

SUPERVISORY SANCTIONS, ESG PRACTICES, AND BANKS' REPUTATION: A MARKET PERFORMANCE ANALYSIS OF SANCTIONED BANKS

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Abstract

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The purpose of this paper is to study the impact of environmental, social, and governance (ESG) practices on banks' reputation and market performance. In particular, we aim to analyse whether banks adopting ESG-compliant practices can reduce their reputational damage due to financial sanctions and increase their market performance. In order to demonstrate the effect of banks' ESG practices in reducing reputational damage due to financial penalties imposed by supervisors for breaches of regulatory requirements, we analyze a sample of 21 banks — selected because of the availability of information on sanctions imposed by the supervisory authorities — by applying a pre-selection model based on the trend of historical returns. With reference to the selected sample, we verify the percentage of securities characterized by different levels of sanctions and different ESG scores. Overall, we find that ESG aspects have a positive impact on stock performance, although higher ESG scores do not, per se, mean a lower probability of sanctions. Differing from previous research, our study, by focusing on financial sanctions, provides useful insights concerning the ESG impact on both market performance and reputational aspects.

Keywords: Supervisory Sanctions, ESG Scores, Portfolio Analysis, Financial Markets, Market Performance

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1. INTRODUCTION

In the last two decades, environmental, social, and governance (ESG) responsibilities have shown their influence on both the profitability and financial viability of firms. This has resulted in a new

evolutionary path of the asset allocation process and a growing environmental, social and governance awareness at the corporate and institutional level. ESG issues, therefore, assume relevance in terms of general economic balances, also representing a potential source of financial risk.

For banks, ESG considerations are now part of the operational approach as the strategic opportunities of sustainability are clear. Conversely, irresponsible conduct or lack of attention to ESG issues by corporate policies can produce a reduction in market share and an increase in business risks, including reputational, strategic, legal or environmental risks.

In addition, the ESG topic takes on particular relevance in banking due to regulatory developments that incentivize more responsible operational approaches.

From a supervisory perspective, in fact, sustainability can be an important lever to increase the stability of the financial system and to promote a faster transition to a low-impact economy, in line with the Sustainable Development Goals (SDGs) defined by the United Nations (UN) and the strategic lines of the Next Generation EU (NGEU).

As known, at the European level, regulators and institutions are supporting this approach, providing standards and taxonomies on ESG issues, also in order to strengthen the regulatory and information framework necessary to distinguish the so-called genuinely sustainable from greenwashed products/institutions.

Overall, this is a topic that will certainly affect the current prudential framework and therefore ESG issues will become strategic for both banks and public authorities.

In light of the above, a careful overall assessment of banking initiatives requires taking into account the complex relationship between ESG factors, reputational aspects, profitability and riskiness of banks.

Moreover, as is well known, the wider framework of prudential supervision includes the sanctions that the supervisory authorities can apply to credit institutions in order to punish irregular conduct. It could therefore happen that the adoption of strongly ESG-oriented policies by banks could sometimes be aimed at reducing the reputational damage due to financial sanctions; the presence of sanctions could therefore lead to greenwashing phenomena aimed at profiling a bank's reputation different from its actual status.

The aim of this study is therefore to verify whether the stocks of listed banks that pay more attention to ESG profiles and have not received sanctions from the supervisory authority are also less volatile and characterized by better performance on financial markets. In particular, we investigate whether banks that adopt ESG-compliant practices to reduce their reputational damage due to regulatory sanctions are also characterized by better market performance.

Differing from other research, for the first time our study explores the relationship among reputational damage, ESG factors and market performance by focusing on the analysis of financial sanctions imposed by supervisory authorities.

The paper is structured as follows. After a brief literature review in Section 2, we present the analysis model and the sample of Italian and Spanish-listed banks on which it was tested in Section 3. Section 4 provides the empirical evidence supporting our thesis and discussion, and Section 5 discusses the implications of our results and concludes.

2. LITERATURE REVIEW

As mentioned above, ESG issues necessarily carry reputational implications, as well as impacts in terms of corporate and market performance. However, as far as we know, the specific relationship between sanctions and banks' ESG factors is still relatively unexplored; unlike the relationship between reputation and sustainable practices, which has often been explored in terms of its impact on financial markets.

In fact, it is necessary to consider that it is not always possible to find information on sanctioned banks in all European countries.

