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ABSTRACT

In this paper we discuss the role of the media in pressuring corporate managers and directors to behave in ways that are "socially acceptable". Sometimes this coincides with shareholders' value maximization, others not. We provide both anecdotal and systematic evidence that media affect companies' policy toward the environment and the amount of corporate resources that are diverted to the sole advantage of controlling shareholders. Our results have important consequences for the focus of the corporate governance debate and for the feasibility of reforms aimed at improving corporate governance around the world.

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In April 1992 the *Wall Street Journal* published a strange advertisement. It was a full-page picture of a silhouette of the board of directors of Sears Roebuck with the title: “The non-performing assets of Sears.” The advertisement, paid for by shareholder activist Robert Monks, exposed all the directors, who were identified by name, as responsible for the poor performance of Sears’ stock. The directors, greatly embarrassed by the advertisement, chose to adopt many of the proposals advanced by Robert Monks, even though he had received only 12 percent of the votes in the previous election for board members and had failed to get a seat on the board. The market welcomed this change with a 9.5 percent excess return the day these changes were announced and a 37 percent excess return during the following year (Monks and Minow 1995, pp. 399-411).

On March 8, 1988, all the major U.S. networks broadcast a tape of a Panamanian tuna boat, the *Maria Luisa*, killing hundreds of dolphins while fishing for tuna. Building on public outrage, the Earth Island Institute, Greenpeace, and the Humane Society launched a boycott of tuna. Restaurant chains took tuna off the menu and school boards across the country stopped using tuna until it was “dolphin safe,” that is, fished with nets that were not killing tuna. On April 12, 1990, Heinz announced that it would only sell dolphin-safe tuna. Within hours the two other largest tuna producers made a similar commitment (Reinhardt and Vietor 1994a,b).

These episodes suggest that the media may play a role in shaping corporate policy. Are these isolated incidents or are they representative of the media’s influence? If the media do have such an influence, why do they have it? As the media do not vote and do not set managers’ compensation, what mechanisms force directors to pay attention to what the media say? How does the media’s power relate to and interact with other corporate governance mechanisms, such as the legal and competitive environment? In what direction does media influence lead corporate policy?

These two examples alone suggest that an answer to these questions is not straightforward. In both examples the media play the role of a lever, but a lever used by two very different groups: disenfranchised shareholders in the first case, environmentalists in the second. The way the media were used is also different. In the first case a dissenting shareholder paid out of his own pocket for an advertisement that communicated his position about the shortcomings of managers and directors. In the second case the television networks included a tape filmed by an environmental group in their regular programming.

Finally, the outcome is also different. In the first example the public pressure resulting from the advertisement ended up forcing the directors of Sears to increase shareholders' value, an objective they should have pursued to begin with. In the second case it forced them to bow to environmentalist groups, a constituency to which they have no fiduciary duty. One could argue that Heinz managers responded to their customers' preferences and that the media were simply instrumental in bringing crucial facts to the attention of customers. In this case, however, we have evidence that contradicts this hypothesis. As some marketing studies show, a big gap exists between consumer complaints communicated through the press and their willingness to pay. "If there is a dolphin-safe can of tuna next to a regular can, people choose the cheaper product even if the difference is just one penny" (Reinhardt and Vietor 1994a, p. 3). It is not even clear that the media forced the directors to behave in society's interest. There is no evidence that the societal loss caused by the killed dolphins is compensated for by the additional cost of fishing dolphin-safe tuna. In fact, some environmentalists have criticized this decision by claiming that it has reduced biodiversity, because it shifted tuna fishing entirely to the western Pacific, where catching tuna does not kill dolphins, but does kill many other species that, unlike dolphins, are on the endangered species list.

All these questions regarding the media's role receive limited attention in the academic literature.[1] This is no accident. The process of diffusion of information plays a small role in economic models. Agents are assumed to be informed or not. If not, sometimes they are given the option of acquiring information at a prespecified cost. There is no role for information aggregators, which selectively reduce the cost of acquiring information. In the real world the media play this role. People obtain much of their information from the media, which play an important part in selecting which pieces

[1] In his survey of the state-of-the-art in corporate finance, Zingales (2000) mentions this as one important force that has been neglected. Skeel (2001) analyzed the role of shaming in corporate law. Baron (1996, 2001) investigated the role of the media in lobbying efforts and in private politics more generally. Djankov and others (2001) studied the effects of the ownership of the press.

of information to communicate to the public and in adding credibility to information provided through other sources. By selectively reducing agents' cost of collecting and evaluating information, the media play a major role in shaping the creation and accumulation of reputation.

The media can play a role in corporate governance by affecting reputation in at least three ways. First, media attention can drive politicians to introduce corporate law reforms or enforce corporate laws in the belief that inaction would hurt their future political careers or shame them in the eyes of public opinion, both at home and abroad.

Second, media attention could affect reputation through the standard channel that most economic models emphasize. In the traditional understanding of reputation (see, for example, Fama 1980; Fama and Jensen 1983), managers' wages in the future depend on shareholders' and future employers' beliefs about whether the managers will attend to their interests in those situations where they cannot be monitored. This concern about a monetary penalty can lead mangers not to take advantage of opportunities for self-dealing so as to create a belief that they are good managers.

Third, and what we emphasize here, media attention affects not only managers' and board members' reputations in the eyes of shareholders and future employers, but media attention affects their reputation in the eyes of society at large. As Monks describes the Sears advertisement: "We were speaking to their friends, their families, their professional associates. Anyone seeing the ad would read it. Anyone reading it would understand it. Anyone understanding it would feel free to ask questions of any board member they encountered" (Rosenberg 1999, pp. 269-70). Heinz shareholders may have been extremely unhappy about the decision to fish only dolphin-safe tuna, as might any of the managers' potential employers. Heinz's managers and directors acted in part to protect their public image. They did not want to be harassed by their children when they went home or to feel embarrassed when they went to church or to their country club. Nell Minow, Robert Monks' business partner, told us that to this day Sears' directors hate Robert Monks, because at their local country club they are still laughed at as a result of Monks' advertisement. No insurance policy for managers or directors can protect them from such reputational penalties.

Thus the media do play a role in shaping the public image of corporate managers and directors, and in so doing they pressure them to behave according to societal norms. Depending on the situation this pressure can lead to shareholders' value maximization, as in the case of Sears, or to deviations from it, as in the case of Heinz.

Thus far we have only raised the possibility that managers and directors care about their public image, and thus respond to media pressure. Before concluding that the media do indeed play a role in corporate governance we have to establish that this is more than a theoretical possibility supported by two anecdotes. This is what we do in the rest of this paper. We start by reviewing a series of examples where the media do affect corporate policy. These examples sharpen intuition that we seek to clarify in a theoretical section on issues that determine the impact of the media on corporate behavior. We then move on to more systematic evidence. In Dyck and Zingales (2001) we showed that the diffusion of the press affects the amount of corporate value that insiders appropriate for themselves, the so-called private benefits of control. In this paper we look at the effects of the press on the private sector's responsiveness to environmental issues. As our main measure of the importance of the press in a country we use the circulation of daily newspapers normalized by population. While the press cannot be important if it is not read, this is clearly a rough indicator of its importance, but one of the few available in a large cross-section of countries. We then test the robustness of our results using other indicators of press freedom and independence. As a measure of the average corporate environmental standards of firms in a country we use an index produced as a component of the 2001 environmental sustainability index. This private sector responsiveness index is a combination of five firm-based indicators ranging from the number of ISO 14001 certified companies per million dollars of gross domestic product (GDP) to the rating of firms' environmental sustainability in the Dow Jones global index.

