Financial performance and ESG practices in the Travel and Leisure Sector: The case of New York Stock Exchange listed firms

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Abstract

This paper examines the relationship between financial performance and ESG practices for firms in the Travel and Leisure Sector that are listed in the New York Stock Exchange (NYSE). Sectoral studies on this issue are important because there is evidence to suggest that ESG performance has different effects on different sectors and CRS practice is not homogenous across different industries; in addition, despite the global economic significance of the travel industry there are few relevant studies. The relationship is evaluated mainly via a multivariate system that allows for a rich lag structure and dynamic interdependencies between the variables and several robustness tests are employed. Initial simple panel regressions results suggest that financial performance is positively affected by environmental and social policies, by liquidity, by the efficiency of the employees to contribute to sales, by financial leverage, among others. Results, however, from dynamic multivariate system estimations indicate that the impact of ESG factors is limited compared to the impact of fundamental factors such leverage, the dividend payout, and general costs, or (during the more recent period) by the impact of global factors such as oil price changes and market sentiment/uncertainty.

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1. Introduction

During the recent decade socially responsible investing (SRI) and investor demand for assets and firms that enhance environmental, social, and governance (ESG) concerns and corporate social responsibility (CSR) issues has grown substantially. As Aramonte and Zabai (2021) discuss, among others, between 2016 and 2020 investments in ESG assets increased to about 36% of assets that are professionally managed; Ammann et al (2018) point out that more than 20% of professionally managed funds in the US (more than $8.5 trillion) are invested via sustainable investment strategies. Su and Chen (2020) point out that sustainable investing as a best practice interacts with traditional finance considerations and involves the integration of ESG issues with financial performance to generate not only social benefits but also financial benefits.

As a result, an important question that has attracted significant attention by market participants and academics is whether ESG practices by firms are related and/or have a positive impact on their financial performance. This paper contributes to the discussion and examines the relationship between financial performance and ESG practices for firms in the Travel and Leisure Sector that are listed in the New York Stock Exchange (NYSE). Prior studies have largely ignored this sector, however, it is important to enrich our knowledge with implications for specific sectors, since there is evidence to suggest that ESG performance has different effects on different sectors. Feng, Wang, and Kreuze (2017), for instance, show that the link between financial performance and corporate social responsibility practice is not homogenous across different industries, while Al Hawaj and Buallay (2022) also report a varying effect depending on the definition of performance and the industry sector. Thus, since the composition of stakeholders is not uniform across industries, the effect of social responsibility practices

on financial performance may be heterogeneous across different industries/sectors (see Apaydin et al, 2021; Bissoondoyal-Bheenick, et al, 2024). In addition, this industry has a significant global economic impact and hospitality firms may have a higher sensitivity of their financial performance compared to firms from other industries (for a discussion see Su and Chen, 2020). In addition, Back (2024) points out that ESG studies in the hospitality and tourism academic literature are still in an early stage and more such studies should be conducted, while Su and Chen (2020) point out that research on the impact of socially responsible investments on market values for the hospitality market in North America is scant. Recently, Chen, Su, and Chen (2022) focus on chain-brand hotels and find that that hotel firms with stronger ESG performance are more defensiveness to market crises, such as the impact of COVID-19.

In addition, note that many prior studies examine regression models to evaluate the relationship between ESG performance and financial performance. These models, however, do not allow for a rich lag structure and dynamic interdependencies of variables. Thus, a further contribution of this study is that it employs a dynamic estimation of a multivariate system with a rich lag structure where all system variables are interdependent. More specifically, two different panel procedures are employed, a Standard Vector AutoRegression (VAR) model and a Bayesian VAR model, in addition to a standard panel regression. Since in such systems there is little informational value in the examination of individual coefficient estimates (if one is interested in examining how the system reacts to a shock) we report the results in terms of Variance Decompositions (VDs) and Impulse Response Functions (IRFs). The VDs will help us determine, for each variable, the amount of information that they contribute to the rest of the variables in the system; in other words, the proportion of the variance of a

variable that is explained by exogenous shocks to the rest of the variables. The IRFs will allow us to evaluate the impact of a shock in one variable on another variable; that is the impact of a one standard deviation shock on a variable on all other endogenous variables in the system. In other words, we will be able not only to document a potential relationship between ESG practices and financial performance but also to measure the extent of the impact and the potential reaction of financial performance to a shock in the ESG factors.

Note that we perform several tests to test the robustness of the results; we not only employ two different multivariate models (Standard VAR, Bayesian VAR) but also test for the correct lag length of the models, examine alternative lag structures, follow a Cholesky ordering but in addition try alternative orderings of the variables in the system, employ two different proxies for firm financial performance proxies (ROA, ROIC). As will be discussed later the results remain qualitatively similar through the series of robustness tests. Also, the paper does not concentrate on overall ESG scores but examine the impact of each pillar (E, S, G) separately, since different pillars may have a different impact[1] on the operation of a firm in the Travel and Leisure sector. Finally, to deal with data availability issues, two sub-samples are employed: in Group 1 we companies that have available data for the whole sample period (2005-2023, 19 years, 20 firms) are included, while in Group 2 we include companies that have available data for the recent period (2013-2023, 38 companies, 11 years). This allows for a better examination of whether and how the impact of ESG performance has evolved over time.

[1] For example, Cek and Eyupoglu (2020), find that although the ESG score is significantly related to firm performance, environmental performance is not.

To anticipate the results, when contemporaneous simple panel regressions are estimated, the results indicate that the financial performance for Travel and Leisure firms listed in the NYSE is positively affected by Environmental and Social policies but is not related to Governance. Financial performance is also positively affected by liquidity and the ability of a corporation to meet short-term obligations, by the efficiency of the employees to contribute to sales, by the efficiency of firms to generate more cash flows than required for expenditures/expenses, by financial leverage, and the dividend payout ratio. General, selling, and administrative costs and the size of the firm appear unrelated to financial performance. In addition, during the more recent period (2013-2023), oil price changes and changes in market sentiment (VIX) seem to affect financial performance.

When, however, a rich lag structure and dynamic interdependencies between the variables are allowed with a Vector Autoregression procedure, a different picture emerges. More specifically, when the 20 firms that have available data for the 2005-2023 period are examined, we find that leverage explains about 16% in the variation of financial performance, the dividend payout explains about 14%, while oil price changes and market sentiment explain about 10%. The three ESG variables seem to contribute a small amount (5%) of information to financial performance. Interestingly, we find that market sentiment explains about 10% of the variance of the E pillar, while for the S pillar about 22% of its variance is explained by the E pillar and about 12% by the G pillar. These results seem to indicate that the social pillar is strongly influenced by the decisions of the firm regarding the environmental and government pillars. In, addition, Impulse Response Functions indicate that financial performance responds positively to

a shock in oil price changes for the next period, positively to a shock in leverage for approximately five years, and positively to a shock in the E pillar the next year. A shock in costs and dividend payout results in a reduction of financial performance for the next period. When we examine the 38 firms that have available data for the 2013-2023 period, we find that, during the recent decade, oil price changes, market sentiment, leverage, and general costs, explain a larger percentage of the variation in financial performance, while the ESG variables still contribute less than 5% to financial performance variance. Shocks in ESG pillars result to insignificant reaction in firm performance. These results are robust as regards to the choice of performance proxies (ROA, ROIC), different lag structures, different estimation models (standard VAR, Bayesian VAR), different ordering of the variables in the system.

