24**	−0.18	−0.15
	(0.08)	(0.10)	(0.18)	(0.14)
Constant	−14.6***	−14.8***	−16.6***	−16.4***
	(2.97)	(2.98)	(3.05)	(3.04)
Year dummies	Yes	Yes	Yes	Yes
Region dummies	Yes	Yes	Yes	Yes
Industry segment dummies	Yes	Yes	Yes	Yes
Media attacks on focal organization		0.077***	0.083***	0.071**
		(0.03)	(0.03)	(0.03)
Media attacks on peers			0.012***	
			(0.00)	
Media attacks on similar peers				0.018***
				(0.01)
Media attacks on distant peers				0.010***
				(0.00)
Firms	202	202	202	202
Observations	1,982	1,982	1,982	1,982
χ^2 (and model improvement)	75.3	79.4**	87.6***	91.6**

Standard errors appear in parentheses.
*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$ (two−tailed tests)

that takes the value 1 when asset divestment occurs, independent of its intensity. But, by using instead a dependent variable that counts how many military business units are divested on a yearly basis, we were able to design a two-step selection model similar to the Heckman procedure.

Using a probit regression, we predicted the binary decision to divest using a number of control variables as predictors. Residuals from this regression represent a firm's *propensity to divest* that is unexplained by the covariates. We included them in the second equation as a variable that can be interpreted as an inverse Mills ratio (Heckman, 1976, 1979). In Models 5–7 (Table 3), we used ordered logistic regressions to predict the intensity of divestment measured as the number of military business units divested by firms after controlling for that *propensity to divest*. We

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Table 3. Robustness check (two-stage selection models). Two-way clustered ordered logistic regressions of asset divestment intensity

Variable	H1 Model 5	H2 Model 6	H3 Model 7
Age	0.62	0.63	0.64
	(0.41)	(0.43)	(0.42)
Size	−0.041	−0.042	−0.028
	(0.10)	(0.10)	(0.11)
Publicly held	4.99	5.13	5.03
	(3.31)	(3.54)	(3.60)
Performance	−0.96**	−0.94**	−1.00**
	(0.48)	(0.47)	(0.49)
Integrated into manufacturing	−4.03	−4.01	−4.02
	(3.16)	(3.16)	(3.16)
Government research	5.15	5.16	5.22
	(4.11)	(4.12)	(4.09)
CEO change	0.24	0.25	0.23
	(0.67)	(0.66)	(0.68)
Lethal weapons	1.97	1.96	1.88
	1.93)	(1.98)	(2.01)
Name change	−1.17	−1.18	−1.17
	(1.03)	(1.02)	(1.05)
Member at founding	−5.56	−5.55	−5.49
	(4.39)	(4.44)	(4.51)
Home market transparency	0.66	0.66	0.65
	(0.53)	(0.53)	(0.53)
Defense spending growth	−0.84**	−0.89**	−0.74**
	(0.42)	(0.43)	(0.37)
Propensity to divest (inverse Mills)	14.8	14.8	14.7
	(11.6)	(11.5)	(11.7)
Cut-point 1	−18.2**	−18.1**	−17.9**
	(4.2)	(4.2)	(4.1)
Cut-point 2	−15.3***	−15.1***	−15.0**
	(3.7)	(3.8)	(8.1)
Cut−point 3	−12.8**	−12.9**	−12.7**
	(4.0)	(4.1)	(6.8)
Year dummies	Yes	Yes	Yes
Region dummies	Yes	Yes	Yes
Industry segment dummies	Yes	*Yes*	Yes
Media attacks on focal organization	0.067**	0.069**	0.059**
	(0.02)	(0.02)	(0.01)
Media attacks on peers		0.012**	
		(0.00)	
Media attacks on similar peers			0.018**
			(0.02)
Media attacks on distant peers			0.009**
			(0.00)
Firms	202	202	202
Observations	1,982	1,982	1,982
Pseudo R^2	12.3	13.6	13.9

Standard errors (in parentheses) clustered both at the organization and region levels.
*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$ (two-tailed tests)

also used a two-way clustering approach at both the firm and region levels to capture previously unobserved heterogeneity (Cameron, Gelbach, and Miller, 2011). The region-level clustering allows us to control for historical differences across geopolitical clusters (ex-Soviet bloc vs. North America). Results are consistent with prior models and show no evidence of endogeneity (*propensity to divest* is never significant at the 10 percent level).