We found that countries with a larger newspaper circulation have better environmental responsiveness, on average. This is true even after controlling for the extent of environmental regulation, the availability of information on environmental outcomes, and the level of economic development measured as GDP per capita. The effect is also economically significant. One standard deviation increase in the diffusion of the press increases the environmental index by 15 percentage points, equal to 28 percent of its standard deviation.

As the diffusion of the press may itself be endogenous or spuriously correlated with other institutional factors, we try to explain the press diffusion using exogenous variables. Religion is a major factor affecting the literacy of a country and its propensity to read. Another important factor is the degree of ethnolinguistic fractionalization. These two factors alone can explain 41 percent of the cross-sectional variation in press diffusion. When we use these two factors as instruments in our regressions on the effects of the press on environmental standards and on the size of private benefits, we obtain similar results. This supports the idea that our results are not driven by spurious correlations or reverse causality.

From a policy perspective, this evidence on the importance of media in corporate governance has two important consequences. First, previous research has mostly focused on the legal and contractual aspects of corporate governance. The evidence provided in this paper and in Dyck and Zingales (2001) suggests that this focus should be broadened, and that the policy debate should undergo a similar shift in focus.

Second, the press pressures managers to act not just in shareholders' interest, but in a publicly acceptable way. This finding brings the role of societal norms to the forefront of the corporate governance debate. With a few notable exceptions, for example, Coffee (2001), the role of these norms has been ignored, yet they may present an opportunity for reformers if they can increase communication about behavior that violates norms and those norms support effective corporate governance. However, they might also represent a major obstacle to any attempt to improve a country's corporate governance system. In countries where firing workers to increase profits is viewed negatively, creating the incentives for managers to do so will be extremely difficult, especially in highly visible companies. This should be openly considered in any realistic plan to reform a country's corporate governance system.

Some Examples of the Effects of the Media on Corporate Policy

To illustrate that the two examples provided in the introduction are not isolated anecdotes, but the tip of an iceberg, this section provides additional case studies that link media pressure to changes in corporate behavior. What is remarkable about all the examples is that these changes took place even in the absence of any legal requirement to act or legal liability not to act.

Corporate Strategy toward the Environment

Following the passage of the Pollution Prevention Act in 1990, U.S. firms were required to disclose their annual releases of each listed chemical by facility. Unlike accounting information, which constituency could legally make use of this information is unclear. Nevertheless, this information requirement has become an extremely important tool for changing corporate behavior, because it allowed polluters to be identified by firm and by individual facilities. As the Environmental Protection Agency noted: "The information is a lever for action, as citizens exact pledges from local manufacturing facilities to reduce toxic discharges" (Vietor 1993, p. 3).

Environmental groups like the Natural Resource Defense Council and the National Wildlife Federation have aggregated the information and communicated it to the press by means of publications with such titles as *The Who's Who of Toxic Polluters* and *The Toxic 500*, which have then been selectively picked up by the broadcast and print media. Given the high appeal of any news about the environment, environmental groups are generally spared the expense that Robert Monks had to face in his Sears battle (the *Wall Street Journal* advertisement alone cost more than US$100,000) to communicate their information to the public. This differential appeal of news to the broader public might lead to systematic distortions in the targets of these campaigns, and thus in the media's corporate governance role.

The public opinion pressure created by this information about polluters had an impact. Firms that were high on the list, such as Allied (ranked third in 1990) and DuPont (ranked first in 1990), have made getting off that top 10 list a point of corporate strategy, and doing so as fast as possible, even in the absence of any legal requirement. Allied, for example, more than tripled its expenditures on environmental control facilities and voluntary cleanup following the release of this information (Vietor 1993, exhibit 1). The industry has also responded, with the Chemical Manufacturers Association developing a code for responsible manufacturing and handling principles and making these principles mandatory for members, with this "draconian self-policing" viewed as "necessary to reverse the public's overwhelmingly negative opinion of the chemicals industry" (Vietor 1993, p. 3).

Corporate Governance and the Press

The press also intersects with various corporate governance mechanisms.

SHAREHOLDER ACTIVISTS AND THE PRESS. While activists such as Robert Monks and Nell Minnow have found the press useful in their fights with management in the United States, does the press have a similar effect in emerging markets? Recent events in the Republic of Korea indicate that it does.

Korea has long been known as a place where controlling shareholders in the largest Korean firms (*chaebol*) take advantage of their position at the expense of small investors. National corporate laws convey few rights to outside investors—they score only 2 out of 5 in La Porta and others' (1998) index that measures the strength of protection for minority shareholders—and expectations in relation to law enforcement are low. According to an index designed to assess countries' law and order tradition, Korea has a level half of the average in the industrial countries.

The beginning of efforts to force change in Korea dates to 1996 and the formation of the People's Solidarity for Participatory Democracy (PSPD) driven by Jang Ha-Sung of Korea University. As in the United States, this investor activist has focused his attention on changing corporate policies in the largest Korean firms, and has relied both on legal pressures, including proxy battles, criminal suits, and derivative suits, and on the use of the press to shame corporate leaders into changing their policies. Perhaps to an even greater extent than in the United States, the success stories have resulted more from the creation of public opinion pressure than from legal sanctions.

The most successful challenge to date has been the battle to stop insider dealings in SK Telecom. SK Telecom was an extremely profitable company, but its financial results did not show this because the company used transfer pricing to benefit two companies almost 100 percent owned by the chairman of SK Telecom and his relatives.[2] The PSPD drew attention to these policies. After the London-based *Financial Times* picked up the story, a media campaign ensued to attract proxy votes. This campaign involved publishing advertisements in newspapers and using television and radio. In March 1998 SK Telecom's directors capitulated and agreed to the PSPD's requests.

This success stands in sharp contrast with the failure of legal actions. For example, shareholders' proposals are severely restricted and cannot involve the removal of directors or auditors. Perhaps the only successful legal challenge has been the one to ensure investors' rights to speak at meetings, though the right to speak can only be used to affect the reputation of the parties involved, not to trigger any legal remedy. For example, the press gave extensive coverage to the fact that the Samsung shareholders' meeting lasted 13 hours. The effect of shareholder and public opinion pressure was an increase in the transparency of Samsung's financial statements.

INSTITUTIONAL INVESTORS. While institutional investors have many legal mechanisms to encourage change in corporate policies, the presence of an active press increases their influence. It provides a relatively cheap way to impose penalties on companies and to coordinate the response of other investors

[2] According to PSPD (2002, p. 3): "It was confirmed that SK Telecom channeled huge profits to Sunkyung Distribution, in which Sunkyung Group Chairman Choi Jong-Hyun holds 94.6% shares, and Daehan Telecom, owned 100% by Choi's son and his son-in-law. It was revealed that SK Telecom transferred profits to Sunkyung Distribution and Daehan Telecom by paying exorbitant service fees or purchasing equipment at high prices. Due to SK Telecom's internal transactions, SK Group affiliate Daehan Telecom's business profits increased from only 64 million won to 13.7 billion won, and Sunkyung Distribution's business profits increased from -4.1 billion won to 6.6 billion won. In contrast, SK Telecom, which as the strongest company in 1996 recorded sales of 2.6 trillion won, began showing sharply increased sales costs and sharply decreased profits since becoming part of the SK Group in

in availing themselves of potential legal protection.

The California State Pension Fund for Public Employees (CalPERS), for example, has adopted a policy of identifying underperforming firms and generating widespread media attention as an important tool in its efforts to change corporate policies to increase their returns. CalPERS identifies a long list of poorly performing firms according to criteria such as shareholder returns, economic value added, and corporate governance. Armed with this list CalPERS representatives talk to companies to try to get them to change their policies, with the threat that if they do not, CalPERS may launch a proxy contest and will go ahead and reveal the firms in a "focus list." This threat of public exposure is an important part of CalPERS' approach. CalPERS found that when it removed this publicity threat its strategy did not work. In 1991, when several chief executive officers (CEOs) convinced CalPERS that a "kindler, gentler" strategy would be less antagonistic and more effective, only 2 of the 12 targeted companies negotiated acceptable agreements with CalPERS and 3 resisted even meeting with CalPERS officials. As CalPERS CEO Dale Hanson commented: "'Kindler, gentler' is not working. It has shown us that a number of companies won't move unless they have to deal with the problem because it's in the public eye" (Dobrzynski 1992, p. 44). In 1992 CalPERS returned to the policy of publicizing its target lists.

