Understanding and Measuring Sustainability Performance in the Banking Sector

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Abstract. Stakeholders have increasingly demanded the adoption of sustainable strategies and the increase in sustainability reports from the business. At the same time, the assessment and measurement of corporate performance now extend beyond its established financial return. This paper follows the argument that it is important for companies to be an entity that plays an active role in sustainable development. However, it is commonly accepted that there is no single, integrated way of assessing this performance. The purpose of this paper is to provide a framework for understanding and measuring corporate sustainability in the banking sector. More specifically, the paper aims to fill the gap in the corporate sustainability assessment in the banking sector because there is, in fact, a tendency to underestimate the indirect impact these sectors have on environmental issues and social responsibility. A theoretical framework of an integrated composite sustainability index is analyzed based on the adoption of the GRI sustainability guidelines and the application of the analytic hierarchy process. The construction of a composite sustainability index includes the economic, environmental and social dimension of entrepreneurship. Each of the three sub-indices is a synthesis of several key performance indicators, which are usually the subjects of annual sustainability reports of an organization. This process is used to benchmark a company over a period of time and provides an indicative tool in order to analyze banking companies. Managers can use this analysis as a valuable component for comparing them over time, so as to adopt appropriate sustainable strategies and to improve the economic, environmental and social performance. A key tool to achieve sustainability in the banking sector is to analyze the corporate performance of the organizations. This will give a competitive advantage to the bank operators.

1. Introduction

Many environmental and social challenges such as climate change and global warming, global poverty are top priorities currently. At the same time, many revolutionary changes take place in the business world, while the improvement of technology gives a boost to these changes. The general concept of sustainability has been a recurring issue in political debate, international organizations, governments and both local and global actors. As a result of this call, theoretical and empirical models have been developed in order to address these for the field of sustainable development. Sustainable development is
defined on a macro level perspective of societies and there are a growing number of researches dealing with the issue.

Since the first publications focusing in the environment, the number of companies publishing their sustainable practices has grown considerably [1] and sustainability reporting has become a very popular research subject [2]. Many businesses communicate annually these practices through their reports. The sustainability reports are also a key platform for externalizing the performance and impact of sustainability activities.

The purpose of this article is twofold. First, it tries to shed light on the link between sustainable development and entrepreneurship and how this is incorporated in the concept of corporate sustainability. Second, it assesses the business sustainability and proposes a theoretical structure for the construction of a composite sustainability index in the banking sector. The structure of this article is as follows: The second section describes the change of the concept of entrepreneurship from the classical conceptual approach to the integration of sustainable entrepreneurship by incorporating the dimensions of social and environmental responsibility. The third section presents previous studies on the construction of indicators for the measurement of business performance, while the fourth section analyzes the trends and the way entrepreneurship is connected with the banking sector. The fifth section initially presents a general framework for the construction of three indicators corresponding to the dimensions of sustainable development within the economy, environment and society. Following, it proposes constructing a composite integrated indicator for measuring the business performance of banks. Finally, the sixth section deals with the conclusions and discussion of all the aforementioned.

2. Moving towards sustainable entrepreneurship

The growing demands of business stakeholders such as customers, suppliers, employees, shareholders, creditors, distributors, communities, government and non-profit organizations drive the interest to view the classical concept of entrepreneurship in a more comprehensive way (figure 1).

![Figure 1. Structure of sustainable entrepreneurship](image)

The emergence of environmental entrepreneurship does not simply concern the transition to new structures by incorporating environmental practices but has the possibility to be a major force for the incorporation of social changes and to move towards a more sustainable environment [3]. Although the bulk of business literature demonstrates that entrepreneurship is about economic change, the emergence of environmental concerns can be comprehended in light of social values changes. Consolidation of the environmental element in business behavior constitutes a potential mechanism for both business opportunities and the introduction of environmental progress [4], integrating behavior into business performance [5]. The supply and the consumption of products or services lead to consumer behavior change, to the introduction of innovative business solutions tailored to the environment and the reduction of the negative impact on the environment. At the same time, the company discovers new market opportunities linked to the demand and new lifestyle of society and develops business models that, when implemented, could lead to sustainable growth [6].

