

Environmental, Social, and Governance and expenses of insurance companies

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Abstract

The study explores the relationship between the expenses of insurance companies and their ESG performance. It analyses with panel data models a large sample of property and casualty (PC) insurers worldwide over the 2013-24 period. The results reveal that companies with strong ESG profiles benefit from lower underwriting, operating, and interest expenses. Moreover, alternative measures for the company expense ratio decrease as ESG scores improve. These effects are significant across all three ESG pillars, with the governance dimension having a slightly stronger impact. These findings suggest that ESG is a strategically important factor for efficient cost management in insurance companies, with potential implications for insurance availability and economic development. The research offers insights into ESG effects on the management of insurance companies, a domain that has not been extensively studied by the recent literature but has been closely monitored by managers and policy makers.

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1. Introduction

The growing attention to ESG factors has spurred research aimed at empirically investigating their effect on the funding costs of financial institutions. The existing literature primarily focuses on banks, demonstrating that strong ESG dimensions lower the costs incurred to obtain capital for investment. However, there is no evidence for insurers, despite their key role in preserving financial stability (Bobtcheff et al., 2016; ECB, 2009; Kaserer and Klein, 2019) and fostering economic development (Christophersen and Jakubik, 2014; MohyUldin et al., 2017; Apergis and Poufinas, 2020).

Cost gaps are a critical element for insurers to achieve a competitive advantage. Evidence suggests that the main factors driving insurance costs are related to insurance management, in addition to the business model (e.g., *SIZE*, product mix, sales channel, and geography) (Björn Münstermann and Vogelgesang, 2015). With the development of an ESG culture across economic sectors, executives have become aware that they cannot ignore incorporating ESG factors. In the long term, ESG adaptation is expected to reduce costs. However, in the short term, the growing volume of both ESG regulations and material ESG risks makes it relatively unclear whether ESG can effectively improve the financing costs and profitability of insurers.

To fill this gap in knowledge, this paper focuses on a sample of property and casualty (P&C) insurers worldwide to test the relationship between their ESG scores and both operating and financing expenses. P&C insurance plays a crucial role in protecting individuals, businesses, and communities from financial losses caused by unforeseen events. Risk assessment and pricing models in the P&C segment are especially related to climate change, making ESG a strong transformative tool. The frequency and severity of natural disasters have placed a significant strain on P&C insurers to embrace more sustainable practices. Therefore, incorporating ESG values could significantly benefit not only cost efficiency, reputation, and financial resilience (Shalender et al., 2023), but also positively impact the management of environmental risks.

The analysis reveals that good ESG performance significantly lowers both underwriting and operating expenses of insurers. Additionally, strong ESG profiles lead to lower borrowing costs. Statistically, the influence of ESG is more pronounced on underwriting expenses than on interest costs. The effects are notable across the environmental, social, and governance pillars, with governance having the most considerable impact. Moreover, the results show that ESG ratings positively correlate with alternative measures for the expense ratio, which assesses a company's profit-generating ability. Stakeholders use this ratio to compare an insurer's performance against peers, impacting strategic decisions and pricing. Therefore, the findings support the argument that a strong ESG profile benefits insurers by reducing expenses, thus enhancing operational efficiency. An important insight for executives is that incorporating ESG criteria across business activities is crucial for cost-effective insurance management. For example, the underwriting

phase should consider ESG dimensions to improve the rating and pricing of undertaken risks. In the context of claims handling and processing, lower administrative expenses could be achieved by opting for digital claims, using recycled materials in repairs, or partnering with eco-friendly suppliers. Implementing ESG combined with artificial intelligence (AI) innovation would lower insurance costs even further. For example, AI-enabled tools and machine learning could be integrated into underwriting workflows, to enable dynamic pricing and realize benefits, such as increased efficiency, improved risk selection and more profitable pricing.