Another example is the case of investors in Russian firms. William Browder, CEO of Hermitage Capital Management, the largest public equity fund in Russia, reported to us that "the single most important corrective mechanism we have against misgovernance is the press" (email, May 21, 2002). For example, Browder brought misdeeds at Gazprom in October 2000 to the media's attention, and was thereby able to generate publicity about management's failures, with stories in the international business press, including *Business Week*, the *New York Times*, the *Financial Times*, the *Wall Street Journal,* and the *Washington Post*. Such media pressure, reportedly, had the beneficial effect of facilitating coordination by institutional investors and shaming them to take action to vote for a special audit of the firm, something that required the approval of 10 percent of the shareholders, and of contributing to other

1994. The sales profit, which was as high as 31% in 1994, decreased to only 14% in 1996, and the sales cost/income ratio increased greatly from 58% to 76%."

changes in corporate policies. Press reporting on misgovernance can also shame politicians and managers who care about their international reputations to act to improve policies in firms. Interestingly, press attention is viewed as equally important to legal challenges. As William Browder reported to us: “The press is one of the reasons why we pursue lawsuits. We have pursued 24 lawsuits so far and lost 23. That is the way it is in Russia. But the advantage is the publicity."

PRIVATE AND GOVERNMENT REGULATORS. Public opinion pressure generated by an active press is also essential to efforts by private sector organizations to use self-regulation to improve corporate governance. Consider the approach in the United Kingdom to the range of financial scandals of the 1980s, including the collapse of the Bank of Credit and Commerce International and the Maxwell Group. Instead of legislation that proscribed certain activities matched by court sanctions and fines, the United Kingdom pursued self-regulation, enforced through disclosure. The Cadbury Commission, dominated by the private sector, defined corporate governance standards and developed mechanisms to compel the disclosure of performance relative to standards, allowing the force of public pressure generated by disclosure and news stories to change practices. This publicity route had the advantage that the self-regulatory organization had the power to impose it and the penalty could be introduced quickly. Alternative sanctions, such as fines and court-enforced penalties, were either unavailable or could be delayed through court proceedings, thereby limiting their effectiveness.

The Cadbury Commission, which issued its report in December 1992, was the first effort at reform by means of disclosure and public pressure. The key element of the report was a code of best practice with 19 recommendations, including an enhanced role for independent directors, a minimum number of independent directors, and the separation of the roles of the chair and the CEO. Since 1993 the London Stock Exchange has made a requirement of listing that a company include a statement of performance relative to the code and a written explanation for any variation in its annual reports. It has since become common practice for company statements issued to the press and for independent press reports to identify performance relative to code standards, with a lack of compliance described largely as a failure of corporate governance by the company and its directors. A similar approach regarding company practices toward executive compensation was adopted in the Greenbury report, issued in July 1995, and in the Hampel report, released in January 1998. All these best practices have been consolidated into a "supercode" published by the London Stock Exchange in June 1998, again with requirements for disclosure rather than compliance.

This approach—reliance on disclosure supported by widespread communication by the press of performance relative to standards—has led to remarkable changes in firm practices within a short time. A recent study (Dahya, McConnell, and Travlos 2002) showed that while two-thirds of a sample of London Stock Exchange firms were not in compliance with Cadbury standards when they were enacted in 1992, 93 percent had complied by 1996. In addition, firms that adopted the standards have seen increased management accountability, as CEOs' tenure has become more sensitive to their firms' performance. This remarkable response was undoubtedly facilitated by the press's (and the public's) acceptance of the standards, so that reports of noncompliance would lead to widespread condemnation of managers and directors.

The extent and success of a disclosure and publicity approach is widespread. In Hong Kong (China) the stock exchange has historically not had the legal authority to impose penalties on companies that misbehave. Instead, it uses the media as a sanction, taking out advertising space to notify the public about a firm's security violations. The threat is usually enough. Shaming is both a personal penalty for the executives involved and may introduce a financial penalty if others now update their beliefs about the reliability of the executives and company and increase their terms for financing projects suggested by the executives. The effects of this policy were highlighted by Dyck and Zingales (2001), who reported that the average size of private benefits in Hong Kong (China) is only 0.7 percent, versus an international average of 14 percent.

The New York Stock Exchange is currently considering a similar approach of publishing reprimand letters to members that fail to implement revised listing guidelines relating to, for example, auditor independence and committee structures: requiring firms to publish these letters in their annual reports: and relying on the press to communicate the content of such letters. In short, relying on what James Landis, architect of the U.S. security laws after the crash of 1929, described as "the penalizing force of pure publicity" (McCraw 1984, p. 172).

THE PRESS VERSUS OTHER MECHANISMS FOR ADDRESSING GOVERNANCE PROBLEMS. In some markets the penalties that can be imposed by the press are at least as important as other mechanisms for fighting misgovernance that the literature more commonly focuses on. Consistent with this contention is a recent survey in Malaysia that asked institutional investors and equity analysts to identify the factors that were most important in assessing corporate governance and deciding to invest in publicly listed corporations (Low, Seetharaman, and Poon 2002). The analysts thought that the frequency and nature of public and press comments about the company were more important than a host of other factors that receive more attention in academic debate, such as the company's relationship with the regulatory authorities, the number of independent nonexecutive directors and their qualifications, the existence of remuneration and audit committees, and the identity of company auditors.

BUSINESS SCHOOL GOVERNANCE AND *BUSINESS WEEK* RANKINGS. In 1988 the magazine *Business Week* started to publish a ranking of the top U.S. business schools. Despite its arguable criteria (most students experience no more than one business school, yet their responses are used to rank them), this ranking gained a lot of attention, and soon assumed the role of a standard in the industry.[3] While we are not aware of any systematic study of the effect of the introduction of these rankings on the governance of business schools, their impact is undoubtedly huge. Suddenly teaching ratings became important and faculties were held accountable, new programs were introduced to cater to students' needs, and some schools were even caught coaching their students how to respond to the *Business Week* questionnaires.

In this case the reason why the media pressure works seems even more complex, because

[3] In the last year or so new competitors have entered the market: the *Financial Times* and the *Wall Street Journal* have elaborated their own rankings. To date, however, the *Business Week* ranking is by far the most important.

business schools are nonprofit institutions with peculiar governance structures. While a number of factors undoubtedly help to explain this response, including the belief that the ranking will affect the quality of applicants and the expected salaries of graduates, we cannot discount the factor we have emphasized, namely, managers' concerns about their own reputations. The moment the business school rankings were introduced and were considered an important measure for judging business schools, deans started to care because the rankings would affect their own reputations.

Business Week's ranking of business schools was not the first. *U.S. News and World Report* ranked all university departments, including business schools, before *Business Week* entered the game, but *U.S. News and World Report* does not have the circulation and credibility of *Business Week*, especially in the business community. However, this proves our point that the way the media affect corporate behavior is by reducing the cost of collecting and certifying relevant information. The more authoritative and diffused a magazine is, the more influential it will be, because it will be better able to affect the reputations of the parties involved.

A CONTROLLED EXPERIMENT. All these examples show an apparent correlation between media exposure of certain practices and some companies' actions to modify these practices. Yet concluding that this link is necessarily a causal one is hard. One could easily argue that the media reported this information because a demand for it existed, and that demand for it existed because pressure to change the course of action was already present. Thus the correlation between media reporting and a change in the course of action is spurious. The next section deals with this problem systematically by using instrumental variables. Before doing that, however, we report on a small, controlled experiment that lends support to the view that this correlation is causal.