Overall, the results indicate that financial performance is affected by ESG policies, but the impact is limited, compared to the impact of fundamental factors such leverage, the dividend payout, and general costs, or the impact of global factors such as oil price changes and market sentiment/uncertainty. Note that the impact of leverage could also be indirectly related to ESG performance, since many studies report that firms with good ESG performance may be able to have access to capital at a more attractive cost, since they are perceived to exhibit lower risk (Eichholtz et al, 2019; Attig et al, 2013; El Ghoul et al, 2011; see for a discussion below). In addition, the results seem to indicate that market sentiment/uncertainty impacts on the variance of the environmental pillar, while the social pillar is strongly influenced by the decisions of the firm regarding the environmental and government pillars. The rest of the paper is organised as follows. Section 2 presents a brief literature review, section 3 discusses the data and the methodology, section 4 presents the results. Section 5 concludes the paper.

2. Literature Review

The broader issue of sustainable investments has attracted a lot of attention by economists and, thus, the literature is rather extensive. Here, we will concentrate on the relationship between financial performance and ESG practices and will discuss indicative studies. Note that the present review does not mean to be exhaustive but rather present the main themes currently under investigation by economists.

Overall, the impact of CSR on firm value and profitability has been debated with mixed empirical results. On one hand, economists (see, among others, Friedman, 1970) view the welfare of shareholders as the primary (social) responsibility of firms; that is, corporate managers/executives are the agents of the company's owners, and should have as a main objective to increase shareholder profits, and by implication shareholder value (the shareholder theory). Shareholders can on their own decide how to allocate funds to different social purposes. In other words, ESG investments can be viewed as a cost that has an effect on cash flows (see for a discussion, among others, Goss and Roberts, 2011). Barnea and Rubin (2010) argue that overinvestment in corporate social responsibility practices by the managers or major stockholders of firms may be driven by an attempt to obtain reputational benefits. They test their hypothesis using data from thousands of US firms and find a negative association between the ownership and leverage of managers/insiders and the social rating of the company. Lin et al (2021) examine over 3000 US companies for the period between 1996 and 2016 and report that firms with high corporate social responsibility involvement will have a tendency to invest more that the optimal levels, i.e. they will bear higher costs, with the over-

investment issue increasing with the level of the agency problem in the firm and the information asymmetry. There is also evidence to suggest that different corporate social responsibility categories may have a different impact on firm value. For example, Verbeeten et al (2016) find, for German firms, that while social information disclosure positively affects firm value, environmental information disclosure has a negative impact. Also, Hong and Kacperczyk (2009) study sin stocks (alcohol, tobacco, gaming) and find that institutions with constraints (e.g. pension plans, insurance companies, among others) have a smaller exposure to these stocks, that these stocks have a lower analyst coverage, but they also tend to be underpriced relative to their fundamental values and, thus, sin stocks enjoy higher expected returns.

On the other hand, it has been argued that corporations should realize that their corporate actions also have social consequences; in addition, managers should pay attention to stakeholders (e.g. employees, customers, among others) to maximize shareholder value sustainably (the stakeholder theory, see Freeman and Phillips, 2002; Freeman,1999). As Freeman (2010) argues, different groups have a stake in a firm and the firm is organised around the relationships among these groups. For a firm to create value, different stakeholders such as managers, employees, suppliers, banks, holders of debt and equity in the firm, and communities must interact. The benefits to a corporation may be long term and may come in different forms (see also for a discussion, Porter and Kramer, 2007). For instance, the social investors who prefer ethical investments will be less willing to rebalance their portfolios with adverse market conditions and, thus, ethical investments could be less volatile and uncertain during extreme periods, such as the global financial crises (see, Olofsson et al, 2021). Albuquerque et al (2018) built an equilibrium model that makes the prediction of increased firm value and lower

systematic risk for firms that invest in CSR, and report significant empirical evidence that supports this prediction. Consistent with this argument, are the results of Shakil (2021), who examines energy (oil and gas) firms for the period between 2010 and 2018 and finds, among other, that an ESG performance leads to lower total risk.

Thus, a firm with a good ESG performance may be perceived by market participants to exhibit a lower level of risk and, as a result, may be able to raise (debt and equity) capital at a more attractive cost. Eichholtz et al (2019), for instance, examine corporate spreads of Real Estate Investment Trusts (REITs) and property assets. More specifically, they compare the loan spreads between buildings that have an environmental certification with the spreads of conventional similar buildings and find that the former are smaller by 24 to 29 basis points. This effect is also present in the secondary market for REITs that have in their portfolio a higher percentage of buildings that are certified. Attig et al (2013) find that higher credit ratings (and thus, lower financing costs) are associated with firms that have increased corporate social responsibility investments. They argue that non-financial information is conveyed by corporate social responsibility performance. El Ghoul et al (2011) make the hypothesis that low corporate social responsibility firms are perceived to have higher risk and attract a smaller base of investors. They examine US firms and find that improved CSR performance reduces the cost of equity capital for a firm.

In addition, good ESG performance can attract socially responsible investors which in turn will enhance a firm's investor base and reputation. For example, Ammann et al (2018) examine whether the publication of Morningstar's ESG ratings affect fund flows, and their results show that retail investors will move their investments from low-

rated into high-rated funds. There is also evidence to suggest that firms with high CRS standards may deliver superior returns to investors; Steen et al (2020) examine the impact of Morningstar's ESG ratings and the performance of 146 Norwegian mutual funds and find higher and abnormal returns for funds investing in the European firms in the top ESG quintiles.

In studies that examine credit risk and ESG performance, Abdul Razak et al (2023) examine whether ESG practices have an impact on the creditworthiness of a firm. They use the spread of corporate Credit Default Swaps (CDS) as a proxy for creditworthiness for 573 firms worldwide for the period between 2013 and 2016. The results indicate that increases on ESG performance, the governance pillar in particular, seem to reduce credit risk. Barth et al (2022) examine how ESG performance affects CDS pricing for US and European firms for the period between 2007 and 2019. They find, among other findings, that ESG performance mitigates corporate credit risk, and the effect has a U-shape for ESG quantiles. For instance, firms with the worst performance in the environmental pillar tend to have higher spreads, while firms with the high performance in the social pillar tend to also exhibit higher spreads, indicating a potential waste of resources which leads to increased risk. Barth et al (2022) also estimate that a one-standard-deviation increase in ESG performance results in reduced spreads by 4%, 8% and 3% for firms with low, medium and high ESG performance. Goss and Roberts (2011) focus on bank loans to firms in the US and find that firms that exhibit a below average ESG performance tend to pay 7 to 18 basis points more on loans, while firms that have high ESG performance do not seem to be rewarded by lenders.

In studies that concentrate on ESG practices and financial performance, Cek and Eyupoglu (2020) study S&P500 firms for the 2010-2015 period and find that although the ESG score is significantly related to economic performance, environmental performance is not. Feng, Wang, and Kreuze (2017) study a large number of US firms for the 1991-2011 period and find that the link between financial performance and the corporate social responsibility practice is not homogenous across different industries; that is, different corporate social responsibility practices have a different impact on performance across different industries. Agliardi et al (2023) study the performance of portfolios constructed based on environmental clusters. They use S&P 500 firms for the period between 2003 and 2022 and a range of methodological tools (principal component analysis, extreme value theory, GARCH models) and their results indicate that firms that are low rated seem to exhibit better financial performance with high rated firms to exhibit less risk and be more resilient. Nollet et al (2016) also examine S&P500 firms between 2007 and 2011 and find that while linear models indicate that there is not a significant impact of corporate social performance on financial performance, further analysis suggests that there is a U-shaped relationship between corporate social responsibility performance and accounting-based corporate financial performance. They argue that this indicates that there is a requirement of a threshold amount of investments before corporate social responsibility pays off. Goncalves et al (2016) examine environmental strategies with a sample of French ski resorts and show that there is a correlation with firm performance, arguing that corporate managers may focus on the most advantageous investments to achieve improvements in performance.