Similarly, social responsibility embodies a term which includes the part of business activity with social missions or business practices that protect and optimize the conditions of workers, consumers and stakeholders in general. Social objectives continue to be part of the structure of these businesses by combining the main business activity with socially responsible practices in various fields. At the same
time, there are mainly non-profit oriented entities aiming at the partial or total solution of social problems. Common features on both sides are the identification of each problem and the creation of social value, incorporating the element of innovative entrepreneurial activity. Another common feature is the ability to recognize and take advantage of opportunities and the willingness to accept a higher degree of risk in the creation and dissemination of that social value [7].

Sustainable entrepreneurship is a relatively recent research topic, gaining a growing level of interest [8]. The global conditions currently prevailing push societal transition into a more sustainable situation and entrepreneurship take the role of the Trojan horse for this transformation [9]. Simultaneously, an increasing number of large enterprises have begun to recognize and explore the huge business opportunity in terms of global sustainability [10]. The emergence of research on environmental, social, and generally sustainable business represents the expansion of academic interests beyond traditional entrepreneurship, understanding and studying non-economic incentives and the results of many business operations [11]. At the same time, beyond the concept of ecological and social efficiency, the importance of the transition of sustainable entrepreneurship [12] to corporate efficiency is expanding to a more holistic approach embracing all three pillars of sustainable development.

3. Assessing the state of sustainable indicators
Many companies or organizations of different sizes and sectors publish every year sustainability reports, addressing all kinds of impacts caused by its everyday activities. In contrast to the past, where economic indicators and, in general, the economic performance of businesses were the only element to be externalized and published to the wider public.

At this point, it is debated whether it is possible to measure corporate sustainability. The scientific community has made great progress comparing sustainability between countries, but less study has been done for business-level comparison. The use of indicators for sustainability assessment can be identified in various economic activities areas such as energy-mining [13] and automobile industry [14].

3.1 Empirical articles
Theoretical and empirical research concerning corporate sustainability assessment is available. There is a shift in interest from the interpretation and determination of sustainable development to the creation of a specific model for the promotion, measurement and evaluation of achievements and, more generally, the corporate sustainability performance.

A large amount of incidents and accidents that have a devastating impact on the planet occur Exxon Valdez oil spill [15] greater academic interest has been given to assess corporate sustainability in areas that have a direct and obvious impact on the natural environment. The effects of environmental degradation on human life by industrial activities and major incidents and consequences of human practices such as the Bhopal tragedy in 1984, the discovery of the Antarctic hole in the ozone layer in 1985, the Chernobyl accident in 1986, have been quite devastating [16]. Public information about these hazards that pose a threat to all living organisms and the natural environment, highlight the impact and the social and environmental responsibility. There is a growing need to create benchmarking frameworks for industries such as petrochemicals and natural gas companies [17]. In these cases, environmental indicators such as mass emissions of CO2, CH4, and NOx, dumping and release of hazardous waste, output per unit of production as well as social indicators such as mortality, human accidents, among others, are being studied. Except for the measures of economic progress and expenditures on research and development, the economic dimension includes mining costs and environmental penalties. Emphasis and research arise not only for environmental but also for social consequences by developing a systematic and comprehensive measure of corporate sustainable performance at the social level [18].
Corporate sustainability is distinctly compiled, perceived and subjected to different methodologies per business sector. The development of a business performance evaluation model in the high-tech manufacturing industry [19] identified five dimensions of business performance dimensions, namely competition, production capacity, innovation capability, supply chain relationships and economic performance. Environmental indicators such as matter stack emission load, carbon dioxide emissions, refractory consumption, heavy metal discharge load, were selected in order to construct a composite sustainability performance index for the steel and iron industry [13].

Companies operating within the food manufacturing industry are using key environmental indicators such as pollution and recycling which determine its environmental impact. Social indicators measure how companies deal with employees, suppliers and customers, utilizing indicators such as employee renewal rate and security [20]. Due to this nature of this activity, it is also necessary to study the specific elements that characterize its activity, such as food quality, food conservation and food safety [21] alongside factors that are generally related to the sustainable production and consumption of the entire supply chain in this industry [22]. Corporate and organizational governance [13, 23] have also been used as an additional dimension in the construction of a company's sustainability index. Of particular interest is the proposal of a sustainability index for manufacturing companies in a circular economy. For the calculation of cyclicality indicators which are proposed are input in the production process, lifetime and intensity of the used products and the efficiency of recycling [24].

