

Firm Size and ESG Risk in Banking Industry

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Although environmental, social, and governance (ESG) risk is likely determined by a wide array of economic, social, and environmental factors in the case of banks, one of them—i.e., the company size—seems particularly interesting and worth being investigated. Overall, the specificity of the banking industry creates strong incentives for increasing the size of business activity, resulting not only from substantial economies of scale and scope, but also from additional competitive advantages and economic benefits arising from the “too big to fail” (TBTF) status assigned to the largest, systemically important institutions. On the one hand, larger banks may be expected to outperform smaller ones in the area of ESG challenges, as they are usually able to engage more resources and sophisticated knowledge-based management tools to address related concerns. They are also typically under more pressure from equity investors, regulators, and other major stakeholder groups to comply with ESG principles in order to legitimize their strategies and business decisions. On the other hand, however, as banks grow larger, their overall ESG risk exposure also builds up due to more numerous and more complex interactions with their external and internal stakeholders.

Keywords: ESG risk ; ESG risk management ; firm size ; banks

1. Introduction

With increasing global awareness of the importance of sustainability and social responsibility in business practices, companies around the world are continuously pressured to recognize and properly manage the relevant environmental, social, and governance (ESG) dimensions of their everyday actions and decisions. In fact, this pressure comes from every major stakeholder group, including customers, suppliers, employees, regulators, and, ultimately, investors.

As more and more professional asset managers representing the world’s largest investment institutions integrate sustainability issues into their investment criteria ^{[1][2]} it seems that, after half a century, the classic Milton Friedman doctrine reducing the social responsibility of companies in profit maximization ^[3] is becoming outdated. The global interest in responsible investing is constantly gaining pace, as only in the last decade, the number of signatories to the UN-backed Principles for Responsible Investment, and the volume of assets under their management, more than tripled, reaching 3800 and USD 121.3 trillion, respectively ^[4]. Furthermore, benefits arising from ESG-based investing may extend to global financial stability frameworks, as they likely contribute to reductions in systemic risk ^[5]. Not surprisingly, therefore, the above tendencies stimulate the demand for both high-quality information disclosures regarding ESG risk exposures and the independent, comprehensive evaluation of companies’ performance in the area of managing those risks. Over the last few decades, many leading rating and news agencies worldwide have developed unique methodologies designed to assess the overall ESG performance of business entities, with the purpose of providing market participants with comprehensive and easily interpretable measures in the form of dedicated ratings and scores ^[6].

Given the multitude of potential investment opportunities and the complexity of factors driving corporate ESG risk exposures, the vast majority of investors seem unable to efficiently analyse and evaluate the sustainability performance of companies on their own, and hence, may be forced to rely on the ready products of professional rating agencies ^[7].

The issues of social responsibility, sustainability, and ESG performance are also becoming increasingly important for firms operating in the financial industry, especially for banks, whose very existence and core business activities are crucially dependent on reputability and public trust. Not surprisingly, therefore, a dynamically growing amount of evidence in the relevant literature documents the increasing awareness of the need to incorporate ESG dimensions into banks’ strategies, processes, and even specific products to meet stakeholders’ expectations and promote value creation ^[8].

In fact, a substantially higher reputational risk exposure and vulnerability of banks to criticism from key stakeholder groups ^[9] should naturally give them even stronger motivation to engage in socially responsible activities and mitigate ESG risks than in the case of other industries. Moreover, banks’ ESG risk is gaining additional importance from the perspective of their pivotal functions in the global financial system. The responsibility of banks as the world’s leading financial

intermediaries extends far beyond the individual interests of their owners, and in fact, may be perceived even from the standpoint of society as a whole due to their participation in the processes of the accumulation and allocation of capital, as well as their crucial role in the global financial stability framework ^[10]. The proper identification, management, and mitigation of ESG risks is vital, not only from the standpoint of individual banks' responsibility for the security of collected deposits, but also, given the typically large size and interconnectedness of their business activity, for the stability of the entire financial system they are part of.

Banks appear, however, to be slower in responding to ESG-related challenges than non-financial enterprises ^[11]. Furthermore, it seems that the principles of corporate social responsibility were not actually followed in the everyday business practices of many banks until the outbreak of the global financial crisis in 2008, and the resulting shift in their strategies and business models towards a broader and deeper incorporation of ESG concerns might be, to a large extent, an attempt to restore the sector's damaged reputation ^[10]. With the passing of time, however, banks seem to increasingly appreciate the benefits of ESG frameworks as a useful tool for the mitigation of operational ^{[12][13]} and credit ^[14] risk, reductions in the cost of equity ^{[15][16]} and liabilities ^{[17][18]}, and ultimately, an important driver of their overall financial performance ^{[19][20][21]}.