Our work is related to previous literature in several ways. First, it extends the existing research that analyzes the impact of ESG performance on the cost of funds. For example, few articles show how improving ESG dimensions benefit both financial and non-financial firms with a lower cost of equity capital (Gonçalves et al., 2022; Ernst and Woithe, 2024; Magnani et al., 2024; MSCI, 2024). Similarly, another stream of research has examined ESG effects on debt costs using samples mixed of financial and non-financial firms (Apergis et al., 2022), or even excluded financial firms from the analysis (Kong, 2023; Alves and Meneses, 2024; Li et al., 2024; Shi et al., 2024). Other articles also indicate that the quality of ESG disclosure affects financing costs. Companies with higher levels of transparency in disseminating ESG information seem to benefit from cheaper debt funds (Raimo et al., 2021; You et al., 2025). Concerning the financial sector, few articles look more narrowly at banking firms, discovering that ESG dimensions contribute to explaining financing costs (Agnese and Giacomini, 2023; Andries, and Sprincean, 2023; Nobili et al., 2024; Baek and Kang, 2025). Nevertheless, the evidence remains inconclusive and often depends on the sample characteristics or methodologies utilized (Azmi et al., 2021; Gigante and Manglaviti, 2022). Therefore, it remains an open issue whether ESG can effectively benefit corporate funding by lowering equity and debt costs. This article contributes additional insights into how ESG impacts businesses in the financial sector by examining the costs incurred by insurers, a specific type of financial intermediaries. Furthermore, the article expands on previous research by investigating how the corporate finance of insurance companies is influenced by ESG factors. Indeed, evidence shows that aspects such as market valuation (Bressan, 2023a; DiTommaso and Mazzuca, 2023), taxes (Bressan, 2023b), reinsurance (Bressan, 2023c), profitability (Bressan and Du, 2025), and solvency (Brogi et al., 2022) are all significantly associated with ESG factors. However, none of these prior articles examines insurers' costs. Therefore, this article explains in more detail how the incorporation of ESG impacts the business of insurance companies. Specifically, the analysis considers underwriting, operating, and interest expenses separately, thereby examining carefully the cost structure of insurers. This approach provides a deeper understanding of how ESG can be strategic for the effective functioning of insurers.

The rest of the paper is organized as follows: Section 2 describes the data and the methodology employed, Section 3 presents the results, and Section 4 concludes.

2. Sample, variables, and empirical strategy

2.1 Sample and variables

The data is sourced from S&P Global. From companies in the insurance industry worldwide, the property and casualty (P&C) segment was selected. Due to the availability of ESG score data, the analysis covers the period from 2013 to 2024. Over this period, only firms that were operating and publicly listed were included in the analysis.

Building on previous ESG research in insurance (Brogi et al., 2022; Bressan, 2023b; DiTommaso and Mazzuca, 2023), we use the ESG score and its three dimensions — Environmental, Social, and Governance. ESG scores are developed through the S&P Global Corporate Sustainability Assessment (CSA), an annual evaluation of company sustainability performance. Companies participate voluntarily, and modeling approaches fill disclosure gaps to create the aggregated S&P Global ESG score.² The global ESG score (ESG) and its components (E, S, and G) range from 0 to 100, with higher values indicating better sustainability performance.

The aim is to examine how ESG affects insurers' expenses. Two expense categories are considered. Underwriting expenses cover costs related to managing policies, including salaries, marketing, advisory fees, audit fees, technology costs, asset depreciation, and rent. Interest expenses are the interest paid on debt and borrowings. We calculate the ratio of expenses to total liabilities (Andries, and Sprincean, 2023; Kong, 2023; Shi et al., 2024), and the variables are named *UNDERWREXP1* and *INTEXP1*. Higher ratios indicate higher underwriting and financing costs. For robustness, we divide underwriting and interest expenses by total expenses, using variables *UNDERWREXP2* and *INTEXP2*. The models control for firm specific features that affect expenses (see, for example, Andries, and Sprincean (2023), Kong (2023), Alves and Meneses (2024)), which include *SIZE* (log of total assets), *ROA* (net income to assets), and *LEV* (debt to equity ratio).