Specifically, with regard to significant banks (such as those that make up the sample of our study), Council Regulation (EU) No. 1024/2013 (The Council of the European Union, 2013) gives the European Central Bank (ECB) the power to impose administrative pecuniary penalties on supervised entities in order to carry out its supervisory tasks in the application of the Treaty on the Functioning of the European Union (TFEU). In particular, under Article 18.1 and 18.7 of Council Regulation (EU) No. 1024/2013, the ECB may, by decision, impose administrative pecuniary penalties on banks that, intentionally or negligently, breach EU prudential requirements, directly applicable EU law, ECB decisions or regulations.

In the case of violations of national legislation implementing EU directives, breaches committed by natural persons or the imposition of non-financial penalties, the ECB may request the competent national supervisory authority (NCA) to initiate appropriate proceedings. The NCA conducts such proceedings and decides on sanctions in accordance with applicable national law.

The literature has explored the topic of financial sanctions, often investigating the relationship between them and banks' performance in terms of efficiency and profitability (Danisewicz et al., 2018; Guerello et al., 2019; Köster & Pelster, 2017; Murè et al., 2011, 2021); other studies have examined the role of financial sanctions from a systemic perspective and in particular their impact on bank failures (Delis et al., 2017) and liquidity and credit channels (Deli et al., 2016). A relevant study is the one conducted by Armour et al. (2017) that analyses the impact of enforcement sanctions on the market price of sanctioned firms.

On a more general level, some studies have examined the potential relationship between reputation and ethical practices such as corporate social responsibility (CSR) and ESG factors without contemplating the specific impacts related to sanctions.

Taking into account that ESG issues are widely recognized by academic literature among the numerous variables that can affect reputation (Gangi et al., 2020; Lin et al., 2016; Gallardo-Vázquez et al., 2019; Dell'Atti et al., 2017), it seems appropriate to recall some studies on ESG and related corporate impacts. Indeed, it is well known that ESG ratings are a very relevant and useful source of non-financial information for investor decision-making (Dimson et al., 2020; Krüger et al., 2020); however, it is also necessary to keep in mind that ESG ratings from different providers can

sometimes be misaligned with each other (Berg et al., 2022; Billio et al., 2021; La Torre et al., 2023).

Given this premise, with specific reference to ESG aspects, and for the purposes of our analysis, the literature can be grouped into a few fundamental strands.

Actually, literature has investigated the role of ESG factors from different perspectives. However, for the purpose of our study, the main strand of literature that offers reasons for reflection is related to the impact of ESG information on the market, also with reference to the relationship between ESG information and reputational dynamics.

On a broad level, several studies focus on how the market reacts to various events involving ESG-related reflections. Krüger (2015) uses firms' CSR as a proxy for ESG performance to analyze how stock markets react to positive and negative CSR-related events, showing that the reaction is strongly negative in the face of negative events and weakly negative for positive events. Naughton et al. (2019) show that ESG asset announcements generate positive abnormal returns when investors place a valuation premium on ESG performance; similarly, according to Flammer (2012), markets react positively to the announcement of positive environmental impact initiatives. Still moving in this direction is the study by Capelle-Blancard and Petit (2019), which identifies a negative market reaction to negative ESG news. According to evidence from this strand of literature, ESG information can be correlated with shareholder value as better ESG performance could translate into value due to several factors such as operational efficiencies and increased employee adherence to company policies. However, another stream of literature observes negative market reactions to positive ESG news due to higher agency costs incurred by firms.

With specific reference to the impact of ESG ratings on stock prices, Rzeźnik et al. (2021) provide causal evidence that investors' portfolio allocation decisions are influenced by changes in ESG ratings, unrelated to any sustainability news, leading to temporary price pressures on the affected stocks; in particular, the study observes a rebalancing of investors' portfolios towards stocks perceived as more ESG-oriented.

From a different perspective, a recent ESG report by Whelan (2021) demonstrated a weak positive relation between the ESG reputation of the investments and greater performance on the financial market by observing the behavior of the stock prices. Similar conclusions have been found by La Torre et al. (2020) which have demonstrated that the EURO STOXX 50 companies' performance does not seem to be affected by their efforts in terms of ESG commitments. In addition, the research also demonstrated that there are several more decisive factors conditioning the stock performance. On the same line, Sahut and Pasquini-Descomps (2015) investigate how ESG scores influence the monthly market return in the Swiss, the United States (US) and the United Kingdom's (UK) stock markets by using a four-factor-based linear model following the 2007–2011 period. They find that the variation of the Global ESG score is a significant but slightly negative factor of a stock's monthly performance in the UK, but not significant in the US and Switzerland.

