

## Article

# Illicit and Corruption Mitigation Strategy in the Financial Sector: A Study with a Hybrid Methodological Approach

Eleni Zafeiriou <sup>1</sup> , Alexandros Garefalakis <sup>2,3</sup> , Ioannis Passas <sup>2</sup>  and Konstantina Ragazou <sup>3,4,\*</sup> 

<sup>1</sup> Department of Agricultural Development, Democritus University of Thrace, GR50100 Orestiada, Greece; ezafeir@agro.duth.gr

<sup>2</sup> Department of Business Administration and Tourism, Hellenic Mediterranean University, GR71410 Heraklion, Greece; agarefalakis@hmu.gr (A.G.); ipassas@hmu.gr (I.P.)

<sup>3</sup> Department of Business Administration, Neapolis University Pafos, Pafos 8042, Cyprus

<sup>4</sup> Department of Accounting and Finance, University of Western Macedonia, Kila, GR50100 Kozani, Greece

\* Correspondence: koragazo@uth.gr

**Abstract:** In recent decades, experts from all around the world have been increasingly interested in illegal conduct and corruption in financial organizations. Utilizing the illegal and corruption hypothesis, we investigate the core traits and trends of this phenomenon in European financial institutions. We also examined how specific aspects are incorporated into financial firms' anti-corruption strategies. The current study makes an effort to comprehend the afore-mentioned challenges using the tools of scientometrics and data analysis. More precisely, our empirical analysis was based on 336 European financial institutions for the years of 2018–2020, and our study also employed bibliographic data from 687 scientific documents indexed in the Scopus database in 2010–2021. The R language's Bibliometrix tool was applied to analyze the body of the existing literature. A binary logistic regression approach was used to analyze the data. While the goal of our empirical study is to unveil the factors causing or mitigating illegal activity and corruption in the financial sector, the bibliographic analysis revealed the determinants validated in previous work. Our results highlight the need of policy makers to implement measures to limit illegal activity and reduce corruption in financial institutions to improve reputations and customers' fidelity, which are necessary for the achievement of the sustainable development goals concerning financial institutions. Another conclusion is the emergence of a new source of corruption, which South Africa's experience has confirmed. Our findings also support two components of the contemporary approach for reducing corruption and illicit activity, namely, the usage of new technology specialists and the incorporation of ESG factors.

**Keywords:** anti-corruption strategy; efficiency; emerging technologies; Europe; finance; illicit; sustainability; tax



**Citation:** Zafeiriou, E.; Garefalakis, A.; Passas, I.; Ragazou, K. Illicit and Corruption Mitigation Strategy in the Financial Sector: A Study with a Hybrid Methodological Approach. *Sustainability* **2023**, *15*, 1366. <https://doi.org/10.3390/su15021366>

Academic Editors: Roberta Troisi and Annamaria Nese

Received: 3 December 2022

Revised: 7 January 2023

Accepted: 9 January 2023

Published: 11 January 2023



**Copyright:** © 2023 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

## 1. Introduction

In recent decades, vast research has been conducted on the ways in which corruption is conceptualized or defined in both the public and commercial sectors. Its meaning varies since it can refer to a sector, a group of independent businesses, or a multidisciplinary prism [1–3]. The issue of corruption mitigation is of high priority among the sustainable development goals (SDGs) introduced by the United Nations. Common corruption is a multifaceted phenomenon that affects governments, public agencies, and private businesses. The World Bank and Transparency International offer an intriguing and well-known definition. Transparency International (TI) describes corruption as “the misuse of entrusted power for private advantage,” whereas the World Bank defines corruption as the “abuse of public office for private gain” [4]. While the second type of corruption takes place in the private sector, the first type happens in the public domain. Financial organizations and banks have exacerbated the corruption issue by concealing unlawful money [5].

Financial institution corruption may take many different forms, including embezzlement and abuse of funds, theft and fabrication of papers and financial statements, cyber fraud, extortion, and bribery, withholding of information, and breaking the law and regulatory framework [6–8]. Other types of criminal activity in the financial industry include breaching confidentiality, distributing or accepting the proceeds of crime, and using private information for one's own benefit. Additionally, a sizable portion of financial sector corruption may be attributed to organized crime or the delinquent behavior of the clients, as well as to the submission of fake documents and attempts to intercept customer data for e-banking [9–11].

Conditions, corporate structure, and character may often be characterized as the main causes of corruption in a financial organization [5,8,12,13]. Conditions are tied to either the excessive personal wants or ambitions of the organization's employees or executives, or to the excessive pressures they face to meet their objectives. The inadequacy of the organizational and regulatory frameworks inside the financial institution to prevent and address any form of criminal activity is the second group of variables that contribute to the emergence of corruption [10]. The third and last component is the belief that an employee who engages in inappropriate behavior will either not have his unlawful behavior exposed or, if it is, it will be feasible to justify it [12].

Financial institutions have prioritized the application of tools to curtail or even cease illegal actions since they result in losses and affect an organization's ability to operate normally. Furthermore, strategies for reducing corruption and fraud in the financial industry cannot only assist the ability of businesses in the sector to maintain regular business operations, but should also ensure sustainable development. Sustainability goals aim to enhance the integration of the economic, social, and environmental dimensions of sustainable development and, in finance, it involves the practice of considering environmental, social, and governance (ESG) factors in financing activities and projects characterized by sustainability. In addition to the environment more generally, such as the preservation of biodiversity, pollution avoidance, and the circular economy, environmental issues may also involve the mitigation and adaptation of climate change. Social factors might include human rights problems as well as inequality, inclusion, labor relations, investments in human capital, and community development. A key factor in ensuring the incorporation of social and environmental factors in the decision-making process is the governance of public and commercial organizations, which includes management structures, employee relations, and CEO compensation [14]. Numerous new loan and investment opportunities are emerging because of the development of sustainable finance. Thus, financial firms are under increased pressure from institutional investors and retail banking clients to comply with environmental standards. Therefore, the three strategic pillars employed by financial institutions to ensure the mitigation of corruption and assurance of sustainability are: (i) having a code of conduct and behavior, (ii) having a strategy for dealing with fraud and offering proper risk management, and (iii) implementing fraud management structures and processes. The financial institution establishes the framework of the values on which it bases its behavior both internally and externally (transparency, responsibility, impartiality, honesty, and dependability), in the case of the code of conduct and behavior. Businesses in the finance industry specify their attitude on any case of fraud and corruption that compromises their ability to conduct business, generate revenue, or advance other interests [15]. They also set forth sanctions for violators, which must be regularly upheld. Finally, financial institutions that use fraud management systems place an emphasis on creating protocols, defining the duties and responsibilities of executives and providing personnel the necessary training [16]. In terms of the fraud tree, financial institutions may host all types of fraud, such as asset misappropriation, corruption, and tax evasion. The misstatement of financial statements and other frauds and, therefore, mitigation strategies may be vital in impeding the malfunction of an economy, thus promoting sustainable development.

This paper has three main objectives: (i) to examine the main trends and characteristics of illegal activity and corruption in the financial sector; (ii) to highlight the new channels

that have emerged in the market; and (iii) to investigate the factors taken into consideration when financial institutions design their anti-corruption strategies, such as tools to reduce illegal money mobilization in the form of bribery and money laundering within the framework set for the achievement of the 16th goal, one of the major SDG goals. This involves the corruption branch of the fraud tree, which poses significant impediments to the sustainable development of a total economy. This is because corruption hinders the building of productive and positive relations between state, government, society, and business. Within an economy, or even in global terms, financial institutions function as vehicles to the process of “sustainable development”, since they transmit stakeholder interactions that, in turn, influence the established order of relations in the region. What is more, the level of corruption should be considered as an indicator of its stability, thus defining the extent of sustainable development. This means that unveiling the determinants of corruption may provide policy makers with the tools to limit corruption phenomena and thus promote sustainability in these economies [17].