For robustness, additional tests are performed using a few more dependent variables that capture insurance expenses. First, operating expenses are measured to total liabilities (*OPEREXP*). Operating expenses include underwriting expenses and expenses for managing and maintaining in-force policies. Second, the insurer expense ratio was estimated to examine more closely the relationship between ESG scores and insurer profitability. The expense ratio is a key metric for assessing the financial health of insurance companies (Maggioni and Turchetti, 2024). It measures expenses against premiums earned, providing insights into the insurer's operational efficiency. Often included in key performance indicators (KPI) monitored by regulators to assess company performance and industry trends, the expense ratio is reported by organizations such as the NAIC (2024) and the EIOPA (2023). Three measures for the expense ratio are tested. The first measure, *EXPRATIO1*, is the expense ratio reported directly by the company in its publicly

² More details about the methodology followed to construct ESG scores can be found at https://portal.s1.spglobal.com/survey/documents/spglobal_esg_scores_methodology.pdf.

available financial statements, though the methods of calculation can vary from one company to another. To address the differences in reporting, two manual calculations were performed. The first manual calculation, called *EXPRATIO2*, divides underwriting expenses by net premiums earned (NAIC, 2024). However, different sources use alternative denominators for this ratio. To provide more robust results, the second manual calculation, referred to as *EXPRATIO3*, divides underwriting expenses by gross premiums written (OECD, 2012).

Table 1 summarizes the definitions of all quantities used in the analysis. Table 2 presents descriptive statistics after winsorizing the variables between the 1st and 99th percentiles. Underwriting expenses account for 41% of total insurer expenses, while borrowing costs account for nearly 2%. Similarly, underwriting expenses over total liabilities are almost thirty-three times greater than interest expenses over total liabilities. The average ESG rating is 38, with a range from 4 to 86, and firms perform best on the governance pillar with an average score of 43. Table 3 shows pair-wise correlation coefficients, revealing that both the ESG score and the three pillars negatively correlate with insurer expenses, averaging a correlation of 20%. The next sub-section tests the regression model for the relationship between ESG performance and insurer expenses.

Table 1: Definition of variables

Variable type	Variable name	Definition
Explained variables	<i>UNDERWREXP1</i>	Ratio of total underwriting expenses to total liabilities.
	<i>UNDERWREXP2</i>	Ratio of total underwriting expenses to total expenses.
	<i>INTEXP1</i>	Ratio of total interest expenses to total liabilities.
	<i>INTEXP2</i>	Ratio of total interest expenses to total expenses.
	<i>OPEREXP</i>	Ratio of total operating expenses to total liabilities.
	<i>EXPRATIO1</i>	Expense ratio reported by the company.
	<i>EXPRATIO2</i>	Ratio of total underwriting expenses to net premiums earned.
	<i>EXPRATIO3</i>	Ratio of total underwriting expenses to gross premiums written.
Explanatory variables	<i>ESG</i>	ESG score (scale 0-100).
	<i>E</i>	Environmental score (scale 0-100).
	<i>S</i>	Social score (scale 0-100).
	<i>G</i>	Governance score (scale 0-100).
Control variables	<i>SIZE</i>	Log of total assets.
	<i>ROA</i>	Ratio of net income to total assets.
	<i>LEV</i>	Ratio of total book value debt to total book value equity.

