

**ESG AND FINANCIAL PERFORMANCE OF HYBRID ACTIVITIES:  
ANALYSIS OF WORLD'S LARGEST PUBLIC-PRIVATE  
TRANSPORTATION CONCESSION DEVELOPERS**

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# **ESG PERFORMANCE AND BUSINESS PERFORMANCE OF HYBRID ACTIVITIES: ANALYSIS OF WORLD'S LARGEST PUBLIC-PRIVATE TRANSPORTATION CONCESSION DEVELOPERS**

## **ABSTRACT**

From a just economic focus of activities of organisations, a sustainable emphasis of actions involving ecological, social and ethical behaviour has been added. The objective of this paper is twofold: first, a two-way objective, how financial performance influences ESG performance and how ESG performance affects financial performance; second, to posit if the impact of ESG activities on financial performance of companies, follow a similar international trend or there are domestic differences. We contrast these premises in world's largest transport concession developers by means of panel data statistical analysis for the period 2005-2021.

## **INTRODUCTION**

The paradigm of wealth creation has changed in the last decades in favour of the sustainable development. The term of sustainable development was used for the first time in the Brundtland's Report (United Nations, 1987), and although was mainly focused on environmental sustainability, it also implied to the social and economic framework of development as it stated "sustainable development is ... a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are made consistent with future as well as present needs". Therefore, from a just economic focus of activities of organisations searching for maximising benefits, a sustainable emphasis of actions involving ecological, social and ethical behaviour of business has been added. This sustainable approach includes a three-dimension feature: social, environmental and corporate governance (ESG).

Although the concept of sustainable development is set in the 1980s, it is in the XXI century when its measurement has been defined and there is a growing trend in integrating ESG practices of organisations into their performance analysis. The demand from stakeholders about non-financial reporting (NFR) has grown looking for who the efforts of organisations in pursuing a more sustainable focus in their activities are reflected. The international business press talks about ESG *zeitgeist* (Financial Times, 2022), i.e., there is a new paradigm in the information disclosed by companies. The importance of ESG disclosure has attracted the interest of researchers, so published articles on this matter have increased exponentially in the last decade, in line with the increase of NFR. However not only disclosure has to be analysed, but also the performance of ESG initiatives carried out by organisations. Consequently, there is a need to evaluate the health of companies in a holistic way (Deepali and Aggarwal, 2023), considering both financial and sustainable business dimensions.

Companies are seen as the ones responsible for the situation we have reached, but they are also key performers in putting into practice actions to recover the environment and to eliminate social imbalances, all subject to the ethical behaviour of its governing bodies. The construction sector has an immediate effect on the environment because of the major activities involved, but also a permanent effect because the infrastructure created modified the environment. Accordingly, due to the increase in global sustainable approach this sector is in the thick of things so the implementation of construction investments and projects need to be measured and reported, apart from their financial viability, with an ESG score.

Reporting practice of organisations needs a holistic content including financial information and non-financial or ESG information, as well as interrelationships between both measured with metrics, that also reveal the accomplishment of objectives. Whereas financial reporting should be neutral, according to the Conceptual Framework of IFRS, ESG information should report in a positive discrimination way, in favour of a more sustainable company development (EFRAG, 2021). Nevertheless, ESG information must be measured with an unbiased view from third-party ratings. In this research study we use one of the main scores in this field.

The interaction between ESG performance and corporate financial performance has been of academic research for many years with various findings. The question about how ESG performance may influence traditional financial performance has not been explored so deeply as the relationship in the opposite direction, i.e., how financial performance can influence ESG performance. The first objective of this paper is a two-way objective: how financial performance influences ESG performance and how ESG performance affects their financial performance. This will be one of the few studies that explore the link between financial and ESG performance in a double causality framework. In addition, this objective is checked not only at overall ESG score level, but split for the pillars and categories that compound ESG performance.

As second objective, we also posit that the impact of ESG activities on financial performance of companies will differ across countries, and whether companies, since they belong to the same industry sector, follow a similar international trend or there are different domestic effects regarding sustainability. We contrast this premise in companies with a high participation on the development of public projects by means of concessions, that are a kind of public-private partnership or hybrid agreements.

## **THE RELEVANCE OF NON-FINANCIAL REPORTING**

In the past, the disclosure about the performance of companies was focused on financial data. In fact, the disclosure of financial information continuous to be a key mechanism in the search of transparency as it ensures that stakeholders can form a reasoned judgement about the financial position, the allocation and the use of funds (Behn 2001; Beckett 2019). It represents a key piece of information for both private and public sector organizations, particularly demanded by funders and owners of both types of organizations (Christensen and Skærbæk 2007; Erlingsson, Thomasson, and Öhrvall 2018). Moreover, by increasing the disclosure of financial information does not only decrease the costs of both debt and equity finance, but it also satisfies the demand for a greater information sharing when there is a need for greater external financing (Francis, Khurana, and Pereira 2005; Lightfoot and Wisniewski 2014). However, traditional financial reporting models have proven insufficient to satisfy stakeholders' demands for transparency in terms of sustainability performance. Currently, stakeholders are more interested than ever on governance, the social and environmental impacts of organizations and prospective risks and opportunities (Stacchezzini, Melloni, and Lai 2016).