Similar studies have been conducted by Dell'Atti et al. (2017) and Forcadell and Aracil (2017): the first empirically test the relationships between performance, reputation and CSR in the banking sector with reference to the period of the sub-prime crisis (2008–2012). They find a positive relationship between banking reputation and accounting performance and between reputation and social performance. Along the same lines, Forcadell and Aracil (2017) examine the performance of the European banks listed in the Dow Jones Sustainability Index (DJSI) for the period 2003–2013, analysing the effect of CSR reputation on performance during a period of economic crisis. They show that banks' efforts to build a reputation for CSR promote performance.

With specific regard to the relationship between sanctions and ESG issues, there is very limited literature, as mentioned above. Most studies focus on analyzing the ESG impact on companies' performance and on the probability of being sanctioned. In broader terms, there are of course studies that address the link between corporate risk and ESG factors: for example, Gangi et al. (2018) explore the relationship between environmental commitment and corporate risk and verify that banks that are more sensitive to environmental issues are also less risky, while Sassen et al. (2016) investigate the impact of corporate social performance — intended as ESG — on risk firm. In particular, analyzing idiosyncratic, systemic, and total risk, they find that the aggregated ESG score decreases total and idiosyncratic risk, while the social factor decreases all three risk categories.

Overall, the above literature review suggests that ESG issues are being considered by banks in both reputational and performance terms. However, there are no studies that explore the specific relationship between ESG, sanctions, profitability, and riskiness of banks.

Considering this hypothetical research gap, our study aims to offer new insights and perspectives for the analysis of the mentioned topics.

3. DATA AND METHODOLOGY: A “TWO-STEP ANALYSIS APPROACH”

This section discusses the database useful for the investigation and the methodology adopted to demonstrate the possible relationship between the variability of stock returns and the imposition of sanctions.

The following analysis aims to verify whether banks that have been sanctioned are less performing, despite being ESG compliant. Our research hypothesis is that sanctioned banks should not be captured by the pre-selection model.

In order to study the relationship between penalties, profitability, and volatility, we use the available panel data for a “two-step analysis approach”:

- first, we perform a regression on panel data that allows us to understand the relationship between volatility, penalties and average annual banks' stock prices;
- then, as a second check, we select the winning model based on the actual return.

To the best of our knowledge, this is the first attempt to investigate the possible relationship between market performance, the presence of sanctions and ESG performance.

3.1. Data description

Our dataset includes data from 21 Italian and Spanish privately listed banks selected from December 31, 2013, to December 31, 2019. Banks are selected based on the availability of information on sanctions imposed by the supervisory authority. It is worth noting that the banks included in the sample were already listed before the period, we have considered.

Moreover, on a geographical level, the sample is made up of Italian and Spanish banks, as mentioned above; this selection is linked to the fact that we observed greater disclosure of information on sanctions by the NCA of the two countries. The final sample, therefore, consists of 21 banks, all of which are significant, and therefore subject to direct supervision by the ECB.

Before proceeding with the empirical analysis, a few methodological premises need to be made.

The first assumption is that our pre-selection model should prefer ESG-listed companies that are less sanctioned. The hypothesis is that the market, by taking in this information, directs its choices towards these businesses.

In fact, the pre-selection model we use here aims at “capturing” this phenomenon, i.e., verifying whether the listed companies that are less sanctioned and that are also ESG compliant even if with different scores, are the ones on which investors will focus their attention, buying their stocks.

The second premise concerns the database used: as mentioned above, the data panel is composed of a limited number of banks, exclusively Italian and Spanish. The reasons for this selection can be traced back to a certain opacity in the dissemination of information regarding sanctions by the various European national competent authorities, that we encountered in the dataset construction phase. Disclosure on this subject does not appear to be harmonized at the European level and, in particular, Spain and Italy are among the member states that make available information on the sanctions imposed.

Given this premise, in the next developments of this study, we will aim to expand our database in terms of time horizons and countries.