DOI: 10.1002/smj

DISCUSSION

This paper started with a simple question: How do firms operating in stigmatized industries respond to media attacks? We argued that, unlike rhetorical, symbolic, or technical responses, asset divestment was unlikely to backfire and thus represented a viable response strategy. We found evidence that media attacks on both the focal firm and its peers increase the likelihood of divestment for the focal firm. Specifically, attacks on the focal firm increase the likelihood of divestment more than attacks on similar peers, which increase the likelihood of divestment even more than attacks on distant peers. These findings inform several related research streams.

Impression management in stigmatized industries and beyond

This study addresses an imbalance in current strategy research, which has focused on uncontested industries, wherein media attacks can be dealt with using proven strategies, such as rhetorical, symbolic, and technical responses (Deephouse and Carter, 2005; Deephouse and Suchman, 2008; Elsbach, Sutton, and Principe, 1998; Rindova *et al.*, 2005; Zavyalova *et al.*, 2012). We define *contested industries* as settings characterized by social contestation and targeted scrutiny by hostile audiences, and *stigmatized industries* as a special instance of contested settings, wherein the persistence of a deeply discrediting attribute nurtures distancing between industry insiders and outsiders. In contested industries in general, a presumption of guilt makes media attacks especially harmful for industry members, independent of any actual misconduct. And in stigmatized industries, distancing between insiders and outsiders nurtures secrecy, leading to industry members avoiding publicity of their membership in the industry.

Consequently, publicized rhetorical responses that reemphasize an industry member's connection to the tainted sector are likely to be counterproductive. As well, in response to media attacks, firms avoid taking technical actions "that have the potential to address the causes of wrongdoing" (Zavyalova *et al.*, 2012: 1080), as such actions would amount to an admission of guilt. Thus, the distinctions between rhetoric vs. action and the technical vs. the ceremonial fail to adequately describe the repertoire of responses available to members of such industries. This is because IM studies of uncontested industries assume that firms always benefit from a highly publicized response, provided that they are portrayed in a positive light and that audiences lend credibility to managers' commitments. Yet, in contested and stigmatized industries, these two assumptions do not hold, so firms need to rely on different tactics.

Note that our findings also blur the distinction between remedial and anticipatory IM (Elsbach *et al.*, 1998; Graffin, Carpenter, and Boivie, 2011). That is, whereas our first hypothesis captures remedy (i.e., a firm targeted in the media implements a response to the attacks), our second hypothesis describes anticipation (i.e., an attacked firm's peer divests assets to mitigate future contamination of its organizational category). Interestingly, the two phenomena often occur simultaneously (i.e., when both the focal firm and its peers are attacked), and the resulting effects on divestment probability are additive. More generally, in the presence of contamination, a media attack cannot be seen as a discrete firm-level event since it has long-term consequences for others. Thus, responses to attacks are simultaneously a form of remedial and anticipatory IM.

Furthermore, these findings fundamentally question the meaning of the dichotomy between symbolic vs. substantive responses to media attacks (Delmas and Montes-Sancho, 2010; Westphal and Zajac, 1998). As noted by Ashforth and Gibbs (1990: 182), "managers prefer to offer symbolic assurances rather than substantive action since the former usually preserves flexibility and resources." However, our findings suggest that, in stigmatized industries, flexibility and resource preservation may be more easily achieved through a substantive response that deflects scrutiny from the targeted firm. Substantive responses, because they involve changes at the resource level, represent more credible commitments in a context characterized by suspicion and distrust. Therefore, this study calls for a better theoretical specification of the conditions that make a substantive move (e.g., asset divestment) an IM effort in a contested industry, and a symbolic action (e.g., a name change) an act of strategic value in an uncontested industry.

Our findings also resonate with research on signaling (Spence, 2002). If the firms that divest assets as a response to media attacks do so at a discount on the corporate markets, then divestment decisions can also be interpreted as (costly) signals. Since stigmatized industries are characterized by

DOI: 10.1002/smj

substantial information asymmetries between insiders and outsiders, sending external stakeholders a costly signal (i.e., divesting assets at a discount) could entail reputational benefits. Our data did not enable us to explore this possibility, but it represents an exciting avenue for future research that could further bridge sociological and economic arguments.