The framework for measuring the supply chain has emerged as a subject of needing sustainability indicators. It is very important for a company which is trying to improve social and environmental performance, to have partnerships that support this responsibility. A sustainability index for supply chains will help managers get a broader picture of the sustainability of the company and its partners through collaborative choices, as the supply chain consists of a set of businesses with different behaviors and different levels of strategic planning in economic, social and environmental terms. It is an approach that will give a more complete picture of sustainability levels and will change at the same time to long-term goals [14].

4. Banking sector and sustainability

There is a growing demand from policy makers through the legislative and regulatory framework which encourage the banking system to design their products and services, serving their customers, but simultaneously adopting a proactive behavior to address future economic, environmental and social developments [25, 26]. During periods of the financial crisis, the banking system functions either as a stabilizing mechanism or as a destabilizing factor allowing for an active role in all the economic activity. The financial sector has no direct effect on environmental degradation and often its role in sustainable development is underestimated. In several cases, academic interest is shifting to industries and manufacturing companies due to energy, waste management, product life and the supply chain. The banking sector has a corresponding share of responsibility for its practices that affect the economic, social and natural environment and owes this responsibility to be reflected in all its activities.

The three-dimensional relationship between the banking sector and sustainable development has already been studied in fields such as financial performance [27, 28] the relationship with the bank royalty and corporate image [29] the prosperity of many stakeholders [30, 31]. Furthermore, the bank's new perception as a sustainable bank is of interest, which takes into account the expectations of all stakeholders and their participation in the performance evaluation process [30].

The impact of the banking sector on the environment and the challenges faced on a corporate level have introduced specific environmental practices that make participating in sustainable development important. Risk management strategies and environmental risk assessment have created new environmental strategies that make environmental issues as opportunities to gain economic benefits or
anticipate future financial risks that they should face and avoid. The relationship between the banking sector and the environment involves the development of new financial products that lead to new profit opportunities and make it more competitive. But this relationship also concerns the way which it manages, adapts and communicates its environmental strategies relating to its own environmental footprint, such as the management and consumption of energy, materials and water [32]. Although the banking sector is not considered as a polluting sector, the increase in turnover and thus the increase in all banking activities are burdened by its environmental footprint. This environmental and social responsibility of banks has also led to green banking through the adoption of corresponding technology, processes and products that can make the environment friendlier and enhance the sustainability [33, 34]. The development of technology at the level of development, such as the use of e-banking, is a factor influencing the responsible consumption and use of banking products [35].

In terms of sustainable development, sustainability criteria can be used to predict a debtor’s financial performance and improve the predictive validity of the credit rating process [28]. The integration of sustainability into strategies, processes, products and services can be achieved by integrating sustainability as a new banking strategy, sustainability as a value driver, sustainability as a public mission and sustainability as a requirement of customers [36].

Annual sustainability reports are a tool for various methods of assessing the sustainability of banks and communicating them with stakeholders. There are various studies which focus on different countries. [37] showed that traditionally in the financial sector, Canadian enterprises emphasize the economic dimension of sustainability [38]. Bank sustainability reports in Bangladesh have shown that social practices are more widespread than environmental issues. [39] showed a weak link between corporate social responsibility and economic performance in the banking sector in India while the results of empirical research [40] in 22 countries showed the positive link between corporate social responsibility and economic performance with respect to return on assets, net interest income and non-interest income and negative with non-performing loans. [41] studied the relationship between corporate governance and corporate social responsibility as outlined in US bank sustainability reports. [26] aimed to establish a corporate sustainability performance evaluation model and analyzed the sustainability strategies for the Turkish banking sector.

5. A proposed structure of corporate sustainability

This section presents a proposed structure for the composite sustainability performance index in the banking sector. The construction of the composite index (figure 2) follows the TBL (Triple Bottom Line) approach and integrates economy, environmental and social dimension.

