

# Business concerns regarding environmental responsibility

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# Introduction

Each enterprise should be more than a profitable tool: it should be a tool with responsibility to protect and promote benefits of other actors and society in general.

Lately, more and more large companies, such as oil or chemical industries, are linked to human rights violations or environmental pollution and damage.

To compensate their negative consequences and restore their fame, these enterprises have started to integrate positive and responsible practices, so that they can contribute positively to the whole society.

Business actions addressing environmental and social issues are referred to as Corporate Social Responsibility (CSR).

This conscientiousness of companies has attracted attention with CSR connecting and balancing environmental, social and economic factors.

Although there is not an established definition of CSR, the European Commission refers to CSR as responsibility enterprises face for their effects on societies emphasizing that CSR is necessary and important factor for attainment of sustainability, innovation but also competitiveness among EU companies.

Similarly, International Labor Organization defines CSR as a way in which enterprises, through their internal processes as well as through their interactions with other actors (people, communities, environment, etc.) affirm their values and principles.

The concept of CSR has become more and more popular among large and smaller companies, which feature and promote CSR projects and practices to prove that they function in a fair and legit way, to survive and prosper.

Firms now integrate social responsibility and environmental sustainability in their business practices, gaining benefits that are not reflected in traditional economic terms, for instance customer base increase.

Recent trends of economic globalization lead to increasing uncertainties and risks. At the same time poverty, inequalities and climate change increase these risks. Coping with these issues may help corporations ensuring sustainable supply chains and markets for further development. In these lines CSR may help as the main business initiative in dealing with these risks.

Obviously energy produced using fossil fuels is closely related to many serious environmental problems. Corporations may consume energy either directly using fossil fuels like coal, diesel and natural gas or indirectly by buying electricity and other imported energy forms.

Apparently energy efficiency has to be associated with the minimization of the effects on the environment. This requires appropriate monitoring of energy use by various different sources and recording of the achieved reduction levels.

Energy utilities provide energy to households, firms etc. Energy utilities industry face challenges associated with social and environmental matters. Social, economic, environmental, health and safety risks are related to LR development of energy sector. Nowadays, energy utilities face serious alterations from power generation to trading, influencing all activities from transmission to distribution within the supply chain.

CSR of energy utilities with increased renewable energy use may offer a number of benefits to societies. Increased energy efficiency, more RES use and decrease in GHG emissions.

# CSR in the energy sector

When it comes to the energy sector, CSR practices are again categorized into the three main pillars: economic issues, social issues and environmental issues.

The economic pillar refers not only to the profitability of the company and its financial issues, but to all the economic impacts that the company has on the community. Therefore, it is expected that the company invests in R&D of new technologies and improves infrastructures, while paying appropriate taxes and operating in a fair and transparent way.

Respectively, regarding the social pillar, energy companies should adopt socially responsible practices that affect people inside and outside the company. These practices include actions that contribute to social development and welfare, such as health and safety, equity and diversity, community relations and relations with NGOs, employee participation and satisfaction, etc.

Focusing on the environmental pillar, CSR plays a key role in the energy sector, particularly because climate change is an extremely important issue that has to be addressed and companies in the industry sector have a huge negative impact on the environment, especially during exploration and production.

The energy sector is possibly the main industrial sector that can have such a positive economic and social impact and contribute to welfare and development, while having a huge negative impact on the environment.



Energy companies are now in a more sustainable route and they are trying to be environmentally responsible, whilst being profitable. Energy demand is increasing rapidly and, due to population growth and the new, modern, energy-intensive way of life, is expected to increase even more.

Because of that, energy companies have to reduce their negative impacts to the environment and respond to social expectations and international agreements, like the Sustainable Development Goals.

# Recent trends in CSR reporting

The European Commission underlines the existence of many international reporting frameworks for presenting non-financial information, available to be used by firms. Among them with precise information are the UNGC framework, the ISO 26000 and the GRI- Global Reporting Initiative.

Global Reporting Initiative was founded in 1997 and has become the leading guideline for voluntary reporting having as main task to augment the quality of information provided to stakeholders and creating many more benefits for the firm. In addition, it assists firms to state both positive and negative contributions in their tasks for sustainable growth.

In these lines, relying on GRI, organizations are classified as

- large (small, SME) if they have more (less) than 250 employees and more (less) than €50 million turnover or more (less) than € 43 million total balance sheet

while they are

- MNE if they are large and multinational.