In studies of international markets, Carnini Pulino, et al (2022) use panel regressions to examine Italian large firms for the period between 2011 and 2020; they find that the

disclosure of environmental, social, and governance information is positively related to firm performance, as measured by EBIT. Narula et al (2024) also use OLS regressions to study Indian firms for the 2018-2020 period and report a negative (positive) relationship between the environmental (governance) pillar, while they find no relationship with the social pillar. Bissoondoyal-Bheenick, et al (2024) examine the role of media channels as an explanatory factor of the ESG and firm performance relationship for G20 countries, using regression models, for the period 2007-2020. They find that the results are sensitive to the choice of the measure of firm performance. For example, when they use Tobin's Q they find a positive relationship, while when they use excess returns, they find the opposite. Buallay (2019) employs a linear regression model to study the relationship between financial and operational performance (ROA, ROE, Tobin's Q) and ESG disclosure for 235 banks for the period between 2007 and 2016. The results indicate an important effect of ESG on operational performance. Al Hawaj and Buallay (2022) examine the effect of sustainability reporting on financial performance for 3,000 firms from different sectors and different countries, for the period between 2008 and 2017. They report a varying effect depending on the definition of performance and the industry sector.

Bruna et al (2022) employ both non-parametric and parametric methodologies, and a panel regression model with a time-lag, for 350 European listed companies for the period between 2014 and 2019. They report a non-linear relationship, and a significant and positive effect of ESG factors on the financial performance of firms. Chen and Xie (2022) examine Chinese listed firms for the period between 2000 and 2020 and find that ESG disclosure has a positive impact on financial performance, with the effect being more pronounced for firms with ESG investors, among others. They point out

that disclosure around ESG practices will attract ESG investors, who in turn will play a role in the relationship between ESG ratings and the financial performance of the firm. Li et al (2018) examine UK firms and find that ESG disclosure, transparency, and accountability positively affects firm value, and that this effect is enhanced by increased CEO power.

3. Data and Testing Methodologies

For the empirical analysis, we start by selecting all listed companies in the New York Stock Exchange (NYSE) in the Travel and Leisure Sector; we collect annual data for the period between 2005 and 2023 from LSEG Data & Analytics and concentrate on active companies (62). However, note that for some companies all the necessary data are not available and/or are not available for the whole sample period. In order to include as many companies as possible in the sample and at the same time evaluate the stability and the robustness of the empirical results overtime, we form two groups as follows: in Group 1 we include companies that have available data for the whole sample period (2005-2023, 19 years, 20 firms), while in Group 2 we include companies that have available data for the recent period (2013-2023, 38 companies, 11 years). Companies with limited data availability even for the 2013-2023 period are not included in the sample.

To measure firm performance and profitability, in this study, we use two ratios: ROA (Return on Assets) measured as net income over total assets, and ROIC (Return on Invested Capital) measured as the after-tax operating profit over invested capital. ROA indicates the level of profit generated by assets, in other words management efficiency

in utilizing assets, while ROIC indicates the efficiency of allocating capital to investments that are profitable. To capture corporate social responsibility practices, we use corporate ESG scores. As discussed above, many previous studies concentrate on overall ESG scores, however, previous research also indicates that different pillars may have a different impact on the operation of a firm (Carnini Pulino, et al, 2022; Cek and Eyupoglu, 2020; among others). Thus, here we examine the three sustainability pillars on their own and employ as three distinct explanatory variables each firm's Environment Pillar Score (E), Social Pillar Score (S), and Governance Pillar Score (G).

We further employ several firm-specific explanatory variables that can affect/determine profitability, as control variables. More specifically, we employ, for each sample firm, the market capitalisation (MV, Market Value) as a proxy for the size of a firm, the quick ratio (QR) to proxy for the short-term liquidity and the ability of a corporation to meet short-term obligations measured as the difference between the current assets and inventory over the current liabilities; the ratio of total debt as a percentage of total capital (DEBT) to proxy for the leverage of each firm; the ratio of the sales of the company per employee (SALES) to proxy for the people-efficiency of the corporations; the ratio of free cash flow to the share price (CF) a measure of how efficient/flexible firms are in generating more cash flows than required for capital expenditures and/or operational expenses; the ratio of selling, general and administrative costs over the sales of the firm (COST) to proxy for the percentage of revenue allocated to these costs; and the dividend (DIV) payout as a percentage of earnings. Table 1 presents indicative descriptive statistics for the selected variables and for Group 2 (38 firms, 2013-2023 period). For instance, we can see that the median ROA for the sample firms is 6.64% and the median ROIC is 9.43%, while the median E, S, G scores are 48.50, 54.13, 50.00,

respectively. The sample companies have a median ratio of debt to total capital of 68.9%, the median selling, general and administrative costs amount to approximately 20.13% of sales, the quick ratio is about 0.85 while the dividend payout is approximately to 20% of earnings.

[INSERT TABLE 1 ABOUT HERE]

We also include in the model two variables that capture overall market conditions and may have an impact on financial performance. More specifically, we include the annual price changes of oil prices (OIL) as a proxy for the effect of energy prices on costs, and annual price changes in the Volatility Index (VIX), as a proxy for overall risk and volatility conditions. To proxy for these variables, we use the Crude Oil-WTI Spot Cushing (U$/BBL) price and the CFE-VIX Index continuous settlement price. The rationale for including these variables is that energy prices and energy price volatility have a significant impact on firm profitability, production and transportation costs, corporate investments, the determination of the cost of capital, firm liquidity decisions, the business cycle, and corporate decision making in general (see, among others, Jin et.al., 2012; Karali and Ramirez, 2014 Andriosopoulos et.al., 2017). Also, VIX reflects the expectations/sentiment of sophisticated market participants and has a significant impact on various firm-specific variables, such as spreads, value, price changes, the liquidity policy of corporations, and industry characteristics, among other (see Acharya et.al., 2013; Bekaert and Hoerova, 2013; Galariotis et.al., 2016; Smales 2017; Ding et.al., 2021; among others).

As a first stage in the analysis, we estimate the relationship between Financial Performance (PERF) and the rest of the variables with a simple Panel Least Squares regression model as follows:

$$PERF_{i,t} = c + b_E E_{i,t} + b_S S_{i,t} + b_G G_{i.t} + b_{MV} MV_{i,t} + b_{DEBT} DEBT_{i,t} + b_{COST} COST_{i,t} + b_{DIV} DIV_{i,t} + b_{CF} CF_{i,t} + b_{QR} QR_{i,t} + b_{SALES} SALES_{i,t} + b_{\Delta OIL} \Delta OIL_{i,t} + b_{\Delta VIX} \Delta VIX_{i,t} \quad (1)$$

In (1), E is the Environment Pillar Score, S is the Social Pillar Score, G is the Governance Pillar Score, MV is the market capitalization, DEBT is the ratio of total debt as a percentage of total capital, COST is the ratio of selling, general and administrative costs over the sales of the firm, DIV is the dividend payout as a percentage of earnings, CF is the ratio of free cash flow to the share price, QR is the quick ratio (QR), SALES is the ratio of the sales of the company per employee, ΔOIL is the annual oil price change, ΔVIX is the annual change in the VIX index.