Overall, our empirical setting provides fodder for rethinking the underpinnings of our knowledge of IM. To integrate our findings with those obtained in uncontested settings, we need to revisit the theory's assumptions and ask the following questions: How visible should a firm's IM be and to whom? What passes as credible IM? Does the threat lie mostly behind or ahead of the firm, and how contagious is it? In the future, we see potential in working toward an integrated IM theory based on comparative studies of contested and uncontested industries to better understand how visibility, credibility, and contamination threats interact and shape responses to attacks. A refined knowledge of these relationships could reorient research and have important implications for managers—regarding, for instance, when and how to communicate about the diversified nature of firms with assets in contested industries. At least, managers should be aware that not all management theories generalize to contested industries.

Asset divestment and infomediary influence on firm strategy

Our current understanding of the determinants of asset divestment is mostly based on economic factors related to the rent potential of firm resources. For instance, when industry peers have dissimilar resource portfolios (Chang and Singh, 1999) or when firms innovate dramatically (Kaul, 2012), they divest assets more often to deepen their resource advantage. Perception of risk also triggers divestment, in particular when the firm fails to attain expected performance levels (Moliterno and Wiersema, 2007). Broadly speaking, these studies are consistent with the Chandlerian paradigm that long-term strategy not only sets expectation levels regarding innovation, resources, and performance but also shapes overall firm structure (Chandler, 1962).

In contrast, our study demonstrates that, in stigmatized industries, social pressures originating in media attacks will affect, in the short term, the decision to divest assets. In turn, these divestments are likely to affect the firm's long-term trajectory, which implies that reputational threats conveyed by infomediaries have the potential not only to affect firm performance in the short run (Deephouse, 2000) but also to alter the firm's strategy in the long run (Rindova and Fombrun, 1999). Specifically, media reports can induce strategic change either directly, by attacking the focal organization, or indirectly, by attacking industry peers with which the focal firm identifies. In the future, researchers could compare the relative influence of the media and public opinion in contested and uncontested settings. At this stage, our theoretical development leads us to anticipate the media having a more significant role in stigmatized industries, where information asymmetries and relative secrecy give more weight to those who control valuable information and have the expertise necessary to contextualize it.

It should be noted that our findings were obtained for an industry wherein firms are already diversified. An interesting angle would be to explore the outcomes in a stigmatized industry populated by single-business organizations. If the same forces are at work, firms could then discontinue the product lines that are most prototypical of the stigma attached to their business in an effort to demarcate themselves from the top (alleged) offenders. More effective options would include finding a diversified acquirer for their entire business or acquiring businesses in uncontested industries in an attempt to dilute the stigma (Hudson and Okhuysen, 2009; Vergne, 2012). While we expect our findings to generalize to industries characterized by social contestation, targeted scrutiny by hostile audiences, and the presence of stigma, some of our findings may remain valid in industries where only one or two of these features are present. For instance, in contested but nonstigmatized industries (e.g., oil, chemicals), attacked firms' peers may exert pressures in an effort to push the "black sheep" from the industry's core and restore the reputation commons—in which case Hypothesis 1 would still hold true, but Hypotheses 2 and 3 may be moderated by additional factors, such as existing commercial or ownership ties with the ostracized firm (Jensen, 2006; Jonsson *et al.*, 2009). Scandals such as the Enron fraud or the BP oil spill taint an industry temporarily and may create stigma-like situations, in which case our theory would generalize only to particular periods of an otherwise non-stigmatized industry's life cycle. In any case, our findings point to two general ideas with broad implications. First, the mechanisms predicting firm strategy heavily depend on the

DOI: 10.1002/smj

tenor of the media coverage surrounding a given industry. Second, corporate strategy is affected by the asymmetrical nature of the media reports covering a diversified firm's various activities.