It is widely acknowledged that information regarding economic, social, environmental and governance presents a more comprehensive picture of the organizations' performance and of their impact on the environment (S. Adams and Simnett 2011; O'Dwyer, Unerman, and Bradley 2005; C. A. Adams and Whelan 2009; Jensen and Berg 2012). Indeed, the disclosure of NFR does not only allow to assess the organizations' ability to cope with environmental and social issues that are likely to impact their future financial performance (C. A. Adams et al. 2016; Churet and Eccles 2014), which is key for the financial stress of companies, but it also enables to enhance their societal reputation and trustworthiness (Ferguson, Lam, and Lee 2002; Garde Sánchez, Rodríguez Bolívar, and López Hernández 2017). Moreover, as the performance and management literature highlights, when analysing the capacity of an entity to create value in the long run, lagging indicators should

be complemented with leading ones which are more frequently included within NFI (GEMI 1998; Kaplan and Norton 1996; Brignall et al. 1991). Therefore, corporate disclosure should evolve and include both financial and non-financial elements.

Within the EU, according to the Eurobarometer of March 2021, 94% of citizens in all EU Member States state that protecting the environment is important to them, 91% of citizens stated that climate change is a serious problem in the EU. Moreover, according to 83% of those surveyed, European legislation is necessary to protect the environment. In addition, the Sustainable and Development Goals aim to create fair and prosperous societies, with a modern, resource-efficient, and competitive economies. While some people speak of the rise of sustainability as a paradigm shift, sceptics can rightly point out that much of this “new” sustainability paradigm is taken from the environmental movement that has been at the fore for decades (Brundtland et al. 1987; Feiden and Hamin 2011). However, the pandemic has catalysed the attention towards the need to re-imaging and re-designing the future of the world. In addition, at the European level, the Next Generation EU recovery plan represents an unmissable opportunity to implement, among others, policies able to increase the sustainability of cities. Next Generation EU recovery plan requires cooperation of both private and public sector and, thus, entities aiming to be part of the change need to probe their sustainability.

Additionally, a growing number of institutional and individual investors are incorporating corporate sustainability performance into their stock or bond selection process. In this setting, investors and financial analysts indicate that the most important sources of NFI for investors are NFR reports, followed by annual reports and company websites. Thus, only about showing corporate sustainability performance but also a requirement to obtain financing. In the toll road sector where fund from private and public sector are key, NFR can be used to secure funds.

## **PUBLIC-PRIVATE PARTNERSHIPS: THE CHARACTERISTICS OF TRANSPORTATION CONCESSION DEVELOPERS AS HYBRID ENTITIES**

Most studies on NFR tend to focus on private, public or non-for profit individual organizations (Kochan et al. 2003; Krishnan and Park 2005; Rose 2007; Hutchinson, Mack, and Plastow 2015; Adapa, Rindfleish, and Sheridan 2016; Palomo-Zurdo, Gutiérrez-Fernández, and Fernández-Torres 2017; Compton, Kang, and Zhu 2018; Wahid 2018). However, PPP, characterized as hybrid organizations, do not entirely fit in any of those classifications. PPP are considered hybrid organizations because they face challenges and risks that are similar to private organizations, while they differ due to their crucial societal role. Their business models incorporate both profitability and public service objectives, which may conflict with each other (Bruton et al. 2015; Argento et al. 2019; Alberti and Garrido 2017; Vakkuri and Johanson 2018). Scholars of many disciplines are increasingly stressing the need to address the duality the mission of hybrid organizations, and to avoid placing them within the defined borders of the traditional “public” or “private” worlds (Bruton et al. 2015). In most competitive contexts, it is reasonable to argue that maximizing profit is consistent with a positive social value (Vining and Weimer 2017). However, as hybrids are often created due to market failures, public value should be addressed (Greiling, Traxler, and Stötzer 2015).

Hybrid entities confront differently governance issues (Grossi and Thomasson 2015; Grossi, Piber, and Sargiacomo 2019; Alexius and Cisneros Örnberg 2015), among them non-financial reporting. Moreover, any entity, linked directly (public entities) or indirectly (hybrid entities) with the public sector, has a key role in promoting sustainability through the appropriate management models and structures (Benstead 2016), considering it, as said before, a necessary foundation for a peaceful, prosperous and sustainable world. This should create a more demanding effort towards sustainability reporting for PPP. This paper aims to analyse if this is the case, in particular for the international transport concession developers.

Understanding how hybrid organizations carry out sustainability reporting has been scarcely investigated outside state-owned enterprises, though it would be relevant to both

policymakers and practitioners (Chris Skelcher & Smith, 2017), as well as for its role in building a more sustainable environment. This raises an urgent call to study how PPP, as hybrid organizations (Christensen, 2017; Florio & Fecher, 2011), deal with accountability demands of external stakeholders (Olsen, Solstad, & Torsteinsen, 2017). Targeting this literature gap and assuming that sustainability reporting may be also introduced as search for legitimacy and vary depending on the type of stakeholders addressed, industries and organizations within the same industry, the novelty of this paper lies in working on the differences between PPP (hybrids) across countries.

Major concessionaries have a great impact in the economy while at the same time require important amount of funding from both private and public sectors to carry out their activities. Thus, obtaining those funds requires a more responsible behaviour towards the environment, or, at least, to be the best in class if they want to opt to competitive tendering offers or other funds that are provided considering non-financial performance of institutions. As a result, in this industry, the role of the NFR is twofold: showing their commitment with sustainability to stakeholders and society at large, and securing funds to guarantee their continuity in the future.