Next, in order to gain a deeper understanding and investigate further the dynamic relationship between ESG practices and financial performance, a Panel Vector Autoregressive (PVAR) approach is employed. This allows the combination of standard VAR modelling with a panel-data procedure that allows us to study potential unobserved individual heterogeneity (see, among others, Love and Zicchino, 2006; Galariotis et.al., 2018). In a PVAR system, all variables are treated as endogenous and at the same time unobserved individual heterogeneity is allowed. We first determine a first-order PVAR model with the selected variables:

$$Z_{i,t} = \gamma_o + \gamma_1 Z_{i,t-1} + u_t \quad i = 1,\ldots,N \quad t = 1,\ldots T \tag{2}$$

Where $u_t \sim$ *i.i.d. (0,Σ)*. Once the model is estimated, we are able calculate Variance Decompositions (VDs) for the variables of interest and Impulse Response Functions (IRFs). We employ a Cholesky decomposition of the variance-covariance matrix of residuals, since the actual variance-covariance matrix of the errors is unlikely to be diagonal, assuming that the financial performance variables (ROE, ROIC) are the most endogenous to the system (and are listed last) while the general variables (changes in OIL and VIX) are the most exogenous (and are listed first). A significant advantage of such multivariate dynamic multivariate systems is that they allow the variance decompositions of each variable, i.e. the determination of the amount of information that each variable contributes to the rest of the variables in the system, and, in addition, they allow us to evaluate the impact of a shock in one variable on all other endogenous variables in the system, i.e. the impulse response functions. As will be discussed in more detail later, we tried alternative orders (as a further robustness test) with the results remaining qualitatively the same. The results are presented in the next section.

4. Results

Table 2 presents the results from equation (1) when the financial performance is proxied with ROA. Note here that we estimate (1) separately for Group 1 (which contains 20 firms and a 19-year period) and for Group 2 (which contains 38 firms and an 11-year period). As regards the ESG variables, the results are qualitatively similar, that is, the E and S variables are statistically significant for both groups while the G variable is not. More specifically, for Group 1, the coefficient on the E variable is negative (-0.0565)

and statistically significant at the 5% level (prob: 0.00), while the S variable is positive (0.0553) and statistically significant at the 10% level (prob: 0.08). The G variable is negative (-0.0136) but statistically insignificant (prob: 0.57). For Group 2, the coefficient on the E variable is negative (-0.0530) and statistically significant at the 5% level (prob: 0.01), while the S variable is positive (0.1371) and statistically significant at the 5% level (prob: 0.00). The G variable is negative (-0.0147) but statistically insignificant (prob: 0.45). As for the rest of the variables, we can see that the impact of DEBT, DIV, CF, QR, and SALES is positive and statistically significant for both groups, while the impact of COST in statistically significant (prob: 0.00) and negative (-0.0648) only for Group 2, while for Group 1 is insignificant. An interesting finding is the global variables (OIL and VIX) are both negative and statistically significant only for Group 2, i.e. during the most recent decade.

[INSERT TABLE 2 ABOUT HERE]

To test the robustness of these results we also estimate (1) with ROIC as a proxy for financial performance. The results are presented in Table 3 and are similar to the results in Table 2. For example, for Group 1, the coefficient on the E variable is negative (-0.1086) and statistically significant at the 5% level (prob: 0.00), while the S variable is positive (0.1549) and statistically significant at the 5% level (prob: 0.00). The G variable is negative (-0.0388) but statistically insignificant (prob: 0.37). For Group 2, the coefficient on the E variable is negative (-0.1122) and statistically significant at the 5% level (prob: 0.00), while the S variable is positive (0.3209) and statistically significant at the 5% level (prob: 0.00). The G variable is negative (-0.0320) but statistically insignificant (prob: 0.34). As for the rest of the variables, we can see that

the impact of DEBT, DIV, CF, QR, and is positive and statistically significant for both groups, while the impact of COST is not statistically significant for any Group and SALES is significant only for Group 1. As before, the global variables (OIL and VIX) are both negative and statistically significant only for Group 2.

[INSERT TABLE 3 ABOUT HERE]

Overall, these results seem to indicate that, on average, financial performance for Travel and Leisure firms listed in the NYSE is positively affected by Environmental and Social policies but is not related to Governance. Financial performance is also positively affected by liquidity and the ability of a corporation to meet short-term obligations (QR), by the efficiency of the employees of firms to contribute to sales (SALES), by the efficiency of firms to generate more cash flows than required for expenditures/expenses (CF), by financial leverage (DEBT), and the dividend payout ratio (DIV). General, selling, and administrative costs (COST) and the size of the firm (MV) appear unrelated to financial performance. In addition, during the more recent period (2013-2023), oil price changes (OIL) and changes in market sentiment (VIX) seem to negatively affect performance.

Next, as discussed above, we allow for a dynamic estimation of the multivariate system with a rich lag structure. Since all variables in the system are interdependent there is little informational value in the examination of individual coefficient estimates, if one is interested in examining how the system reacts to a shock. Thus, rather than presenting coefficient estimates, the results are presented in terms of Variance Decompositions (VDs) and Impulse Response Functions (IRFs). The VDs will help us determine, for

each variable, the amount of information that they contribute to the rest of the variables in the system; in other words, the proportion of the variance of a variable that is explained by exogenous shocks to the rest of the variables. The IRFs will allow us to evaluate the impact of a shock in one variable on another variable; that is the impact of a one standard deviation shock on a variable on all other endogenous variables in the system. To test the robustness of the results, we estimate the systems with two different procedures, a Standard VAR and a Bayesian VAR. Also, we present results for four of the system variables: financial performance (ROA) and the E, S, G variables (the rest of the results are available on request).

To this end, in Table 4, the results from two Panel VAR procedures for Group 1 are presented as follows. Firstly, a standard VAR procedure is employed (see Panel A) with the lag structure (2 lags) decided based on the Akaike information criterion, the Cholesky ordering (oil vix mv debt cost div cf qr sales e s g roa) and Monte Carlo Standard Errors (100 repetitions). Secondly, Panel B presents the results from a Bayesian VAR model (2 lags, Prior Type Litterman /Minnesota, univariate AR estimate). Note that, for robustness, all models were estimated with different lag structures and the results are qualitatively the same as the results presented in Table 4 (available upon request).

[INSERT TABLE 4 ABOUT HERE]

As can be seen from Table 4, Panel A (5th column), oil price changes explain 5.8687% of the variance of ROA, VIX changes explain 3.4435% of the variance of ROA, MV explains 3.2909%, DEBT explains 15.7094%, COST explains 2.4756%, DIV explains

14.1979%, CF explains 1.2257%, QR explains 1.9587%, while SALES explains 1.4960% of the variance of ROA. The three ESG variables seem to contribute a small amount of information to financial performance; that is, shocks to these variables seem to have a small impact on profitability as measured by ROA. More specifically the E, S, and G variables contribute 1.4741%, 0.9262% and 1.4864%, respectively. Note that these results are qualitatively similar to the results obtained with the Bayesian VAR estimation (Panel 2). Overall, we see that the most important variables the affect the variance of financial performance (except its own innovations) are shocks to leverage (DEBT), and shocks to the dividend payout (DIV). The ESG variables contribute less than 5% to financial performance variance. An interesting finding is that, when we focus on the ESG variable determinants, we see that market sentiment (VIX) explains 10.0319% of the variance of the E variable and is the most important contributor (except E own innovations, see 2nd column). For the S variable, 21.9743% of its variance is explained by the E variable and 11.7504% by the G variable, while a further 5.8093% and 4.8260% is explained by sales and oil price changes (see 3rd and 4th column). These results seem to indicate that the social pillar is strongly influenced by the decisions of the firm regarding the environmental and government pillars.