3.2. Model description

To check whether the listed companies in the selected dataset are more profitable, we will use a portfolio preselection model. The basic assumption is that the pre-selection model should prefer ESG and less sanctioned listed companies, assigning them a higher weight in the construction of the investment portfolio. This section describes the portfolio selection and optimization procedure

$$variance_{i,t} = \gamma_0 + \gamma_1 * sanction_{i,t} + \gamma_2 * average\ price_{i,t} + \gamma_3 * ESG_{i,t} + \delta_2 T_2 + \dots + \delta_t T_t + \tau_i + \varepsilon_{i,t} \quad (5)$$

where, τ_i is the fixed-effect variable of the panel data regression, while $\delta_t T_t$ is time as a binary variable (dummy). In this way, we control for omitted variable bias caused by the exclusion of unobserved variables that evolve over time but are constant across entities. Before proceeding with the analysis,

used to carry out the profitability comparison of the two scenarios just described. A preselection model was used to perform the comparisons described above.

Before moving to the empirical analysis, for the purpose of our research objective, a panel data regression with time and fixed effects was conducted, to have a validation of the basic assumption. We assume that the combination of sanctions and a low ESG rating also has an impact on market performance (Guerello et al., 2019), more specifically we support the hypothesis that more sanctioned and less ESG virtuous banks are perceived as riskier by the market. In light of this, The pooled ordinary least squares (OLS) regression was conducted by regressing the annual variance of the stock prices of the sampled banks on the annual difference in the market stock prices of the same banks and a dummy variable controlling whether or not a bank in the sample was sanctioned in the same year. The formulation of the variables is as follows.

$$average\ price_{i,t} = \frac{1}{\omega} \sum_{j=1}^{\omega} price_{i,j,t} \quad (1)$$

where, $j = 1 \dots \omega$ — represents the number of work weeks in the year t .

$$sanction_{i,t} = \begin{cases} 1 \\ 0 \end{cases} \quad (2)$$

where, 1 if the *bank_i* has been sanctioned almost one time in the year t , 0 otherwise.

$$variance_{i,t} = \frac{1}{\omega - 1} \sum_{j=1}^{\omega} (price_{i,j,t} - \delta_{i,t})^2 \quad (3)$$

where, $j = 1 \dots \omega$ — represents the number of work weeks in the year t .

Continuous support variable:

$$ESG_{i,t} = ESG\ rating\ for\ each\ year \quad (4)$$

The time series covers four years, from December 31, 2013, to December 31, 2019. It is worth noting that the banks included in the sample were already listed before the period, we have considered. Moreover, on a geographical level, the sample is made up of Italian and Spanish banks, as already said. The final sample, therefore, consists of 20 banks, all of which are significant; as for the ESG rating, the one provided by Refinitiv was used.

In light of the sample described above and the formulation of the variables, the regression equation can be written as follows.

we re-propose the equation in a simpler nomenclature, writing the dependent variable as $\gamma_{i,t}$ and the covariates, in the order in which they compare in Eq. (5), as $x_{1,i,t}$ and $x_{2,i,t}$, respectively.

Resorting to the fixed-effects transformation.

$$\gamma_{i,t} - \ddot{\gamma}_i = \gamma_1 * (x_{1,i,t} - \ddot{x}_1) + \gamma_2 * (x_{2,i,t} - \ddot{x}_2) + \gamma_3 * (x_{3,i,t} - \ddot{x}_3) + \delta_2 T_2 + \dots + \delta_t T_t + (\varepsilon_t - \ddot{\varepsilon}_i) \quad (6)$$

where,

$$\hat{y}_i = \frac{\sum_{t=1}^T y_t}{T}; \quad \hat{x}_i = \frac{\sum_{t=1}^T x_t}{T} \quad (7)$$

And so, the time-demeaned data:

$$\widehat{y}_{i,t} = \gamma_1 * \widehat{x}_{1,t} + \gamma_2 * \widehat{x}_{2,t} + \gamma_3 * \widehat{x}_{3,t} + \delta_2 T_t + \dots + \delta_t T_t + \widehat{\varepsilon}_t \quad (8)$$

where, the coefficient γ_1 and γ_2 is calculated using the POLS.

The methodological explanation of the dependent variable involves the well-known historical relation between risk and profit (Modigliani & Pogue, 1974). Furthermore, new covariates were added, by attempting to explain stock price variability over the years, by considering not only net returns but also additional aspects that might influence the perceived riskiness of the financial institution.