2. The Impact of Size on Financial Performance, Risk, and ESG Performance in the Banking Industry

The empirical findings on the role of size in the banking industry seem equally diversified as in the case of non-financial sectors. In turn, direct evidence on its relationship with ESG performance and risk is even more scarce.

Similarly to other industries, banking also offers potential benefits related to economies of scale and scope. Larger banks usually profit from more diversified business models ^[22] and easier access to human and capital resources. In particular, they may offer artificially higher wages to attract highly skilled specialists ^[23] and take advantage of a wider range of sources of funds, often available at lower costs than in the case of smaller banks ^[24]. Additionally, the more diversified sources of revenue in larger banks usually result in a markedly higher share of noninterest income than in smaller counterparts. In turn, the differences in the perception of the persistence of individual noninterest income components may affect bank valuation and risk assessment by equity investors ^[25].

The existing evidence suggests the presence of increasing returns to scale in banking activity ^{[26][27]}, which partially justifies the growth in the average size of banks and in the concentration of the industry. Some studies, however, argue that such benefits may be attributable primarily to the reduced funding costs resulting from investor expectations of government support in the case of financial distress under the "too big to fail" (TBTF) framework ^[28].

According to Minton et al. ^[29], the TBTF status grants the largest banks a unique "asset" in the form of a claim on public resources, which, in turn, may become an important source of their competitive advantage over smaller counterparts ^[30]. In fact, the benefits associated with the TBTF status may sometimes motivate banks to increase the size and riskiness of their operations beyond the levels justified by economies of scale and scope ^[24]. On the other hand, however, larger banks are also often exposed to higher costs resulting from greater regulatory requirements and scrutiny or political risk. A larger scale of operations may also impede the ability of shareholders to efficiently monitor bank management actions, which in turn increases the overall agency costs ^[29].

Although the positive impact of size on profitability in the banking industry seems to be relatively well documented in the relevant literature (see, e.g., ^{[31][32][33][34]}), some studies report an insignificant relationship ^[35] or suggest that the positive effect fades if banks become too large ^[36].

The findings of studies exploring the relationship between bank size and market value are also ambiguous. While some authors report a positive association ^{[37][38]}, others argue that increases in size may be detrimental to bank stock prices ^{[29][39][40][41]} or that the investigated relationship is statistically insignificant ^[42]. Furthermore, Avramidis et al. ^[43] argue that the relationship between the market-to-book values of assets and the size of banks is inversely U-shaped due to the fact that, beyond a certain level, the benefits achieved from economies of scale start to be offset by increases in costs related to monitoring borrowers and transactions, as well as the costs of the supervision of bank management by shareholders.

As banks become larger, managing them naturally becomes more challenging due to problems with efficient supervision and coordination of actions, internal communication, or ensuring the proper employee motivation. Not surprisingly, therefore, larger banks are often more exposed to diseconomies of scale ^[38] than their smaller peers. Additionally, with an increase in the size of their operations, larger banks are more exposed to various risks, in particular those of a systemic and non-diversifiable nature ^[44]. Greater size also tends to coincide with higher levels of tail risk, including its non-

systematic component ^[45]. Lastly, larger banks are typically more exposed to sovereign risk, as they tend to keep relatively bigger holdings of government bonds than smaller institutions ^{[46][47]}.

Even though it would seem that larger banks should benefit from more diversified capital allocation opportunities, empirical evidence suggests that an increase in size may lead to growth in both the leverage ratios and the share of risky assets in banks' portfolios ^[48], as well as their overall appetite for risk (as measured based on the risk ratings of originated loans) ^[49]. Other studies, however, do not find statistically significant differences in risk taking between larger and smaller banks ^[50]. Additionally, Minton et al. ^[29] demonstrate that the relationship between the scale of bank activities and risk may be non-linear, since the probability of distress increases with size for smaller banks, but tends to decrease again for larger ones. When leverage is used as a proxy of risk, though, it tends to increase with size for larger banks, but for smaller ones, the relationship turns out to be insignificant. In turn, Di Tommaso and Thornton ^[39] report that, on the one hand, size is negatively related to bank z-scores (suggesting that bigger banks are more risky), but on the other, it also exhibits a significant negative relationship with CDS spreads and ratios of non-performing loans (which would imply that larger size contributes to a reduction in bank risk). The above findings suggest a largely complex and multifaceted nature of the relationship between size and risk in the banking sector. It seems that size affects various areas of bank risk in different ways, and that the direction of the relationship may be conditional on the relevant contextual and bank-specific factors.