## **METHODOLOGY**

Our empirical work is based in the sample made up of one company of each country included in the ranking elaborated by Public Works Financing (Public Works Financing, 2017) of the largest world's public-private transportation concession developers. Transportation concession developers are ranked by the number of road, rail, port and airport concession projects over \$50 million investment value developed worldwide, since 1985.

The sector under study is characterized as being one with the greatest investment value by means of Public-Private Partnerships (PPP) and managing a great number of hybrid operations. In this sector, the hybridity is due to the construction of public infrastructures and the provision of their corresponding public services through private sector operators. PPP do not entirely fit private or public arrangements. They are considered hybrid agreements because they face challenges and risks that are similar to private contracts, while they differ due to their crucial societal role, as these contracts incorporate the use of public funds for public infrastructure construction or the provision of public services. This duality creates public and private goals that can conflict with each other. Scholars of many disciplines are increasingly stressing the need to address the duality of the mission of hybrid agreements and organizations, and to avoid placing them within the defined borders of the traditional "public" and "private" worlds.

The sample consists of eleven companies from the same number of countries, globally distributed in four continents that provide ESG information from 2005 to 2021, what permits a global coverage. In addition, the sample represents three economic blocs: European Union (EU), Anglo-Saxon, Chinese (see Table 1). They also differ in the legal approach of economic regulations. The position of each company in this list is also the position of the company in the final rank according to its importance in the management of concessions.

TABLE 1. Companies included in the sample.

POSITION	COMPANY	COUNTRY	ECONOMIC BLOC
1	ACS	Spain	EU
2	HOCHTIEF	Germany	EU
3	VINCI	France	EU
4	MACQUARIE	Australia	Anglo-Saxon
5	ATLANTIA	Italy	EU
6	NWS	China	Chinese
7	SNC-LAVALIN	Canada	Anglo-Saxon
8	BALFOUR BEATTY	United Kingdom	Anglo-Saxon
9	STRABAG	Austria	EU
10	SKANSKA	Sweden	EU
11	FLUOR	United States	Anglo-Saxon

For evaluating the overall company's ESG assessment of global transport concession developers we use the scoring developed by Refinitiv® by means of metrics, which come from corporate public reporting in the public domain (annual reports, CSR reports, company websites and global media sources).

Refinitiv's ESG metrics starts with 186 company-level data points that provide material insights into companies' ESG performance. These data points can be numeric data or Boolean, that is, questions are answered with 'Yes' 'No' or 'Null' and they are grouped into ten categories. The value of data points is calculated according to Figure 1 This calculation is based on three factors: the number of companies of an industry sector, the companies with a worse value or the same value for the corresponding data point than the company analysed.

FIGURE 1. Calculation of data point score.

$$\text{Data point score} = \frac{\text{Companies with a worse value} + \frac{\text{Companies with the same value}}{2}}{\text{Companies with a value}}$$

Each Category score is rolled up into three Pillar scores –Environmental, Social and Governance. The ESG Pillar (ESGP) score outlines a company's ESG performance in environmental, social or governance issues and it is a relative sum of the category weights, which vary per industry for the environmental and social categories, whereas for governance, the weights remain the same across all industries. The final ESG Score (ESGS) is the weighted sum of the three ESGP scores and reflects the company's ESG commitment and effectiveness towards ESG performance and transparency. The pillar weights are normalised to percentages ranging between 0 and 100.

In the case that a company is involved in a negative event within ESG categories with material impact, for example, lawsuits, ongoing legislation disputes or fines, the company's ESGS is penalised with the ESG controversies score (ESGcs)<sup>1</sup>, giving rise to the ESG Combined Score (ESGCS). This happens when ESGcs is lower than ESGS, in this case, the ESGCS is calculated as the average of ESGS and ESGcs. If controversies score is greater than (or equal to) ESGS, then ESGS is equal to ESGCS. The ESGCS provides a comprehensive evaluation of the of the company's sustainability impact. Table 2 describes step by step the process how the different variables are aggregated to reach the overall ESGCS.

<sup>1</sup> Calculation based on 23 ESG controversy topics.

The resulting punctuation of each company permits classifying between companies that have limited ESG performance and are not transparent, versus companies that set a good example and emerge as outstanding performers in both ESG implementation and reporting. We will contrast the ESG classification of companies with their traditional financial performance.

The measurement of financial performance is made from accounting-based variables as revenue, return on equity (ROE), return on assets (ROA) and the relationship between debt and equity as a measure of indebtedness. We will also use control variables as the size of the company in terms of investments (total assets) and in terms of capacity (number of employees) and the level of corruption of the country in which the company has its fiscal address, measured with the Corruption Perception Index elaborated by Transparency International.

TABLE 2. Components of ESG score

<u>Data Points</u>	<u>CATEGORIES</u>	<u>PILLAR SCORE</u>						
20▶	Resource use	▶ ENVIRONMENT [EPS]	ESG Score [ESGS]	ESG Combined Score [ESGCS]				
28▶	Emissions							
20▶	Innovation							
30▶	Workforce	▶ SOCIAL [SPS]			ESG Score [ESGS]	ESG Combined Score [ESGCS]		
8▶	Human rights							
14▶	Community							
10▶	Product responsibility							
35▶	Management	▶ GOVERNANCE [GPS]					ESG Score [ESGS]	ESG Combined Score [ESGCS]
12▶	Shareholders							
9▶	CSR Strategy							
186	(23 ESG controversy topics) ESG controversies score							

To investigate the research objectives of this study, panel data regression is being used by means of STATA as statistical software. The dataset consists of panel data, consisting of data from eleven companies for 17 years. To decide whether to use a fixed effect or a random effect model when conducting the regression, the Hausman test is used.

