Do Brazilian Corporations Disclose Environmental Information? Evidences from Financial Statements Published in the New York Securities Exchange (NYSE) and in the Bolsa de Valores de São Paulo (BOVESPA)

Empresas brasileiras revelam as informações ambientais? Evidências de declarações financeiras publicadas no 'New York Securities Exchange' (NYSE) e na Bolsa de Valores de São Paulo (BOVESPA)

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Abstract

This study adopts an exploratory-descriptive approach in order to examine environmental information published by Brazilian corporations. A comparison between the environmental information disclosured in the Brazilian Market (BOVESPA) and the United States Market (NYSE) was conducted. A content analysis has been carried out in corporate financial statements for the period of 2002-2004. The sample was composed by Brazilian corporations listed in the New York Stock Exchange that were members of industries (sectors) with high and medium pollution potential according to the Brazilian Law 10.165/2000. Of the three hypotheses initially formulated, only one was confirmed: the amount of environmental information disclosured by Brazilian corporations is increasing over the course of the 3 years. However, there is an information asymmetry between the Brazilian Market and the North American Market. This study evidences the Brazilian corporation's disclosure more information in the North American Market. At the same time, only two corporations seem to evidence specific information about environmental liabilities. Although a small number of years were analyzed, this study's findings raises questions about the credibility of the data disclosure by Brazilian corporations in both markets and alerts financial statements user's of possible signs of manipulation of relevant environmental information.

KEY WORDS: Environmental disclosure. Brazilian corporations. Green reporting.

Resumo

O presente estudo, de caráter exploratório-descritivo, tem como objetivo examinar a divulgação de informações ambientais pelas empresas brasileiras, tanto no âmbito nacional (BOVESPA) quanto no âmbito norte-americano (NYSE). Para isso, analisaram-se as demonstrações contábeis durante o período de 2002-2004. A amostra do estudo é composta pelas empresas listadas na Bolsa de Valores de Nova York, pertencentes a setores de médio e alto impacto ambiental segundo a Lei 10.165/2000, que trata das Políticas Nacionais de Meio Ambiente. Das três hipóteses inicialmente formuladas, apenas uma se confirmou: as empresas analisadas estão evidenciando um maior volume de informações relacionadas ao meio ambiente. Contudo, percebe-se que existem diferenças entre as informações divulgadas no Brasil e nos Estados Unidos. As empresas analisadas evidenciaram um maior volume de informação no âmbito internacional. Com relação aos passivos ambientais, apenas duas empresas evidenciaram informações específicas. Embora poucas empresas tenham sido analisadas, os resultados levantam questões sobre a credibilidade das informações de caráter ambiental e alertam para a possibilidade de gerenciamento do que é divulgado pelas empresas.

PALAVRAS CHAVE: Informação ambiental. Contabilidade verde. Empresas brasileiras.

1 INTRODUCTION

It is widely accepted that the effects of economy activity on the environment should be somehow measure and recognized. In virtually all segments of the financial market, the attention to environment issues has grown over the years (LABBAT & WHITE, 2002). According to Shoemaker & Shoemaker (1995) every company may face the possibility of environmental liability costs. However, despite the frequent presence on accounting conference and journals, environment accounting still has little legitimacy in the world of business (EVERETT, 2003).

In the recent times, it seems that corporate stakeholders have become more concerned with corporate damages to the environment, and therefore expect to be informed about environmental practices. In this sense, in order to fulfill investor's desires and needs, corporations must address environmental matters.

Issues related to environmental management practices and environmental disclosure have been addressed by several accounting researchers over the recent years. Gray (1996) addressed challenges and changes of environmental reporting Hughes (1997) discussed theoretical aspects of environmental liability disclosure. Deagan (2002) provided an overview of theoretical perspective in order to explain managers choose to disclosure particular aspects of social and environmental information. Reyes (2002) examined the environment in the perspective of the accounting profession in the Philippines.

Kokubu & Turasaka (2002) examined corporate environmental accounting in Japan. DioNne & Spaeter (2003) analyzed the effect of environmental risk to banks. Chiang & Lightbody (2004) discussed aspects of environmental auditing in New Zealand. Herbohn (2005) examined a report experiment using valuation techniques developed by environmental economists.