Table 2: Descriptive statistics

	Mean	Min	Max	Std. Dev.
<i>UNDERWREXP1</i>	0.1561	0.0077	2.4008	0.3013
<i>UNDERWREXP2</i>	0.4082	0.2017	0.9995	0.1582
<i>INTEXP1</i>	0.0047	0.0000	0.0253	0.0047
<i>INTEXP2</i>	0.0190	0.0000	0.2041	0.0308
<i>OPEREXP</i>	0.4039	0.0309	3.1868	0.4444
<i>EXPRATIO1</i>	0.3059	0.1417	0.6220	0.8656
<i>EXPRATIO2</i>	0.3953	0.0258	2.1621	0.3045
<i>EXPRATIO3</i>	0.3563	0.0174	1.4060	0.2259
<i>ESG</i>	37.8666	4.0000	86.0000	18.8571
<i>E</i>	35.9153	1.0000	97.0000	23.7451
<i>S</i>	32.7982	3.0000	87.0000	20.6250
<i>G</i>	43.0667	5.0000	87.0000	17.6770
<i>SIZE</i>	16.8001	10.6546	21.1658	1.6314
<i>ROA</i>	0.0275	-0.0717	0.1419	0.3224
<i>LEV</i>	0.4041	0.0000	4.8200	0.7292

Note: The estimation period is 2013–2024. See Table 1 for the definitions of the variables.

Table 3: Pair-wise correlation coefficients

	<i>UNDERWREXP1</i>	<i>UNDERWREXP2</i>	<i>INTEXP1</i>	<i>INTEXP2</i>	<i>OPEREXP</i>	<i>EXPRATIO</i>	<i>EXPRATIO2</i>	<i>EXPRATIO3</i>	<i>ESG</i>	<i>E</i>	<i>S</i>	<i>G</i>	<i>SIZE</i>	<i>ROA</i>	<i>LEV</i>
<i>UNDERWREXP1</i>	1.0000														
<i>UNDERWREXP2</i>	0.5196***	1.0000													
<i>INTEXP1</i>	-0.0091	0.0959	1.0000												
<i>INTEXP2</i>	-0.1554**	0.2812***	0.6031***	1.0000											
<i>OPEREXP</i>	0.8914***	0.2391***	0.0333	-0.2411***	1.0000										
<i>EXPRATIO1</i>	0.4343***	0.7771***	0.0522	0.1334*	-0.1621**	1.0000									
<i>EXPRATIO2</i>	0.1431**	0.6372***	0.3117***	0.5482***	-0.1009*	0.5400***	1.0000								
<i>EXPRATIO3</i>	0.2316***	0.7071***	0.2014***	0.3356***	-0.2834***	0.4521***	0.7977***	1.0000							
<i>ESG</i>	-0.1773***	-0.1683**	-0.1972***	-0.0375	-0.1622**	-0.2062***	-0.2812***	-0.2944***	1.0000						
<i>E</i>	-0.1822***	-0.1981***	-0.1967***	-0.0527	-0.1638***	-0.1755***	-0.2974***	-0.3172***	0.9491***	1.0000					
<i>S</i>	-0.1622***	-0.1445*	-0.2113***	-0.0527	-0.1339**	-0.2132***	-0.2676***	-0.2811***	0.9717***	0.9195***	1.0000				
<i>G</i>	-0.1741***	-0.1547**	-0.1529***	-0.0242	-0.1757***	-0.2034***	-0.2518***	-0.2464***	0.9513***	0.8496***	0.8732***	1.0000			
<i>SIZE</i>	-0.2791***	-0.1365*	0.0734	0.0466	-0.2822***	-0.2567***	-0.0943	-0.0601	0.3123***	0.3086***	0.2744***	0.3391***	1.0000		
<i>ROA</i>	0.2783***	0.2275***	-0.0111	-0.1244*	0.1595**	-0.1445**	-0.2422***	-0.1787***	-0.1394**	-0.1446***	-0.1691***	-0.0946*	-0.0546	1.0000	
<i>LEV</i>	-0.1092*	-0.0046	0.5295***	0.5914***	-0.1468**	-0.1121*	0.5305***	0.0354	0.0416	0.0234	0.0347	0.0602	0.1261**	-0.1865***	1.0000

Note: The estimation period is 2013–2024. See Table 1 for the definitions of the variables. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