The results of this study are key as both sustainability and financial performance should be linked in the long-term. Thus, it will be key for managers knowing the long-term effects among the two perspectives.

## RESULTS

First we make an analysis of the evolution of ESG activity of world's largest transport concession developers by means of scores of ESG performance, to find out a common trend within the sector across nations or differences.

To classify companies according to their ESG performance we break the scores into three groups:

- ADVANCED GROUP →  $80 \leq \text{SCORE} \leq 100$
- STEADY ACHIEVERS →  $50 \leq \text{SCORE} < 80$
- LAGGARDS →  $0 < \text{SCORE} < 50$

Focusing in the ultimate score, ESGCS, (see Table 3) we see a positive evolution of all companies. At the beginning of the period more than half of the sample has a

score under 50 and only one company (Vinci) was a bit far from the limit of being laggards. At the end of the period, the situation is quite different: two companies are included in the advanced group and the rest, but one, are steady achievers.

We can highlight the effort than by Hochtief, that from being at the bottom of the classification in 2005, it ends the period as ESGCS leader. Something similar happens with Macquarie, that from being the last of all companies in 2005 it is on the verge of being as top ESG performers. It is also remarkable the work done by Vinci, that was outstanding leader in 2005 and it keeps a second position in 2021.

The company that paradoxically ends the sample period as a laggard is ACS. This company that is the leader in the management transport concessions in the world maintains nearly the same value of performance at the beginning and at the end of the sample period.



Nevertheless, this score is quite fluctuating as it is affected by bad practices, and it is enough that one bad practice is reported one year, so the overall score gets worse and next year, when the controversy is solved the score improves. To measure the ESG performance is more reliable the ESGS (see Table 4).

The starting point of the sector is quite similar to the situation regarding ESGCS, more than half of the companies could be classified as laggards and the rest were pretty close to the limit between laggards and steady achievers, and only one prominent leader. At the end of the sample period, we can see that all the companies have undergone a convergence process and the difference between the top leader and the last one is 20 points. The punctuation difference between one company and the next one in the rank is just a question of a few points or just one point.

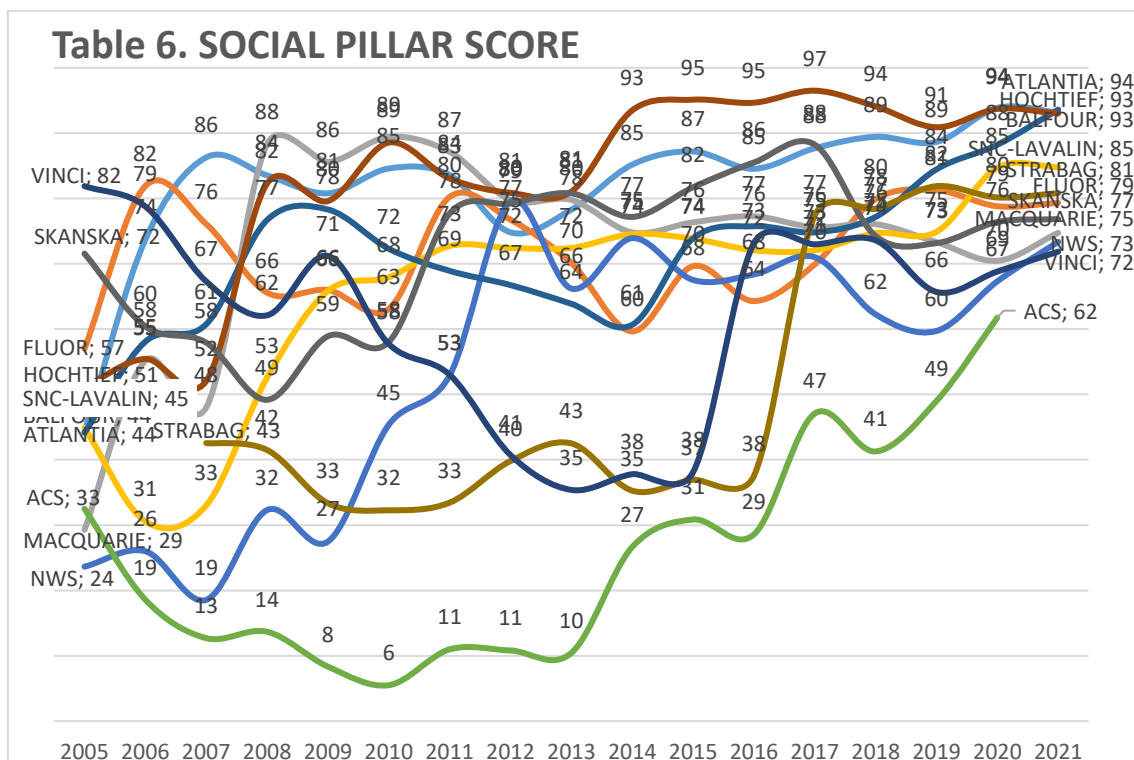
According to this situation, four companies could be considered as advanced in terms of ESG performance, and the vast majority come from the EU economic bloc. The rest are steady achievers with a position so, with a little more work done, they could be also included in this top group. Nevertheless, there is one company (NWS) that is far from the bulk of the group. Although it has improved pretty much its score, it is still very close to the laggards limit.