This paper examines environmental information published by Brazilian corporations for the period of 2002-2004. A comparison between the environmental information disclosured in the Brazilian Market (BOVESPA) and the United States Market (NYSE) was conducted. A content analysis was carried out in corporate financial statements. The sample was composed by Brazilian corporations listed in the New York Stock Exchange that were members of industries (sectors) with high pollution potential according to the Brazilian Law 10.165/2000.

The remainder of this paper is organized in 5 sections. Section 2 discusses some aspects of corporate environmental reporting (CER) and reviews some related studies. Section 3 describes the methods utilized in this research. Section 4 evidences the findings and the last section presents this paper's final discussions and conclusions.

2 CORPORATE ENVIRONMENTAL REPORTING

Since the path breaking works of Beaver (1968) and Ball & Brown (1968) the perspective of financial reporting shifted to an informational approach, which is confirmed by FASB's No 1 statement, "Financial information should provide information that is useful to present and potential investors and other users." In this sense we can expect corporate stakeholders to demand information of all the relevant company related issues, including environmental ones.

However, despite this fact, most corporations have not disclosure sufficient environmental information in their financial reports. According to the KPMG International Survey of Corporate Sustainability Reporting (2002) the great majority of companies do not report any environmental information, and when they do, the information is quite confusing. The reason for not evidencing such information is not a consensus among the accounting community. However some environmental researchers, such as Solomon & Solomon (2004), have listed a few incentives and disincentives for corporate environmental reporting (CER) which are illustrated in the table 1.

Table 1 - Incentives and Disincentives for Corporate Environmental Reporting (CER)
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Incentives for CER	Disincentives for CER
Improve company's image	Cost of Disclosure
Market company products	There is no legal obligation
Attract investment	Possibility to damage corporate reputation
Political lobbying	• Provide information for competitors

Source: Adapted from Solomon & Solomon (2004)

From an information perspective, financial reporting should provide value-relevant information incremental to the other sources of available information (BEAVER, 1998). In this sense, the environmental information disclosured in the financial statements should be relevant to users. The issue of 'quantity versus quality' is also quite important because in some cases environmental reporting might be quite deceiving, as it could be used as marketing strategy. As a result, financial report users's could be harmed in a long run.

At the same time, according to Cormier and Magnan (2003) the ratification of the Kyoto protocol may lead to a shift in attitude concerning the relevance of corporate environmental disclosure. Epstein (1996) lists a few relevant environmental issues that might affect stock prices and therefore could be disclosured in financial statement reports:

- Environmental liabilities
- Current environmental operating costs
- Current environmental capital expenditures
- Identification of the environmental liability as a separated line in the balance sheet

Due to its relevance to the construction of scientific knowledge in accounting many authors have been conducting researches on environmental financial reporting. Table 2 below presents a brief description of some of these studies.

Table 2 -	Researches	on Environmei	ntal Disclosure
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Researcher	Study	Journal
Eynon and Stevens (1996)	Presented a case that examined the reporting and ethical dimensions of accounting contingent environmental liabilities	Issues in Accounting Education
Niskala & Pretes (1996)	Analyzed environmental financial reporting in 87 Finish companies in the years of 1987 and 1992	Accounting, Organization and Society
Deagan, Rankin and Tobin	Examined the social and environmental disclosure of BHP Ltd, one of the largest Australian companies, from 1993 to 1997	Accounting, Auditing and Accountability

Freedman and Stagliano (2002)	Analyzed the environmental disclosure by companies that area coming to the U.S. market for the first time in an initial public offering	Accounting, Auditing and Accountability
Thompson and Cowton (2004)	Conducted a empirical research to explore the interface between bank lending and the demand for environmental information	The British Accounting Review
Rahaman, Lawrence and Roper (2004)	Used a combination of institutional theory and Habermas´ legitimacy theory to explain environmental reporting at the Volta River Authority.	Critical Perspectives on Accounting
Campbell (2004)	Analyzed annual reports of United Kingdom based companies in five sectors between 1974 and 2000.	The British Accounting Review
Villiers & Staden (2006)	Conducted a content analysis in 140 financial reports of South African corporations over a 9 year period.	Accounting, Organization and Society