Figure 1 presents the Impulse Response Functions from the standard VAR for Group 1, i.e. the response of financial performance (ROA) to a Cholesky one standard deviation innovation to the rest of the variables.[2] As can be seen from the Figure, financial performance responds positively to a shock in oil price changes (OIL) and the impact dies down after one period. A positive response is also observed for leverage

[2] To interpret the Figure, recall that the relationship is statistically not significant if the confidence interval contains zero values.

(DEBT), with the impact lasting approximately five periods and decaying. A shock in COST and DIV results in a reduction of financial performance for the next period, while a shock in E results in an increase in financial performance for the next period. For the rest of the variables, the IRFs are mainly statistically not significant. These results are robust as regards to the choice of performance proxy, that is, the results are qualitatively similar when we replace ROA with ROIC (these results are available upon request).

The results so far seem to indicate that, for the 20 firms that have available data for the 2005-2023 period (Group1), leverage explains about 16% in the variation of financial performance, the dividend payout explains about 14%, while oil price changes and market sentiment explain about 10%. The three ESG variables seem to contribute a small amount (5%) of information to financial performance. Also, market sentiment explains about 10% of the variance of the E pillar, while for the S pillar about 22% of its variance is explained by the E pillar and about 12% by the G pillar. These results seem to indicate that the social pillar is strongly influenced by the decisions of the firm regarding the environmental and government pillars. In, addition, Impulse Response Functions indicate that financial performance responds positively to a shock in oil price changes for the next period, positively to a shock in leverage for approximately five years, and positively to a shock in the E pillar the next year. A shock in costs and dividend payout results in a reduction of financial performance for the next period.

[INSERT FIGURE 1 ABOUT HERE]

Next, we re-estimate the models with the firms in Group 2. Recall that this group contains all 38 listed firms in the sector that have available data for the 2013-2023

period. Table 5 presents the results from the VAR models, while Figure 2 presents the results from the IRFs from the standard VAR model. As can be seen from Table 5, Panel A (5th column), oil price changes now explain 7.5228% (from 5.8687% in Table 4) of the variance of ROA, VIX changes explain 7.1993% (from 3.9989%) of the variance of ROA, DEBT explains 20.4524% (from 15.7094%), COST explains 11.1227% (from 2.4756%), DIV explains 9.3484% (from 14.1979%), among others. The ESG variables contribute less than 5% to financial performance variance. When we focus on the ESG variable determinants, we now see that oil price changes are the most important contributor of the variation of the E pillar (except E own innovations, see 2nd column) and contribute 12.1636% to its variance. The E variable explains 15.1551% of the variation in the S variable and 12.2415% of the variation of the G variable. These results seem to indicate that the, during the recent decade, the social and governance pillar are both strongly influenced by the decisions of the firm regarding the environmental pillar. Note that these results are qualitatively similar to the results obtained with the Bayesian VAR estimation (Panel 2). Figure 2 presents the IRF results for Group 2. As can be seen from the Figure, financial performance responds positively to a shock in oil price changes (OIL) and the impact dies down after one period. A positive response is also observed for leverage (DEBT), with the impact lasting approximately five periods and decaying. A shock in COST and DIV results in a reduction of financial performance, while shocks in ESG variables result to insignificant reaction in firm performance. These results are robust as regards to the choice of performance proxy (ROIC; these results are available upon request).

Overall, the results from Group 2, seem to indicate that, during the recent decade (2013-2023) oil price changes, market sentiment, leverage, and general costs, explain a larger

percentage of the variation in financial performance, while the ESG variables still contribute less than 5% to financial performance variance. In addition, oil price changes are the most important contributor of the variation of the E pillar seems to affect the variation in the social and governance pillar. Also, financial performance responds positively to shocks in oil price changes and leverage while a shock in costs and dividend payout results in a reduction of financial performance. Shocks in ESG pillars result to insignificant reaction in firm performance. These results are robust as regards to the choice of performance proxy (ROIC; these results are available upon request).

5. Conclusion

This paper examines the relationship between financial performance and ESG practices for firms in the Travel and Leisure Sector that are listed in the New York Stock Exchange (NYSE). Sectoral studies on this issue are important because there is evidence to suggest that ESG performance has different effects on different sectors and CRS practice is not homogenous across different industries; in addition, despite the global economic significance of the travel industry there are few relevant studies. The relationship is evaluated mainly via a multivariate system that allows for a rich lag structure and dynamic interdependencies between the variables and several robustness tests are employed.

Whilst initial simple panel regressions results suggest that financial performance is positively affected by environmental and social policies, by liquidity, by the efficiency of the employees to contribute to sales, by financial leverage, among others, results from dynamic multivariate system estimations indicate that the impact of ESG factors

is limited compared to the impact of fundamental factors such leverage, the dividend payout, and general costs, or (during the more recent period) by the impact of global factors such as oil price changes and market sentiment/uncertainty.

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Table 1
Indicative Descriptive Statistics

	Median	Standard Deviation	Skewness	Kurtosis	Jarque-Bera Probability
ROA	6.64	10.81	1.00	6.33	0.00
ROIC	9.43	19.20	1.69	8.33	0.00
E	48.50	30.13	-0.24	1.64	0.00
S	54.13	19.37	0.02	2.05	0.00
G	50.00	21.08	-0.03	2.16	0.01
DEBT	68.09	109.13	3.77	18.95	0.00
COST	20.13	17.29	2.10	11.23	0.00
VIX	-0.03	0.38	0.33	1.61	0.00
OIL	0.04	0.41	1.26	3.84	0.00
SALES	1.20	1.90	3.60	23.14	0.00
DIV	20.05	22.20	0.88	2.89	0.00
QR	0.85	0.68	1.67	8.05	0.00

Notes to Table 1
The Table presents sample descriptive statistics for Group 2. In Group 2 we include companies that have available data for the recent period (2013-2023, 38 companies, 11 years). Companies with limited data availability even for the 2013-2023 period are not included in the sample. All data are collected from LSEG Data & Analytics. Observations for each variable: 298. ROA (Return on Assets) measured as net income over total assets; ROIC (Return on Invested Capital) measured as the after-tax operating profit over invested capital. Environment Pillar Score (E), Social Pillar Score (S), and Governance Pillar Score (G). Market capitalisation (MV, Market Value) as a proxy for the size of a firm, the quick ratio (QR) to proxy for the short-term liquidity and the ability of a corporation to meet short-term obligations measured as the difference between the current assets and inventory over the current liabilities; the ratio of total debt as a percentage of total capital (DEBT) to proxy for the leverage of each firm; the ratio of the sales of the company per employee (SALES) to proxy for the people-efficiency of the corporations; the ratio of free cash flow to the share price (CF) a measure of how efficient/flexible firms are in generating more cash flows than required for capital expenditures and/or operational expenses; the ratio of selling, general and administrative costs over the sales of the firm (COST) to proxy for the percentage of revenue allocated to these costs; and the dividend (DIV) payout as a percentage of earnings.