2.2 Regression model

To test whether the ESG performance influences the insurer's costs, the following model is estimated:

$$Expenses_{j,t} = \alpha + \beta ESG_{j,t} + \gamma Controls_{j,t} + Time\ effects + \epsilon_{j,t}. \quad (1)$$

where j and t indicate, respectively, the company and the year, while *Expenses* is alternatively the underwriting expenses (*UNDERWREXP1* and *UNDERWREXP2*) and the interest expenses (*INTEXP1* and *INTEXP2*). The controls include *SIZE*, *ROA*, and *LEV*. Time fixed effects capture common aggregate time shocks for all firms. The constant term is α , and the error term is ϵ . To address potential heteroskedasticity and autocorrelation in the residuals, robust standard errors are clustered by firm.³ Additionally, the models were tested with fixed effects for geographic regions (Africa, Asia-Pacific, Europe, Latin America and the Caribbean, Middle East, United States and Canada). This approach decreased the standard errors of the regressors. Including too many fixed effects, particularly with a relatively small sample, can reduce the variation in the factor of interest (Breuer and DeHaan, 2024).

3. Empirical results

Table 4 shows estimates from (1). The number of observations varies across the regressions due to missing combinations between the dependent variables and the set of regressors for some companies. Columns (1) and (2) indicate that ESG scores significantly reduce underwriting expenses, normalized by liabilities (*UNDERWREXP1*) and total expenses (*UNDERWREXP2*). For example, in economic terms, a one percent increase in the ESG score leads to more than a three percent reduction of underwriting expenses to total expenses.⁴ Columns (3) and (4) also show a negative impact on interest expenses, but the effect is smaller, while is more significant for *INTEXP1*.

Table 5 uses ESG pillars as regressors. Given the high correlation among the variables E, S, and G reported in Table 3, the regressions are tested separately to avoid potential multicollinearity. All the three ESG dimensions are found to be significantly related to insurer costs, with similar coefficient magnitudes. Again, the impact on underwriting expenses is stronger than interest expenses.

³ All the models in the analysis were tested using lagged independent variables, yielding results consistent with those reported in the paper. However, applying lagged variables significantly reduced the sample size. As a result, it was decided to use the contemporaneous variables to have a sufficiently informative sample. However, the outcomes from the regressions using the lagged independent variables are reported in the Appendix 5 (see Table 8). In addition, we also tested the model in (1) using the variation in the ESG score from time $t-1$ to t , i.e. the annual change in the ESG rating. The results have similar quality to the results in the main text, and we leave these results in the Appendix 5 (see Table 9).

⁴ Increasing *ESG* by one percent leads to a decline in *UNDERWREXP2* that can be approximated by multiplying the *ESG* percentage coefficient by its standard deviation, i.e. 0.17×18.8571 .

Table 4: Effect of ESG scores on insurer underwriting and interest expenses

	(1) <i>UNDERWREXP1</i>	(2) <i>UNDERWREXP2</i>	(3) <i>INTEXP1</i>	(4) <i>INTEXP2</i>
ESG	-0.0014***	-0.0017**	-0.0001***	-0.0001*
	(0.0001)	(0.0012)	(0.0001)	(0.0001)
SIZE	-0.0430***	-0.0057	0.0002	0.0006
	(0.0123)	(0.0073)	(0.0009)	(0.0010)
ROA	0.0236*	0.0112**	0.0001	0.0002
	(0.0124)	(0.0057)	(0.0009)	(0.0008)
LEV	-0.0430**	0.0161	0.0036***	0.0356***
	(0.0213)	(0.0213)	(0.0006)	(0.0051)
Constant	0.8403***	0.5048***	0.0033	-0.0047
	(0.2091)	(0.1096)	(0.0023)	(0.0096)
Time effects	Yes	Yes	Yes	Yes
Observations	417	301	516	300
R-squared	0.1651	0.0953	0.3535	0.3682

Note: Column (1) and column (2) report estimates of the model in (1) for underwriting expenses measured, respectively, with *UNDERWREXP1* and *UNDERWREXP2*. Column (3) and column (4) report estimates of the model in (1) for interest expenses measured, respectively, with *INTEXP1* and *INTEXP2*. The estimation period is 2013–2024. See Table 1 for the definitions of the variables. Robust standard errors clustered by firm in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