Due to Standard Report Registration the availability of data refers to the period 1999-2017.

Following GRI we have extracted time trend for corporations in all continents. Trend analysis is performed for the large, MNE and SME corporations with reporting activities as shown in (1) for the linear specification, in (2) for the quadratic, in (3) for the exponential and in (4) for the Pearl-Reed logistic trend model

$$Y_t = \beta_o + \beta_1 t + \varepsilon_t \quad (1)$$

$$Y_t = \beta_o + \beta_1 t + \beta_2 t^2 + \varepsilon_t \quad (2)$$

$$Y_t = \beta_o \beta_1^t + \varepsilon_t \quad (3)$$

$$Y_t = \frac{10^a}{\beta_o + \beta_1 (\beta_2^t)} \quad (4)$$

The linear trend specification selection was justified relying on the accuracy measures of mean absolute percentage errors (MAPE), mean standard deviations (MSD) and mean absolute deviations (MAD).

Even more, we have included a number of variables related to potential factors able to affect a corporation's social behavior like

- Gross National Income (GNI) growth (annual %),
- Particulate emission damage (% of GNI) as damage due to exposure of a country's population to PM2.5, ambient ozone pollution and indoor concentrations,
- carbon dioxide damage (% of GNI) due to emissions from fossil fuels combustion, cement manufacturing,
- energy depletion (% of GNI) as the value of energy resources stock to the lifetime reserves,
- education expenditures (% of GNI) and
- exports of goods and services (annual % growth).