One of us used to write a Sunday column in the leading Italian newspaper, *Il Corriere della Sera*. Fascinated with the Sears' story, in January 1999 he wrote a column pointing to the importance of the role of newspapers in shaping the reputation of directors and thereby enforcing better corporate practices. To set an example he singled out the worst-performing company among large publicly traded companies in

Italy in the previous three years and published the names of all the directors. To his surprise he received no public response. Two months later, however, the CEO of the company resigned, providing no explanations for his departure. Another magazine linked the two events and called the writer "the torpedo professor."

Theoretical Framework

While the anecdotal evidence is useful in documenting the existence of this phenomenon and illustrating how this influence takes place, more systematic evidence is needed to prove its importance. For this reason we turn to a cross-country analysis of the effects of the media on corporate policy. Before doing so, however, we need to be more specific about the channels through which this influence occurs.

A first channel of influence is that media attention can drive corporate law reforms or the enforcement of corporate laws. The likely motivation for such changes is politicians' belief that inaction would hurt their future political careers or shame them in the eyes of public opinion, both at home and abroad. This is an important dimension of the media's impact that Besley and Prat (2001) and others have explored.

We focus on the links between the media and managers' and directors' reputations. Consider a model of reputation building like that presented in Diamond (1989). Agents can be of two types, good or bad, which differ in their cost of taking a certain action. In our case an environmentally-friendly manager will find polluting more painful than somebody who does not care about the environment. Let us assume, as it is likely, that the environmentally sensitive decision carries a higher cost for the manager, say, it requires more effort. Thus the good (environmentally-friendly) manager will not pollute while the bad manager will pollute.

Let us now assume, consistent with our previous discussion, that being identified as an enemy of the environment carries a cost. If we really want to incorporate this cost in the typical career concern models (see, for example, Harris and Holmstrom 1982), we can say that this cost arises from the possibility that the manager might move into politics, where a bad environmental record represents a genuine liability. More broadly, we can think of this cost as the personal disutility of a dent on the manager's public image. The social norm is that managers should be environmentally friendly, therefore being identified as a bad environmental manager produces social shaming. People simply dislike being singled out as "bad" people.

If the payoff of being recognized as environmentally conscious is large enough (or the disutility of being identified as a polluter is significant enough), even bad managers can be induced to take the "right" action by their desire to mimic the good type, and in so doing being recognized as environmentally friendly (see Diamond 1989). As only the bad manager will want to pollute, polluting immediately identifies a manager as bad. Hence if the payoff of being identified as a polluter is sufficiently negative, the bad manager will choose to disguise himself or herself as environmentally conscious by not polluting.

This type of reputation model is based on the assumption that the information about the manager's action is revealed to the public with probability 1. In practice, this is not the case. Information does not descend on individuals: they acquire it at a cost that is affected by the media. Governments, firms, and interest groups generate and aggregate information that the media then process and selectively communicate.

The broader the media coverage, the more likely that the public at large will acquire this information. Similarly, the more attention the media command, the more widely this information will travel. In our empirical analysis we will use the second dimension, and as a measure of the attention the media command we use newspaper readership normalized by population.

Clearly in this type of reputation model, if we introduce the idea that outsiders learn of managers' actions only with a certain probability, then the higher this probability is, the higher the likelihood that managers will behave in an environmentally-conscious way. In particular, if a higher diffusion of the press leads to a higher probability of detection, then the higher the diffusion of the press, the more that likely managers will behave in an environmentally-conscious way.[4] This is the proposition we will test.

Similarly, we will test the proposition that the higher the diffusion of the press, the more likely managers are to protect minority shareholders' interests. The foregoing discussion can be recast in these terms simply by substituting "shareholder friendly" for "environmentally conscious." The only difference is that in this latter case we do not have to appeal to managers caring about their public image to obtain the results, but could simply have talked about managers' reputation in the labor market. Nevertheless, in most countries managers are appointed by majority shareholders, thus whether their career opportunities are enhanced by acting in the interests of minority shareholders is not clear.

Where Do the Media Get Their Information?

The previous discussion highlighted the role of the media in aggregating, certifying, and diffusing crucial information, but where do the media get their information? For the media to collect their own information about managers' actions is costly, thus they often rely on information provided to them. An important source is the government, either directly, or indirectly through mandated disclosure, for instance, required financial or environmental disclosures. Government-mandated information is the most reliable, because it is not affected by selectivity and is not provided in exchange for something. With greater government-mandated disclosure, such as the toxic release inventory, it is easier for interest groups to aggregate the information and for journalists to use this aggregated information when they communicate to the public.

Journalists also obtain information directly from the source, that is, managers, employees, and so on. Not only is this information selective, it is often provided to the journalist on a quid pro quo basis, such as favorable treatment in the news story. In the long run, the use of this channel will undermine the

[4] More generally, any organization or institution can enhance reputation penalties if it can increase the likelihood of identifying, certifying, and disseminating information about a manager's or owner's type to a community that can impose sanctions. The key issue with effective informal contract enforcement is to increase expected penalties associated with breach of trust, which normally involves moving from bilateral sanctions ("I will refuse to trade with you again") to multilateral sanctions ("We will all refuse to trade with you again and will penalize you in additional ways as well such as shaming"). The importance of such private order institutions that rely on norms supported by

credibility of the media.

A similar problem arises with the third potential source of information, namely, interest groups such as the shareholder activists, institutional investors, and environmental activists described earlier. Interest groups both generate information, for instance, the tape of dolphins being killed, and aggregate and synthesize information from other outlets, such as the list of toxic polluters. Other aggregators of information in corporate governance include equity and bond analysts. While the media are important to all these groups, the media are particularly important to activists who seek to mobilize and coordinate the actions of a dispersed set of citizens, such as for a boycott or a proxy fight.

Selective Coverage and Media Credibility

So far we have treated the media as a single entity that aggregates and then communicates information. A critical issue we have ignored is the credibility of the information the media communicate to the public, which is, of course, extremely important. The fact that the *Financial Times* reported on the SK Telecom and Gazprom insider deals brought credibility to the stories, because even in Korea and Russia the *Financial Times* is more credible than local newspapers. Similarly the *Business Week* ranking of business schools had a much greater impact than the *U.S. News and World Report* ranking because the former is not only more diffused, but also more authoritative than the latter.

The issue of credibility is particularly delicate because it opens up the question of newspapers' incentives to conduct further investigations to establish the validity of the information reported to them and their incentives to report the information they receive accurately. It is precisely when newspapers do have an impact that they have an incentive to enter into side deals with the parties involved and be paid not to reveal damaging information. Threats to increase (or withhold) future advertising revenues in exchange for stories that reflect well (badly) on company management and directors are one example of

repeated interactions is developed in Ellickson (1991), historical work on trading associations and ethnic groups is described by Greif (1997) and McMillan and Woodruff (2000).

side deals. Of course, such side deals might hurt the reputation of a newspaper in the long run, and hence its credibility.

If—as is likely—it is more difficult for an individual newspaper to build a reputation of integrity in a market where all the other newspapers are colluding, the possibility for multiple equilibria arises. One equilibrium is where newspapers have credibility and thus avoid side deals for fear of losing it. Another is where newspapers do not have credibility and happily accept bribes not to publish damaging information or to publish false damaging information.