The present work conducted two types of analyses, namely, a complete bibliometric analysis that was based on Bibliometrix and the econometric tool employed involves a logit model used to identify and quantify the impact of different socio-economic factors and policy tools to the limitation of corruption in financial institutions and, therefore, promote sustainable development.

The present manuscript comprises six sections [18]. The existing literature was surveyed in Section 2 and, using the Bibliometrix package in the R language, it explores the nature and types of corruption in the banking industry as well as its primary routes and major trends. The information and techniques used to examine the elements included in the anti-corruption policy of financial institutions as well as their efficacy are presented and discussed in Section 3. The main results of our research are provided in Section 4. The discussion is outlined in Section 5, along with the research gaps and recommended areas for further study.

## 2. Literature Review

All the aspects of the fraud tree have become widespread in the past ten years in both the business and banking worlds [18]. Specific corporate actions cause losses, harm businesses' reputations, and increase the awareness of the primary causes of these phenomena [3]. The three above-mentioned branches of the fraud tree are promoted by pressure, opportunity, and reasoning. In a business, an employee may experience pressure to commit fraud and obtain the necessary resources. Employees that commit fraud are typically compelled to doing it for financial reasons. After all, the financial success of the organization immediately affects how each member of management performs financially. However, there are other motivations in addition to economic ones that drive people to commit fraud, including egocentric ones, such as the psychosis for professional success, advancement, and gaining power, and emotional ones, such as the perception of unfair treatment and failure to advance in a position of authority, or pressures on executives to meet targets and demands from the market. In the case of the Management and Internal Audit processes falling short in their responsibilities, the potential for fraud is also a frequent occurrence [19]. The possibility of fraud is specifically based on two elements: (i) the absence or inadequacy of the Internal Audit system and (ii) the absence of fundamental corporate governance frameworks [20,21]. When it comes to rationalization, it is the set of beliefs that people have, even if they know that engaging in harmful behavior is against the law. Despite breaking the law, they decide to defend and explain the fraud they are encouraged to conduct against the company they work for. Different forms of rationalization can be represented. An illustration of such element may be when an employee feels that they are paid unfairly in comparison to their coworkers since they contribute more while earning less; therefore, they choose to “redress this evident injustice” by embezzling corporate funds [7,9,12].

However, conflicts are not restricted to the following factors, regardless of the shape they may take. These elements and trends in this research field were highlighted using

a bibliometric method. Large amounts of scientific data can be explored and evaluated statistically using the popular and accurate technique known as bibliometric analysis. The bibliometric analysis has two goals: (i) to determine the current state of knowledge for a given topic and (ii) to identify the most cited papers and assess their influence on other researchers' following study [22,23]. Basically, content analysis and citation or co-citation are the two most often employed bibliometric techniques. Bibliometric analysis, which concentrates on the bibliographic analysis of scientific articles gathered in a database, provides a thorough map of the structure of knowledge, its appraisal, and measurement regardless of the method employed by the researcher. The current study's primary data source was the Scopus database [24]. Through the SciVerse network, Elsevier offers their bibliography and citation search tool called Scopus. It is one of the world's largest databases of references and summaries from recognized worldwide literature, with sophisticated tools that assist scholars anywhere in retrieving, analyzing, and visualizing specific pieces of information. It has 49 million subscribers (78% with abstracts), more than 5.3 million conference papers, over 20,500 titles from 5000 publishers worldwide, and 100% Medline coverage. The search keywords used to acquire the data were ("corruption" OR "controversies" OR "fraud" OR "bribery") AND ("finance sector" OR "financial crimes" OR "financial controversies" OR "scandals"). English was the search language. Different types of documents are included in the Scopus bibliographic citation database; however, for the sake of this research, only original articles were considered. A total of 619 documents in all were ultimately chosen for investigation. Each entire publication record that was located during the search was converted into a Scopus BibTex file, loaded into Biblioshiny, and subjected to R package analysis.

Table 1 provides a detailed overview of the journal that published the most articles regarding bribery, corruption, and fraud scandals in the banking industry between 2010 and 2021. The most well-known journal that has already published academic papers connected to the research topic is *Technological Forecasting and Social Change* (8). Four other journals, including *Journal of Business Ethics*, *Land Use Policy*, *Sustainability*, and *Journal of Corporate Finance*, were ranked among the top five most pertinent sources for the topic of bribery, corruption, and fraud controversies in addition to the journal *Technological Forecasting and Social Change*.

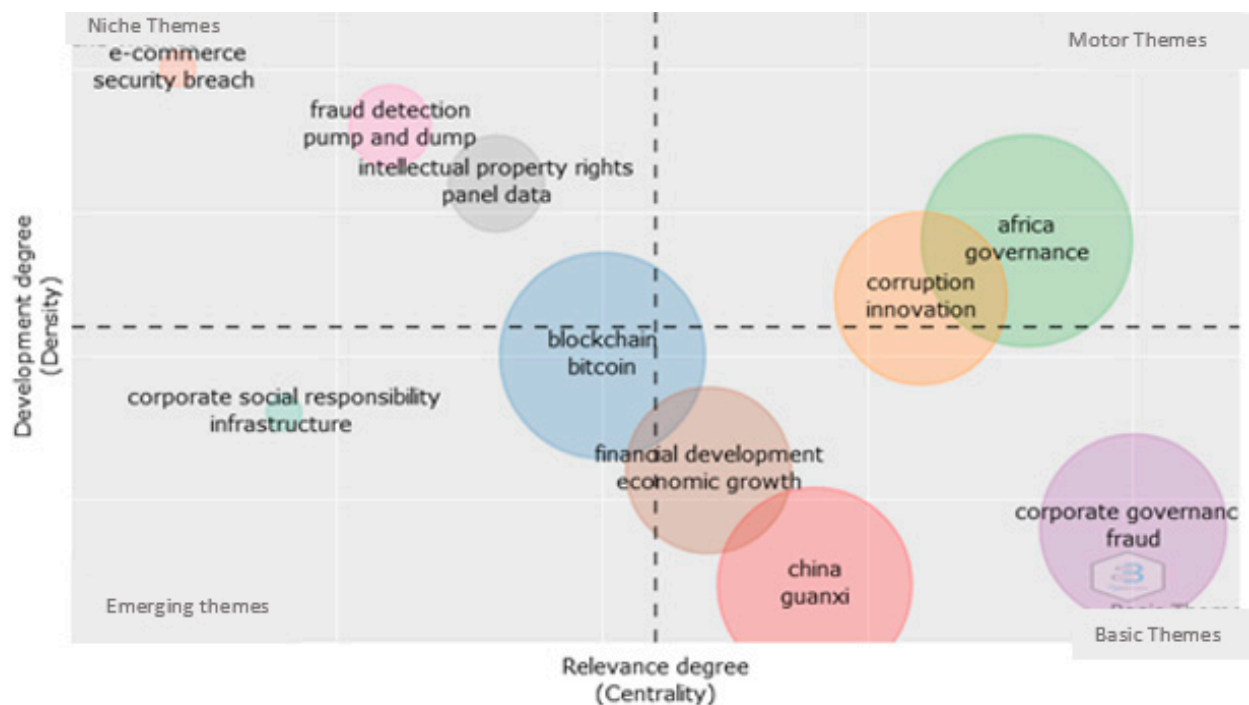
Although there are many various types of financial issues, including corruption, bribery, and fraud, there are not many scholarly publications on the subject. The number has consistently increased over the previous two years, indicating that difficulties with corruption and fraud in the banking industry are complex problems that confound researchers.