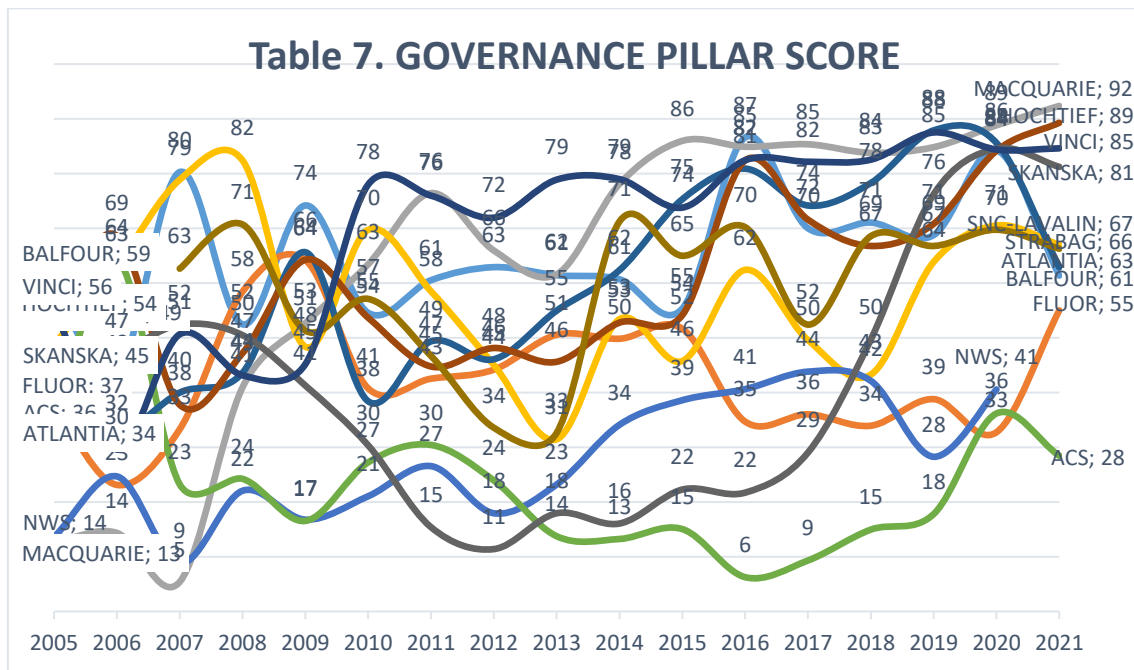
The SPS also shows a positive evolution (see Table 6), although there is no such uniformity in following a similar pathway until 2014. Companies start the sample period with the best proportion between non-laggards and laggards and most of them improved quickly their scores in the following years. But, since 2008, there was a steady decline in the punctuations of some of them. It is striking the case of Vinci, that, in 2005, had the second best score, but due to this reduction, in 2021, it is again the second but to last. Precisely, the last of the classification is again ACS, that has remained the last throughout the whole sample period, but the last year, reaching a punctuation of 6 out of 100 points in 2008, although it finishes the period with 62 points, what means an important recovery.

In this score, five companies are included in the advanced group and the rest, but ACS, as said before, are steady achievers but with one foot on the threshold of being considered advanced. In the second half of the sample period there is a uniform evolution for improving this score and three companies reach more than 90 points.



Finally, the GPS is the score that shows more variability throughout the sample period (see Table 7). In 2005, the best punctuation of this score is the worst of all the scores that we are analysing, so it is a sign of the lack of focus on this issue. This is confirmed with the fact that the average score throughout the sample period for all companies it is just 51 points, also the worst. Nevertheless, there are four companies that end the period within the advanced group, but the rest do not reach good punctuations and even two remain as laggards, being ACS, again one of these two companies.

Whereas in the other two scores that compound the ESGS, there was uniformity to reach the final punctuation, following a similar pathway from a starting situation, in this case there is no such uniformity and it does not seem that companies have a common behaviour in terms of governance issues.



Moving to the second objective of the paper, we analyse the results from the regressions.

First, we analyse the results of the regression in which the business activity performance determines the ESG performance of these companies (see Table 8).

Having a global look at all the scores described before they are mainly linked with the activity structure of the company measured with the number of employees and with the revenue, but in different ways. The bigger the activity carried out by the company expressed with the revenue obtained by the company, the better are the ESG scores of concession developers, so the growing activity of these companies also reflects the growing interest in contributing to a more balanced result between economic and ESG activity. Nevertheless, this growing activity of concessions must be carried out with more human resources and, at this point, the relationship between the number of employees and ESG scores turns into negative, so the bigger the human capital structure of these companies, the worse the ESG performance.

We also find out that the measures of profitability drive, to some extent, the ESG performance, but in different ways. Whereas the profitability of the activity carried out by the company for the own resources has a positive influence in the ESG performance scores, the profitability of the investments used by the concession developers to carry out their activity has a negative influence. The reason for these contradictory result is in the difference between the outcome that contribute to the profitability result, more than the different subjects of the profitability. In the case of the ROA, the finance and tax expenses are not included, so the financial markets and the tax rules are favourable to the responsible behaviour of companies. This is confirmed by the fact that when the ROE is not statistically significant it is replaced by the indebtedness measure, with the same positive effect.