Given the ambiguous results of studies exploring the impact of size on various dimensions of banking activity, it comes as no surprise that an analogous vagueness is present in the evidence exploring its interaction with ESG performance and risk. In general, the very existence and viability of banks are almost entirely dependent on reputation and public trust. Banks are therefore both highly exposed and sensitive to ESG-related concerns, which directly affects the riskiness ^[12] and profitability ^[11] of their activities. Given the above, banks, even more than other industries, should be motivated to follow the principles of CSR and efficiently manage ESG risk ^[10]. Also, the empirical evidence on the impact of banks' engagement in ESG activities on their financial performance is generally mixed. While some studies suggest that an incorporation of ESG-related criteria in decision-making processes has a negligible impact ^{[51][52][53]} or even impedes banks' financial performance ^{[54][55]}, others argue exactly the opposite ^{[56][57]}.

As regards the relationship between ESG performance and risk, a study by Di Tommaso and Thornton ^[39] demonstrates that high ESG scores tend to be associated with a modest reduction in bank risk taking, which seems to be consistent with the "stakeholder" view of ESG activities. On the other hand, however, better ESG performance appears to coincide with relatively lower market values, thus supporting the "overinvestment" hypothesis, under which ESG-related activities divert scarce resources from more value-enhancing uses. Moreover, several investigations report that individual dimensions of ESG frameworks may exert different impact on banks' performance ^{[58][59]}.

As regards the evidence investigating the impact of banks' size, prior studies usually employ it merely as a control variable in analyses of the mutual interactions between ESG orientation, financial performance, and risk in the financial sector. Somewhat surprisingly, therefore, the direct empirical evidence on the impact of size on banks' ESG performance and risk is nearly absent. For instance, Chih et al. ^[51] investigate over 500 financial entities from 34 countries over the period of 2003–2005 in search of the linkages between CSR and financial performance, and report a positive link between firm size and CSR orientation. Shen et al. ^[52] use a sample covering the data for 18 countries over the period of 2000–2009, and find that more socially responsible banks usually have a larger size, as measured based on their total assets, loans, and deposits. According to Shen et al. ^[52], engagement in socially responsible activities not only increases the realised ROA, ROE, and net interest income ratios, but also contributes to an improvement in credit risk management, as indicated by lower ratios of non-performing loans. Interestingly, however, the positive effect of CSR on financial performance appears to fade as bank size increases. In turn, Neitzert and Petras ^[60] provide evidence on the capability of ESG orientation to reduce bank risk. Having examined a sample of 582 banks worldwide over the period of 2002–2008, they conclude that the above effect is attributable primarily to environmental activities. In contrast to Shen et al. ^[52], however, they report that bank size does not significantly affect the examined relationship.

The results of a research study by Chiaramonte et al. ^[61], investigating a sample of European banks from 21 countries over the period of 2005–2017, suggest that banks with higher ESG scores tend to be less prone to insolvency in times of financial distress, which implies that following ESG principles may reduce bank fragility. A more detailed investigation, however, leads them to the conclusion that the above effect is statistically significant only in the subsample of the largest banks (being subject to EBA stress testing) and in countries with bank-oriented financial systems. Additionally, the effect appears to be stronger in richer countries (with a per capita GDP above the mean).

Menicucci and Paolucci ^[59] investigate the relationship between ESG and financial performance using a sample of 105 Italian banks in 2016–2020 and report different results for individual sustainability dimensions. As regards the impact of bank size, they find that it also tends to vary in terms of both direction and statistical significance depending on the choice of performance measure.

According to the Roland Berger GmbH report authored by Van Gysegem and Blaser ^[62], investigating a sample of more than a hundred European banks over the period of 2002–2020, banks' size reveals a strong positive correlation with their ESG scores. Unfortunately, besides that claim, the report does not disclose any quantitative details supporting that conclusion. The authors of the report argue that the above result can be justified not only on the grounds of the slack resources hypothesis (as larger banks are able to allocate more funds to internal social initiatives and improved governance structures or dedicated sustainability teams), but it also may reflect the fact that larger banking groups are likely more aware of their structural societal impact.

