

# **THE INFLUENCE OF ENVIRONMENTAL PROTECTION AUTHORITY PROSECUTIONS ON CORPORATE ENVIRONMENTAL DISCLOSURES**

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## **Abstract**

This paper examines the environmental disclosure practices of companies that have been prosecuted by the EPA to determine whether the situation has changed since the landmark study conducted by Deegan and Rankin in 1996. The study was conducted by undertaking content analysis of a group of companies that had been prosecuted by the EPA, matched with non-prosecuted companies. It was found that companies increased only negative and neutral disclosures if prosecuted, and that disclosures had significantly increased since the Deegan and Rankin (1996) study, the latter finding most likely due to new legislation governing environmental disclosure. However, there was no correlation between the penalty amount and the disclosures that companies made, indicating that penalty amount does not impact on company disclosure practices.

Key Words: Environmental Disclosures, EPA Prosecutions, Content Analysis, Legitimacy Theory, Corporate Social Reporting

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# **The Influence of Environmental Protection Authority Prosecutions on Corporate Environmental Disclosures**

## **1. Introduction**

Company social disclosure is an area that has been growing steadily since the 1970's. However, it appears that there have been very few studies in the last decade that have focussed on relative amounts of positive and negative environmental disclosures. Since new corporate environmental disclosure legislation has been recently introduced, a new study was clearly needed. An additional reason for this research was that there appears to have been almost no research comparing the size of legal penalties for corporate environmental infractions to the amount of environmental disclosures. This area was therefore also considered worthy of investigation.

This study has two objectives. The first objective is to determine whether companies that have been prosecuted by the Environmental Protection Authority (EPA) increase their environmental disclosures relative to similar companies that had not been prosecuted over the same period of time, and if so whether the increase is positive, negative or neutral in nature. These results will then be compared to a previous study undertaken by Deegan and Rankin (1996) to see if the situation had changed. The second objective is to determine whether for prosecuted companies, the size of a penalty imposed has any correlation to the size of the environmental disclosures the company then makes.

## **2. Literature Review**

Many studies have found that the overwhelming majority of corporate environmental disclosures are positive in nature. Companies tend not to disclose negative environmental news. Deegan and Gordon (1996) conducted a study of the mean number of words that companies disclosed throughout the 1980's and early 90's. They found that the average number of positive words disclosed in 1980, 1985, 1988 and 1991 were respectively 12, 14, 20 and 105. The average negative disclosures in number of words for the same companies at the same time were zero in all years except 1991 in which it

was 7. In 1991 companies therefore disclosed 15 times more positive news than negative on average. Deegan and Rankin (1996) also found that firms overwhelmingly disclosed positive information rather than negative information. What makes this study significant is that the firms they examined had been successfully prosecuted by the Environmental Protection Authority (EPA) and were therefore known to have negative news to disclose. Almost none of the companies even mentioned the prosecutions against them. Deegan, Rankin and Voght (2000) also found that companies tended to disclose more positive information, even after a major environmental incident.

Most environmental disclosures made by firms are of a general, non-specific nature rather than providing details of specific policies, plans and figures. (Wiseman, 1982; and Harte and Owen, 1991). The problem with evaluating the quality of environmental information is that it necessarily involves subjective assessment on the part of the researcher. This is inherent in the nature of the task, although the Harte and Owen (1991) study specifically chose firms that were thought to be good environmental disclosers and Wiseman (1982) did have specific testing criteria. These studies suggest that companies tend to be non-specific in their disclosure approaches.

Numerous studies have concluded that firms disclose more environmental information when their legitimacy is threatened. Deegan and Rankin (1996) found that firms disclosed more environmental information in years that the EPA successfully prosecuted them. Neu, Warsame and Pedwell (1998) found that the larger the fines imposed by a prosecution the more environmental disclosure that would result. Deegan and Gordon (1996) found that companies would use their disclosures to legitimise their existence to environmental groups. Brown and Deegan (1998) and Deegan, Rankin and Tobin (1998) found that increased media coverage of a firm would also increase its environmental disclosures. Deegan, Rankin and Tobin (1998), also found that if that media coverage was negative, the increase would also tend to be in positive disclosures. However, these studies are subject to the limitation that it is impossible to consider all media attention a firm receives and there is no attempt to measure other media aspects such as pictures or article location. They also failed to account for the fact that different

firms and managers will perceive the power of the media in different ways and this may have a significant impact upon the firm's reactions.