The statistical investigation sets the stage for the application of the preselection algorithm. The latter, used for backtest analysis, is a model that identifies time by time the optimal strategy from among several possible ones and the optimal subset of securities. In this way, the empirical analysis, based on a rolling time windows approach, allows us to distinguish which were the best-performing stocks in the considered sample. This preselection approach falls among the mean-variance preselection models that are considered a benchmark in stock selection, as discussed in Cesarone et al. (2020). The backtesting procedure, conducted with the model described above, could be summarized in the following operation flow.

Model set-up

A number of hyperparameters for performing the backtest were defined before proceeding. In particular, a sample period of 120 days was chosen, as suggested by the elaboration of Bailey et al. (2014). This period, also called the “learning period”, is the time window according to which the parameter needed for the strategies was estimated. The other choice of setting concerns the portfolio strategies involved in the analysis. These are modifications of the original mean-variance optimization problem enunciated by Markovitz (1952):

- 1) global minimum variance constraints strategy (GMVC);

- 2) most diversified portfolio strategy (MDP);
- 3) risk parity strategy (RP);
- 4) mean-variance constraints strategy (MVC);
- 5) equally weighted strategy (EW).

Markovitz et al. (2000) provide a comprehensive discussion and description of these methods. It should be specified that the abovementioned strategies are all only long strategies. Last but not least hyperparameter is the number of preselected (p) stocks time by time. We propose the analysis with 5, 6 and 7 assets.

Preselection step

For each time observation in the out-of-sample period, the Sharpe ratio (Sharpe, 1994) was calculated for each strategy. The latter is a well-known measure of relative market performance that allows us to compare asset performance. Using this calculation, we were able to highlight the strategy with the highest value (thus, the highest performance) and consequently, the stocks and their weights in the optimal portfolio obtained in all sample periods. Thus, with this information, it is possible to identify the reduced panel of stocks (p) in which to invest, simply by looking at the cumulative weights obtained in the backtest period. In this way, it is possible to distinguish which stocks are the best performers by executing a performance-based preselection.

Finally, the process described will generate:

- the vector of the cumulative returns in the backtest period;
- the matrix of the stocks on which to invest from time to time along the backtest period;
- the vector of the extraction percentages of every single security.

The optimal solution is built on the best result obtainable, each time, from the application of the former. The instrumental reliability of the adaptive model for this analysis is confirmed by the constantly positive cumulative returns inferred in the various back tests performed and which makes it possible to search for greater profitability of certain assets within the basket of selected securities.

4. RESEARCH RESULTS AND DISCUSSION

The results of the analysis are surprisingly unpredictable at this level.

Table 2. Parameter estimates

Variables	Parameter	Std. error	T-stat	P-value	Lower CI	Upper CI
Intercept	-1.0219	1.4447	-0.7073	0.4822	-3.9139	1.8701
sanction	3.9262	4.0027	0.9809	0.3307	-4.0861	11.939
average price	-5.1590	0.1451	-1.551	0.2500	-5.4495	-4.8686
ESG	-0.9234	9.4443	-1.6654	0.1e^-10	-3.9943	0.1237

F-test for poolability: 1.0707.
P-value: 0.4028.
Distribution: F(23.58).

Note: CI – confidence interval.

Based on what is reported in Table 2, it is evident that the riskiness perceived by the market can be partially explained by the performance component; at the same time, it is undeniable that it is strongly influenced by the sanction received by the bank during the considered year. This is largely confirmed by the tests performed with the pool

regression. It seems that the ESG covariate is not statistically significant in predicting the change in variability (hence riskiness) of the market stocks. This result provides the first evidence of the extent to which the presence of a sanction against a bank has effects in terms of market-perceived riskiness, as well as reputational effects.

Finally, the statistical output should be compared with the idealized preselection scheme. The results of the algorithm described above, along with the indication of banks' sanctions, are shown in Table 3.