Business management, business ethics, and technological science were emphasized as those that are closely connected to the bribery, corruption, and fraud scandals in the financial sector based on the list of the most relevant published academic works on the examined topic [25,26]. Information about the environment and marketing is only sometimes included in periodicals. The key principles of the conflicts in the finance industry also support the variables in Figure 1. The substantial relevance of e-commerce to any type of corruption, such as bribery and fraud, is underlined in the quadrant of specialized topics, which is distinguished by high density and relevance to the examined sector [27,28]. E-commerce will completely change financial services over the coming decades. By expanding the range of financial services that banks may offer, fintech businesses will play a key part in this shift [29]. With the additional services provided by Fintech firms associated with e-commerce, regular banking services as well as others such as investments, insurance, and trading in foreign currencies can be added to the list. However, the likelihood of fraud increases as e-commerce sales increase. Additionally, fraud management solutions must be established and utilized to identify and safeguard businesses from such illicit acts [30].

**Table 1.** Most relevant resources in the study field. Source: Scopus/Biblioshiny.

Sources	Articles	ABS List	Scimago List
<i>Technological Forecasting and Social Change</i>	8	3 ***	Q1
<i>Journal of Business Ethics</i>	6	3 ***	Q1
<i>Land Use Policy</i>	6		Q1
<i>Sustainability (Switzerland)</i>	6		Q1
<i>Journal of Corporate Finance</i>	5	4 ****	Q1
<i>Industrial Marketing Management</i>	4	3 ***	Q1
<i>International Business Review</i>	4	3 ***	Q1
<i>International Review of Economics And Finance</i>	4	2 **	Q2
<i>Journal of Business Research</i>	4	3 ***	Q1
<i>Journal of Financial Crime</i>	4		Q2
<i>Journal of the Knowledge Economy</i>	4	1 *	Q2
<i>British Accounting Review</i>	3	3 ***	Q1
<i>Cogent Economics And Finance</i>	3	1 *	Q2
<i>Ieee Access</i>	3		Q1
<i>Information Technology and People</i>	3		Q1
<i>International Review of Financial Analysis</i>	3	3 ***	Q1
<i>Journal of Business and Industrial Marketing</i>	3	2 **	Q1
<i>Journal of Economic Studies</i>	3	2 **	Q1
<i>Management and Organization Review</i>	3	3 ***	Q1
<i>Managerial Auditing Journal</i>	3	2 **	Q2
<i>Sustainable Development</i>	3		Q1
<i>Accounting Horizons</i>	2	3 ***	Q1
<i>Advances in Accounting</i>	2	2 **	Q2
<i>Annual Review of Sociology</i>	2	4 ****	Q1

\* This symbol is referred to those scientific papers that are published by Journals that are indexed by the Academic Journal Guide and produced by the Chartered Association of Business Schools (CABS). The journals are given a star rating from 1\* to 4\* (the highest).

**Figure 1.** Thematic map of key factors lead to bribery, corruption, and fraud controversies in the finance sector for the timespan of 2010–2021. Source: Scopus/Biblioshiny.

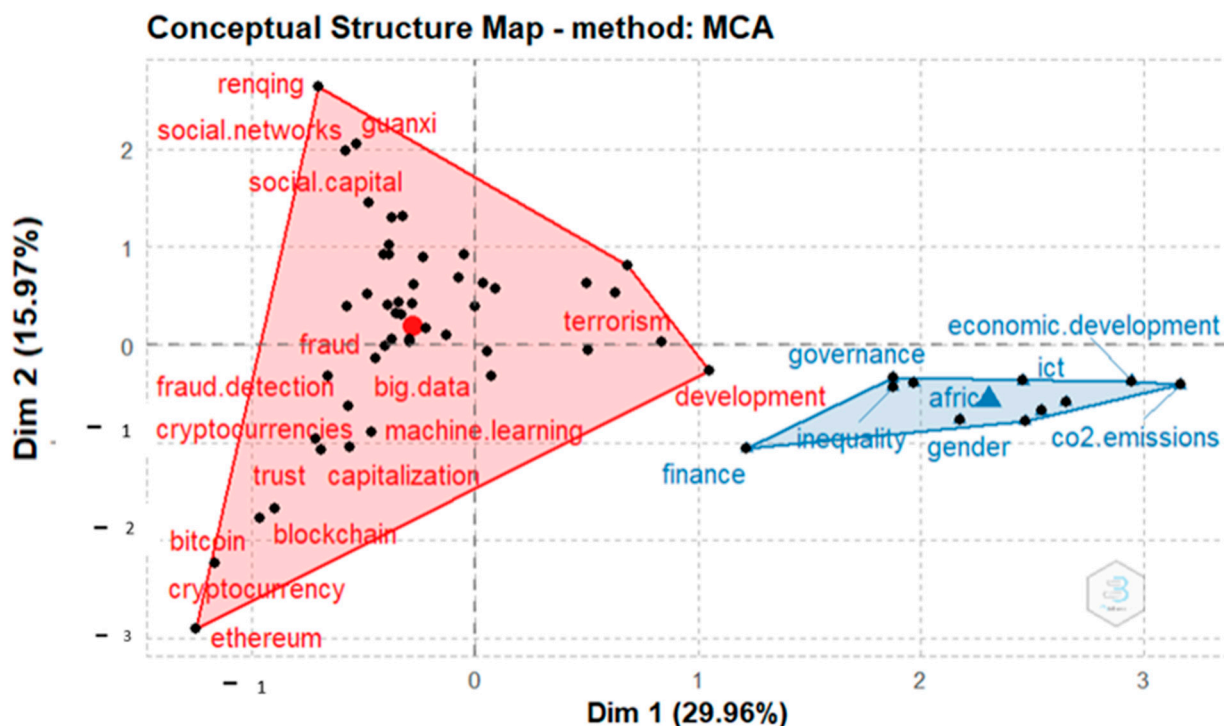


In addition, the quadrant of specialty topics highlights the connection between market capitalization and corruption, bribery, and fraud in the financial industry, particularly through pump and dump schemes [31]. Pump and dump fraud is a term used to describe a fraudulent operation with the primary goal of artificially inflating the price of a privately owned share using false and deceptive positive claims in order to sell the share that was obtained for a low price at a higher price [32]. Particularly in a pump and dump scheme, fraudsters frequently disseminate false or deceptive information to spark a purchasing frenzy, which they then use to “pump” the price of a stock and “dump” it by selling their own shares at the elevated price. There are several methods for disseminating incorrect and misleading information about company stock prices [20,33]. Only a few examples are social networking sites, email, newspapers, online chat rooms, and investment-related websites. ESG considerations are also shown in the quadrant of developing topics as a significant component of the fraud management system. ESG standards are more than simply a framework for funding and a trend associated with sustainable economic growth. The most important factor is a new corporate culture that raises employee involvement levels and opens up new lines of contact with clients, vendors, and society at large. As a result, ESGs help to determine how ethically responsible a company or investment is [34]. By establishing new standards for profit, the domains of the environment, society, and corporate governance are afforded specific weight throughout the entire spectrum of economic activity. Environmental criteria specifically look at how a firm manages the environment, how much it works to undo the harm produced by its operations, and how it responds to pollution, emissions, and climate change and resource degradation.