Having examined the data for 473 banks from 75 countries over the period of 2007–2016, Albdiwy et al. ^[63] report that bank size moderates the impact of ESG engagement on bank financial stability. Their findings indicate that ESG positively affects financial stability in larger banks, whereas in the case of smaller entities, the impact appears to be negative. In turn, a study by Quang Trinh et al. ^[64] demonstrates that even though larger banks generally tend to have a higher tail risk than their smaller counterparts, they also exhibit a significantly stronger mitigating impact of environmental and social performance on that risk.

Evidence by Andries and Sprincean ^[18] based on an investigation of 493 banks from 39 advanced and emerging economies over the period of 2003–2020 suggests that, although the incorporation of ESG practices into banks' business decisions enables them, on average, to reduce their funding costs, the effect is more pronounced for larger banks.

Finally, in a recent study on the relationship between ESG-related activities and financial performance, Gutiérrez-Ponce and Wibowo ^[58] examine a sample of five Indonesian banks over the period of 2010–2020 and report a relatively strong and statistically significant positive correlation between their Thomson Reuters Refinitiv ESG scores and bank size, as proxied by the logarithm of total assets. However, when the individual sustainability pillars are concerned, the relationship with size seems to hold only for environmental and social components, whereas for the governance dimension, it turns out to be insignificant.

The relevant literature presented in the previous section suggests that banks' size exerts a two-way impact on their ESG risk (**Figure 1**).

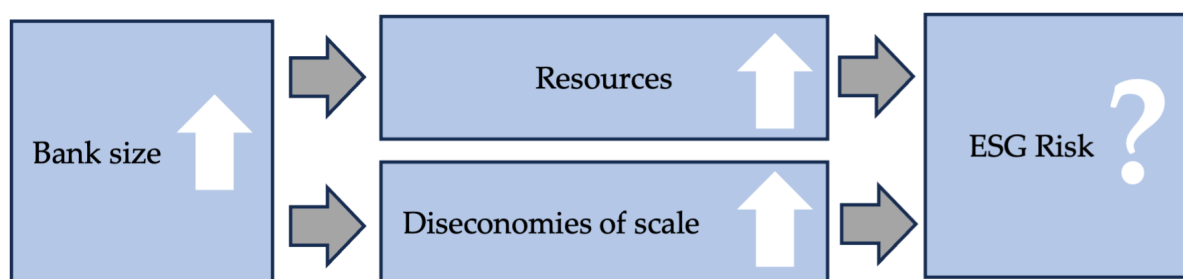


Figure 1. The relationship between bank size and ESG risk.

On the one hand, as the size of a company grows, more human, capital, and knowledge-based resources may be allocated to the identification and mitigation of ESG risk ^{[61][65][66][67]}, allowing firms to benefit from economies of scale ^[68]. Additionally, the higher availability and often quality of the allocated resources, combined with greater stakeholder pressure in larger firms ^{[53][69]}, contribute to the larger supply and informativeness of their ESG-related disclosures ^{[65][70][71][72][73]} that lead to a positive association between company size and ESG performance scores ^{[7][74]}. Substantial economies of scale and scope in the banking industry ^{[26][27]} and a positive association between size and ESG performance scores reported in prior studies ^{[51][52][58][62]} allow us to expect similar effects to the ones reported for non-financial enterprises.

On the other hand, however, following the evidence provided in the relevant literature ^{[29][38][65][75][76]}, larger size causes, *ceteris paribus*, a build-up of various “diseconomies of scale”, resulting from inefficiencies caused by bureaucratic inertia, more numerous and complex business interactions, a larger overall environmental and social impact, agency problems, and other corporate governance-related issues. Following the overinvestment hypothesis, an excessive and unfounded allocation of resources to ESG risk management ^[77] may, paradoxically, lead to an additional build-up of the diseconomies of scale and the amplification of their adverse impact. In particular, as demonstrated by Aouadi and Marsat ^[76], even

though larger size generally involves better ESG performance, at the same time, it also leads to a greater number of related controversies. Furthermore, in the specific context of the banking industry, the benefits expected from obtaining TBTF status may incline banks to increase their sizes beyond the levels justified by economies of scale and scope [24]. This notion is further corroborated by the empirical evidence in other studies reporting a positive association between size and various dimensions of bank risk [44][45][46][47][49][64][75]. In fact, the trade-off between available resources and diseconomies of scale may also be partially responsible for the low statistical significance of the impact of company size on both ESG performance [68][78] and its relationship with financial performance [36] or bank risk [60] reported in prior studies.