The GPS is the ESG performance score less affected by the magnitudes that we have included in the study. As said before, the governance structure and attitude of companies is not dependent on the activity performance of the company, as they are world leaders not dependent on fluctuations in their projects portfolio, but in the origin and their own way of doing things. Also the level of corruption perception of the country in which they were set up has no effect in the ESG performance and even the total investments of these companies.

TABLE 8. Summary of regression → ESG scores = f (business performance)

	TOTAL ASSETS	EMPLOYEES	CORRUPTION	REVENUE	ROA	ROE	DEBT/EQUITY
ESGCS		-		+	-	+	
ESGS	+	-		+	-	+	
EPS	+	-		+	-	+	
SPS		-	+	+			+
GPS							+

Looking the relationship between ESG performance and business performance the other way round, i.e., to what extent the ESG performance has an influence in the business performance.

From this side, the results of regressions are less statistically significant. Although there is one important fact, the influence of ESG performance is always positive in the business performance magnitudes, but in one case. In addition, despite this positive message, there is no homogeneity in the influence of the ESG performance scores, because each one of these scores do not affect to more than one or two accounting magnitudes.

The better performance regarding environmental and governance issues, the better the expected revenue coming from the main activities of transport concession developers.

The profitability of investments used by transport concession developers is only affected by the ESGCS, so the less ESG controversies incurred by companies, the better the ROA. It is obvious that ESG controversies can give rise to additional costs arising from penalties, and in today's world most stakeholders are quite sensitive to report any offense against environmental or social concerns, and market regulators all over the world try to discipline to companies so they behave well in terms of corporate governance.

The return obtained by own resources is positively influenced by the SPS performance, but negatively by the ESGS. The first effect is easy to explain, any action in favour of community or human rights is highly valued by the markets and obtains tax advantages that increase ROE. However, the negative effect of ESGS in ROE is difficult to be explained.

Finally, the magnitude that measures the indebtedness of transport concession developers, is positively affected by the three components of the ESGS, although not by itself, so the better performance of companies in environmental, social and governance issues, the easier access to financial markets to the detriment of equity finance.

TABLE 9. Summary of regression → Business performance = f (ESG performance)

	ESGCS	ESGS	EPS	SPS	GPS
REVENUE			+		+
ROA	+				
ROE		-		+	
DEBT/EQUITY			+	+	+

## DISCUSSION – CONCLUSIONS

Regarding ESG performance in the sector of international transport concession developers it is noted a common trend, with some differences. The general evolution starts with poor values in 2005, with the vast majority of companies as laggards in ESG performance in all categories of ESG scores. In the next years, a positive attitude towards improving ESG performance so most of them pass to the

steady achievers' stage, although with some fluctuations that do not permit talking about a straightforward approach. Nevertheless, during the second half of the sample period there is a homogeneous ascending line in the ESG performance of transport concession developers, so several of them reach an advanced position, and also a relevant number of them they are established at the upper part of the steady achievers' stage.

Nevertheless, there are some disappointing exceptions in this positive evolution of ESG performance. Within these disappointing exceptions we find the case of ACS. This Spanish company is the top-leader of the classification of world's largest transport concession developers, but it occupies the last position in several ESG categories. Therefore, being a good business performer does not mean to be also a good ESG performer.

We can also draw the conclusion that the economic bloc can be a driver of the ESG performance behaviour, because companies from the EU are the majority in the top-positions of all categories in which normally there is only just one Anglo-saxon company. In addition, the Chinese representative occupies the last position in several companies. That shows the compromise of the EU with ESG principles with a unity policy reflected in initiatives like the European Green Deal Pact.

Companies from this sector seem to have incorporated rapidly an environmental and social compromise within their business strategy. But, the third pillar, the companies' governance does not seem to have been incorporated so homogeneously by all companies at the same time. However, it is logical as each company has its own governance structure arising from the framework in which they were set up.

Trying to find out the relationship between ESG performance and business performance in both ways, from the statistical analysis we conclude that the influence of business performance into ESG performance is much stronger than the other way round.

Although making efforts for improving environmental contribution of transport concession developers seems to be a costly matter for entities, from our results, it is not, because the better the environmental contribution of business activities, the better the revenue obtained from these business activities. Also, having a well performed strategy about governance of companies will benefit the productive activity of the transport concession developers.

Although the influence of ESG performance into business performance is not so important, it is always positive, what it is logical, the better the performance in this non-business issues the better the perception by stakeholders (clients, public administrations, financial markets, investors...) and the better the accounting magnitudes. Nevertheless, there is a negative relationship between the ESGs and the ROE that must be explored deeper, because it is not presumably expected.

One of the drivers of a positive attitude towards ESG performance of international transport concession developers is the fact that all they are competing for projects and for finance resources. So, the clear influence of the three ESG pillars in increasing the level of indebtedness is key, so finance providers are willing to borrow money to them so they can finance these projects.