Table 3. Preselection output

Bank	Cumulative sanction indication	Selected banks (5 stock)	Selected banks (6 stock)	Selected banks (7 stock)
Intesa Sanpaolo S.p.A. (ISP.MI)	1	1	1	1
UniCredit S.p.A. (UCG.MI)	2			
Banca Monte dei Paschi di Siena S.p.A. (BMPS.MI)	2			
BPER Banca S.p.A. (BPE.MI)	0		1	1
Mediobanca (MB.MI)	1			
Credito Emiliano S.p.A. (CE.MI)	1			
Di Sondrio Societa Cooperativa Per Azioni (BPSO.MI)	0			
Finecobank Banca Fineco S.p.A. (FBK.MI)	0	1	1	1
Banca Mediolanum S.p.A. (BMED.MI)	0	1	1	1
Banca Carige S.p.A. (CRG.MI)	1			
Banco di Desio e della Brianza S.p.A. (BDB.MI)	0			1
Banca Generali S.p.A. (BGN.MI)	0	1	1	1
Banca Sistema S.p.A. (BST.MI)	0			
Banca Finnat Euramerica S.p.A. (TQ9.SG)	0	1	1	1
Banca Profilo S.p.A. (PRO.MI)	1			
Banca Intermobiliare di Investimenti e Gestioni S.p.A. (BIM.MI)	3			
Conafi S.p.A. (CNF.MI)	0			
Banco Santander S.A. (SAN.MC)	3			
CaixaBank S.A. (CABK.MC)	1			
Banco Bilbao Vizcaya Argentaria S.A. (BBVA.MC)	1			
Bankinter S.A. (BKT.MC)	0			
Total	17	5	6	7

The last three columns of the table above report the presence or absence of listed banks in the idealized preselection scheme; the second column reports the cumulative indication (for the 4 years analyzed) of the presence or absence of at least one sanction. By a priori selecting only a few stocks — 5, 6 and 7 respectively — out of the total sample portfolio (as just discussed in subsection 3.2), the algorithm chooses only the most performing stocks in the market. It's now even more evident that the best-performing stocks in the market refer to banks that have not been sanctioned (or sanctioned once), proving the validity of the research hypothesis. Indeed, all the most sanctioned banks were discarded by the algorithm, reflecting precisely the fact that the market would tend to discount the bad behavior of banks (represented by the presence of sanctions).

5. CONCLUSION

The purpose of our research was to test whether the volatility of stocks of listed, ESG-compliant banks is a function of sanctions and price delta. We tested this relationship through a two-step approach analysis. First, we performed a regression on panel data. This allowed us to investigate the relationship between volatility, sanctions, and price deltas.

Second, we performed the selection of the winning model based on the actual performance.

Our results show that the stocks of listed banks that have been sanctioned have higher volatility and lower profitability. In other words,

listed banks characterized by higher sanctions are the least performing and riskiest.

We show that, despite the limited availability of observations, there is a measurable relationship between sanctions, volatility, and returns.

Although the research provides interesting considerations on the relationship between ESG factors, market performance and banks' reputation, the analysis has some limitations and caveats that need to be taken into account and which the authors strive to improve in future research. The main limitations can be identified firstly in the lack of a proper definition of ESG ratings and scoring (Berg et al., 2022) and secondly in the manual collection of sanctions data, as a single database for financial sanctions at the European level has not been implemented by EU regulators. The absence of a single database makes our research particularly difficult as the collection of sanctions must be conducted manually by the authors and sanctions imposed by supervisory authorities are not homogenous across European countries.

As a next step in our research, we intend to test the relationship between sanctions and ESG scores by also studying the discrepancies behind ESG scores and rating definitions. Next, we will extend our research to a larger sample of European banks by collecting additional supervisory sanctions.

Moreover, future developments will consider other preselection schemes, possibly alternatives to the mean-variance scheme, which is ineffective in certain situations (Hult et al., 2012).

These are promising extensions that may find their way into further developments of this study.

REFERENCES

1. Armour, J., Mayer, C., & Polo, A. (2017). Regulatory sanctions and reputational damage in financial markets. *Journal of Financial and Quantitative Analysis*, 52(4), 1429-1448. <https://doi.org/10.1017/S0022109017000461>
2. Bailey, D. H., Borwein, J. M., de Prado, M. L., & Zhu, Q. J. (2014). Pseudo-mathematics and financial charlatanism: The effects of backtest overfitting on out-of-sample performance. *Notices of the American Mathematical Society*, 61(5), 458-471. <https://doi.org/10.1090/noti1105>