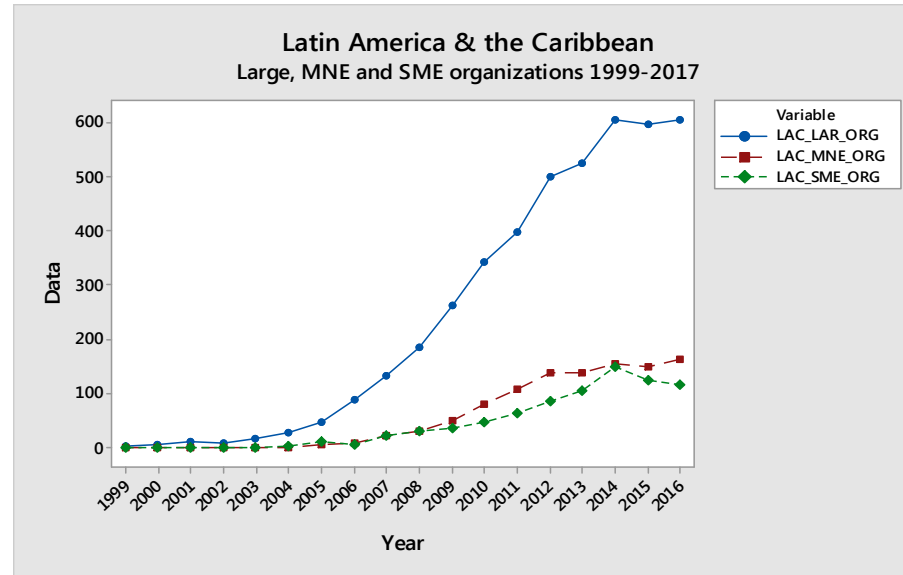
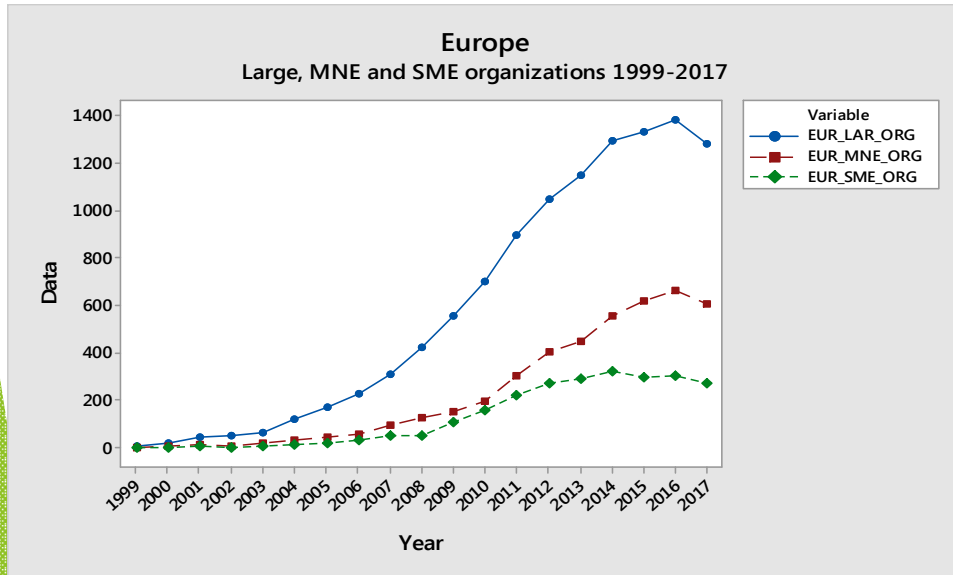
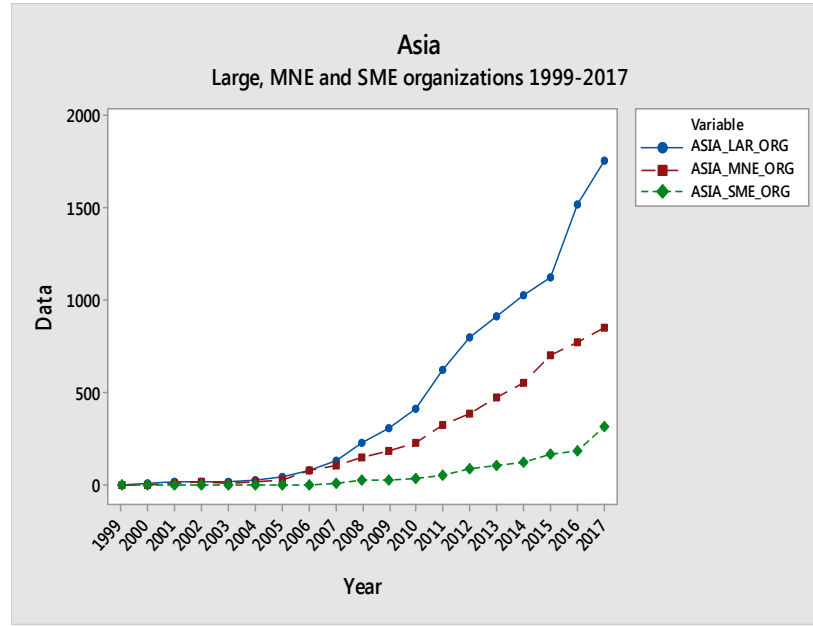
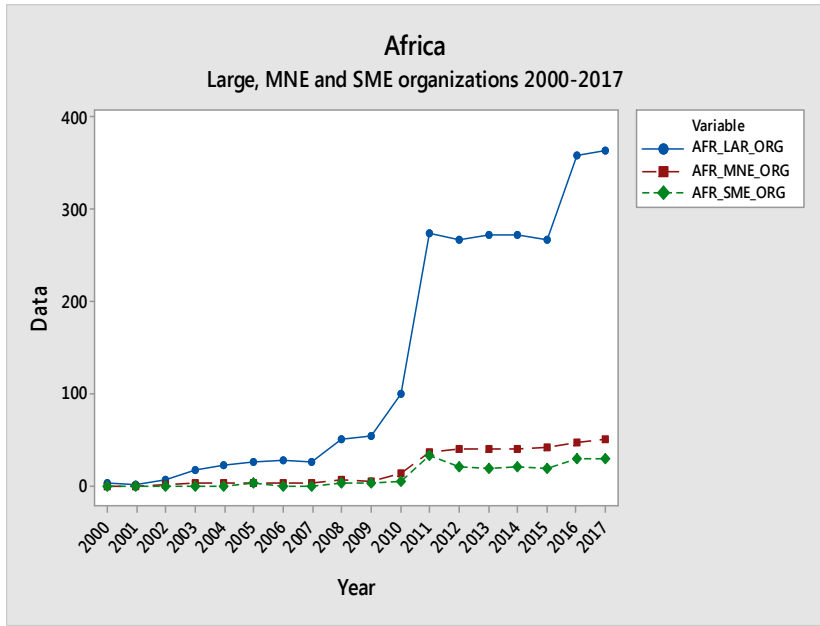
# Table 1: Time trend for corporations worldwide

Continents	Size				Energy Sector	
	Large	MNE	SME	Total	Energy	Utilities
Africa	23.80	3.385	1.925	29.11	0.5053	0.507
Asia	90.79	47.35	12.85	151.0	9.168	3.77
Europe	90.31	40.54	21,48	152.3	9.139	5.328
Latin America &Caribbean	42,94	11,43	8.744	63.11	5.058	2.756
Northern America	23.14	19.55	4.133	46.83	3.072	2.318
Oceania	7.549	4.534	1.981	14.09	0.953	0.716