Important factors that determine which equilibrium prevails are the competitive environment in which newspapers operate, the ownership structure of the media, and libel laws. In a competitive market a newspaper agreeing not to publish bad news is likely to be scooped by another newspaper and to lose credibility. Thus the more competitive the environment is, the less likely is the collusive equilibrium. Similarly, an independent newspaper whose survival rests solely on its own success is less likely to collude with established business interests. By contrast, a newspaper owned by a business group is naturally less likely to publish bad news about the group itself. This in turn affects its credibility in correctly reporting other news, thereby reducing its incentives to build a reputation (and increasing its incentives to collude).[5] More stringent libel laws reduce the likelihood of a newspaper publishing information that suggests that managers are "bad," again reducing the information content of the media.

Empirically, we lack most of this information. No internationally comparable indicators of the stringency and enforcement of libel laws are available. Djankov and others (2001) reported the fraction of media owned by the government, and Freedom House (1999, 2000) reported the degree to which each country permits the free flow of information. In our case, however, these indicators are not the most important pieces of information. We would like to know which media are owned by business groups with other important business interests and which ones have fewer ties to nonmedia firms and are independently owned, like the *New York Times* or the *Washington Post*. Political freedom of the press is not the same as freedom from economic influences.

The extent of newspaper readership that we will be using, however, indirectly gets at the credibility question. In a market where newspapers are more likely to collude, and are thus less credible, they also become a less valuable source of information, and therefore, other things being equal, they are less likely to be read. Hence our measure of newspaper readership captures both the diffusion of the newspapers and their overall credibility.

Consumer Demand and Selective Coverage

The media's impact also depends on the entertainment value of news. "It was all too complicated and boring to interest many mainstream journalists," said Ellen Hume of the *New York Times* to explain the delay in media attention to the U.S. savings and loan crisis (cited in Baron 1996, p. 62). Similarly, when asked why television had paid relatively little attention to the crisis even after it had made headlines in 1988, the president of NBC news, Michael Gartner, observed that the story did not lend itself to images, and without such images "television can't do facts" (cited in Baron 1996, p. 62).

Environmental issues naturally generate images (the dying dolphins) that can capture the public's attention, while corporate scandals do not. For this reason we expect the print media to be more central to corporate governance issues than broadcast media.

Demand considerations also lead to a selective focus on stories with wide interest, like executive compensation levels, rather than on other elements of good corporate governance, like the composition of boards and the role of auditors, even after scandals such as Enron and Worldcom. Readers may not be able to appreciate the nuances of corporate situations, leading to news stories that simplify firm performance relative to environmental or corporate governance standards in too stark a way. In the United Kingdom, for example, while the recommendations developed in the Cadbury, Greenbury, and Hampel

[5] Besley, Burgess, and Prat (2002) and related work by Besley and Prat (2001) sketch out a model that picks up many of the issues described in this section, although they focus on possible collusion between the government and

reports are often qualified, they are rarely reported that way. The "public" version is a gross oversimplification around bright line rules, producing "box checking" and intense pressure to conform to standards different than those intended.

Finally, demand for corporate governance news might depend on the structure of corporate ownership. Thus the extent of coverage and the consequent sanctioning role of the press are likely to be more important when a broad group of citizens have a personal interest in the outcomes, because of their direct or indirect (through pension funds) shareholdings. The important corporate governance role played by the media in Korea and Malaysia described earlier is probably attributable to the widespread dispersion of ownership in publicly traded firms in these two countries.

Reputational Penalties and Social Norms

As noted previously, media activity can hurt managers' reputations in the eyes of shareholders and future employers as well as of family, friends, professional associates, and the public at large. Reputational penalties can be long-lasting. As Jean Lamierre, the president of the European Bank for Reconstruction and Development said: "People may not necessarily change," in defense of a policy of keeping a secret blacklist of companies and individuals with which the bank will not do business (Wagstyl 2002).

The strength and nature of shared social norms influence the impact of the media. Where maximizing shareholders' value is the norm, any media account of underperformance has a significant impact. In the United States, for instance, a well-developed set of publications, including the *Wall Street Journal*, the *New York Times*, the *Financial Times*, *Business Week*, *Fortune*, *Forbes*, and *Harvard Business Review*, emphasizes both business heroes and villains. Executives seek to be identified in these publications for the status it brings them. Where such status is valued, the media are particularly powerful because they can both build and destroy reputations.

This power of U.S. and British media to pressure managers transcends domestic borders. After

the media rather than private sector firms and media outlets.

becoming rich, executives in emerging markets seek broader acceptance in the international community by joining the World Economic Forum at Davos, seeking positions on the boards of trustees of prominent international institutions, and so on. While the Russian oligarch Vladimir Potanin was successful in his efforts to join the trustees of the Guggenheim Museum in April 2002, oligarchs such as Oleg Deripaska were "disinvited" from participating in the Davos meeting, and Deripaska was stripped of his designation as "one of the global leaders of tomorrow" following negative press coverage of civil lawsuits alleging bribery, money laundering, and worse (*Financial Times* 2001; Wagstyl 2002). Interestingly, these leaders are not as sensitive to their public image in their own country, perhaps because of the lack of credibility of the local media, the lack of shared norms, or both. In any case, these episodes suggest that the U.S. and British media play a nontrivial role in exporting the Anglo-American model to other countries.

We should reiterate, however, that the norms communicated by the media are not necessarily in shareholders' interests. In countries like Japan, where lifetime employment is a shared value, the media are likely to describe workers' dismissals in a negative light. This sanction might deter firings even when they enhance value from a shareholders' perspective.

Data on Corporate Policy and the Importance of the Press

In Dyck and Zingales (2001) we analyzed, among other things, the impact of the diffusion of the media on corporate governance. As a measure of corporate governance we used an estimate of the value of control obtained from control block transactions. On average, parties are willing to pay more for control only if they expect to enjoy some private benefits. Private benefits of control represent the wedge between the physical return to investments and the amount external financiers can appropriate. They are therefore a good indicator of how much dispersed shareholders' rights are respected.

We found that private benefits of control are lower, and thus governance is better, in countries where the press is more diffused. This is true even after controlling for the degree of legal protection offered to minority shareholders, for the quality of accounting standards, and for the level of economic development as measured as GDP per capita. The effect is also economically significant. One standard deviation increase in the diffusion of the press reduces the average value of private benefits by 5 percentage points, 18 percent of their standard deviations.

In this paper we perform a similar analysis with respect to environmental practices.

Dependent Variable: Private Sector Responsiveness to Environmental Issues

As an indicator of the importance private sector firms place on environmental issues we use an index of private sector responsiveness to environmental concerns developed through the collaboration of the World Economic Forum and researchers from Columbia and Yale universities. This index is based on five variables: the number of ISO 14001 certified companies per million dollars of GDP, the number of World Business Council for Sustainable Development Members per million dollars of GDP, Innovest's EcoValue rating of firms' environmental performance, the Sustainable Asset Management rating of the environmental sustainability of firms in the Dow Jones global index, and the levels of environmental competitiveness based on firm surveys. Each variable is based on firm-level data and assigned equal weight in the index. Table 1 describes and defines all the variables used in this paper and shows their sources.

[insert table 1 about here]

Private sector responsiveness is clearly related to per capita income. The five highest ranked countries are Switzerland, Japan, Germany, the United Kingdom, and New Zealand, while the five lowest ranked countries are Venezuela, Indonesia, Greece, Colombia, and the Philippines. However, responsiveness is not driven solely by per capita income. Italy and the United Kingdom, for example, have similar per capita incomes, but very different measures of private sector responsiveness: Italy's index is –0.35, ranking it 35th in our sample, while the United Kingdom's index is 1.02, ranking it 4th.

Measures of the Importance of the Press

We focus on two principal measures of the press that recent studies have highlighted. The first measure, and the focus of the analysis, is a measure of the diffusion of the press based on the circulation of daily newspapers in the country normalized by the country population. This measure captures, to some extent, the possibility for the press to affect public opinion, because it provides one measure of the reach of the press. It also captures, to some extent, the presence of an active and competing press, because wider circulation is presumably accompanied by more intense competition among competing firms.