Technology may be used as a tool to stop business fraud. In the last ten years, the use of technology to combat fraud and other anomalies within a corporation has become increasingly important. Due to the high number of corporate fraud cases, businesses are at present more concerned with preventing fraud than dealing with it after it occurs [6,35]. Companies pay a high price for failing to stop the above occurrences. But as technology advances, so does its nefarious use. Compared to firms that do not appear to be employing technology adequately to avoid fraud, fraudsters are particularly at ease using it to perpetrate financial crimes. Organizations should be provided with tools to track suspicious activity and behavior, which can be efficiently assessed with the aid of the right technology [36].

This significant relationship between e-governance through e-commerce, technology, business management, and score, as well as ESG criteria in the banking industry, was further examined. Figure 2 depicts the temporal structure of the study focus from 2010 to 2021 in a two-dimensional graphic based on multiple correspondence analysis (MCAs) based on the authors’ keywords [37]. The graph shows that the keywords used in scientific outputs are divided into two main groups that focus on relevant topics in relation to financial controversies of any kind. The fundamental distinction between the two clusters is that the first (colored red) stresses the problem of corruption and the second (colored blue) underlines the necessity of anti-corruption. The two clusters show the intellectual variety and focus of the work conducted in each cluster. The first cluster, which is shown in red, consists of a total of sixteen keywords linked to publications that focus on the important elements connected with unlawful activity in financial institutions, such as market capitalization and technology. Findings from this cluster show how unethical behaviors may spread throughout organizations as well as the elements that are important in any shape they may take in the industry. The most frequent type of financial fraud is the theft of funds from clients’ accounts without their knowledge, which may be made easier with the use of social media. The second cluster (colored blue) consists of eight keywords linked to publications that discuss financial institution disputes and ESG standards. To understand a company’s performance and assess its dependability and viability before investing in or financing it, institutional investors, and financial institutions, such as banks, are increasingly focusing on ESG (Environment, Society, and Corporate Governance) factors, such as standards related to business performance in environmental and social

issues as well as corporate governance issues. Consequently, revealing a company's ESG performance increases the transparency of its sustainability policies and aids in the decision-making process of investors and financial institutions. Good environmental, social, and corporate governance (ESG) performance may boost a company's financial outcomes, draw in investors, and provide it with a sustainable competitive edge.



**Figure 2.** MCA factorial analysis. Source: Scopus/Biblioshiny.

### 3. Materials and Methods

#### 3.1. Sample Selection

Panel data for financial organizations with European headquarters for the fiscal years of 2018–2020 make up the study sample. In order to explore the determinants and their link to unlawful behaviors including corruption, fraud, and bribery in the European financial industry, this selection produced 1003 observations obtained from 336 financial businesses. The chosen businesses oversee Europe's highest levels of disclosure and openness. Therefore, both scholars and businesspeople may benefit from the examination of these firms based on the logistic model for panel data.

#### 3.2. Variables

For this study, secondary data were collected from official sources. The variables that were considered in the database are described in Table 2. The dependent variable, Bribery, Corruption, and Fraud Controversies, was chosen and collected from the ESG category of the Thomson Reuters Datastream database. Independent variables were gathered from Eurostat, Penn World Table, and Eikon Refinitiv powered by Thomson Reuters (version 10.0).

**Table 2.** Description of the variables.

Category	Name of Variable	Label of Variable	Description of Variable	Source
Dependent variable	BRIB	Bribery Corruption and Fraud Controversies	Describes a company's spotlight of the media because of a controversy that is linked to bribery and corruption, political contributions, improper lobbying, money laundering, parallel imports or any tax fraud [23].	Thomson Reuters Datastream
	EBANECO	E-banking and e-commerce	The use of the internet and other electronic networks for the purposes of e-banking and e-commerce by individuals and/or in households [38].	Eurostat
	ESG	ESG Score	Measures a company's ESG performance based on reported data in the public domain [23]	Thomson Reuters Refinitiv Eikon
Independent variables	RD	R&D personnel by sector	R&D personnel include all persons employed directly on R&D, plus persons supplying direct services to R&D, such as managers, administrative staff, and office staff. The measure shown in this table is total R&D personnel in full time equivalents as a percentage of the economic active population [38].	Eurostat
	MANGSCOR	Management Score	Measures a company's commitment and effectiveness towards following best practice corporate governance principles [23].	Thomson Reuters Refinitiv Eikon
	MARCAPITAL	Market capitalization	Refers to the total value of all a company's shares of stock [39].	Penn World Table version 10.0
	ICTEDU	Persons with ICT education by labour status	Describes persons with ICT education in labor force by their employment status [38].	Eurostat
	RETAIEARN	Retained Earnings	Retained earnings are a firm's cumulative net earnings or profit after accounting for dividends. They are also referred to as the earning surplus [40].	Penn World Table version 10.0
	ICTGDP	Percentage of the ICT sector in GDP	Is used to provide an initial estimate of the size of the ICT sector and its share of GDP [38].	Eurostat
	CORIND	Corruption Perceptions Index	A complex index based on a combination of corruption surveys and assessments from 13 different sources and scores and ranks countries based on how corrupt a country's public sector is considered, with a score of 0 representing a very high level of corruption and score 100 representing a very clean country [41].	Eurostat

### 3.3. Binary Logistic Regression Model

In the current study, a binary logistic regression model was employed to highlight the practices that financial institutions utilize most frequently to reduce corruption [42].



The logistic model's slopes show how the explanatory factors relate to the dependent variable and include parameters known as odds ratios, which are calculated as the ratio of the likelihood that program satisfaction will occur vs the likelihood that it will not. As a result, the  $\Pr(Y = 1)$  is converted to the event  $E(Y = 1)$ 's chances in the logit form. And the likelihood or possibility of bribery or lack thereof. In other words, the goal of the current study is to determine how exogenous factors will affect the binary dependent variable. The values 1 and 0 of the dependent variable represent the occurrence of bribery or non-bribery, respectively, and the following formula describes the generic model:

$$P(Y = 1) = \frac{1}{1 + e^{-(\beta_0 + \beta_1 X_{1i} + \dots + \beta_n X_{ni})}} \quad (1)$$

where the exogenous variables  $X_1, X_2, \dots, X_n$  reflect the values of the exogenous variables for the three fiscal years, and the dependent variable is depicted as having a certain probability. An illustration of an extended linear model is the logistic regression model. Maximum likelihood is the methodology used for parameter estimation. As a result, the estimated parameters are those with the highest probability. Since Equation (2)'s regression estimation is prohibited by the linearity assumption, Equation (3) uses the starting equation's logarithmic transformation in its place. For example, the logit model is:

$$\text{logit}[P(Y = 1)] = \beta_0 + \beta_1 X_{1i} + \dots + \beta_n X_{ni} \quad (2)$$

$$\text{logit}[P(Y = 1)] = \log \frac{P(Y = 1)}{1 - P(Y = 1)} \quad (3)$$

The term  $\frac{P(Y=1)}{1 - P(Y=1)}$  reflects the yield probability (odds) and represents the ratio of the probability of bribery existence divided by the probability of no bribery.

### 3.4. Modelling Procedure

The link between the binary answer variable and a number of independent factors was modeled for the estimated model. The variables from all three models that may be in some way presumed to be connected to crime and corruption were separated out, and the strongly associated ones were eliminated [43]. The models only included the variables that had a large impact on reducing illegal activity and corruption in financial institutions. Each significant independent variable's regression model coefficient explains the kind of impact that a variable has on the model result. To determine the likelihood that the response variable will take a specific value, the logistic regression model with the chosen set of independent variables and estimated model coefficients was used.