Source: the authors

A few theories (legitimacy, institutional, etc) have been use as an explanation to why corporations disclosure environmental information. Most of these are grounded in the economic rationalist perspective (RAHAMAN, et al., 2004). Belkaoui & Karpik (1989) argue that the decision to disclosure social information is positively correlated to social and economic performance. Neu at al. (1998) defends that disclosuring environmental information provides to the corporations an effective method of managing external impressions.

It is worth mentioning that this paper does not means to provide an explanation for environmental corporate disclosure, it only objectives to answer the following question: *Do Brazilian Corporations Disclosure Environmental Information?*

3 METHODS

This study adopts an exploratory-descriptive approach in order to examine environmental information published by Brazilian corporations. A comparison between the environmental information disclosured in the Brazilian Market (BOVESPA) and the United States Market (NYSE) was conducted. Considering the theoretical background of financial reporting and the current trends of environmental disclosure, three hypotheses were formulated:

• **Hypothesis 1.** The amount of environmental information disclosure in financial reports by Brazilian Corporations is increasing over the years.

This hypothesis has been formulated based on the studies of Campbell (2004) that found an overall increase in disclosure volume of environmental information disclosured by United Kingdom companies, and Niskala & Pretes (1996) that found that the number of Finish companies that disclosured environmental information almost doubled from 1987 to 1992.

• **Hypothesis 2.** Brazilian corporations evidence relevant information regarding environmental liabilities

According to the Intergovernmental Working Group of Experts on International Standard of Accounting and Reporting Corporations (UNC-TAD/ISAR, 1997) corporations should describe the nature of environmental liabilities and their probable liquidation dates.

In this sense one might conclude that information regarding possible disbursements of cash like litigation process related to environmental liabilities for instance, should be disclosured.

• Hypothesis 3. The quantity of the environmental information disclosured in the Brazilian Market (BOVESPA) is the same (or very similar) to the one disclosured in the United States Market (NYSE).

Although the authors do not have knowledge of a similar research - comparison between a company environmental financial data in two different markets (North American and Brazilian). Other studies like Freedman & Stagliano (2002), found that companies coming to the U.S. market for the first time in an initial public offering did not present a higher volume of environmental information when compared to a sample group. At the same time, according to Beaver (1998) information asymmetry leads to abnormal returns. In this sense, if a corporation has relevant environmental information, and it decides to disclosure publicly, it would be reasonable that both markets (Brazilian and North American) received the same

Table 3 -	Brazilian	Corporations	Selected
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amount of information.

3.1 SAMPLE

The sample was composed by Brazilian corporations listed in the New York Stock Exchange that were members of industries (sectors) with high pollution potential according to Law 10.165/2000. That enforcement was enacted in 27 of December of 2000 by the Brazilian Government and addressed issues related to the Environment. The 10.165/2000 classified the Brazilian sectors (industries) according to their pollution risks. The sectors were classified in: low, medium and high risk. For this study, the companies that were in industries classified with medium and high risk were selected. As January of 2006, 34 Brazilian corporations were listed in the New York Stock Exchange. However, only 15 of those corporations were members of industries that were classified in 'medium' or 'high' pollution potential risks according to the Law 10.165/2000. Table 3 presents the sample of corporations for this study.

Corporation Sector/ Industry		Pollutant Potential	Equity (millions)*	Revenues (millions)*
Ambev	Food	Medium	5.067	8.275
Aracruz Celulose	Paper / Cellulose	High	3.491	2.654
Braskem S.A	Chemical	High	4.235	10.782
CEMIG	Electricity	Medium	7.251	6.707
COPEL	Electricity	Medium	1.370	3.431
Comp. Siderúrgica Nacional	Steel	High	6.845	8.134
Comp. Vale do Rio Doce	Steel	High	18.170	13.088
Embraer	Plane / Aviation	Medium	4.607	9.245
Gerdau S.A.	Steel	High	10.036	4.766
Perdigão S.A.	Food	Medium	962	4.312
Petrobras	Gás / Petroleum	High	64.254	85.574
SABESP	Water/ Sanitation	Medium	7.952	4.397
Sadia S.A.	Food	Medium	1.792	6.099
Ultrapar	Electricity	High	664	4.784
Votorantin.	Paper / Cellulose	High	3.947	2.375

Souce: Comissão de Valores Mobiliários (CVM) and Brazilian Law 10.165/2000.