Cross-country variation in the diffusion of the press is significant. The five economies in our sample with the highest readership are Hong Kong (China), Norway, Japan, Finland, and Sweden. The five lowest countries in our sample are Kenya, Zimbabwe, Pakistan, South Africa, and Egypt. Again, income explains much of the variation, but even for countries with similar incomes great disparities are apparent, for instance, in the United Kingdom the average circulation is 331 per 1,000 inhabitants, while in Italy it is 104.

The press measures used more often in the literature are derived from Freedom House (see examples cited in Besley, Burgess, and Pratt (2002)). We focus on three measures: the freedom of the press, the frequency of violations against broadcast media, and the frequency of violations against print media. The freedom of the press is an index that measures the "degree to which each country permits the free flow of information" (Freedom House 1999).[6] The frequency of violations against the media, be they broadcast media or print media, is an index based on "actual violations against the media, including

[6] Freedom House reports a measure of press freedom that is scaled from 0 to 100, where 90 out of the 100 points are based on Freedom House's subjective evaluation of the laws and regulations and of political pressures and economic influences over media content, and 10 of the 100 points are based on actual violations against the media, including murder, physical attacks, harassment, censorship, and self-censorship. Half of the index total comes from an evaluation of broadcast media and half from an evaluation of print media.

murder, physical attack, harassment and censorship" (Freedom House 1999).[7]

A clear relationship between diffusion and the rating of press freedom is apparent, with a correlation of 0.55. However, the variables do capture different components of the press, and for countries with similar levels of freedom quite significant differences in readership can be noted, for instance, Spain and the United Kingdom have similar levels of press freedom, but Spain has less than one-third the readership.

We do not look at other possible press measures, such as the measure of ownership of the media used by Djankov and others (2001). They focused on what fraction of the media is owned by the government, but our sample has too few countries where ownership of the press is in other than private hands.

Other Institutional Factors

As we already pointed out, countries where the press is very diffused are also countries with a higher GDP per capita and better law enforcement (Table 2). To reduce the likelihood that we are attributing to the influence of the press the role of some other institutional factors, correlated with press diffusion, our regressions control for the most important ones.

[insert Table 2 about here]

LEGAL ENVIRONMENT. Our claim is that the media have an impact on corporate behavior beyond any legal requirement. Therefore when studying the private sector's responsiveness to environmental issues we should control for the extent of environmental laws and regulations. As an indicator of the stringency of legal and regulatory restrictions on firms we use the 2001 environmental sustainability index (Yale

[7] The scores for 1999 and 2000, both of which vary from 0 to 5, are combined and rescaled to produce an index that ranges from 0 to 10, with higher values corresponding to greater freedom.

Center for Environmental Law and Policy 2001), which is based on four variables: the stringency and consistency of environmental regulations, the degree to which environmental regulations promote innovation, the percentage of land area under protected status, and the number of sectoral guidelines on environmental impact assessments. Each variable has equal weight and has been normalized.

INFORMATION ENVIRONMENT. More disclosure can have an effect independent of the role of the press. For this reason, we want to control separately for the degree of disclosure. When we examine the private sector's responsiveness to environmental issues we control for environmental disclosure. As we lack firm-based measures of environmental disclosure, we instead use the extent of environmental disclosure as captured by the index of environmental information compiled for the 2001 environmental sustainability index.

Empirical Results

We start by analyzing the link between the diffusion of the press and the indicator of private sector responsiveness to environmental issues. We first use univariate analysis and then turn to multivariate analysis to try to control for the other important institutional factors. Panel A of table 3 shows a strong positive correlation between the diffusion of the press and private sector responsiveness to environmental issues. As column (1) shows, the diffusion of the press alone explains 42 percent of the cross-country variation, slightly more than the explanatory power of per capita income (38 percent). Not surprisingly, the private sector's responsiveness to environmental issues is also positively correlated with the level of environmental regulation (column 2), environmental information (column 3), and per capita income (column 4).

[insert table 3 about here]

In column (5) we combine readership with the legal and disclosure variables, and readership continues to have a statistically significant impact: including readership increases the explanatory power from 45 to 58 percent. Of course, there is the possibility that readership is just picking up the impact of some third omitted variable. To attempt to capture this possibility we also include the level of per capita income (column 6), but readership continues to have a significant effect. Finally, in columns (7) and (8) we include other institutional variables, such as the rule of law and ownership concentration, but the diffusion of the press continues to be significant. An interesting finding is that ownership concentration has a negative and statistically significant effect on the private sector's responsiveness to environmental issues. Where large shareholders run firms they feel freer to ignore the public opinion pressure in favor of the environment, another piece of evidence that this is not a course of action that maximizes value.

In panel B we substitute the diffusion of the press with the freedom of the press, the frequency of violations against broadcast media, and the frequency of violations against print media. In a univariate setting all three of these variables help explain a significant amount of the cross-country variation. In a multivariate analysis, however, the statistical significance is reduced, and in the case of violations against broadcast media it drops below conventional standards. The traditional indicators of press freedom thus have an effect similar to the diffusion of the press, but statistically weaker. This is not surprising, because these other indicators are meant to capture freedom from political influences rather than the credibility of reporting about corporations.

What Determines the Diffusion of the Press?

Our cross-country regressions suffer from two problems that are common to this genre of regressions. First, there are so many institutions that differ across countries and so few degrees of freedom that one always wonders whether the results are due to an omitted variable that drives both press diffusion and environmental responsiveness. We have tried to address this problem by controlling for the most obvious determinants of environmental responsiveness, but we can never be sure that we have controlled for all the important factors. The second problem, which is less of an issue here, is one of reverse causality. Is the press more diffused because companies are more sensitive to environmental policies?

To address both these problems we resort to instrumental variables. A good instrument is one that is correlated with our variable of interest (the diffusion of the press), but is not correlated with the error in our regressions of the diffusion of the press on corporate behavior.

One precondition for the diffusion of the press is the diffusion of education, and we could use the average level of school attainment as a determinant. However, the same factors that determine schooling policy could also be correlated with environmental responsiveness. For this reason we prefer to use historically predetermined factors that have caused these differences in the level of education. We introduce two, the degree of linguistic fractionalization and the dominant religion in a country.

The more languages are spoken in a country, the more fragmented the newspaper market. In a more fragmented market fewer newspapers can survive, and it is more difficult for them to acquire reputation and credibility. Ethnolinguistic fractionalization should therefore have a negative impact on the diffusion of the press.

Religions differ in their approach to education and to the extent they encourage the development of critical judgment by their followers. Catholicism, for instance, traditionally did not encourage education among its followers except for the clergy. Catholics were not encouraged to read the Bible, nor were they supposed to develop an individual capacity to interpret it. The Catholic Church saw itself not only as the intermediary between God and individual believers, but also as the only official interpreter of the word of God. By contrast, the Reformation, with its emphasis on individual reading and interpretation of the Bible, favored individual education. Martin Luther translated the Bible into German and promoted the literacy of his followers. Hence we would expect Protestant countries to have a better level of schooling and exhibit a higher diffusion of the press. Our third and fourth categories are Islam and other religions, which includes Judaism and Buddhism.

We test these conjectures in table 4, column (1). As a dependent variable we have the diffusion of the press. As independent variables we have three indicator variables for the dominant religions (Catholic, Protestant, Muslim) and an indicator of ethnolinguistic fractionalizaiton used in the literature (see Easterly and Levine 1997). The latter is based on the probability that two randomly selected people from a given country will not belong to the same ethnolinguistic group. As column (1) shows, all our explanatory variables have the expected impact on the diffusion of the press. In all the cases except for the Catholic dummy, these coefficients are statistically significant. Most important, from the point of view of their quality as instruments, they together explain 41 percent of the variation in press diffusion. Hence they appear to be good instruments.