## 4. Results

A binary logistic regression model estimation was based on panel data of 336 European financial institutions for the years ranging from 2018 to 2020. The period studied was selected in order to capture and study the evolution of illicit activity and corruption over time and the requirement for financial institutions to adapt their instruments to the new patterns of illicit activity. The study's main goal, as mentioned above, was to identify the factors that influence bribery to reduce corruption and make unlawful activity more practical in the area under consideration. The data were derived by the Eikon's Datastream for the Fiscal Years 2018, 2019, and 2020, and, therefore, a total of 336 observations were obtained.

As was already noted, the models' dependent variables were chosen to reflect the scandals around bribery, corruption, and fraud. The estimated coefficients ( $b$ ) for the independent variables included in the logit model were statistically significant. The coefficient being zero is the null hypothesis that is being tested in this paper. The odds ratios and the Wald chi-square value [ $(b/\text{standard error})$ ] were employed in the statistical analysis. In other words, these factors were acknowledged as significant predictor variables if their

estimated coefficients had a significance value (Sig.) of less than 0.05, which means that they are substantially different from zero.

Descriptive statistics for the three years are shown in Table 3, along with the overall time frame for which the logit model was estimated.

**Table 3.** Descriptive statistics of the panel data sample.

	BRIB	CORIND	EBANECO	ESG	ICTEDU	ICTGDP	ICTSPECIAL	MANGSCOR	RAND	RETAIEARN
Mean	0.797000	78.28200	76.23067	47.43765	254.8750	6.490310	24.01000	51.02300	0.938750	23.97828
Median	1.000000	80.00000	79.00000	47.34000	316.9000	5.940000	24.00000	50.04000	0.830000	1.010000
Maximum	1.000000	88.00000	94.00000	93.79000	362.9000	325.1000	67.00000	99.71000	12.34000	4588.900
Minimum	0.000000	52.00000	3.430000	1.840000	11.00000	3.290000	13.00000	0.110000	0.470000	−11.66000
Std. Dev.	0.402434	7.094562	11.81145	20.47474	110.4556	17.18417	5.085446	28.29642	0.640312	228.9241
Skewness	−1.476758	−2.212540	−2.335441	0.085467	−1.147928	18.10327	1.017526	0.063338	15.34341	17.62498
Kurtosis	3.180814	8.885341	10.50713	2.417805	2.460866	329.7299	14.05040	1.909898	265.6668	323.6619
Jarque–Bera	364.8312	2259.107	3257.257	15.34038	231.7342	4502640	5260.535	50.18207	2913980	4336109
Probability	0.000000	0.000000	0.000000	0.000467	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	797.0000	78282.00	76230.67	47437.65	254875.0	6490.310	24010.00	51023.00	938.7500	23978.28
Sum Sq. Dev.	161.7910	50282.48	139370.9	418795.6	12188247	295000.4	25835.90	799886.7	409.5893	52353837
Observations	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000

Prior to the model estimation, a correlation analysis was used in order to assess the model's multicollinearity. The findings demonstrate that the variables lack multicollinearity (Table 4).

**Table 4.** Correlation matrix.

	BRIB	CORIND	EBANECO	ESG	ICTEDU	ICTGDP	ICTSPECIAL	MANGSCOR	RAND	RETAIEARN
BRIB	1.000000	−0.050751	0.036480	−0.204704	0.030805	−0.019014	0.045013	−0.166460	−0.037734	0.007827
CORIND	−0.050751	1.000000	0.773042	−0.045052	−0.075940	0.022034	0.187309	0.007104	0.049293	0.071728
EBANECO	0.036480	0.773042	1.000000	−0.044018	−0.044908	−0.305736	0.247257	0.017384	−0.293372	0.062510
ESG	−0.204704	−0.045052	−0.044018	1.000000	−0.107459	−0.065462	−0.208107	0.782685	−0.023207	0.071980
ICTEDU	0.030805	−0.075940	−0.044908	−0.107459	1.000000	−0.111912	0.219145	−0.019351	−0.364705	−0.145080
ICTGDP	−0.019014	0.022034	−0.305736	−0.065462	−0.111912	1.000000	0.458932	−0.073946	0.939070	−0.003090
ICTSPECIAL	0.045013	0.187309	0.247257	−0.208107	0.219145	0.458932	1.000000	−0.104473	0.353107	−0.067441
MANGSCOR	−0.166460	0.007104	0.017384	0.782685	−0.019351	−0.073946	−0.104473	1.000000	−0.062085	0.027494
RAND	−0.037734	0.049293	−0.293372	−0.023207	−0.364705	0.939070	0.353107	−0.062085	1.000000	0.039095
RETAIEARN	0.007827	0.071728	0.062510	0.071980	−0.145080	−0.003090	−0.067441	0.027494	0.039095	1.000000

The odds ratios and estimated logistic model coefficients are illustrated in Table 5, and the estimated coefficient's *p*-value is shown in the parenthesis.

**Table 5.** Logistic regression analysis with the dependent variable Bribery Corruption and Fraud Controversies for the FY 2018–2020.

Variables	Coefficients	Odds Ratio
EBANECO ***	0.037 (0.004)	0.513
ESG ***	−0.018 (0.00)	0.49
RD ***	1.27 (0.00)	0.86
MANGSCOR	−0.003 (0.5)	0.498
MARCAPITAL ***	0.019 (0.00)	0.506
ICTEDU ***	0.0031 (0.00)	0.501
RETAIEARN ***	−0.021 (0.00)	0.49
ICTGDP **	−0.037 (0.01)	0.486
CORIND *	−0.028 (0.1)	0.489

\*, \*\*, and \*\*\* reject of null hypothesis for 10, 5, and 1%, respectively.

The estimated model's findings about the variables that influence or do not influence the reduction in financial institution corruption in the Europe region are shown in Table 5 along with the appropriate odds ratios. The constructed model highlights the various responses of financial institutions in Europe to the tactics they use to combat corruption.

For instance, a rise in the ESG Score over the study period resulted in a 1.8% reduction in the likelihood of corruption ( $OR = 0.513$ ,  $p = 0.04$ ). In the past three years, CEOs' attitudes on the incorporation of ESG elements into their company's strategy seemed to improve. Executives should be aware of the significance of ESG practices in the mitigation strategies for illegal activity and corruption in addition to the regular benefits of ESG practices in a firm, such as faster financial growth, optimization, decreased volatility, and improved staff productivity. Financial institutions can set new criteria for their operations that will help them to achieve sustainability by utilizing ESG principles. The inclusion of ESG principles into European financial institutions' anti-corruption strategies does not appear to be their primary focus in 2020.

The management score is another element that has a non-statistically significant impact on the dependent variable. This is a predictable outcome since, in the case of financial organizations, the likelihood of corruption and bribery scandals is unrelated to the management score. When new technologies arrive, they assume primacy over all other issues. Therefore, the dependent variable is statistically significantly impacted by the research and development variable, which represents the R&D people in full-time equivalents as a proportion of the economically active population. Implicitly, the likelihood of corruption scandals rises by 127% as R&D expenditures rise ( $OR = 0.87$ ,  $p = 0.00$ ).