Revenues and shareholder's equity in reais. 1 U.S dollar = approximately 2, 40 reais (May, 2006)

This study's sample is relatively small, yet composed by corporations that have large influence in the Brazilian economy. Most of the selected corporations are sector's leader and they are all classified among the '50th Brazilian Largest Companies' (CONJUNTURA ECONÔ-MICA, 2005). In order to compare the environmental information disclosured by those corporations in the two financial markets (Brazilian and North American), an analysis of the published financial statements was conducted. Table 4 presents a few characteristics of the analyzed data.

Characteristics	Brazilian Market	North American Market
Financial Market Regulating Agent	Comissão de Valores Imobiliários (CVM)	Securities Exchange Commission -SEC
Stock Market Selected	Bolsa de Valores de São Paulo (BOVESPA)	New York Stock Exchange (NYSE)
Number of Companies listed	Approximately 490 (2004)	Approximately 2800 (2004) 20-F Forms (for Foreign
Annual Report Selected	Demonstrações Financeiras Padronizadas-DFP	Corporations having American Depositary Receipts (ADR level II and III)
Report Content Analyzed	 Information on the company Financial statements Footnotes and auditor's opinion Management's Statement Description of Altered Information 	 Information on the company Operating / financial review and prospects Information on Senior Management, Directors and Employees Financial Statements Footnotes and Auditor's opinion Quantitative and qualitative disclosure about market risk Additional information

Table 4 - Brazilian versus North American Market
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Source: CVM and SEC (2004)

3.2 PROCEDURES

The content analysis was carried out in corporate financial statements of the selected sample for the period of 2002-2004. This methodology that uses systematic procedures enables an acquaintance about the subject which allows different inferences upon the research variables (BARDIN, 2004). Different units can be used to quantify environmental information. The most commonly counting measures are: world, sentence, and page proportion. In this study, word count was selected, which is the same measure used for Campbell (2004), Deagan & Gordon (1996), and Wilmshurst & Frost (2000). Table 5 below illustrates the 20 words selected for the content analysis.

Table 5 - Words Selected for Content Analysis

Environmental	Environmental Liabilities
Emission of Pollution	Natural Resources
Environmental Management	Environmental Legislation
Environmental Politics	Environmental Damages
Social / Environmental Responsibility	Investments in Ambient/ Environment
Environmental Protection	Environmental Costs
Sustainable Development	Environmental Preservation
Environmental Provisions	Environmental Contingencies
Environmental Education	ISO 14.001
Environmental Risks	Environmental Impact

Source: The authors

As showed in the table above, most words are composed by 'environmental'. At the same time, words like 'natural resources', 'ISO 14.001' and 'sustainable development' have also been selected for the content analysis.

4 RESULTS

Over the course of the 3 years of this study, the volume of environmental information disclosured increased, confirming this study's first hypothesis. Table 6 illustrates the results.

Table 6 - Number of Words founded in Financial Statements

Empresas	NYSE			BOVESPA		
	2004	2003	2002	2004	2003	2002
Ambev	22	31	38	0	0	0
Aracruz Celulose	58	42	43	24	15	23
Braskem S.A.	78	75	73	35	33	13
CEMIG	153	162	104	49	26	26
COPEL	49	36	39	82	13	23
Comp. Siderúrgica Nacional	111	93	100	17	12	10
Companhia Vale do Rio Doce	84	77	68	13	15	10
Embraer	12	8	10	5	9	8
Gerdau S.A.	36	44	39	11	13	0
Perdigão S.A.	22	26	20	6	4	5
Petrobras	166	156	123	119	97	89
SABESP	101	71	77	66	69	34
Sadia S.A.	33	22	27	4	4	4
Ultrapar Participações S.A.	43	47	47	0	7	7
Votorantim S.A.	51	41	36	3	3	17
Total	1019	931	844	434	320	269
Percentage Increase (%)*	20,7%	10,3 %	-	61,3%	18,9%	