Table 5: Effect of Environmental, Social, and Governance scores on insurer underwriting and interest expenses

	(1) <i>UNDERWREXP1</i>	(2) <i>UNDERWREXP1</i>	(3) <i>UNDERWREXP1</i>	(4) <i>INTEXP1</i>	(5) <i>INTEXP1</i>	(6) <i>INTEXP1</i>
E	-0.0011***			-0.0001***		
	(0.0002)			(0.0002)		
S		-0.0012***			-0.0001***	
		(0.0002)			(0.0002)	
G			-0.0016***			-0.0001***
			(0.0011)			(0.0001)
SIZE	-0.0423***	-0.0437***	-0.0434***	0.0002	0.0001	0.0001
	(0.0124)	(0.0123)	(0.0121)	(0.0006)	(0.0004)	(0.0002)
ROA	0.0234*	0.0235*	0.0239*	0.0001	0.0001	0.0001
	(0.0124)	(0.0124)	(0.0124)	(0.0001)	(0.0001)	(0.0001)
LEV	-0.0430**	-0.0426**	-0.0422**	0.0036***	0.0036***	0.0037***
	(0.0214)	(0.0214)	(0.0214)	(0.0001)	(0.0001)	(0.0001)
Constant	0.8083***	0.8323***	0.8793***	0.0021	0.0028	0.0046*
	(0.2085)	(0.2108)	(0.2111)	(0.0023)	(0.0024)	(0.0021)
Time effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	417	417	417	516	516	516
R-squared	0.1655	0.1647	0.1658	0.3449	0.3535	0.3477

Note: Columns (1) to (3) report estimates of the model in (1) for underwriting expenses measured with *UNDERWREXP1*. Columns (4) to (6) report estimates of the model in (1) for interest expenses measured with *INTEXP1*. The estimation period is 2013–2024. See Table 1 for the definitions of the variables. Robust standard errors clustered by firm in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

To verify the effect of ESG on the costs incurred by insurers for their operating activities, the regression in (1) is estimated using the amount of operating expenses to total liabilities (*OPEREXP*) as the dependent variable. In Table 6, the sign of *ESG* is negative and significant. The breakdown of the ESG pillars indicates that the environmental and governance pillars have the most significant impact on operating expenses. In economic terms for example, a one percent upgrade in the governance rating (*G*) corresponds to almost a 3.71 percent decline of operating expenses.⁵

Table 6: Effect of ESG scores on insurer operating expenses

	(1) <i>OPEREXP</i>	(2) <i>OPEREXP</i>	(3) <i>OPEREXP</i>	(4) <i>OPEREXP</i>
ESG	-0.0014*			
	(0.0012)			
E		-0.0012**		
		(0.0012)		
S			-0.0007	
			(0.0012)	
G				-0.0021**
				(0.0012)
SIZE	-0.0673***	-0.0663***	-0.0696***	-0.0665***
	(0.0243)	(0.0243)	(0.0243)	(0.0243)
ROA	0.0162	0.0160	0.0162	0.0164
	(0.0161)	(0.0161)	(0.0161)	(0.0161)
LEV	-0.1282***	-0.1287***	-0.1263***	-0.1284***
	(0.0406)	(0.0406)	(0.0406)	(0.0406)
Constant	1.5214***	1.4876***	1.5232***	1.5667***
	(0.4365)	(0.4365)	(0.4390)	(0.4351)
Time effects	Yes	Yes	Yes	Yes
Observations	409	409	409	409
R-squared	0.1274	0.1275	0.1255	0.1286

Note: The table reports estimates of the model in (1) for *OPEREXP*. The estimation period is 2013–2024. See Table 1 for the definitions of the variables. Robust standard errors clustered by firm in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

⁵ If the G rating increases by one percent, the corresponding decline in operating expenses can be quantified using the standard deviation of G, i.e. 3.71 percent $\approx 17.6770 \times 0.21$.