The diseconomies of scale and various risks building up as a consequence of increases in size partially offset the mitigating impact of resource allocation capability, which renders the ultimate impact of size on banks' ESG risk ambiguous and likely varying with the size itself. The non-linearities reported in the prior studies investigating the relationships between company size and ESG performance [36][43][79], risk [29], or their mutual linkages [52][63] allow us to expect that the relationship between bank size and ESG risk may also be non-linear. Under the assumptions that (1) both resources allocated to the mitigation of ESG risk and diseconomies of scale (DoS) increase with size, (2) ESG risk is inversely related to the amount of resources allocated to its mitigation, and (3) rising diseconomies of scale cause a more than proportionate increase in ESG risk, the relationship between bank size and ESG risk becomes U-shaped (**Figure 2**).

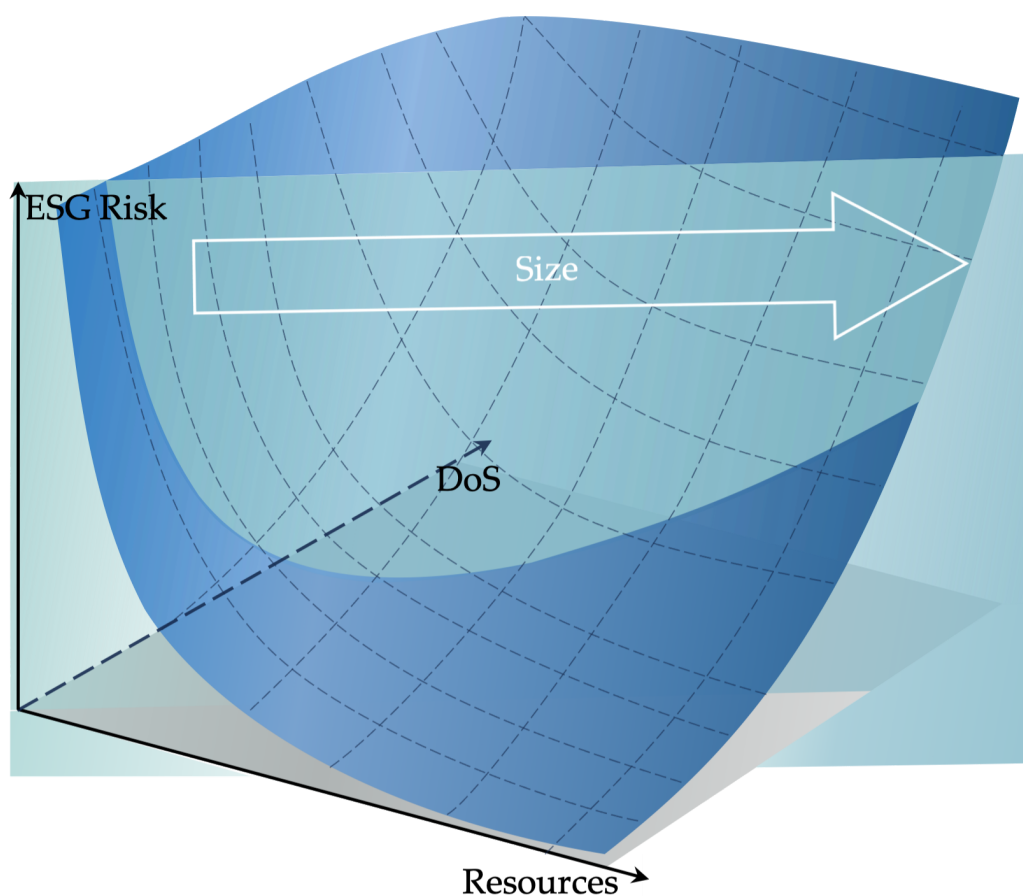


Figure 2. Non-linearities in the relationship between bank size and ESG risk.

Initially, as the size of banking activity increases, the benefits arising from the allocation of additional human, capital, and knowledge-based resources to the mitigation and reporting of ESG risk prevail over the offsetting impact of diseconomies of scale, thus leading to a decrease in the overall level of ESG risk. Beyond a certain threshold, however, the relationship reverses, as the mounting diseconomies of scale start to outweigh the beneficial effects of resource allocation and drive the ESG risk up again.

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