**Table 2: Correlation coefficients of CSR with some possible influential variables**

	Greece	UK	World
GNI growth	-0,582 (0,009)	-0,105 (0,668)	-0,142 (0,561)
Particulate emission damage	-0,600 (0,007)	-0,105 (0,668)	-0,063 (0,798)
Energy depletion	-0,012 (0,960)	-0,581 (0,009)	0,115 {0,640}
Carbon dioxide damage	0,241 (0,321)	0,336 (0,160)	0,896 (0,000)
Education Expenditure	0,632 (0,004)	0,863 (0,000)	-0,518 (0,023)
Exports	-0,261 (0,281)	-0,095 (0,698)	-0,179 (0,462)

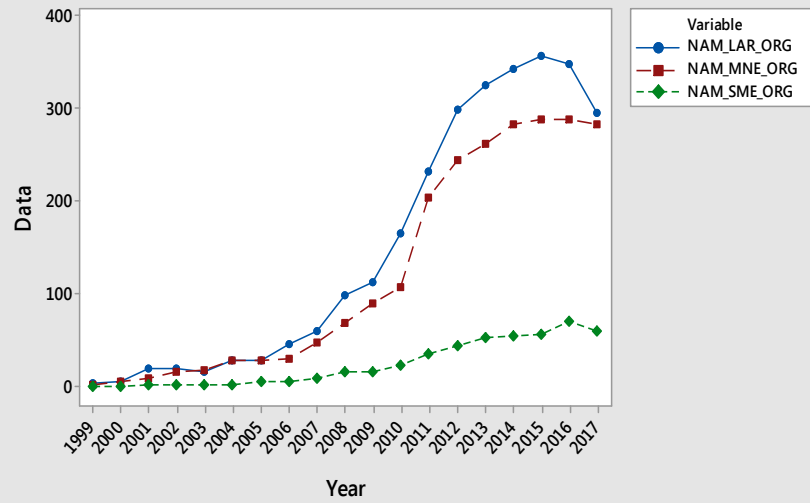
# Figure 1: Evolution of CSR worldwide





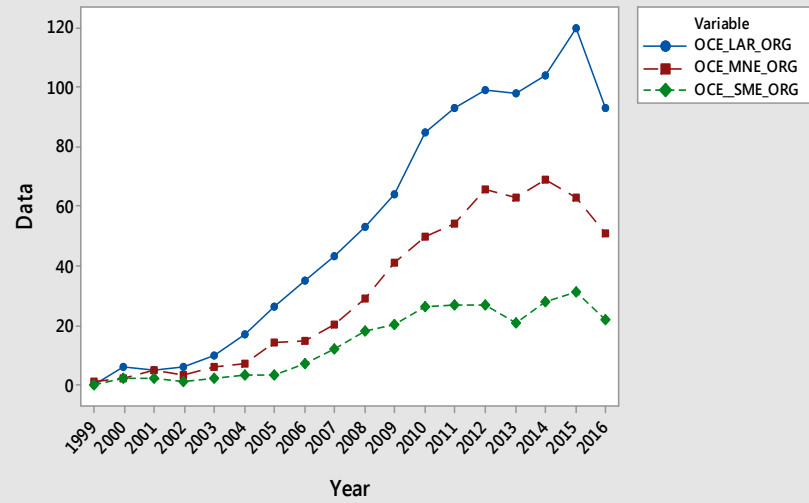
### Northern America

Large, MNE and SME organizations 1999-2017



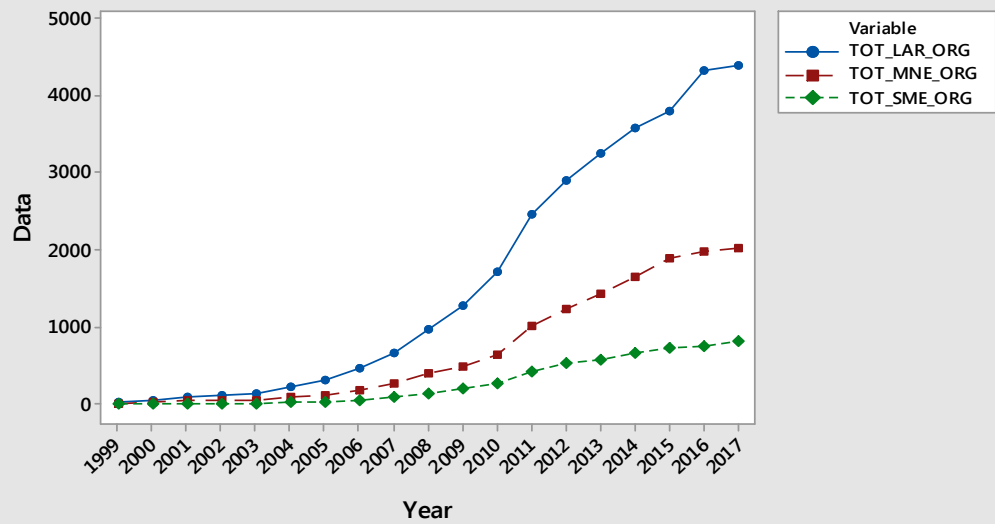
### OCEANIA

Large, MNE and SME organizations 1999-2017



### TOTAL

Large, MNE and SME organizations 1999-2017



## Figure 2: Evolution of CSR in Energy and utilities worldwide

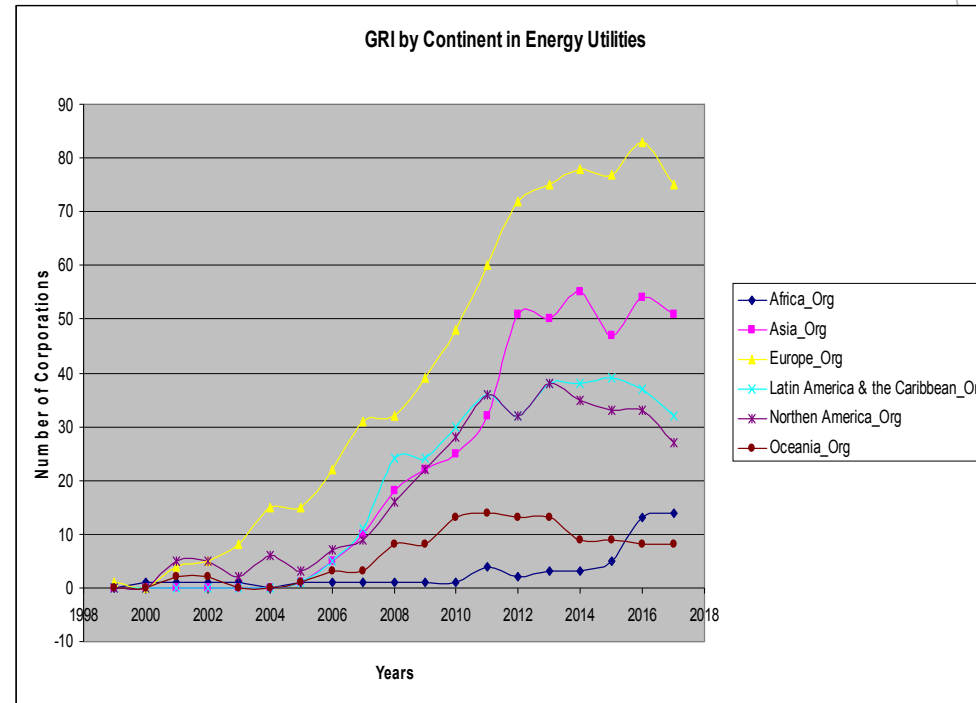
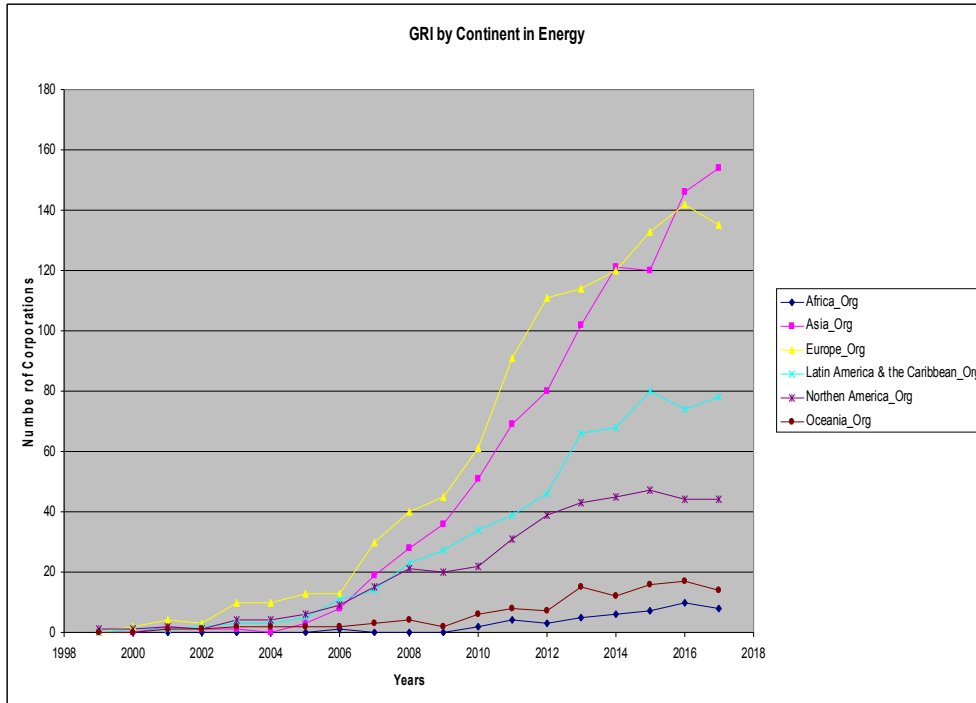