3. Berg, F., Kölbel, J. F., & Rigobon, R. (2022). Aggregate confusion: The divergence of ESG ratings. *Review of Finance*, 26(6), 1315–1344. <https://doi.org/10.1093/rof/rfac033>
4. Billio, M., Costola, M., Hristova, I., Latino, C., & Pelizzon, L. (2021). Inside the ESG ratings: (Dis)agreement and performance. *Corporate Social Responsibility and Environmental Management*, 28(5), 1426–1445. <https://doi.org/10.1002/csr.2177>
5. Capelle-Blancard, G., & Petit, A. (2019). Every little helps? ESG news and stock market reaction. *Journal of Business Ethics*, 157, 543–565. <https://doi.org/10.1007/s10551-017-3667-3>
6. Cesarone, F., Mango, F., & Sabato, G. (2020). Z-score vs minimum variance preselection methods for constructing small portfolios. *Investment Management and Financial Innovations*, 17(1), 64–76. [http://doi.org/10.21511/imfi.17\(1\).2020.06](http://doi.org/10.21511/imfi.17(1).2020.06)
7. Danisewicz, P., McGowan, D., Onali, E., & Schaeck, K. (2018). The real effects of banking supervision: Evidence from enforcement actions. *Journal of Financial Intermediation*, 35(A), 86–101. <https://doi.org/10.1016/j.jfi.2016.10.003>
8. Deli, Y., Delis, M. D., Hasan, I., & Liu, L. (2016). *Bank enforcement actions and the terms of lending* (Working Paper No. 23). Bank of Finland. <http://doi.org/10.2139/ssrn.2822735>
9. Delis, M. D., Staikouras, P. K., & Tsoumas, C. (2017). Formal enforcement actions and bank behavior. *Management Science*, 63(4), 959–987. <https://doi.org/10.1287/mnsc.2015.2343>
10. Dell'Atti, S., Trotta, A., Iannuzzi, A. P., & Demaria, F. (2017). Corporate social responsibility engagement as a determinant of bank reputation: An empirical analysis. *Corporate Social Responsibility and Environmental Management*, 24(6), 589–605. <https://doi.org/10.1002/csr.1430>
11. Dimson, E., Marsh, P., & Staunton, M. (2020). Divergent ESG ratings. *The Journal of Portfolio Management*, 47(1), 75–87. <https://doi.org/10.3905/jpm.2020.1.175>
12. Flammer, C. (2012). Corporate social responsibility and shareholder reaction: The environmental awareness of investors. *Academy of Management Journal*, 56(3), 758–781. <https://doi.org/10.5465/amj.2011.0744>
13. Forcadell, F. J., & Aracil, E. (2017). European banks' reputation for corporate social responsibility. *Corporate Social Responsibility and Environmental Management*, 24(1), 1–14. <https://doi.org/10.1002/csr.1402>
14. Gallardo-Vázquez, D., Valdez-Juárez, L. E., & Castuera-Díaz, A. M. (2019). Corporate social responsibility as an antecedent of innovation, reputation, performance, and competitive success: A multiple mediation analysis. *Sustainability*, 11(20), Article 5614. <https://doi.org/10.3390/su11205614>
15. Gangi, F., Daniele, L. M., & Varrone, N. (2020). How do corporate environmental policy and corporate reputation affect risk-adjusted financial performance? *Business Strategy and the Environment*, 29(5), 1975–1991. <https://doi.org/10.1002/bse.2482>
16. Gangi, F., Meles, A., D'Angelo, E., & Daniele, L. M. (2018). Sustainable development and corporate governance in the financial system: Are environmentally friendly banks less risky? *Corporate Social Responsibility and Environmental Management*, 26(3), 529–547. <https://doi.org/10.1002/csr.1699>
17. Guerello, C., Murè, P., Rovo, N., & Spallone, M. (2019). On the informative content of sanctions. *The North American Journal of Economics and Finance*, 48, 591–612. <https://doi.org/10.1016/j.najef.2018.07.013>
18. Hult, H., Lindskog, F., Hammarlid, O., & Rehn, C. J. (2012). *Risk and portfolio analysis: Principles and methods*. Springer.
19. Köster, H., & Pelster, M. (2017). Financial penalties and bank performance. *Journal of Banking & Finance*, 79, 57–73. <https://doi.org/10.1016/j.jbankfin.2017.02.009>