Additionally, according to the same model for the years from 2018 to 2020, an increase in the GDP Score's share of the ICT sector reduces the likelihood of corruption by 3.7% ( $OR = 0.48$ ,  $p = 0.001$ ), and an increase in the number of financial institutions funding ICT education reduces the likelihood of corruption by 0.1% ( $OR = 0.486$ ,  $p = 0.01$ ). ICT may help companies with their anti-corruption policies by increasing public scrutiny, encouraging openness and accountability, and improving citizen engagement and contacts with the government. There are several instances of ICT being used as anti-corruption tools in the financial industry across the world. Some of the most significant examples of anti-corruption in the finance sector include transparency and open data portals, service automation, online services, platforms that enable customers of financial institutions to file right to information requests, crowdsourced reporting, and online corruption reporting. Thus, a rise in market capitalization reduces the likelihood of corruption by 1.9% ( $OR = 0.56$ ,  $p = 0.00$ ).

However, there is a small but statistically insignificant increase in the chance of corruption of 1% when the number of people with ICT education increases by labor status ( $OR = 1.010$ ,  $p = 0.002$ ). However, this may show that cutting-edge technology is not a magic bullet for eradicating financial sector malfeasance. ICT, for instance, might create new chances for corruption through the dark web, cryptocurrency, or the exploitation of tools such as centralized databases. Additionally, an increase in e-banking and e-commerce correlates to a 3.7% increase in the likelihood of corruption ( $OR = 0.50$ ,  $p = 0.04$ ). Despite the paucity of study in this area, the connection between digital technology and illegal financial transfers is well acknowledged. Information technology also has a mixed impact on the sources of illegal revenues. On the one hand, information and communications technologies (ICTs) have made it easier to make money illegally and to launder it. On the other hand, although bribery and corruption are seen as a key source of the illegal cash flows, there is no clear correlation between ICTs and these activities.

The corruption perception index is another element that has a considerable impact on the bribery debates. The likelihood of corruption in financial institutions for the given time period decreases by 2.8% the cleaner the country is, and more particularly, a rise of 1 unit in the corruption perception index ( $p = 0.1$ ,  $OR = 0.489$ ). We demonstrated that each increase in market capitalization, which is regarded as a proxy for stock market development, increases the likelihood of corruption issues by 1.9%. Although in our example we affirm that a greater value tends to restrict the corruption and bribery phenomenon in EU banking system, it has been established in the literature that corruption activities tend to limit the accounting value and market value performance of non-financial enterprises [44]. Retained

earnings are a potential source of funding for businesses; hence, a rise in this variable results in a 2.1% reduction in the likelihood of bribery scandals ( $p = 0.000$ ,  $OR = 0.49$ ).

Implementing the HL test is the final stage in our study (Table 6). The specific test is a goodness-of-fit test for risk prediction models and logistic regression. The specific test informs us of how well our data fit the model. The HL test determines if the observed event rates match the anticipated event rates, to be more precise. Only binary response variables are utilized for this specific exam.

**Table 6.** Goodness-of-fit evaluation for binary specification—Andrews and Hosmer–Lemeshow tests.

	Quantile of Risk		Dep = 0		Dep = 1		Total	H-L
	Low	High	Actual	Expect	Actual	Expect	Obs	Value
1	0.3340	0.6640	34	44.7391	65	54.2609	99	4.70328
2	0.6665	0.7299	33	29.4268	66	69.5732	99	0.61739
3	0.7308	0.7693	29	24.8951	71	75.1049	100	0.90119
4	0.7695	0.8052	27	21.9358	72	77.0642	99	1.50192
5	0.7853	0.8095	22	20.2962	78	79.7038	100	0.17945
6	0.8098	0.8299	18	17.5758	81	81.4242	99	0.01245
7	0.8302	0.8526	13	15.6464	86	83.3536	99	0.53163
8	0.8527	0.8721	16	13.7519	84	86.2481	100	0.42609
9	0.8722	0.8953	7	11.4975	92	87.5025	99	1.99045
10	0.8956	1.0000	4	8.32429	96	91.6757	100	2.45035
		Total	203	208.089	791	785.911	994	13.3142
	H-L Statistic		13.3142		Prob. Chi-Sq(8)		0.1015	
	Andrews Statistic		39.4536		Prob. Chi-Sq(10)		0.0000	

According to our findings, the model's H-L statistic shows a satisfactory fit if the null hypothesis cannot be rejected.

## 5. Discussion

Corruption is a crime and a pandemic with diversified repercussions on the sustainable development of regional and world economy [45]. Contrary to other crimes, corruption ultimately involves changing the internal entropy of the entire system and the legal commodities that comprise it [46]. The perpetrator of such a crime employs cunning and quiet methods, providing him a grid of secrecy and a space in which he may operate unmolested. The corruption rate has been enhanced geometrically due to globalization and the significant growth in the trade of goods, services, capital, and knowledge [47]. Within this regime, the competition between businesses has expanded, resulting in the use of all means to outperform their rivals.

The global financial industry has been affected by the phenomenon of corruption, which may be found in a variety of ways in both the public and private sectors. The particular social phenomenon may well affect each of the five pillars of sustainable development: partnerships, prosperity, peace, and people. This type of crimes undermines and weakens public confidence in democratic institutions and the government, obstruct social equality, and endanger economic growth. The assistance of global accountancy professions is pivotal to promote the progress needed to reach the UN SDGs and secure the improvement in people's lives all around the world. However, in terms of corruption and the transition from illegal to legal activity, the European financial industry has shown signs of improvement in the past three years. However, one of the most considerable challenges that financial institutions in Europe face is creating effective measures to combat unlawful activity in the industry. This is due to the executives' limited ability to evaluate and comprehend thoroughly the main market trends and indicators of corruption and illegal activity. This study was primarily concerned with the introduction of fresh patterns and avenues for financial corruption. Our study emphasized the recent corruption channel transfers between Northern–Western European nations and South Africa. Due to their

detrimental effects on the region's economic growth and sustainable development, illicit activity and corruption were at the forefront of our concerns. The COVID-19 pandemic dealt a death blow to the fiscal deficit position in certain African nations; as a result, it is important to increase domestic resource mobilization and curb illegal outflows. Tight government partnerships should be prioritized because of the close ties between South Africa and nations in Northern and Western Europe. African nations, including Nigeria, South Africa, the Democratic Republic of the Congo (DRC), and Ethiopia, can benefit from European assistance to stop the flow of illegal cash and improve tax collection.

The results of our study also indicate a decline in corruption cases in the European financial industry during the COVID-19 pandemic, which is another interesting aspect. More specifically, the following has become clear: (i) there is a new "age" for the financial industry as it transitions from unregulated to transparent and sustainable practices, and (ii) the executives' capacity to make quick decisions in a new post-pandemic economic climate. Technology and ESG practices were shown to be the key forces behind firms' efforts to reduce illegal activity and corruption in the created binary logistic regression models. Three principles—(i) responsibility in decision-making processes, (ii) accountability for the results of management's decisions or omissions, and (iii) compliance with and dedication to regulations above and above the bare minimum of the law—are intimately tied to ESG elements. The application of ESG principles should prioritize the fight against corruption, first and foremost within the company's sphere of influence, with systems that lower the risk of engaging in behaviors that support this phenomenon, but also in their relationships with important stakeholders, such as public authorities at all levels or suppliers of a company. No matter the size of the company or the sector in which it works, all are equally vulnerable to this danger. A company's policies for long-term viability, as well as the viability of its associates, workers, and all those impacted by its operations, can be strengthened by effectively managing the risks associated to corruption. One could say that this result may be attributed to non-normal conditions since "normal life" has been curtailed in many countries, but in financial institutions, this is not the case since the volume of transactions was not limited due to technology, serving as a successful mediator for online transactions.