Figure 3: CSR evolution in the case of Greece

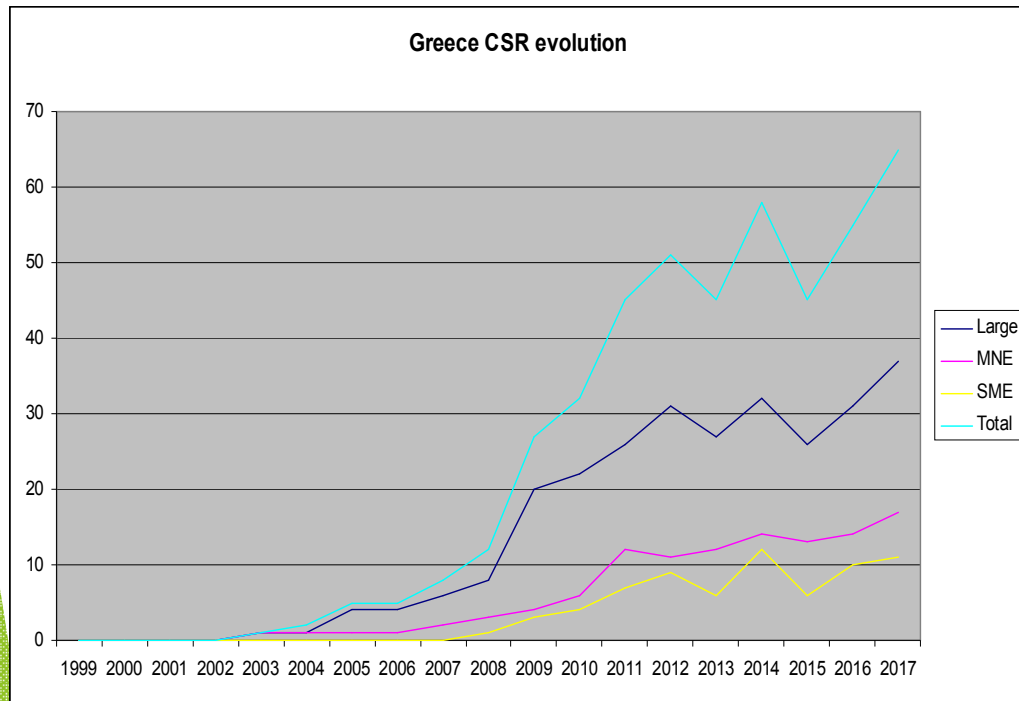
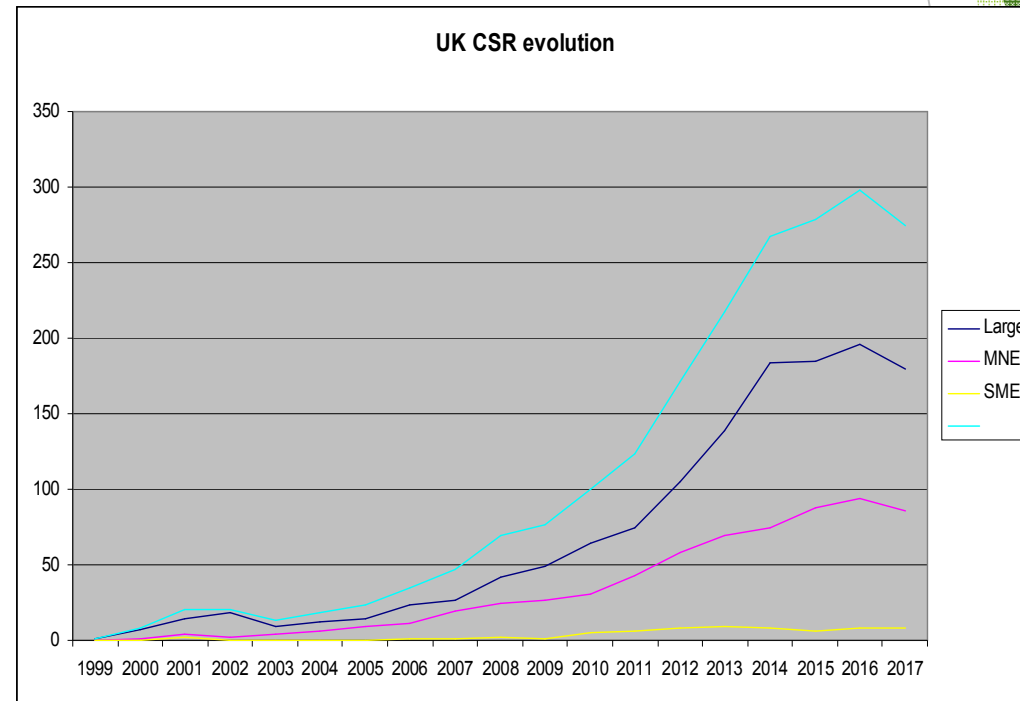