To examine the relationship between ESG scores and insurer profitability, the model in (1) is used to estimate effects on the insurer expense ratio, approximated by the three alternatives *EXPRATIO1*, *EXPRATIO2*, and *EXPRATIO3*. In Table 7 the ESG score is negatively related to all the three variables, with the coefficient having a higher magnitude on self-reported expense ratios (*EXPRATIO1*).

Table 7: Effect of ESG score on insurer expense ratios

	(1) <i>EXPRATIO1</i>	(2) <i>EXPRATIO2</i>	(3) <i>EXPRATIO3</i>
ESG	-0.0729***	-0.0048***	-0.0053***
	(0.0181)	(0.0011)	(0.0011)
SIZE	-1.0418***	0.0037	0.0067
	(0.2474)	(0.0083)	(0.0083)
ROA	-0.5829***	-0.0152**	-0.0130**
	(0.1515)	(0.0077)	(0.0054)
LEV	-1.2703***	0.3114***	-0.0142
	(0.2772)	(0.0464)	(0.0605)
Constant	51.2381***	0.4303***	0.4489***
	(4.3464)	(0.1314)	(0.1186)
Time effects	Yes	Yes	Yes
Observations	447	403	355
R-squared	0.1234	0.3625	0.1377

Note: Column (1) reports estimates of the model in (1) for *EXPRATIO1*. Column (2) reports estimates of the model in (1) for *EXPRATIO2*. Column (3) reports estimates of the model in (1) for *EXPRATIO3*. The estimation period is 2013–2024. See Table 1 for the definitions of the variables. Robust standard errors clustered by firm in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

In general, the results from the analysis indicate that good ESG performance is associated with lower expenses and increased profitability for insurance companies. This finding aligns with previous evidence on banking firms (Andries, and Sprincean, 2023) and non-financial firms (Kong, 2023). The analysis has decomposed the cost structure of insurers, showing that the negative impact of ESG scores is more pronounced on underwriting expenses than on borrowing costs. Additionally, the findings suggest that good ESG performance contributes to reducing expenses related to handling claims with policyholders. Both insurance practitioners and consultants acknowledge that ESG helps insurance companies to operate more efficiently (KPMG, 2023; Capgemini, 2025; PwC, 2025). Scholars have also provided evidence that ESG is strategically significant for the effective functioning of insurers. For example, DiTommaso and Mazzuca (2023) and Bressan

(2023a) demonstrate that insurers with high ESG ratings are financially more stable and have higher market values. Bressan and Du (2025 (forthcoming) show that insurers increasing in underwriting premiums are more profitable if they have also a good ESG performance. Brogi et al. (2022) show that more profitable insurers tend to exhibit a greater level of awareness regarding ESG topics. In general, previous work suggests that ESG provides insurance companies with a competitive advantage. Following these insights, this article has explored the cost structure in greater detail, revealing that ESG significantly contributes to reducing the cost burdens of insurance companies.

4. Conclusion

The study explores whether the expenses incurred by insurance companies are related to their ESG performance. Using a global sample of P&C insurers from 2013-24, the analysis reveals that companies with good ESG profiles benefit by lowering underwriting, operating, and borrowing expenses. The impact on underwriting expenses is greater compared to other expenses. Furthermore, higher ESG scores are correlated with lower expense ratios. The expense ratio is a crucial indicator in insurance, as it measures how insurers generate profit and outperform peers. Therefore, the analysis suggests that ESG is crucial for managing costs efficiently and improving performance. Finally, the results indicate that all three ESG pillars contribute to these effects, with the governance dimension having a slightly stronger impact.

The important policy implications borne by this study relate primarily to the role of insurance companies in the economy, which enable the transfer and sharing of different types of risk, and provide mechanisms that promote both savings and investments. Thus, better cost management of insurance companies, resulting in improved operational efficiencies, would not only strengthen the insurance market but also enhance the availability of insurance and stabilize the economy.