Patten (1992) established that in the event of a major environmental incident, not only the offending company, but also most companies in the industry will feel that their legitimacy is threatened. These companies will then disclose more. Deegan, Rankin and Voght (2000) conducted a similar but larger study on disclosure with the same results, and added that disclosure will tend to be positive. The results reported by both these studies, while undoubtedly accurate are however subject to some distortion, as disclosures have been shown to increase across time. Campbell (2003) tested to see if disclosures varied across industry. It was found that more sensitive industries tended to disclose a lot more information and that there was a general consensus within industries about the amount of disclosure that was 'normal.' It must be noted that the findings from this study could easily have been distorted by company size, as some industries (such as mining and chemical) inherently tend to have much larger companies than others and these firms are also in sensitive industries.

O'Donovan (2002) conducted a study to elicit managers' viewpoints when dealing with the different aspects to legitimacy situations, specifically gaining, maintaining or repairing legitimacy. O'Donovan found that managers considered repairing damaged legitimacy to be very important. O'Donovan also found that if a company has a low level of legitimacy it can ignore even a major transgression, as it doesn't have much legitimacy in the first place. Conversely, a company with high legitimacy must respond quickly and decisively to even a minor transgression, lest its legitimacy become severely threatened. Finally, O'Donovan found that managements' preferred method for dealing with legitimacy problems was to change the values of society, meaning that the firm itself would not have to make any effort to change. These findings are consistent with what would be expected from legitimacy theory.

Fayers (1998) conducted a study that was effectively a review of the CSR situation and concluded that society will increasingly demand far more CSR over time. Companies that fail to respond to these demands may well be faced with more difficulties than

those that do. Fayers (1998) went on to point out however, that just because companies are likely to adapt to having to report more, this does not necessarily mean a move towards environmental sustainability of company operations, which is what being environmentally sensitive is ultimately about. It is therefore possible that if companies do respond to the mounting pressure and report significant and detailed amounts of environmental information in their annual reports that it may end up being nothing more than a smoke screen for the underlying problem.

The above review has clearly shown several major trends, but the most relevant to this study is that companies disclose very little negative information and when companies do disclose negative information, they also tend to increase the amount of positive information disclosed at the same time. Studies that have shown that firm's disclosures are overwhelmingly positive include Deegan and Gordon (1996), Deegan and Rankin (1996) and Deegan, Rankin and Voght (2000).

### **3. Theoretical Framework and Hypotheses**

The theoretical framework that this study is based upon is legitimacy theory, which is a sub-theory of political economy theory. Legitimacy theory effectively states that firms are seen by the society in which they operate as either legitimate or illegitimate. If the firm is deemed by its society to be illegitimate, it will suffer adverse consequences at a potentially disastrous level. Therefore, firms will undertake actions to attempt to ensure that their status in society remains legitimate. One of these actions includes adjusting the environmental disclosures that are made in the company annual reports, in order to project a positive image. This paper will examine company reports to see if companies increase the environmental disclosures in their annual reports in line with legitimacy theory when their legitimacy is known to be under threat due to EPA prosecutions. This study is loosely based on another study that was conducted by Deegan and Rankin (1996), who also ran a similar analysis and used legitimacy theory as their theoretical framework.