Source: The authors

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* Percentage Increase = actual year / base year(2002)

One might notice that there is an increase in the amount of the environment disclosured in both financial markets. However, the percentage increase is the Brazilian Market is quite higher. of the Brazilian petroleum industry, *Petrobras* is the corporation that evidences the higher amount of environmental information. Table 7 illustrates the results of content analysis in *Petrobras's* financial statement.

Among the sample analyzed, the 'giant'

Words	2004		20	2003		2002	
words	BR	US	BR	US	BR	US	
Environmental	61	84	60	77	49	48	
Investments in Environment	5	1	3	2	1	3	
Environmental Management	8	6	7	6	14	5	
Environmental Politics	4	8	1	3		7	
Social / Environmental Responsibility	11		2	7	1	8	
Environmental Education	1		1		3		
Environmental Preservation	5	1	1	1	2	2	
Environmental Protection	1	8	2	8	2	6	
ISO 14.001	5	2	2	1	4	1	
Environmental Legislation	2	21	1	22	2	21	
Sustainable Development	3	3	6		4	1	
Natural Resources	2	4		4		3	
Emission of Pollution	4	1	1		1	1	
Environmental Impact	3	11	5	8	1	5	
Environmental Risks	1	2	2	3	2	3	
Environmental Liabilities		2			1		
Environmental Provisions							
Environmental Contingencies		1					
Environmental Costs		3		5	1	3	
Environmental Damages	3	8	3	9	1	6	
Total	119	166	97	156	89	123	

Table 7 - Petrobras's Environmental Information

Source: The authors

The results founded also refuted this paper's second hypothesis. The quantity of environmental information disclosured in the Brazilian Market (BOVESPA) is much inferior to the one disclosured in the North American Market (NYSE). Graph 1 provides a better illustration of these findings.







Like mentioned earlier, this study does not attempt to explain why Brazilian corporations evidence environmental information. However, the asymmetry evidenced between the two markets seems quite strange. Probably NYSE information users's are more 'sophisticated' than BOVESPA users. In this sense, they probably demand more information in order to make investments decisions.

At the same time SEC's financial statement requirements are probably more rigorous that CVM'S requirements. Yet, this paper's findings suggest that there might be signs of manipulation of relevant environmental information. Future studies could attempt to explain corporate behavior regarding disclosuring choices in different markets.

Regarding this study's second hypothesis, only 7 corporations have evidenced information regarding environmental liabilities. Among them, only *Companhia Siderúrgica Nacional(CSN) and Companhia Vale do Rio Doce(CVDR)* disclosured that information over the course of all 3 years in both financial markets. *Ultaprar* and *Perdigão* only evidence that information in the North American market. Table 8 illustrates these results.

Description	Market	year	Ambev	Aracruz	Braskem	Cemig	Copel	CSN	CVRD	Embraer	Gerdau	Perdigão	Petrobras	Sabesp	Sadia	Ultrapar	Votorantim
Appearance of the expression 'environmental liability'	US	2002						Х	Х		Х					Х	
		2003			X			X	X		X					Х	
		2004			X			X	X		X		X			Х	
	BR	2002						X	X				X				
		2003						X	Х								
		2004						X	X					X			
Appearance of the expression 'environmental liability' inside	US	2002						X	X		X						
		2003						X	X		X						
		2004						X	X		X						
the Financial	BR	2002						X	X								
Statements (Balance Sheet, Net Income, etc.)		2003						x	X								
		2004						X	X					X			
Estimation of monetary value (\$) of the environmental liability	US	2002						X	X		x						
		2003						x	x		x						
		2004						X	X		X						
	BR	2002						X	X								
		2003						X	X								
		2004						X	X					Х			

Table 8 - Disclosure of Environmental Liabilities

Source: The authors

It is worth mentioning again that these corporations belong in sectors classified in 'high & median risk of pollution'. However, almost no information regarding environmental liability is disclosured. When they do disclosure, they rather evidence it abroad. In this sense BOVESPA users might be making incorrect decisions based on lack of relevant environmental information.