[insert table 4 about here]

We use these instruments to re-estimate by instrumental variables our basic specifications for the determinants of environmental policy.[8] The environmental policy regressions, reported in column (9) of table 3, produce similar results to the ordinary least squares estimates. The instrumental variable point estimate of the impact of the diffusion of the press is actually larger than the ordinary least squares counterpart, rejecting the hypothesis that the result is due to omitted variables.

Thus far we have limited our search of the determinants of press diffusion to factors that (a) are likely to be uncorrelated with the determinants of environmental pressure and protection of minority shareholders; and (b) are predetermined, and as such are legitimately exogenous. However, the question of what drives the diffusion of the press is of independent interest. If the diffusion of the press plays a role in corporate governance, then from a policy point of view we are interested in finding out what factors under the control of the government play a role in spreading newspapers' readership.

For this reason, in table 4, columns (2) through (4), we consider the empirical significance of other potential determinants of the diffusion of the press. First we consider the average degree of

[8] We have performed a similar test with a country-level version of the corporate governance relation estimated in Dyck and Zingales (2001). The instrumental variable point estimate is slightly lower than the ordinary least squares one, and significant only at the 10 percent level. Thus spurious correlation might explain a tiny bit of the impact of the diffusion of the press, but not the bulk of it.

schooling (column 2) measured as the log of school attainment for those over the age of 25 taken over five year periods (1960-1965, 1970-1975, 1980-1985) (Barro and Lee 1993). As expected, countries with a higher level of schooling have a more diffused press. All the other variables except the Muslim dummy maintain their predicted effect, although the statistical significance of the religion dummies decreases, as is to be expected if they affected the diffusion of the press mainly through their effect on education.

In column (3) we also insert the market share controlled by state-owned newspapers. The more newspapers the government controls, the less credible they are, the less they will be read, and perhaps the harder it will be for competitors to enter the market. We take the market share of state-owned newspapers as a percentage of the total market share of the top five newspaper outlets from Djankov and others (2001). As expected, the impact of government ownership of the media is negative and statistically significant. All the other variables maintain their predicted effect.

Finally, we want to make sure that the effects we have described are not just due our failure to control for any indicator of the level of economic development of a country. While the cause-effect relationship is more ambiguous here, seeing that the estimated effects are similar once we insert the log of per capita income, is reassuring (column 4).

Conclusion

Other papers have focused on the important role of the media in affecting the functioning of government institutions, but the media play an equally important role in shaping corporate policy. Our contribution is a first attempt to outline the theoretical channels through which this influence takes place and to show their practical relevance.

We argued that the media selectively reduce the cost of acquiring and verifying information. This information is crucial in shaping the reputation of the key players who determine corporate policy. The reputation that decisionmakers seem to care about is not just the reputation in the eyes of current and future employers, but more broadly, their reputation in the eyes of the public at large, that is, their public image. Only concerns about their public image would explain the responsiveness of corporate directors to environmental issues, which have a zero or negative impact on the wealth of their ultimate employers, that is, the shareholders.

These effects of the media are not only anecdotal. The more diffuse the press in a country is, the more companies are responsive both to environmental issues and to minority shareholders' concerns, even after controlling for the presence of specific laws and regulations and the level of law enforcement. These results suggest that the corporate governance role of the media is more complex than the one we identified in Dyck and Zingales (2001). The media can help shareholders or can hurt them. We conjecture that while the strength of the impact of the media depends on their credibility, the direction of their net effect depends on societal norms and values, but much more research is needed before coming to any definite conclusion on this matter. The only definite conclusion we can draw at this point is that the media are important in shaping corporate policy and should not be ignored in any analysis of a country's corporate governance system.

From a policy point of view our contribution provides both good and bad news. The good news is that even countries with inadequate laws and malfunctioning judicial systems can experience some of the benefits of better governance if the pressure of the press is sufficiently strong and the norms support good governance. The bad news is that the direction in which the press exercises its influence depends on societal values, which cannot be easily changed by the legislators or by international policymakers. Moreover, the extent of press influence may be largely outside policymakers' control. Our analysis of the ultimate determinants of the diffusion of the press indicates that these lie in a country's cultural and ethnic tradition.

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Table I
Description of Variables

Environmental governance indicator: Private sector responsiveness to environmental concerns
The index of private sector responsiveness is based on five variables: the number of ISO 14001 Certified companies per million dollars GDP, the number of world business council for sustainable development members per million dollars GDP, Innovest's EcoValue rating of environmental performance of firms (firm's weight determined by market capitalization), SAM rating of environmental sustainability of firms in the Dow Jones global index (proportion of firms in global index classified in top 10% of sustainability), and the levels of environmental competitiveness based on firm surveys (Global Competitiveness Report 2000, Michael Porter et. al.) Each variable is based on firm level data, assigned equal weight in the index, and using data for 122 countries has been normalized to have mean 0 and variance 1.
2001 Environmental Sustainability Index, Annex 6 and Annex 4.

Press indicator #1 - Newspaper diffusion
Circulation of daily newspapers/population.
UNESCO statistical yearbook 1998, reporting values for 1996. For Taiwan based on Editors and Publishers' Association Year Book and AC Nielsen, Hong Kong, as reported in "Asian Top Media – Taiwan" www.business.vu.edu

Press indicator #2 - Press freedom rating
This index indicates the "degree to which each country permits the free flow of information" Freedom House reports a measure of press freedom that is scaled from 0-100 where 90 out of the 100 points are based on Freedom House's subjective evaluation of the laws and regulations, political pressures and economic influences over media content, and 10 of the 100 points are based on actual violations against the media including murder, physical attack, harassment, censorship and self-censorship. Half of the index total comes from an evaluation of broadcast media and half from print media. We have rescaled the data so that higher free rating values correspond with greater press freedom.
Freedom House, 1999.

Press indicator #3a - Violations against broadcast media
An index based on "actual violations against the media, including murder, physical attack, harassment and censorship." The scores for 1999 and 2000, both which vary from 0 to 5, are combined and rescaled to produce an index that ranges from 0 to 10 with higher values corresponding with greater freedom.
Freedom House, 1999, 2000

Press indicator #3b- Violations against print media
An index based on "actual violations against the media, including murder, physical attack, harassment and censorship." The scores for 1999 and 2000, both which vary from 0 to 5, are combined and rescaled to produce an index that ranges from 0 to 10 with higher values corresponding with greater freedom.
Freedom House, 1999, 2000

Environmental Regulation and Management
Index of stringency of legal and regulatory restrictions on firms. Index based on four variables: stringency and consistency of environmental regulations, degree to which environmental regulations promote innovation, percentage of land area under protected status, number of sectoral environmental impact assessment guidelines. Each variable has equal weight and has been normalized.
2001 Environmental Sustainability Index, Annex 6 and Annex 4.

Environmental Information
This index is based on three variables: the availability of sustainable development information at the national level, environment strategies and actions plans, number of environmental sustainability index variables missing from selected data sets. Each variable has equal weight and has been normalized.
2001 Environmental Sustainability Index, Annex 6 and Annex 4.

Ethno linguistic fractionalization
"Average value of five different indices of ethno linguistic fractionalization. Its values range from 0 to 1. The five component indices are: (1) index of ethno linguistic fractionalization in 1960, which measures the probability that two randomly selected people from a given country will not belong to the same ethno linguistic group (the index is based on the number and size of population groups as distinguished by their ethnic and linguistic status); (2) probability of two randomly selected individuals speaking different languages; (3) probability that two randomly selected individuals do not speak the same language; (4) percent of the population not speaking the official language; and (5) percent of the population not speaking the most widely used language" LaPorta, Lopez-de-Silanes, Shleifer and Vishny (1999)
Easterly and Levine (1997) based on Atlas Narodov Mira (1964), Muller (1964), Roberts (1962), Gunnemark (1991).