Table 2
ROA Determinants in the Travel and Leisure Sector in the NYSE

	Group 1 (19 years, 20 firms)		Group 2 (11 years, 40 firms)	
	Coefficient	**Probability**	**Coefficient**	**Probability**
Constant	-0.8916	0.66	-2.4237	0.17
E	-0.0565*	0.00	-0.0530*	0.01
S	0.0553**	0.08	0.1371*	0.00
G	-0.0136	0.57	-0.0147	0.45
MV	0.0000	0.76	0.0000	0.13
DEBT	0.0398*	0.00	0.0538*	0.00
COST	0.0198	0.53	-0.0648*	0.00
DIV	0.1470*	0.00	0.0436*	0.02
CF	0.3723*	0.00	0.7274*	0.00
QR	2.6263	0.00	1.2676*	0.03
SALES	1.5036*	0.00	0.1630	0.48
OIL	-1.2058	0.37	-3.1384*	0.00
VIX	0.1191	0.90	-2.9329*	0.00
R-squared	0.61		0.65	

Notes to Table 2

For Group 1: the Dependent Variable is ROA, the method of estimation is Panel Least Squares, the sample is between 2005 2023 (19 years), and the cross-sections included are 20. The Total panel (unbalanced) observations are 262. For Group 2: the Dependent Variable is ROA, the method of estimation is Panel Least Squares, the sample is between 2013 2023 (11 years), and the cross-sections included are 38. The total panel (unbalanced) observations are 270. All data are collected from LSEG Data & Analytics. ROA (Return on Assets) measured as net income over total assets; ROIC (Return on Invested Capital) measured as the after-tax operating profit over invested capital. Environment Pillar Score (E), Social Pillar Score (S), and Governance Pillar Score (G). Market capitalization (MV, Market Value) as a proxy for the size of a firm, the quick ratio (QR) to proxy for the short-term liquidity and the ability of a corporation to meet short-term obligations measured as the difference between the current assets and inventory over the current liabilities; the ratio of total debt as a percentage of total capital (DEBT) to proxy for the leverage of each firm; the ratio of the sales of the company per employee (SALES) to proxy for the people-efficiency of the corporations; the ratio of free cash flow to the share price (CF) a measure of how efficient/flexible firms are in generating more cash flows than required for capital expenditures and/or operational expenses; the ratio of selling, general and administrative costs over the sales of the firm (COST) to proxy for the percentage of revenue allocated to these costs; and the dividend (DIV) payout as a percentage of earnings. OIL and VIX stand for the annual changes in oil prices and the VIX index. * denotes statistical significance at the 5% level; ** denotes statistical significance at the 10% level.

Table 3
ROIC Determinants in the Travel and Leisure Sector in the NYSE

	Group 1 (19 years, 20 firms)		Group 2 (11 years, 40 firms)	
	Coefficient	**Probability**	**Coefficient**	**Probability**
Constant	-3.3328	0.37	-8.2159*	0.00
E	-0.1086*	0.00	-0.1122*	0.00
S	0.1549*	0.00	0.3209*	0.00
G	-0.0388	0.37	-0.0320	0.34
MV	-0.0000	0.93	0.0000	0.21
DEBT	0.0856*	0.00	0.1091*	0.00
COST	0.0520	0.37	-0.0577	0.16
DIV	0.1872*	0.00	0.0203	0.54
CF	0.7264*	0.00	1.2565*	0.00
QR	2.6525*	0.05	1.0133	0.32
SALES	2.8810*	0.00	0.2761	0.49
OIL	-1.4324	0.56	-5.3261*	0.00
VIX	-0.0466	0.98	-4.1025*	0.03
R-squared	0.62		0.68	

Notes to Table 3

For Group 1: the Dependent Variable is ROIC, the method of estimation is Panel Least Squares, the sample is between 2005 2023 (19 years), and the cross-sections included are 20. The Total panel (unbalanced) observations are 262. For Group 2: the Dependent Variable is ROIC, the method of estimation is Panel Least Squares, the sample is between 2013 2023 (11 years), and the cross-sections included are 38. The total panel (unbalanced) observations are 270. All data are collected from LSEG Data & Analytics. ROA (Return on Assets) measured as net income over total assets; ROIC (Return on Invested Capital) measured as the after-tax operating profit over invested capital. Environment Pillar Score (E), Social Pillar Score (S), and Governance Pillar Score (G). Market capitalization (MV, Market Value) as a proxy for the size of a firm, the quick ratio (QR) to proxy for the short-term liquidity and the ability of a corporation to meet short-term obligations measured as the difference between the current assets and inventory over the current liabilities; the ratio of total debt as a percentage of total capital (DEBT) to proxy for the leverage of each firm; the ratio of the sales of the company per employee (SALES) to proxy for the people-efficiency of the corporations; the ratio of free cash flow to the share price (CF) a measure of how efficient/flexible firms are in generating more cash flows than required for capital expenditures and/or operational expenses; the ratio of selling, general and administrative costs over the sales of the firm (COST) to proxy for the percentage of revenue allocated to these costs; and the dividend (DIV) payout as a percentage of earnings. OIL and VIX stand for the annual changes in oil prices and the VIX index. * denotes statistical significance at the 5% level; ** denotes statistical significance at the 10% level.

Table 4
Variance Decomposition of Selected Variables and ROA for Group 1

	Group 1							
	Panel A Standard VAR				Panel B Bayesian VAR			
	Variance Decomposition of				Variance Decomposition of			
	E	S	G	ROA	E	S	G	ROA
OIL	0.2704	0.5892	4.8260	5.8687	0.0981	0.2447	1.9180	4.5723
VIX	10.0319	4.8130	3.9989	3.4435	6.2249	5.4888	1.8926	0.5173
MV	1.0571	0.3598	2.4201	3.2909	0.0678	0.0353	1.1595	0.9890
DEBT	0.5145	0.1331	0.2095	15.7094	0.1214	0.1175	0.2867	13.2325
COST	0.7792	0.6131	0.2033	2.4756	1.6615	1.3386	1.0982	2.2521
DIV	0.7412	0.7617	0.5405	14.1979	0.6924	0.0570	0.1768	9.4143
CF	0.4956	0.1729	0.5779	1.2257	0.3502	0.0797	0.1762	0.2338
QR	0.1213	0.2143	0.5122	1.9587	0.0448	0.4172	0.2526	1.1411
SALES	0.0879	5.8093	0.9220	1.4960	0.1909	2.8911	1.0223	2.5519
E	82.0895	21.9743	5.4438	1.4741	81.2568	23.5293	8.2584	0.5382
S	1.6972	51.3241	6.0877	0.9262	6.0644	54.0544	10.6553	0.5791
G	1.9721	11.7504	72.7920	1.4864	3.1456	11.0365	72.7861	0.6353
ROA	0.1421	1.4848	1.4664	46.4468	0.0813	0.7099	0.3173	63.3431

Notes to Table 4

The Table presents the results of two Panel VAR procedures for Group 1 (the sample is between 2005 and 2023, 19 years), and the cross-sections included are 20) as follows. First, a standard VAR procedure is employed (Panel A) with the lag structure (2 lags) decided based on the Akaike information criterion, the Cholesky ordering (oil vix mv debt cost div cf qr sales e s g roa) and Monte Carlo Standard Errors (100 repetitions) are employed. Next, to test the robustness of the results, a Bayesian VAR model is also employed, and the results are presented in Panel B (Prior Type: Litterman /Minnesota, univariate AR estimate). All data are collected from LSEG Data & Analytics. ROA (Return on Assets) measured as net income over total assets; ROIC (Return on Invested Capital) measured as the after-tax operating profit over invested capital. Environment Pillar Score (E), Social Pillar Score (S), and Governance Pillar Score (G). Market capitalization (MV, Market Value) as a proxy for the size of a firm, the quick ratio (QR) to proxy for the short-term liquidity and the ability of a corporation to meet short-term obligations measured as the difference between the current assets and inventory over the current liabilities; the ratio of total debt as a percentage of total capital (DEBT) to proxy for the leverage of each firm; the ratio of the sales of the company per employee (SALES) to proxy for the people-efficiency of the corporations; the ratio of free cash flow to the share price (CF) a measure of how efficient/flexible firms are in generating more cash flows than required for capital expenditures and/or operational expenses; the ratio of selling, general and administrative costs over the sales of the firm (COST) to proxy for the percentage of revenue allocated to these costs; and the dividend (DIV) payout as a percentage of earnings. OIL and VIX stand for the annual changes in oil prices and the VIX index.