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## ANNEX A. ESG Scores for the period 2005-2021

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Average 2005-21
<b>AVERAGE</b>																		
ESG Combined Score	33	37	45	52	55	59	57	51	56	59	63	64	66	64	64	69	63	56
ESG Score	36	41	45	56	58	59	61	60	58	60	63	67	69	70	72	75	71	60
Environmental Pillar Score	30	37	43	61	64	67	69	69	66	64	68	71	73	75	75	76	72	63
Social Pillar Score	44	49	50	59	60	60	64	64	62	64	66	69	76	75	75	79	75	64
Governance Pillar Score	36	37	43	49	49	49	48	43	43	52	53	59	55	58	63	69	63	51
<b>ACS</b>	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
ESG Combined Score	36	63	66	65	63	62	70	63	58	59	62	61	64	65	53	63	40	59
ESG Score	36	63	66	65	63	62	70	63	58	59	62	61	64	65	66	72	72	63
Environmental Pillar Score	29	52	76	75	78	66	85	79	69	66	70	76	80	76	79	77	72	71
Social Pillar Score	44	74	86	84	81	85	84	75	78	85	87	85	88	89	89	94	93	82
Governance Pillar Score	36	64	23	24	17	27	30	24	14	13	15	6	9	15	18	36	28	24
<b>HOCHTIEF</b>	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
ESG Combined Score	26	67	54	45	77	71	70	74	73	79	81	77	87	85	84	89	90	72
ESG Score	42	67	54	70	77	76	70	74	73	79	81	88	87	85	84	89	90	76
Environmental Pillar Score	24	77	68	73	82	80	76	86	86	82	86	86	88	89	86	87	88	79
Social Pillar Score	51	55	52	82	80	89	83	81	81	93	95	95	97	94	91	94	93	83
Governance Pillar Score	54	69	38	47	64	54	45	48	46	53	54	82	72	67	71	84	89	61
<b>VINCI</b>	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
ESG Combined Score	70	59	67	57	70	75	71	65	65	68	67	82	83	82	81	82	84	72
ESG Score	70	59	67	57	70	75	71	65	65	68	67	82	83	82	81	82	84	72
Environmental Pillar Score	70	62	79	61	87	89	86	83	85	90	90	91	93	91	91	93	95	84
Social Pillar Score	82	79	67	62	71	58	53	41	35	38	38	73	73	74	66	69	72	62
Governance Pillar Score	56	30	51	43	45	78	76	72	79	79	74	82	82	83	88	84	85	70
<b>MACQUARIE</b>	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
ESG Combined Score	14	19	16	49	58	66	75	64	67	59	80	80	49	80	80	77	78	59
ESG Score	25	19	16	49	58	66	75	69	67	76	80	80	80	80	81	87	89	64
Environmental Pillar Score	33	27	29	65	74	77	82	79	78	83	86	90	86	86	86	90	90	73
Social Pillar Score	45	31	33	53	66	68	73	72	72	75	74	72	72	75	75	85	85	66
Governance Pillar Score	13	14	5	41	53	63	76	66	62	78	86	85	85	84	85	89	92	63
<b>ATLANTIA</b>	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
ESG Combined Score	52	57	54	64	72	64	67	65	62	65	77	79	77	55	48	48	75	64
ESG Score	52	57	54	64	72	64	67	65	62	65	77	79	77	79	87	87	83	70
Environmental Pillar Score	80	80	59	64	71	75	80	80	68	75	82	81	82	82	89	88	88	78
Social Pillar Score	44	58	61	77	78	72	69	67	64	61	74	76	75	77	84	88	94	72
Governance Pillar Score	34	32	40	44	66	38	49	46	55	62	75	81	74	78	88	86	63	60
<b>NWS</b>	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
ESG Combined Score	15	13	13	19	18	18	19	19	20	30	35	35	44	47	44	53		26
ESG Score	15	13	13	19	18	18	19	19	20	30	35	35	44	47	44	53		26
Environmental Pillar Score	0	0	18	23	28	29	22	27	26	31	36	38	42	56	50	53		28
Social Pillar Score	33	19	13	14	8	6	11	11	10	27	31	29	47	41	49	62		24
Governance Pillar Score	14	25	9	22	17	21	27	18	23	34	39	41	44	42	28	41		26
<b>SNC-LAVALIN</b>	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
ESG Combined Score	22	26	29	53	32	59	57	34	52	65	54	65	66	47	34	73	51	48
ESG Score	22	26	29	53	32	59	57	63	52	65	57	65	66	63	66	73	76	54
Environmental Pillar Score	0	0	3	52	24	64	59	58	53	65	55	65	72	77	73	82	85	52
Social Pillar Score	24	26	19	32	27	45	53	80	66	74	68	68	71	62	60	67	73	54
Governance Pillar Score	49	63	79	82	48	70	58	45	31	53	46	62	50	43	64	71	67	58
<b>BALFOUR</b>	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
ESG Combined Score	53	32	68	42	74	67	50	39	47	55	64	71	70	74	73	77	74	61
ESG Score	53	59	68	71	74	69	77	73	70	55	64	71	70	74	75	77	74	69
Environmental Pillar Score	44	48	53	88	82	84	85	76	76	46	65	66	69	70	72	70	76	69
Social Pillar Score	57	82	76	66	66	63	80	77	70	60	70	64	70	80	81	79	79	72
Governance Pillar Score	59	43	80	52	74	55	61	63	61	61	55	87	70	71	69	84	61	65
<b>STRABAG</b>	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
ESG Combined Score			34	43	37	43	46	42	43	49	51	53	64	43	71	61	68	44
ESG Score			34	43	37	43	46	42	43	49	51	53	64	71	71	69	69	46
Environmental Pillar Score			4	26	31	44	59	50	51	47	55	56	59	64	63	59	59	43
Social Pillar Score			43	42	33	32	33	40	43	35	37	38	77	78	82	80	81	46
Governance Pillar Score			63	71	51	57	47	34	33	71	65	70	52	69	67	70	66	52
<b>SKANSKA</b>	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
ESG Combined Score	53	48	53	61	33	53	49	56	58	52	53	33	61	63	68	71	62	55
ESG Score	53	48	55	61	63	53	55	56	58	52	57	57	61	63	68	71	71	59