The aim of this study is to test a number of hypotheses related to corporate environmental disclosure. The first hypothesis to be tested is a replication of the

question that was originally posed by Deegan and Rankin (1996), who asked if companies that were known to have bad news to report due to a successful prosecution by the EPA used the environmental disclosures in their annual reports in a self-laudatory manner. The second hypothesis that this study will investigate is whether or not the fact that a company was prosecuted will cause it to increase its disclosures. Therefore, the hypotheses to be tested are as follows:

*H1: Companies will disclose far more positive environmental information than negative environmental information*

*H2: Companies that were prosecuted by the EPA will disclose more environmental information than companies that were not*

The final hypothesis that this study aims to test is whether or not there is a relationship between the size of the fine that the court applies to a firm and the amount of environmental disclosures that a firm makes. According to Neu, Warsame and Pedwell (1998), it seems that the higher the fines, the greater the amount of corporate environmental disclosure. Thus, the final hypothesis to be tested is:

*H3: Companies will disclose more environmental information as the size of the penalties imposed upon them increases*

## **4. Methodology**

### **Research Design**

This study is principally a replication of the Deegan and Rankin (1996) study. As such, the sample is identified and gathered in a similar fashion. Firstly, a number of companies who were successfully prosecuted in either 2002 or 2003 by any Australian EPA or equivalent agency are identified from the respective EPA's annual reports. The EPA reports for all states (not territories) other than Tasmania were gathered, however, the South Australian and Western Australian EPA reports did not contain the relevant information in sufficient detail in all years of the study and so were excluded. This meant that although Deegan and Rankin (1996) conducted their research on only New

South Wales and Victoria, the current study has been expanded to include Queensland. It would have been preferable that the companies not be successfully prosecuted in any other years of the study, but this requirement had to be relaxed in some cases in order for a reasonable sized sample to be collected. If the prosecution was conducted against a subsidiary, the consolidated annual report of the parent company was used.

In order to be considered eligible, most of the companies' annual reports from 2001 to 2004 were required to be available online through the company reports database (Connect4). It was deemed acceptable to locate only the occasional report from outside sources such as the company website. Only two company reports were located in this manner and one company report could not be located. Furthermore, any company that suffered confounding events such as being taken over, going into receivership or being incorporated outside Australia was considered ineligible and removed from the sample of prosecuted companies.

Finally, the annual reports of an additional equivalent number of companies who have not been prosecuted by the EPA within the time period were examined. These companies were matched, one for one, by size and industry against those companies that had been prosecuted. Size was determined in terms of operating revenue, unlike Deegan and Rankin (1996) who used market capitalisation. The matching of prosecuted and non-prosecuted companies on the basis of size and industry was undertaken to see if there was any systematic difference in environmental disclosures. Note that while the criteria of major events not affecting the company was kept for the matched companies, no consideration was given to whether they were the ultimate parent company in their group. So long as a company was listed on the Australian Stock Exchange and it had comparable operating revenue, it was deemed acceptable for use as a matching company.

In order to determine the amount of environmental disclosures that companies had made in their annual reports, the entirety of the annual reports were examined for any information they contained relating to the organisation's interaction with the natural environment. According to Deegan and Rankin (1996) this may include the installation

of environmentally friendly equipment, recycling activities, information regarding pollution emissions, site rehabilitation, the acknowledgement of fines for breaches of environmental law and any other similar such information as interpreted by the author. Thus, for the current study, environmental disclosures included references to the location of where environmental information could be obtained. The amount of disclosure was determined by a word count of any sentences and headings that were considered to be of an environmental nature. These word counts were then divided between positive, negative and neutral environmental disclosures. Positive disclosure were those that the researcher deemed to frame the company in a positive light and included such things as statements of preparedness, good ethics or specific information regarding plans or investments in environmentally friendly equipment. Negative disclosures were those that the researcher deemed to frame a company in a negative light and included things such as admission of prosecution, statements as to the amount of pollutants released or any other disclosure that portrays the company in a poor context. Neutral disclosures were those disclosures of an environmental nature that the researcher considers frames a company in neither a positive nor negative light, but rather just generally state a company's position, or an environmental situation such as regulations that the company must comply with. Often titles of sections, such as 'Environmental Performance' were considered to be neutral.

### **Changes in Environmental Law**

When Deegan and Rankin conducted their study in 1996, there was no legislation requiring the disclosure of environmental information. This situation has now changed. Section 299 (f) of the Corporations Law 1999 now requires that:

“if the entity's operations are subject to any particular and significant environmental regulation under a law of the Commonwealth or of a State or Territory – details of the entity's performance in relation to environmental regulation.”