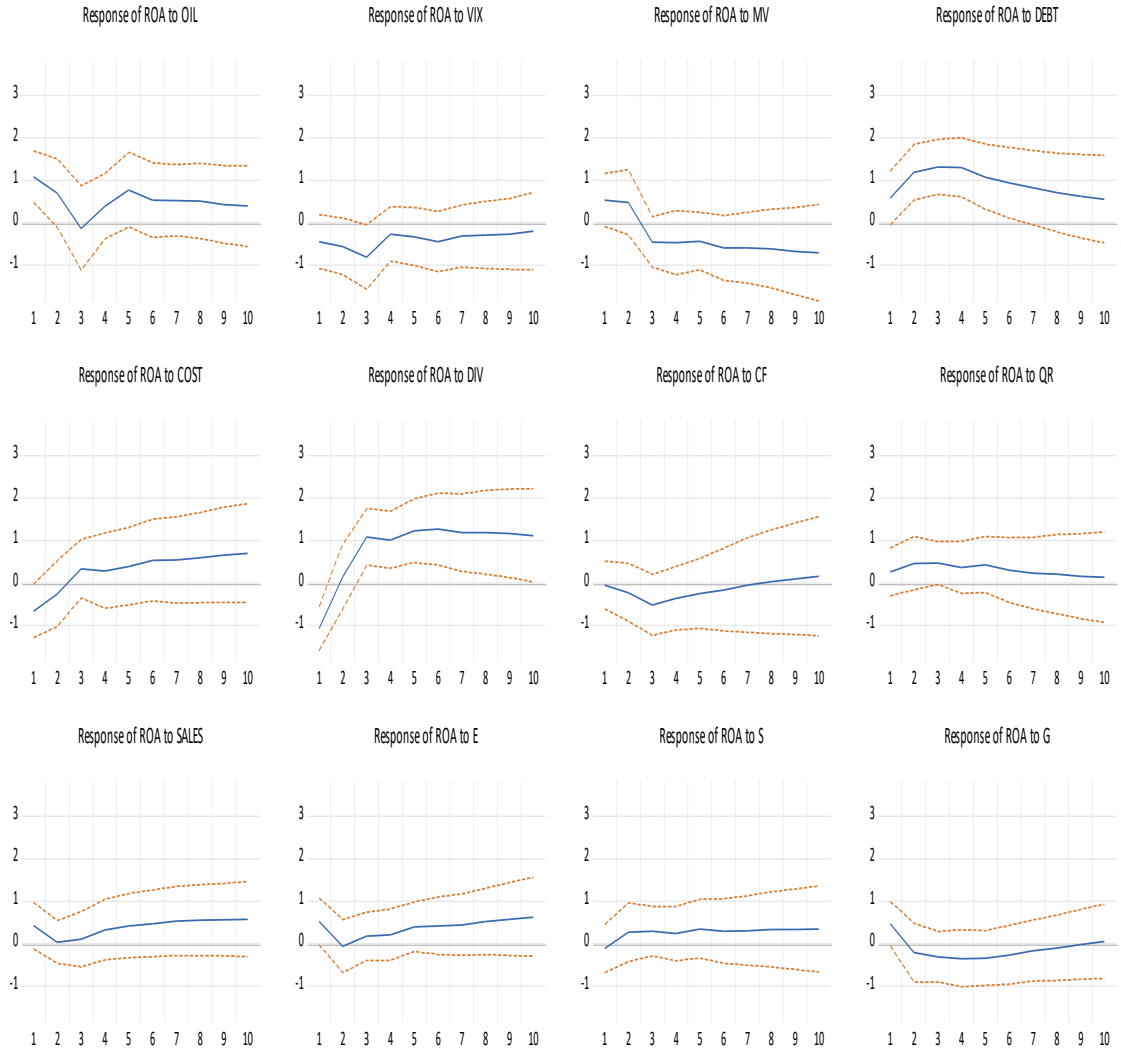
Table 5
Variance Decomposition of Selected Variables and ROA for Group 2

	Group 2							
	Panel A Standard VAR				Panel B Bayesian VAR			
	Variance Decomposition of				Variance Decomposition of			
	E	S	G	ROA	E	S	G	ROA
OIL	12.1636	0.0991	7.4588	7.5228	7.6794	0.3077	3.1431	6.1953
VIX	0.7288	0.4771	4.7442	7.1993	0.2333	0.1274	2.3425	8.7411
MV	1.5426	1.0109	1.6422	2.5022	1.0886	0.0805	1.7430	0.4547
DEBT	1.7563	1.6676	0.6835	20.4524	0.2559	1.1827	0.3338	19.1205
COST	1.3837	2.8057	0.5641	11.1227	0.7148	0.9650	0.1505	9.1893
DIV	0.1444	0.6009	0.6145	9.3484	0.5304	0.0943	0.2419	5.3558
CF	0.7586	3.6536	1.0270	3.3479	0.5853	1.1150	0.6714	3.6601
QR	6.0499	3.4828	0.2723	1.4179	2.8361	1.4267	0.1537	1.0473
SALES	1.7433	2.6614	1.1064	0.2294	0.8262	1.7389	0.6818	0.1349
E	73.0427	15.1551	12.2415	0.4775	84.4767	14.1940	6.6713	0.2419
S	0.3681	66.4298	1.3099	0.6732	0.6124	77.9777	3.0938	1.6501
G	0.2126	1.1056	68.0065	1.8355	0.1551	0.5187	80.6531	1.0362
ROA	0.1054	0.8504	0.3289	33.8708	0.0057	0.2713	0.1201	43.1729