Table 9 - Disclosure of Environmental Liabilities by CVR	RD
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Description	Market	Year	Companhia Vale do Rio Doce - CVRD
Appearance of the	NYSE	2002	Operating / financial review and prospects and Footnotes
expression 'environmental		2003	Operating / financial review and prospects
liability' inside the		2004	Operating / financial review and prospects and Footnotes
Financial Statements	BOVESPA	2002	Balance Sheet
(Balance Sheet,		2003	Balance Sheet
Net Income, etc.)		2004	Balance Sheet
	NYSE	2002	US\$ 15 milhões
Estimation of		2003	US\$ 81 milhões
monetary		2004	US\$ 134 milhões
value(\$) of the	BOVESPA	2002	R\$ 52 milhões
environmental		2003	R\$ 232 milhões
liability		2004	R\$ 255 milhões

Source: The authors

In the Brazilian Market, CVRD's environmental information has been evidenced in the balance sheet. Contrarily, it appears in the operating / financial review and prospects as well as in the footnotes of the 20-F Forms presented to the SEC and published in the NYSE. Perhaps, the evidence of environmental information in the balance sheet could scare investors. Or, it could not. Like mention before, this paper's doesn't objective provide and explanation to environmental disclosure. Neither, it objectives to understand corporations's strategies of disclosure to different markets. However, it seems guite strange that corporations are able to disclosure different amounts and kinds of information to different markets. Most people would wonder if regulating organs are doing their job.

5 CONCLUSIONS

This study adopted an exploratory-descriptive approach in order to examine environmental information published by Brazilian corporations. Although, the analysis are yet incipient, this paper presents a original approach to information disclosure, where financial statements of a sample of corporations has analyzed in two different markets.

Base on the evidences, one might conclude that

- Hypothesis 1 has been confirmed. Over the course of the 3 years analyzed, the volume of environmental information disclosured by Brazilian corporations increased. This paper's findings evidenced that increase in both North American and Brazilian market.
 - Hypothesis 2 has been refuted. The sample analyzed has evidenced more information in the North American market. In some cases, this information asymmetry was quite large. *Ambev* for instance, did not evidence any environmental information in the Brazili-

an Market.

- Hypothesis 3 has also been refuted. Regarding environmental liabilities, only 2 corporations disclosured specific (e.g. monetary value- \$), those are: *Companhia Siderúrgica Nacional(CSN) and Companhia Vale do Rio Doce(CVDR)*
- The findings corroborate to KPMG International Survey of Corporate Sustainability Reporting (2002). The Brazilian corporations analyzed do not seem to evidence the necessary amount of environmental information, and when they do, the information is quite deceiving, which might actually prejudicial to the investor's decision making process.
- Petrobras disclosure the largest amount of environmental information. However, only quantity was analyzed in this paper. One can not assume that quantity equals quality. In this sense, this is a restriction for this research.

Although a small number of years were analyzed, this study's findings raise questions about the credibility of the environmental information disclosure by Brazilian corporations in both markets. When we consider that these corporations are members of industries (sectors) with high pollution potential according to Law 10.165/2000, it seems quite strange that they do not have any environmental information to disclosure.

It is worth mentioning the incipient analysis of this research. However, findings raise news questions about corporate disclosure and at the same time opens opportunities to other researches interested in Third World corporations and 'not sophisticated' markets and users.

This paper wishes to contribute to scientific knowledge in accounting by showing evidences the corporations yet are not being held accountable for environmental damages. If accounting is the 'business's language' and the environment's preservation is needed for the survival of human beings on Earth, then organizations must be held responsible for their acts.. In this sense, financial statements are the means of communicating this information. As we know, after all, environmental destruction doesn't disappear because 'big' corporations don't evidence it.

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