Section 299 of the Corporations Law relates to the directors report for the financial year. It is therefore expected that companies will report considerably more information in order to comply with this legislation than they did in 1996. This information will tend to take the form of showing the amount of pollutants such as gases and liquid waste that a company generates relative to the limits set out in the National Pollutant Inventory (NPI). The National Pollutant Inventory is a publicly available database published by

Environment Australia. It contains information on company emissions that exceed the thresholds as outlined by Environment Australia – for further details see <http://www.npi.gov.au/publications/sixth-report/index.html>. Cunningham and Gadenne (2003) found that as a result of the release of the NPI companies did not increase their overall environmental disclosures, but did increase the amount of disclosures that pertained to substance emission amounts and the NPI itself.

While this will invariably make comparison with the Deegan and Rankin (1996) study less accurate, it must also be remembered that one of the major objectives of this study is to see how the situation has changed. This is obviously a major change, and it will be most interesting to see if this has made any real difference to the amount of disclosure that companies are making now that the NPI has been in operation for a few years.

## 5. Results

### General Descriptive Tests

The first analysis conducted upon the data set was for general descriptive statistics. The purpose of this analysis was to provide an overview of the general types of disclosure and to test hypothesis H1: Companies will disclose far more positive environmental information than negative environmental information. The results of this analysis are shown below in table 1.

**Table 1 – Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
The number of positive words	95	31	3396	834.94	798.556
The number of neutral words	95	2	1810	149.55	260.626
The number or negative words	95	0	814	62.77	116.236
Valid N (listwise)	95				

It can be seen from these results that there is a wide range in the amount of disclosures made by companies. Positive disclosures ranged from just 31 words to 3,396 words. Neutral disclosures ranged from 2 to 1,810 words. Negative disclosures ranged from 0

to 814 words. These results also show the mean word count for each disclosure type. The average amount of each disclosure type is: positive disclosures 835, neutral disclosures 150 and negative disclosures 63. This provides strong support for H1 as the average positive disclosure is over 13 times larger than the average negative disclosure. Further, of the 95 reports examined, not a single one contained more negative disclosures than positive. Therefore H1 is supported.

### **Prosecuted Company v Matched Company Disclosures**

The next analysis conducted was to compare the amount of disclosures made by companies that had been prosecuted to those companies that had not been prosecuted. This tested H2: Companies that were prosecuted by the EPA will disclose more environmental information than companies that were not. The analysis conducted was an independent samples t-test.

**Table 2 – Group Statistics**

	Was the company prosecuted?	N	Mean	Std. Deviation	Std. Error Mean
The number of positive words	Prosecuted	47	804.98	708.384	103.328
	Matched	48	864.27	884.578	127.678
The number of neutral words	Prosecuted	47	222.57	349.952	51.046
	Matched	48	78.04	73.731	10.642
The number of negative words	Prosecuted	47	88.94	145.156	21.173
	Matched	48	37.15	71.025	10.252

Table 2 shows the means for each of the disclosure types by the companies' prosecution status. It can be seen that there is little difference between the average positive disclosures made by the prosecuted companies (805 words) and matched companies (864 words). Table 3 (see below) confirms that there is no significant variation between positive disclosures for prosecuted versus non-prosecuted companies. Table 2 shows that there is considerable difference between the average neutral disclosures made by the prosecuted companies (223 words) and matched companies (78 words). Table 3 confirms that this variation is in fact significant at the 0.01 level, with a significance value of 0.006. Finally, Table 2 also shows a large difference between the average

negative disclosures made by prosecuted companies (89 words) and matched companies (37 words). Table 3 shows that this variation is significant at  $p= 0.029$ .

**Table 3 – Independent Samples T Test**

	t-test for Equality of Means						
	t	df	Sig.	Mean Difference	Std. Error Difference	95% Confidence Interval	
						Lower	Upper
The number of positive words	-.360	93	.720	-59.292	164.633	-386.221	267.637
The number of neutral words	2.799	93	.006	144.533	51.638	41.990	247.076
The number or negative words	2.216	93	.029	51.790	23.371	5.380	98.201

These results indicate some support for H2. Companies that were prosecuted do indeed disclose more environmental information than those that were not. However it must be noted that this only applies to negative and neutral information, not to positive information for which no significant differences were observed.