Our findings point to developing technologies as important instruments in the fight against corruption and illegal activity as well as in the successful promotion of transparency in all facets of the financial system. The idea of e-governance was accepted because of the ICT's quick development and growth [10]. The services offered using this novel strategy are continuously improving. ICT provide the chance to access additional value-added services and transactions, in addition to the abundance of information and fundamental components that a business exchanges on a regular basis, resulting in comfort, efficiency, and transparency [48]. ICT may also reduce employee discretion and strengthen law enforcement, both of which help to fight corruption. The results from the binary logistic regression models also revealed a new concern that needs further research [49]. Technology cannot eliminate unlawful activity in the banking industry completely. The findings of this survey showed that ICT can even be a deterrent to reducing corruption in the year range examined.

By enhancing law enforcement and lowering employee discretion, ICT can also fight corruption. The study of this particular issue is more than significant for the sustainable development of regional or global economy. More specifically for the case of financial institutions that may function as cover to corruption, it is highly significant to conceive ways to eliminate such phenomena. It will harmonize the government—stakeholders—business interlinkages and, therefore, promote the process of sustainable development.

More importantly, the absence of financial openness in the extractive industry all too frequently promotes corruption across the board and hinders governments from raising the necessary tax money. Regarding financial indices, it has been shown that market capitalization, a proxy for market development, and retained revenues, a proxy for source of funding, have opposing effects on bribery allegations. This finding warrants additional research. Investigating the IFFs of the African extractive sector is another idea for future



research in the area of illegal activity and corruption. Another suggestion for further study is to investigate how ICT may be used to combat corruption in underdeveloped nations, such as South Africa. This is because ICT has the potential to be useful in the fight against illegal activity and corruption. The synergy of all the aforementioned factors and cohesion in policy making may secure the achievement of the UN SDG 16 in the long term. This strategy will be the means of overcoming the obstacle of economic crimes, such as corruption and illicit behavior in financial institutions, with significant repercussions to global and sustainable economic growth. Last, but certainly not least, it is important to examine the potential barriers to corruption phenomena because their mitigation will become plausible with significant effects on the sustainable economic development of the global economy.

**Author Contributions:** Conceptualization, K.R., I.P. and A.G.; methodology, E.Z.; software, K.R. and E.Z.; validation, K.R., A.G. and E.Z.; formal analysis, K.R. and E.Z.; investigation, K.R.; resources, A.G.; data curation, A.G.; writing—original draft preparation, K.R., I.P., A.G. and E.Z.; writing—review and editing K.R., I.P., A.G. and E.Z.; visualization, K.R.; supervision, K.R. and A.G.; project administration, K.R., I.P. and A.G. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research received no external funding.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** Not applicable.

**Conflicts of Interest:** The authors declare no conflict of interest.

## References

1. Coram, P. Corporate resiliency: Managing the growing risk of fraud and corruption. *Int. J. Account.* **2010**, *45*, 382–385. [\[CrossRef\]](#)
2. Binhadab, N.; Breen, M.; Gillanders, R. Press freedom and corruption in business-state interactions. *Econ. Syst.* **2021**, *45*, 100922. [\[CrossRef\]](#)
3. Malik, A.; Froese, F.J. Corruption as a perverse Innovation: The dark side of digitalization and corruption in international business. *J. Bus. Res.* **2022**, *145*, 682–693. [\[CrossRef\]](#)
4. Transparency International. Corruption Perceptions Index. 2022. Available online: [www.transparency.org/cpi](http://www.transparency.org/cpi) (accessed on 3 June 2022).
5. Jha, C.K. Financial Reforms and Corruption: Which Dimensions Matter? *Int. Rev. Financ.* **2020**, *20*, 515–527. [\[CrossRef\]](#)
6. Colonnelli, E.; Lagaras, S.; Ponticelli, J.; Prem, M.; Tsoutsoura, M. Revealing corruption: Firm and worker level evidence from Brazil. *J. Financ. Econ.* **2022**, *143*, 1097–1119. [\[CrossRef\]](#)
7. Khan, A.; Krishnan, S. Moderating effects of business-systems corruption on corruption in basic national institutions and electronic government maturity: Insights from a dynamic panel data analysis. *Int. J. Inf. Manag.* **2021**, *59*, 102349. [\[CrossRef\]](#)
8. Krishnamurti, C.; Pensiero, D.; Velayutham, E. Corruption risk and stock market effects: Evidence from the defence industry. *Pac. Basin Financ. J.* **2021**, *70*, 101681. [\[CrossRef\]](#)
9. Ferris, S.P.; Hanousek, J.; Tressl, J. Corporate profitability and the global persistence of corruption. *J. Corp. Financ.* **2021**, *66*, 101855. [\[CrossRef\]](#)
10. Arayankalam, J.; Khan, A.; Krishnan, S. How to deal with corruption? Examining the roles of e-government maturity, government administrative effectiveness, and virtual social networks diffusion. *Int. J. Inf. Manag.* **2021**, *58*, 102203. [\[CrossRef\]](#)
11. Nese, A.; O'Higgins, N.; Sbriglia, P.; Scudiero, M. Cooperation, punishment and organized crime: A lab-in-the-field experiment in southern Italy. *Eur. Econ. Rev.* **2018**, *107*, 86–98. [\[CrossRef\]](#)
12. Li, D.; Ferreira, M.P. Institutional environment and firms' sources of financial capital in Central and Eastern Europe. *J. Bus. Res.* **2011**, *64*, 371–376. [\[CrossRef\]](#)
13. Nese, A.; Troisi, R. Corruption among mayors: Evidence from Italian court of cassation judgments. *Trends Organ. Crime* **2019**, *22*, 298–323. [\[CrossRef\]](#)
14. Troisi, R.; Alfano, G. The re-election of corrupt mayors: Context, relational leadership and level of corruption. *Local Gov. Stud.* **2022**, 1–22. [\[CrossRef\]](#)
15. Nyberg, D.; Wright, C. Corporate corruption of the environment: Sustainability as a process of compromise. *Br. J. Sociol.* **2013**, *64*, 405–424. [\[CrossRef\]](#) [\[PubMed\]](#)
16. Popova, Y.; Podolyakina, N. Pervasive Impact of Corruption on Social System and Economic Growth. *Procedia-Soc. Behav. Sci.* **2014**, *110*, 727–737. [\[CrossRef\]](#)