Figure 4: CSR evolution in the case of UK



Turning points	Only Income	Static	Dynamic
Total	48347.82	61416.31	38812.3
OECD	70903.22	77264.43	22609.6
In Transition	17089.93		

# National CSR Index

To calculate a national CSR index various proxies of CSR diffusion have to be considered.

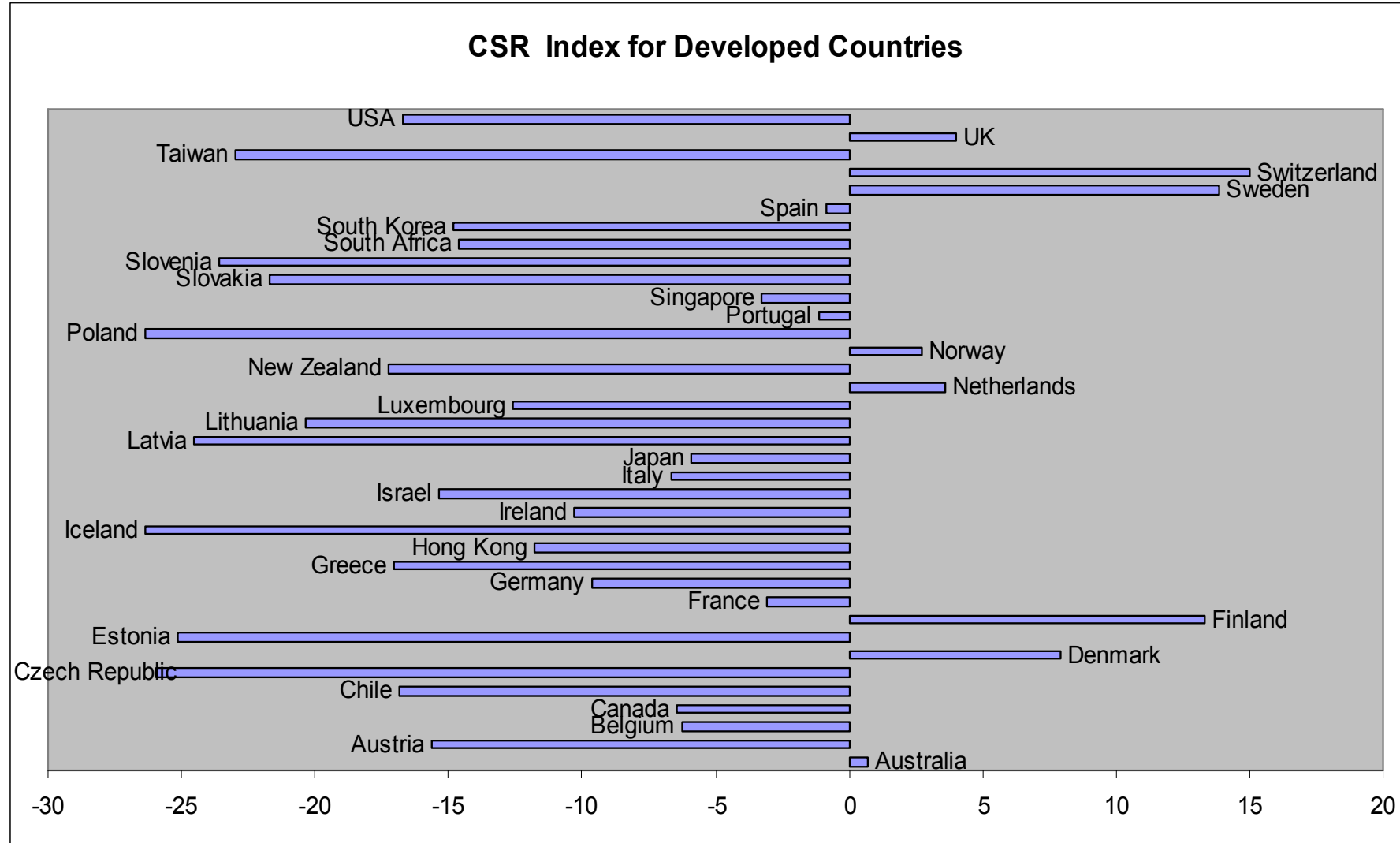
These are treated as ‘variables’ that comprise a consistent national index, which represents the total number of corporations certified or formally endorsing this precise CSR scheme.