**The Effect of Penalty Size on Company Disclosures**

The results of a bi-variate correlation (see table 4 below) show that penalty size is irrelevant in relation to environmental disclosures. This means that H3 (Companies will disclose more environmental information as the size of the penalties imposed upon them increases) cannot be accepted. As an interesting side note, the correlation also shows that positive disclosures significantly correlate to both negative and neutral disclosures, and negative and neutral disclosures correlate significantly to one another.

**Table 4 - Correlations**

		The number of positive words	The number of neutral words	The number of negative words	Total \$ value of penalties in that year
The number of positive words	Pearson Correlation	1	.546(**)	.395(**)	-.122
	Sig. (2-tailed)	.	.000	.000	.654
	N	95	95	95	16
The number of neutral words	Pearson Correlation	.546(**)	1	.283(**)	-.137
	Sig. (2-tailed)	.000	.	.005	.614
	N	95	95	95	16
The number or negative words	Pearson Correlation	.395(**)	.283(**)	1	.112
	Sig. (2-tailed)	.000	.005	.	.679
	N	95	95	95	16
The total dollar value of penalties in that year	Pearson Correlation	-.122	-.137	.112	1
	Sig. (2-tailed)	.654	.614	.679	.
	N	16	16	16	16

\*\* Correlation is significant at the 0.01 level (2-tailed).

### Summary of Results

The above results provide answers for all three of the hypotheses. Firstly, H1 was supported as the descriptive statistics clearly show that companies provide far larger positive disclosures than negative disclosures. Secondly, H2 was supported. Companies that were prosecuted by EPA's did indeed increase their environmental disclosures compared to those that were not, but only in neutral and negative disclosures. Finally, H3 was not supported, as the penalty size does not correlate to the amount of environmental disclosures.

### 6. Conclusion

The results regarding company disclosure amounts by type (positive, neutral and negative) have some interesting implications. As would be expected, both logically and

from the literature review, companies do indeed disclose far more positive information than negative information. However, for the groups overall, there was no significant difference in the positive words disclosed between the prosecuted and non-prosecuted companies. This suggests that companies will disclose similar amounts of positive information even in the face of an EPA prosecution. The t-tests do strongly suggest however that companies prosecuted by the EPA will increase their negative and neutral disclosures. This shows that companies do tend to respond to the prosecutions, just not in ways that would be expected under legitimacy theory, but this may simply reflect the impact of need to comply with environmental disclosure regulation. Apart from the impact of legislative compliance, ultimately, this study suggests that each individual company's attitude will most likely determine whether the company's disclosure patterns are positive or negative. Finally, the results suggest that the size of a penalty imposed by an EPA prosecution has no bearing on the company's disclosure patterns. The penalty size simply did not correlate to any type of the company disclosures.

The results of this study pertaining to the type of disclosure strongly suggest that the situation has changed in relation to negative environmental disclosures. While companies still produce far more positive disclosures than negative disclosures, the amount of negative disclosures has vastly increased. Deegan and Gordon (1996) found that companies produced an average of 5.7 negative words environmental disclosures. That study examined a large number of companies. Deegan and Rankin (1996), which was the basis for this study, looked at companies prosecuted by the EPA in the same manner as this study and found that the average negative disclosure for a prosecuted company was 5.55 words. This study found the average negative disclosure for a prosecuted firm was 88.94 words. It must be noted however that positive disclosures have increased also. Deegan and Rankin (1996) found that the average positive disclosure of a prosecuted firm was 269.64 words, while this study found 804.98 words. This raises an interesting question - Have recent legislative changes precipitated an increase in negative disclosures to the extent that companies therefore have increased positive disclosures to remain legitimate? This may well be the case, as Deegan and Rankin (1996) found that firms tended to suppress negative information, with only 6 out of 20 prosecuted firms making any negative disclosures at all and then very low

amounts. In this study 9 out of 12 prosecuted companies disclosed negative environmental information, with considerably higher mean and maximum disclosure amounts than those reported in previous studies, and often in years where there was no prosecution.