17. Frolova, I.I.; Voronkova, O.Y.; Alekhina, N.A.; Kovaleva, I.; Prodanova, N.A.; Kashirskaya, L.V. Corruption as an obstacle to sustainable development: A regional example. *Entrep. Sustain. Issues* **2019**, *7*, 674. [\[CrossRef\]](#)
18. Masud, M.A.K.; Rahman, M.; Rashid, M.H.U. Anti-Corruption Disclosure, Corporate Social Expenditure and Political Corporate Social Responsibility: Empirical Evidence from Bangladesh. *Sustainability* **2022**, *14*, 6140. [\[CrossRef\]](#)
19. Silvestre, B.S.; Viana, F.L.E.; de Sousa Monteiro, M. Supply chain corruption practices circumventing sustainability standards: Wolves in sheep's clothing. *Int. J. Oper. Prod. Manag.* **2020**, *40*, 1873–1907. [\[CrossRef\]](#)
20. Nghiem, H.; Muric, G.; Morstatter, F.; Ferrara, E. Detecting cryptocurrency pump-and-dump frauds using market and social signals. *Expert Syst. Appl.* **2021**, *182*, 115284. [\[CrossRef\]](#)
21. Suh, J.B.; Nicolaides, R.; Trafford, R. The effects of reducing opportunity and fraud risk factors on the occurrence of occupational fraud in financial institutions. *Int. J. Law Crime Justice* **2019**, *56*, 79–88. [\[CrossRef\]](#)
22. Broadstock, D.; Chen, X. Corporate site visits, private monitoring and fraud: Evidence from China. *Financ. Res. Lett.* **2020**, *40*, 101780. [\[CrossRef\]](#)
23. Aria, M.; Cuccurullo, C. bibliometrix: An R-tool for comprehensive science mapping analysis. *J. Informetr.* **2017**, *11*, 959–975. [\[CrossRef\]](#)
24. Marcucci, G.; Ciarapica, F.; Poler, R.; Sanchis, R. A bibliometric analysis of the emerging trends in silver economy. *IFAC-PapersOnLine* **2021**, *54*, 936–941. [\[CrossRef\]](#)
25. Xie, L.; Chen, Z.; Wang, H.; Zheng, C.; Jiang, J. Bibliometric and Visualized Analysis of Scientific Publications on Atlantoaxial Spine Surgery Based on Web of Science and VOSviewer. *World Neurosurg.* **2020**, *137*, 435–442.e4. [\[CrossRef\]](#) [\[PubMed\]](#)
26. Lu, J.; Ren, L.; Qiao, J.; Yao, S.; Strielkowski, W.; Streimikis, J. Corporate Social Responsibility and Corruption: Implications for the Sustainable Energy Sector. *Sustainability* **2019**, *11*, 4128. [\[CrossRef\]](#)
27. Troisi, R.; Di Nauta, P.; Piciocchi, P. Private corruption: An integrated organizational model. *Eur. Manag. Rev.* **2021**, *19*, 476–486. [\[CrossRef\]](#)
28. Gavurova, B.; Kelemen, M.; Polishchuk, V. Expert model of risk assessment for the selected components of smart city concept: From safe time to pandemics as COVID-19. *Socioecon. Plann. Sci.* **2022**, *82*, 101253. [\[CrossRef\]](#)
29. Luo, S.; Sun, Y.; Zhou, R. Can fintech innovation promote household consumption? Evidence from China family panel studies. *Int. Rev. Financ. Anal.* **2022**, *82*, 102137. [\[CrossRef\]](#)
30. Allen, F.; Gu, X.; Jagtiani, J.; Mills, D.; Maniff, J.; Park, A.; Klein, A.; Spaniel, W.; Rentzelas, J.; Sanches, D.; et al. Working Papers Fintech, Cryptocurrencies, and CBDC: Financial Structural Transformation in China Fintech, Cryptocurrencies, and CBDC: Financial Structural Transformation in China. *J. Int. Money Financ.* **2022**, *124*. [\[CrossRef\]](#)
31. Murinde, V.; Rizopoulos, E.; Zachariadis, M. The impact of the FinTech revolution on the future of banking: Opportunities and risks. *Int. Rev. Financ. Anal.* **2022**, *81*, 102103. [\[CrossRef\]](#)
32. Hamrick, J.T.; Rouhi, F.; Mukherjee, A.; Feder, A.; Gandal, N.; Moore, T.; Vasek, M. An examination of the cryptocurrency pump-and-dump ecosystem. *Inf. Process. Manag.* **2021**, *58*, 102506. [\[CrossRef\]](#)
33. Larsen, D.S.; Van Stokkum, I.H.M.; Vengris, M.; Van Der Horst, M.A.; De Weerd, F.L.; Hellingwerf, K.J.; Van Grondelle, R. Incoherent Manipulation of the Photoactive Yellow Protein Photocycle with Dispersed Pump-Dump-Probe Spectroscopy. *Biophys. J.* **2004**, *87*, 1858. [\[CrossRef\]](#) [\[PubMed\]](#)
34. Ouyang, L.; Cao, B. Selective pump-and-dump: The manipulation of their top holdings by Chinese mutual funds around quarter-ends. *Emerg. Mark. Rev.* **2020**, *44*, 100697. [\[CrossRef\]](#)
35. DasGupta, R. Financial performance shortfall, ESG controversies, and ESG performance: Evidence from firms around the world. *Financ. Res. Lett.* **2022**, *46*, 102487. [\[CrossRef\]](#)
36. Kannagi, A.; Gori Mohammed, J.; Sabari Giri Murugan, S.; Varsha, M. Intelligent mechanical systems and its applications on online fraud detection analysis using pattern recognition K-nearest neighbor algorithm for cloud security applications. *Mater. Today Proc.* **2021**, in press. [\[CrossRef\]](#)
37. Lokanan, M.E.; Sharma, K. Fraud prediction using machine learning: The case of investment advisors in Canada. *Mach. Learn. Appl.* **2022**, *8*, 100269. [\[CrossRef\]](#)
38. Thomson Reuters Eikon. (n.d.). *Thomson Reuters ESG Scores*; Thomson Reuters: Toronto, ON, Canada, 2017.
39. Eurostat. *Eurostat—Data Explorer*; Eurostat: Luxembourg, 2021.
40. Abdolmohammadi, M.J. Intellectual capital disclosure and market capitalization. *J. Intellect. Cap.* **2005**, *6*, 397–416. [\[CrossRef\]](#)
41. Ball, R.; Gerakos, J.; Linnainmaa, J.T.; Nikolaev, V. Earnings, retained earnings, and book-to-market in the cross section of expected returns. *J. Financ. Econ.* **2020**, *135*, 231–254. [\[CrossRef\]](#)
42. Patriche, C.V.; Pimau, R.; Grozavu, A.; Rosca, B. A Comparative Analysis of Binary Logistic Regression and Analytical Hierarchy Process for Landslide Susceptibility Assessment in the Dobrov River Basin, Romania. *Pedosphere* **2016**, *26*, 335–350. [\[CrossRef\]](#)
43. Samerei, S.A.; Aghabayk, K.; Shiwakoti, N.; Mohammadi, A. Using latent class clustering and binary logistic regression to model Australian cyclist injury severity in motor vehicle-bicycle crashes. *J. Saf. Res.* **2021**, *79*, 246–256. [\[CrossRef\]](#)
44. Ojeka, S.; Adegboye, A.; Adegboye, K.; Umukoro, O.; Dahunsi, O.; Ozordi, E. Corruption perception, institutional quality and performance of listed companies in Nigeria. *Heliyon* **2019**, *5*, e02569. [\[CrossRef\]](#) [\[PubMed\]](#)
45. Beesley, C.; Hawkins, D. Corruption, institutional trust and political engagement in Peru. *World Dev.* **2022**, *151*, 105743. [\[CrossRef\]](#)
46. Troisi, R.; Alfano, G. Proximity and inter-firm corruption: A transaction cost approach. *Small Bus. Econ.* **2022**, 1–16. [\[CrossRef\]](#)

47. Teichmann, F.; Falker, M.C.; Sergi, B.S. Corruption and the circumvention of financial sanctions via the extractive industries in Dubai. *Extr. Ind. Soc.* **2020**, *7*, 1022–1028. [[CrossRef](#)]
48. Malanski, L.K.; Póvoa, A.C.S. Economic growth and corruption in emerging markets: Does economic freedom matter? *Int. Econ.* **2021**, *166*, 58–70. [[CrossRef](#)]
49. Sarker, S.; Henningsson, S.; Jensen, T.; Hedman, J. The Use of Blockchain as a Resource for Combating Corruption in Global Shipping: An Interpretive Case Study. *J. Manag. Inf. Syst.* **2021**, *38*, 338–373. [[CrossRef](#)]

**Disclaimer/Publisher’s Note:** The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.