We propose here the construction of such an index inspired but significantly differing from the ones calculated in the rationale and structure of Gjørberg [103] as well as Skouloudis et al. [104].

The idea is to rely on country data relevant to various international CSR initiatives, together with environmental and social standards.

To see the way such an analysis is performed, Figure 5 presents the CSR index in the case of the developed countries (modified from Halkos and Skouloudis [105]).

**Figure 5: CSR index for developed countries**



# Conclusions

Industrial pollution has caused concern to government regulators and the general public in developed and developing economies. Consumers nowadays seem to pay much attention to social and environmental problems and demand from companies to take relevant measures. Social and environmental challenges have become so complex that governments, non-profit organizations and firms should work together for the best possible results.

Here we consider the diffusion of the GRI worldwide identifying the trends in the period 1999-2017 per continent. Specifically, we perform a trend analysis of corporations with reporting initiatives distinguishing them as large, multinational and small-medium. Observing the trends in this time period we discover that Asia and Europe behave in the same way in their growing in reporting initiatives followed by Latin America and Caribbean and Northern America.

It is worth mentioning that Europe seems to have passed from a full-grown to a downturn stage in the recent years. To a much smaller magnitude this is also the case for Oceania and Northern America with the later having a full-grown stage for the multinational enterprises. On the other hand, Asia is still in the spreading out stage showing a steady expansion and Latin America and Caribbean and Africa having reached the full grown stage.

Our findings may show future trends and reasons to implement GRI reporting. The GRI facilitates the diffusion of sustainability performance containing information on environmental, economic and social features of an enterprise. It seems that governments have been the leading power in pressing for the implementation of GRI in developed countries but this is not the case in developing countries where attention is paid in attracting FDI rather than coping with corruption or legislating environmental and labor market conditions.



For the disclosure of CSR issues, GRI and ISO 26000 are used with the former showing the means a corporation may publicly inform for its activities while the latter reveals guides for the combination of environmental and social aspects. The extent of implementation of GRI reporting depends on stakeholders pressure or importance of the brand name and market trust, the existence of legislation and the strengthening of laws.

Referring to developing countries CSR appears to be a lot more prominent in Asia compared to Africa and Latin America and Caribbean. Europe and Asia seem to have the highest number of GRI reporting. It is worth mentioning that North American corporations have not implemented GRI reporting to the scale expected because firms may use other ways and channels to inform societies on their sustainability policies (Moneva et al., 2006)).

This issue requires further research efforts in depth. An interesting extension may be the consideration of each sector separately as well as further modeling specifications with explanatory variables that are important in justify GRI reporting. Proxies of regulatory framework conditions affecting environmental policy and governance, cultural dimensions, macroeconomic stability and stringency of legal frameworks may help in this direction.