Environmental Pillar Score	41	37	55	81	83	64	60	65	63	53	57	53	57	61	58	57	57	59
Social Pillar Score	72	60	58	49	59	58	78	79	81	77	82	86	88	74	73	76	77	72
Governance Pillar Score	45	47	52	50	41	30	15	11	18	16	22	22	29	50	76	85	81	41
<b>FLUOR</b>	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
ESG Combined Score	24	27	38	70	74	69	55	43	69	65	67	67	64	65	64	62	69	58
ESG Score	24	34	38	70	74	69	67	67	69	65	67	67	64	65	64	62	71	61
Environmental Pillar Score	10	21	31	60	70	70	66	71	71	67	68	79	72	76	73	75	78	62
Social Pillar Score	29	55	48	88	86	89	87	80	80	75	76	77	76	76	73	70	75	73
Governance Pillar Score	37	23	33	58	64	41	43	44	51	50	52	35	36	34	39	33	55	43

## ANNEX B. REGRESSION STATISTICAL RESULTS

### ESG PERFORMANCE = f(Business Performance)

ESGCS	Coef.	t	P> t
TOTAL ASSETS	.0001742	1.87	0.063
<b>EMPLOYEES</b>	-.0002844	-5.98	<b>0.000</b>
CORRUPTION	-.0040256	-0.04	0.965
<b>REVENUE</b>	.0018194	7.21	<b>0.000</b>
<b>ROA</b>	-1.809.318	-3.46	<b>0.001</b>
<b>ROE</b>	423.869	3.24	<b>0.001</b>
DEBT/EQUITY	.1434407	0.13	0.895
ESGS	Coef.	t	P> t
<b>TOTAL ASSETS</b>	.0002436	2.35	<b>0.020</b>
<b>EMPLOYEES</b>	-.0002907	-5.48	<b>0.000</b>
CORRUPTION	.0364162	0.35	0.724
<b>REVENUE</b>	.0018119	6.44	<b>0.000</b>
<b>ROA</b>	-188.088	-3.23	<b>0.002</b>
<b>ROE</b>	348.592	2.39	<b>0.018</b>
DEBT/EQUITY	129.029	1.07	0.288
EPS	Coef.	t	P> t
<b>TOTAL ASSETS</b>	.0002627	2.30	<b>0.023</b>
<b>EMPLOYEES</b>	-.0002318	-3.97	<b>0.000</b>
CORRUPTION	-.0340582	-0.30	0.764
<b>REVENUE</b>	.0017828	5.76	<b>0.000</b>
<b>ROA</b>	-1.945.254	-3.03	<b>0.003</b>
<b>ROE</b>	4.069.207	2.54	<b>0.012</b>
DEBT/EQUITY	1.875.466	1.41	0.162
SPS	Coef.	t	P> t
TOTAL ASSETS	0,0000017800	0.01	0.989
<b>EMPLOYEES</b>	-.0003708	-5.64	<b>0.000</b>
<b>CORRUPTION</b>	.262345	2.02	<b>0.045</b>
<b>REVENUE</b>	.0019923	5.67	<b>0.000</b>
ROA	-1.160.935	-1.61	0.110
ROE	30.049	1.67	0.098
<b>DEBT/EQUITY</b>	5.946.032	3.94	<b>0.000</b>
GPS	Coef.	t	P> t
TOTAL ASSETS	.0001564	1.26	0.209
EMPLOYEES	.0000545	0.86	0.393
CORRUPTION	.1394423	1.11	0.269
REVENUE	.000419	1.23	0.220
ROA	-1.217.484	-1.74	0.083
ROE	25.569	1.47	0.144
<b>DEBT/EQUITY</b>	4.259.493	2.92	<b>0.004</b>

### BUSINESS PERFORMANCE = f(ESG scores)

REVENUE	Coef.	t	P> t
ESGCS	2.807.426	1.06	0.292
ESGS	2.559.419	0.23	0.818
<b>EPS</b>	216.895	3.17	<b>0.002</b>
SPS	-4.246.628	-0.79	0.432
<b>GPS</b>	124.495	2.79	<b>0.006</b>
ROA	Coef.	t	P> t
<b>ESGCS</b>	.0002483	2.35	<b>0.020</b>
ESGS	-.000573	-1.28	0.204
EPS	-.0001414	-0.50	0.617
SPS	.0002134	0.95	0.342
GPS	-.0000887	-0.48	0.632
ROE	Coef.	t	P> t
ESGCS	.0002863	0.66	0.511
<b>ESGS</b>	-.0040836	-2.24	<b>0.026</b>
EPS	.0010529	0.94	0.349
<b>SPS</b>	.0017596	1.99	<b>0.048</b>
GPS	.0010091	1.38	0.169
DEBT/EQUITY	Coef.	t	P> t
ESGCS	-.0024357	-0.66	0.511
ESGS	-.0270428	-1.75	0.083
<b>EPS</b>	.0212252	2.23	<b>0.027</b>
<b>SPS</b>	.0180862	2.41	<b>0.017</b>
<b>GPS</b>	.0254339	4.10	<b>0.000</b>