This research was limited to the P&C insurance segment, while future research could explore other insurance segments to verify if they also experience similar ESG-related cost benefits. It should also be acknowledged the usage of one data source for ESG ratings. This was mainly due to limitations in the availability of extensive ESG data on insurance companies. Extending this work by using alternative ESG scores would strengthen the robustness of the findings, especially in relation to issues of ESG ratings disagreement (Berg et al., 2022).

Disclosure statement

The author declares that AI tools were not employed to edit this paper. The author declares no conflict of interest. The data for this study are obtained from a private provider and are not publicly available.

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5. Appendix

Table 8: Effect of ESG score on insurer underwriting and interest expenses – Lagged independent variables

	(1) <i>UNDERWREXP1</i>	(2) <i>UNDERWREXP2</i>	(3) <i>INTEXP1</i>	(4) <i>INTEXP2</i>
<i>ESG</i> (t-1)	-0.0010*** (0.0001)	-0.0011*** (0.0011)	-0.0001*** (0.0001)	-0.0000* (0.0001)
<i>SIZE</i> (t-1)	-0.0449*** (0.0153)	-0.0033 (0.0082)	0.0005*** (0.0002)	0.0030*** (0.0012)
<i>ROA</i> (t-1)	0.0243* (0.0133)	0.0103** (0.0051)	0.0000 (0.0002)	-0.0010 (0.0012)
<i>LEV</i> (t-1)	-0.0380** (0.0222)	0.0141 (0.0213)	0.0035*** (0.0006)	0.0355*** (0.0050)
Constant	0.8381*** (0.2511)	0.4963*** (0.1224)	-0.0009 (0.0033)	-0.0201* (0.0123)
Time effects	Yes	Yes	Yes	Yes
Observations	353	257	449	257
R-squared	0.1601	0.0994	0.0843	0.0373

Note: Column (1) and column (2) report estimates of the model in (1) for underwriting expenses measured, respectively, with *UNDERWREXP1* and *UNDERWREXP2*. Column (3) and column (4) report estimates of the model in (1) for interest expenses measured, respectively, with *INTEXP1* and *INTEXP2*. The estimation period is 2013–2024. See Table 1 for the definitions of the variables. Robust standard errors clustered by firm in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

Table 9: Effect of the annual change in ESG score (ΔESG) on insurer underwriting and interest expenses

	(1) <i>UNDERWREXP1</i>	(2) <i>UNDERWREXP2</i>	(3) <i>INTEXP1</i>	(4) <i>INTEXP2</i>
ΔESG	-0.0028*** (0.0023)	-0.0027*** (0.0031)	-0.0001*** (0.0001)	-0.0000* (0.0001)
<i>SIZE</i>	-0.0485*** (0.0151)	-0.0146* (0.0072)	0.0003* (0.0002)	0.0014* (0.0012)
<i>ROA</i>	0.0236* (0.0125)	0.0111** (0.0056)	0.0001 (0.0009)	0.0001 (0.0011)
<i>LEV</i>	-0.0430** (0.0213)	0.0161 (0.0212)	0.0036*** (0.0006)	0.0356*** (0.0051)
Constant	0.8534*** (0.2544)	0.5973*** (0.1141)	-0.0006 (0.0030)	-0.0039 (0.0133)
Time effects	Yes	Yes	Yes	Yes
Observations	353	257	449	257
R-squared	0.1565	0.0852	0.0183	0.0274

Note: Column (1) and column (2) report estimates of the model in (1) for underwriting expenses measured, respectively, with *UNDERWREXP1* and *UNDERWREXP2*. Column (3) and column (4) report estimates of the model in (1) for interest expenses measured, respectively, with *INTEXP1* and *INTEXP2*. ΔESG is the annual change in *ESG* from year t-1 to year t. The estimation period is 2013–2024. See Table 1 for the definitions of the variables. Robust standard errors clustered by firm in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.