20. Krüger, P. (2015). Corporate goodness and shareholder wealth. *Journal of Financial Economics*, 115(2), 304–329. <https://doi.org/10.1016/j.jfineco.2014.09.008>
21. Krüger, P., Sautner, Z., & Starks, L. T. (2020). The importance of climate risks for institutional investors. *The Review of Financial Studies*, 33(3), 1067–1111. <https://doi.org/10.1093/rfs/hhz137>
22. La Torre, M., Cardi, M., Leo, S., & Gherardini, J. S. (2023). ESG ratings, scores, and opinions: The state of the art in literature. In M. La Torre & S. Leo (Eds.), *Contemporary issues in sustainable finance: Exploring performance, impact measurement and financial inclusion* (pp. 61–102). Palgrave Macmillan. https://doi.org/10.1007/978-3-031-22539-0_4
23. La Torre, M., Mango, F., Cafaro, A., & Leo, S. (2020). Does the ESG index affect the stock returns? Evidence for the EUROSTOXX 50. *Sustainability*, 12(16), Article 6387. <https://doi.org/10.3390/su12166387>
24. Lin, H., Zeng, S., Wang, L., Zou, H., & Ma, H. (2016). How does environmental irresponsibility impair corporate reputation? A multi-method investigation. *Corporate Social Responsibility and Environmental Management*, 23(6), 413–423. <https://doi.org/10.1002/csr.1387>
25. Markowitz, H. M. (1952). *Portfolio selection*. *The Journal of Finance*, 7(1), 77–91. <https://doi.org/10.1111/j.1540-6261.1952.tb01525.x>
26. Markowitz, H. M., Todd, G. P., & Sharpe, W. F. (2000). *Mean-variance analysis in portfolio choice and capital markets*. Wiley.
27. Modigliani, F., & Pogue, G. A. (1974). An introduction to risk and return: Concepts and evidence, part two. *Financial Analyst Journal*, 30(3), 69–86. <https://doi.org/10.2469/faj.v30.n3.69>
28. Murè, P., & Pesic, V. (2011). *Are sanctions effective in improving bank performance? A study on supervision and administrative sanctions upon Italian banks during the 1998–2009 period* (CAREFIN Working Paper No. 23/2010). Centre for Applied Research in Finance. <https://ssrn.com/abstract=1799882>
29. Murè, P., Spallone, M., Mango, F., Marzioni, S., & Bittucci, L. (2021). ESG and reputation: The case of sanctioned Italian banks. *Corporate Social Responsibility and Environmental Management*, 28(1), 265–277. <https://doi.org/10.1002/csr.2047>
30. Naughton, J. P., Wang, C., & Yeung, I. (2019). Investor sentiment for corporate social performance. *The Accounting Review*, 94(4), 401–420. <https://doi.org/10.2308/accr-52303>
31. Rzeźnik, A., Hanley, K. W., & Pelizzon, L. (2021). *The salience of ESG ratings for stock pricing: Evidence from (potentially) confused investors* (SAFE Working Paper No. 310). Leibniz Institute for Financial Research SAFE. <https://www.econstor.eu/bitstream/10419/243279/1/safe-wp-310-rev2021-09.pdf>
32. Sahut, J.-M., & Pasquini-Descomps, H. (2015). ESG Impact on market performance of firms: International evidence. *Management International*, 19(2), 40–63. <https://doi.org/10.7202/1030386ar>

33. Sassen, R., Hinze, A.-K., & Hardeck, I. (2016). Impact of ESG factors on firm risk in Europe. *Journal of Business Economics*, 86, 867-904. <https://doi.org/10.1007/s11573-016-0819-3>
34. Sharpe, W. F. (1994). The Sharpe ratio. *The Journal of Portfolio Management*, 21(1), 49-58. <https://doi.org/10.3905/jpm.1994.409501>
35. The Council of the European Union. (2013). *Council Regulation (EU) No. 1024/2013 of 15 October 2013 conferring specific tasks on the European Central Bank concerning policies relating to the prudential supervision of credit institutions*. EUR-Lex. <http://data.europa.eu/eli/reg/2013/1024/oj>
36. Whelan, T., Atz, U., Van Holt, T., & Clark, C. (2021). *ESG and financial performance: Uncovering the relationship by aggregating evidence from 1,000 plus studies published between 2015-2020*. NYU STERN Center for Sustainable Business. https://www.stern.nyu.edu/sites/default/files/assets/documents/NYU-RAM_ESG-Paper_2021%20Rev_0.pdf