Finally, the results of this study found no correlation between penalty size and the amount of environmental disclosures, which contradicts Neu, Warsame and Pedwell (1998) who found that the larger a fine imposed upon a company, the larger the greater the amount of environmental disclosure a company would then make.

### **The Impact of Legislative Changes on Research Findings**

Since the time of the previous studies conducted by Deegan and Gordon (1996) and Deegan and Rankin (1996) legislation has been enacted relating to company environmental disclosures. Section 299 (f) of the Corporations Law 1999 requires companies to report on their environmental performance in relation to any Commonwealth, State or Territory environmental laws that they are subject to. This means that if a company breaches an environmental law, they are legally required to report on it. Moreover, the National Pollutant Inventory (NPI) now requires companies to report on the amount of wastes that they generate beyond certain thresholds. The combined effect of this is that companies are now forced to make considerable negative disclosures if they breach environmental laws or limits. This has probably contributed to significantly higher negative disclosures by companies in recent years compared to disclosures in 1996. It also explains why companies tend to provide information about the nature of their environmental incidents and the size of fines imposed – to some degree they are legally required to. Furthermore, legitimacy theory asserts that these companies would then have to increase their positive disclosures to maintain their legitimacy, which may be a reason for the much larger positive disclosures now being made by companies. The legislative changes would therefore have had a major impact on the results of this study.

### **Theoretical and Practical Implications**

There may be some empirical support that companies try to legitimise their behaviour as evidenced by the significantly higher amounts of positive versus negative words as shown in table 1, combined with the significant correlation of amounts of positive and negative words, as shown in table 4. However, the t-test comparing prosecuted to non-prosecuted companies shows that the mean negative disclosures of the prosecuted companies increased, while the positive disclosures were similar to those of the non-prosecuted companies. This implies that companies may not be attempting to legitimise their activities in relation to the prosecution. This study therefore supports legitimacy theory, but not necessarily in relation to EPA prosecutions.

The practical implications of this research are related to company behaviour. The results suggest that companies are disclosing more environmental information than they were in 1996, especially negative information which was at that time virtually non-existent. It is very likely that this increase in negative information is principally due to environmental disclosure requirements introduced over this period of time. The results also suggest that companies that were prosecuted by the EPA will increase their negative and neutral disclosures, but are unlikely to make any significant changes to their positive disclosures. Finally, the results suggest that companies will not take penalty size into account when deciding upon the quantity of their environmental disclosures. All of these results give a greater understanding when attempting to predict company behaviour.

### **Limitations**

There are several limitations of this type of content analysis. These are the level of subjectivity the author has when determining what constitutes an environmental disclosure and how to categorise it; whether or not word count is the best measure of environmental disclosures; the fact that pictures are not included in the measurement; the loss of data associated with only using the contents of the annual report and not other sources such as dedicated environmental reports that many companies now produce; and the issue of non-EPA or outside prosecutions that were not included in the study but still may impact on company environmental disclosures.

## 7. Further Research

Several opportunities for further research exist as a result of this study. Firstly, there is a question as to whether or not company environmental disclosures are continuing to increase as time goes on. In order to test this, large numbers of companies selected at random should be tested and across a longer time period, not merely those who have been prosecuted. Next, much more detailed studies of individual companies and their circumstances can be done. This will help discover whether or not company attitude is vitally relevant to environmental disclosure, as this study suggests it is. Thirdly, a study similar to this one needs to be done, but which gathers information from as many sources of company disclosure as possible, including items such as leaflets, flyers, advertisements and most especially, dedicated corporate environmental reports. Finally, more research needs to be undertaken on comparing penalty size to the amount of company disclosure to provide further support or otherwise for the proposition that the larger the penalty size the larger the resulting disclosure amount as reported in Neu, Warsame and Pedwell (1998). This study found no such correlation during a time of transition for corporate disclosure and therefore further study of this area may be warranted.

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