While our study's global setting gives us confidence that our findings are not driven by the existence of specific industry norms in any particular country, it also calls for a deeper investigation, in the future, of norm heterogeneity and its consequences (Philippe and Durand, 2011). For instance, one could argue that media attacks from a country with more stringent business norms would trigger a stronger firm-level response (e.g., because the attacks carry more authority). But one could also argue the opposite—that media attacks stemming from a country whose norms are too different will be discounted or ignored by local firms. Our models already controlled for *home market transparency* and clustered standard errors at the regional level to capture this heterogeneity, but more work is needed to derive actionable findings from the study of cross-country norm differences in a global industry. In this respect, qualitative and comparative research methods could provide additional insights to advance extant knowledge.

Asset divestment as (re)categorization

In their study of media influence on industry creation, Kennedy (2008) and Navis and Glynn (2010) noted the importance of categorization on the way firms behave, first converging in their strategies to legitimize the industry and then diverging. However, Navis and Glynn (2010: 466) also acknowledge that their findings may not generalize to "illegitimate collectives." This paper's results add to their work by showing that mechanisms of categorization and identification apply to the context of contested industries. Notably, the mechanisms that establish the arms industry's categorization and its product subcategories matter greatly and explain why firms react and differentiate from their attacked peers in general and from more similar peers in particular (Porac and Thomas, 1990). Interestingly, firms in our sample all straddle the military and civilian categories in their business portfolio, which opens fruitful questioning regarding multibusiness hybrid firms (i.e., firms having both contested and uncontested businesses in their portfolio). Future research could examine in greater detail the dynamics of straddling across uncontested and contested market categories (Durand and Paolella, 2013; Vergne and Wry, 2014), two settings that call for very distinct strategies: avoidance of being cast as similar to attacked players in contested industries vs. seeking similarity with cherished actors in uncontested sectors.

A limitation of our findings comes from not directly observing the decision process leading to asset divestment. In particular, it would be interesting to disentangle in that process the respective influences of top management, shareholders, industry associations, and the government. On a related note, future research could examine in greater detail the characteristics of the divested assets to understand how they relate to the content of the media attacks (Mishina, Block, and Mannor, 2012). As mentioned earlier, during our period of study, we did not observe a single case of complete divestment from the arms industry. In the short term, some arms producers may be constrained in their ability to exit the industry altogether, as a result of sunk costs, asset specificities, or private contractual arrangements; however, due to data limitations, we were unable to disentangle those factors from the firm-level effects included in our model to capture heterogeneity. On the other hand, both the absence of complete exits combined with a multiplicity of smaller-scale asset divestments are consistent with our theory. Indeed, divesting some (but not all) assets from a contested industry extends beyond a counterproductive rhetorical response to media attacks, and thus preserves a firm's future prospects in the contested industry by providing credible evidence that the firm is attending to stakeholder concerns. In short, divesting some assets enables the firm to remain in the industry while reducing its profile, level of scrutiny, and threat exposure.

In conclusion, this research sheds light on previously overlooked sectors of the economy to which currently accepted theories do not apply *mutatis mutandis*. Firms in contested industries are sensitive to media attacks and thus do not employ the typical defense tactics observed in the vast majority of uncontested sectors. We found evidence that these firms update their corporate strategy in the short term to respond to the attacks and anticipate negative spillovers, and that they do so by taking into account the industry's categorical structure. We hope that future inquiries at the intersection of contested and uncontested industries will further revisit and expand our knowledge on IM and the antecedents of strategic decisions such as divestment.

DOI: 10.1002/smj

ACKNOWLEDGEMENTS

Author names are ordered alphabetically. This paper was developed from the second author's doctoral dissertation, which received in 2011 the Grigor McClelland Doctoral Dissertation Award and the HEC Paris Foundation's Best Dissertation Award. Many scholars provided excellent feedback on previous drafts of this work, in particular, at research workshops organized at Cass Business School, Copenhagen Business School, Harvard Business School, HEC Paris, NYU Stern, Oxford University, Tilburg University, University of Amsterdam, as well as during the Strategic Management Society annual conference. An abridged version of an earlier draft was published in the 2012 Academy of Management Conference Best Papers Proceedings. The HEC Foundation and the Society & Organizations Research Center provided financial support for this research. The two authors gratefully acknowledge the excellent guidance provided by SMJ editor Will Mitchell and two anonymous reviewers.

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