Primary religion
Identifies a countries primary religion as protestant, catholic, muslim or other.
2000 CIA factbook as reported in Stulz and Williamson (2001)

Log of school attainment
The log of school attainment for those over the age of 25 taken over five year periods (1960-1965, 1970-1975, 1980-1985). Each value is the logarithm of (1+ average years of school attainment during the respective periods).
Barro and Lee (1994) for raw data and LaPorta, Lopez de Silanes, Shleifer and Vishny (1999) for constructed variables.

The market share of state-owned print media
The market share of state-owned print media as a percentage of the total market share of the top 5 print media outlets.
Djankov, McLeish and Shleifer (2001)

Table II
Descriptive statistics

Dependent variable of private sector responsiveness

	private sector environmental responsiveness
Number of Observations	122
Mean	-0.13
Standard Deviation	0.55
minimum	-0.89
maximum	2.12
25 percentile	-0.48
75 percentile	0.05

Independent Variables

	log per capita income	rule of law	press diffusion	press freedom	absence of violations against print media	absence of violations against broadcast media	environmental regulation and management	environmental information
Number of Observations	120	49	112	119	119	119	122	122
Mean	7.32	6.85	116.50	56.49	6.05	8.06	-0.09	0.00
Standard Deviation	1.38	2.63	134.73	22.81	3.91	2.80	0.64	0.73
minimum	4.72	1.90	0.20	6.00	0.00	0.00	-1.32	-1.44
maximum	10.15	10.00	593.00	95.00	10.00	10.00	1.54	2.25
25 percentile	6.23	4.82	22.00	39.00	2.00	7.00	-0.57	-0.65
75 percentile	8.19	9.23	168.00	73.00	10.00	10.00	0.35	0.58

Correlation matrix

	log per capita income	rule of law	press diffusion	press freedom	absence of violations against print media	absence of violations against broadcast media	environmental regulation and management	environmental information
Log per capita income								
Rule of law	0.88	1.00						
Newspaper circulation	0.71	0.60	1.00					
Press Freedom	0.73	0.77	0.55	1.00				
Absence of violations against print media	0.63	0.74	0.57	0.76	1.00			
Absence of violations against broadcast media	0.39	0.44	0.47	0.49	0.61	1.00		
Environmental Regulation	0.72	0.81	0.44	0.63	0.56	0.42	1.00	
Environmental Information	0.46	0.54	0.44	0.38	0.31	0.38	0.54	1.00

Instruments for Diffusion of Press

	Log of school attainment	state owned newspapers market share	Short term democracy	begin	primary religion dummy
Number of Observations	84	85	122	88	
Mean	1.44	0.15	4.29	1917	
Standard Deviation	0.58	0.31	3.69	86.6	catholic, protestant, muslim, other
minimum	0.18	0.00	0.00	1500	
maximum	2.44	1.00	10.00	1998	
25 percentile	1.02	0.00	3.19	1873	
75 percentile	1.85	0.15	7.43	1985	

Table III
Institutional Determinants of Private Sector Responsiveness to Environmental Issues

The dependent variable is an index of private sector responsiveness to environmental issues. The explanatory variable to identify the role of the press in panel A is newspaper circulation / population. The press variables in panel B include the aggregate index of press freedom, actual violations agains the broadcast media, and actual violations against print media. Additional explanatory variables include an index of the stringency of legal and regulatory restrictions on firms, an index of the availability of environmental information, rule of law index and ownership concentration. More complete descriptions of variables are provided in Table I. The instruments used in specification (9) are primary religion (protestant, catholic, muslim, other) and average ethno linguistic fractionalization. Huber-White standard errors, which are presented in parentheses, are consistent in the presence of heteroscedasticity.

Panel A.

	Ordinary Least Squares regressions								IV regression
	Dependent Variable: private sector environmental responsiveness								
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Newspaper circulation	0.268***				0.200***	0.125*	0.198***	0.136*	.255***
	(0.048)				(0.054)	(0.069)	(0.072)	(0.073)	(0.070)
Environmental regulation		0.487***			0.300***	0.288***	0.351**	0.450**	.293***
		(0.074)			(0.090)	(0.085)	(0.137)	(0.158)	(0.104)
Environmental information			0.374***		-0.008	-0.021	-0.148	-0.122	-0.073
			(0.061)		(0.075)	(0.074)	(0.135)	(0.152)	(0.086)
Log per capita income				0.246***		0.104***			
				-0.033		(0.038)			
Rule of law							0.044		
							(0.029)		
Ownership concentation								-1.135*	
								(0.566)	
constant	-0.426***	-0.089**	-0.134***	-1.934***	-0.320***	-0.988***	-0.537***	.390	-0.389***
	(0.045)	(0.044)	(0.043)	(0.221)	(0.060)	(0.229)	(0.128)	(.398)	(0.078)
R-squared	0.42	0.32	0.25	0.38	0.51	0.54	0.59	0.58	0.54
Number of Obs.	113	122	122	120	113	112	49	38	96

Panel B.

	Dependent Variable: private sector environmental responsiveness							
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Press Freedom	0.011***			0.004*			0.000	
	(0.002)			(0.002)			(0.002)	
Absence of violations against broadcast media		0.038**			0.016			
		(0.015)			(0.014)			
Absence of violations against print media			0.041***			0.022**		0.001
			(0.012)			(0.009)		(0.009)
Environmental regulation				0.322***	0.352***	0.338***	0.286***	0.285***
				(0.089)	(0.091)	(0.090)	(0.077)	(0.078)
Environmental information				0.159**	0.200***	0.194***	0.076	0.076
				(0.073)	(0.069)	(0.070)	(0.075)	(0.071)
Log per capita income							0.167***	0.166***
							(0.031)	(0.033)
constant	-0.746***	-0.431***	-0.375***	-0.320***	-0.234*	-0.235***	-1.329***	-1.327***
	(0.105)	(0.114)	(0.060)	(0.110)	(0.124)	(0.066)	(0.227)	(0.217)
R-squared	0.21	0.04	0.09	0.38	0.37	0.39	0.50	0.50
Number of Obs.	119	119	119	119	119	119	118	118

Note: (*) Significant at 10% level, (**) Significant at 5% level, (***) Significant at 1% level

Table IV
Determinants of Diffusion of Press

	Dependent Variable: Circulation of daily newspapers						
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
catholic	114.3***	-76.93**	-87.14***	-82.13***	-66.29***	-79.26***	-92.23***
	(13.38)	(35.99)	(26.61)	(29.63)	(22.76)	(28.63)	(25.44)
muslim	49.93***	-0.469					
	(15.91)	(42.37)					
protestant	235.6***						
	(41.75)						
other	119.7***	28.38					
	(35.22)	(59.97)					
log of school attainment		207.62***	204.7***	202.9***	158.9***	153.63***	38.98
		(29.41)	(23.75)	(24.34)	(23.68)	(29.16)	(26.69)
state owned newspapers market share				-63.28*		-53.28	-79.42**
				(32.17)		(31.92)	(32.76)
Short term democracy					7.553**	9.774*	0.690
					(3.633)	(4.951)	(3.615)
Log per capita income							72.43***
							(10.45)
constant		-144.3	-129.3	-133.1	-116.1***	-109.2	-432.0***
		(58.94)	(22.48)	(29.37)	(20.08)	(26.11)	(51.62)
R-squared	0.50	0.52	0.52	0.59	0.58	0.61	0.74
Number of Obs.	115	85	85	60	84	60	60

(*) Significant at 10% level, (**) Significant at 5% level, (***) Significant at 1% level