Notes to Table5

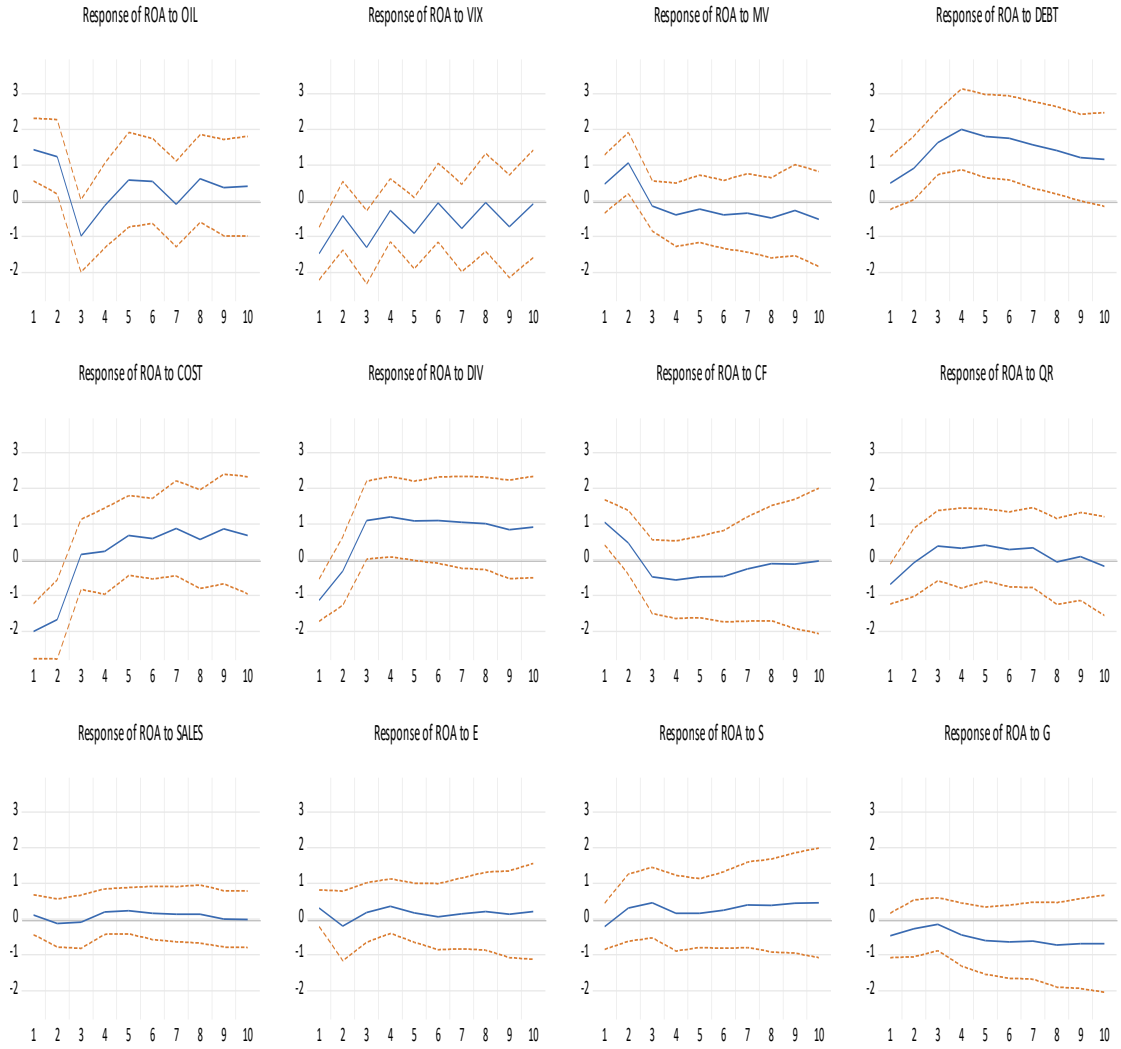
The Table presents the results of two Panel VAR procedures for Group 2 (the sample is between 2013 and 2023, 11 years), and the cross-sections included are 38) as follows. First, a standard VAR procedure is employed (Panel A) with the lag structure (2 lags) decided based on the Akaike information criterion, the Cholesky ordering (oil vix mv debt cost div cf qr sales e s g roa) and Monte Carlo Standard Errors (100 repetitions) are employed. Next, to test the robustness of the results, a Bayesian VAR model is also employed, and the results are presented in Panel B (Prior Type: Litterman /Minnesota, univariate AR estimate). All data are collected from LSEG Data & Analytics. ROA (Return on Assets) measured as net income over total assets; ROIC (Return on Invested Capital) measured as the after-tax operating profit over invested capital. Environment Pillar Score (E), Social Pillar Score (S), and Governance Pillar Score (G). Market capitalization (MV, Market Value) as a proxy for the size of a firm, the quick ratio (QR) to proxy for the short-term liquidity and the ability of a corporation to meet short-term obligations measured as the difference between the current assets and inventory over the current liabilities; the ratio of total debt as a percentage of total capital (DEBT) to proxy for the leverage of each firm; the ratio of the sales of the company per employee (SALES) to proxy for the people-efficiency of the corporations; the ratio of free cash flow to the share price (CF) a measure of how efficient/flexible firms are in generating more cash flows than required for capital expenditures and/or operational expenses; the ratio of selling, general and administrative costs over the sales of the firm (COST) to proxy for the percentage of revenue allocated to these costs; and the dividend (DIV) payout as a percentage of earnings. OIL and VIX stand for the annual changes in oil prices and the VIX index.

Figure 1
Impulse Response Function of ROA (Group 1)



Notes to Figure 1
The Figure presents Impulse Response Functions (IRFs) of ROA to shocks in the system variables for Group 1 (the sample is between 2005 2023, 19 years, 20 firms). The results are obtained from a standard VAR procedure with the lag structure (2 lags) decided based on the Akaike information criterion, the Cholesky ordering (oil vix mv debt cost div cf qr sales e s g roa) and Monte Carlo Standard Errors (100 repetitions) are employed. All data are collected from LSEG Data & Analytics. ROA (Return on Assets) measured as net income over total assets; ROIC (Return on Invested Capital) measured as the after-tax operating profit over invested capital. Environment Pillar Score (E), Social Pillar Score (S), and Governance Pillar Score (G). Market capitalization (MV, Market Value) as a proxy for the size of a firm, the quick ratio (QR) to proxy for the short-term liquidity and the ability of a corporation to meet short-term obligations measured as the difference between the current assets and inventory over the current liabilities; the ratio of total debt as a percentage of total capital (DEBT) to proxy for the leverage of each firm; the ratio of the sales of the company per employee (SALES) to proxy for the people-efficiency of the corporations; the ratio of free cash flow to the share price (CF) a measure of how efficient/flexible firms are in generating more cash flows than required for capital expenditures and/or operational expenses; the ratio of selling, general and administrative costs over the sales of the firm (COST) to proxy for the percentage of revenue allocated to these costs; and the dividend (DIV) payout as a percentage of earnings. OIL and VIX stand for the annual changes in oil prices and the VIX index.

Figure 2
Impulse Response Function of ROA (Group 2)



Notes to Figure 2
The Figure presents Impulse Response Functions (IRFs) of ROA to shocks in the system variables for Group 2 the sample is between 2013 and 2023, 11 years, 38 firms). The results are obtained from a standard VAR procedure with the lag structure (2 lags) decided based on the Akaike information criterion, the Cholesky ordering (oil vix mv debt cost div cf qr sales e s g roa) and Monte Carlo Standard Errors (100 repetitions) are employed. All data are collected from LSEG Data & Analytics. ROA (Return on Assets) measured as net income over total assets; ROIC (Return on Invested Capital) measured as the after-tax operating profit over invested capital. Environment Pillar Score (E), Social Pillar Score (S), and Governance Pillar Score (G). Market capitalization (MV, Market Value) as a proxy for the size of a firm, the quick ratio (QR) to proxy for the short-term liquidity and the ability of a corporation to meet short-term obligations measured as the difference between the current assets and inventory over the current liabilities; the ratio of total debt as a percentage of total capital (DEBT) to proxy for the leverage of each firm; the ratio of the sales of the company per employee (SALES) to proxy for the people-efficiency of the corporations; the ratio of free cash flow to the share price (CF) a measure of how efficient/flexible firms are in generating more cash flows than required for capital expenditures and/or operational expenses; the ratio of selling, general and administrative costs over the sales of the firm (COST) to proxy for the percentage of revenue allocated to these costs; and the dividend (DIV) payout as a percentage of earnings. OIL and VIX stand for the annual changes in oil prices and the VIX index.