The first step of designing the composite index is the selection of the basic set of indicators. Different business sectors require the best choice of indicators which cover the requirements of the industry. For standardization of indicators and better business comparison, the sub-indices are generally compatible with GRI Standards. The GRI Sustainability Reporting Standards are the most widely adopted global standards for sustainability reporting (GRI) with 63% of N100 reports and 75% of G250
companies applying it. GRI remains the most popular framework for CR reporting [42]. In general, besides GRI, the most commonly used tools are the Down Jones Sustainability Index, ISO standards, Environmental Management System (EMS).

After the selection of the indicators, they must be categorized between the three dimensions and between positive and negative influence in the company’s sustainability. Economic indicators (table 1) measure the economic performance in conventional monetary terms such as the direct economic value generated and distributed. Besides the basic financial measurements, it is proposed to calculate the total number of branches and ATMs as a measure of comparison and growth of banks.

| symbol | category           | indicator                                      |
|--------|--------------------|------------------------------------------------|
| EC1    | direct economic    | generated revenues                             |
| EC2    | economic value     | distributed operating costs                    |
| EC3    | economic value     | distributed employee wages and benefits        |
| EC4    | economic value     | distributed income taxes and other             |
| EC5    | market development | number of branches                             |
| EC6    | market development | number of ATMs                                 |
| EC7    | community investments | contributions to charities, NGOs, arts, educational events |
| EC8    | community investments | direct costs of social and environmental programs |

Table 1. Economic indicators.

In the environmental dimension (table 2), the emphasis is placed in indicators which have a direct and indirect impact in the physical environment. Energy use, consumption, use and recycling of goods such as paper and inks which are daily consumed in large quantities are included in the environmental sub-index.

| symbol | category | indicator                                      |
|--------|----------|------------------------------------------------|
| EN1    | materials | conventional/recycled paper paper              |
| EN2    | materials | ink and toner consumption                      |
| EN3    | energy   | electricity consumption                        |
| EN4    | energy   | heating oil consumption                        |
| EN5    | energy   | natural gas consumption                       |
| EN6    | water    | water consumption                              |
| EN7    | emissions | CO₂ emissions                                  |
| EN8    | recycling | amount of recycled paper                       |
| EN9    | recycling | amount of recycled ink and toner               |
| EN10   | recycling | amount of recycled batteries                   |
| EN11   | recycling | amount of recycled lamps                       |
| EN12   | indirect impact | distances per business trips by airplane   |
| EN13   | indirect impact | distances per business trips by car |

Table 2. Environmental indicators.

The social sector (table 3) contains indicators which relate to human well-being, training, social discrimination between sex, minorities and people with special skills in the working environment.
The above indicators cover a range of different sectors, which are therefore measured in different units and different scales. In order to convert data in comparable sizes, they have to be normalized and expressed in similar units. Therefore, the process of normalizing the indices is achieved by transforming the arithmetic values to other values, thus creating a common basis. This can be achieved in different ways, depending on the sustainability targets set by the business for each indicator. Because of the different data techniques, sensitivity analysis and robustness tests may be needed to assess their impact on the indicator [43, 44].

The next step is determining weights which will be applied to every indicator. This procedure deals with the relative importance of each indicator for each separate dimension of corporate sustainability. Each of the above indicators has a different weight; therefore a methodology for balancing weights should be used. Previous analysis and comparison techniques have been used in academic literature. This article proposes the Analytical Hierarchy Process (AHP), which is a flexible and widely used MCDA tool that provides a systematic process for problem-solving and then incorporating the inherent subjectivity of decision preferences into a rigorous mathematical framework [45]. The AHP, with the help of experts, expresses preferences by delivering the relevant priorities or rather the relative weights for the criteria. These are called relevant because the priorities of the criteria are valued in relation to the others, pair wise comparisons as such, using a numerical scale developed by Saaty [46]. For example, a scale of numbers 1-9 represents a range from "equal importance" to "extremely important". Preference 1 shows equality between two individual indicators, while preference 9 indicates that the individual indicator is 9 times more important than the other one [47]. It is noted that different scales have been proposed from time to time [48]. To check the inconsistency between the judges, the AHP provides a measurement called the consistency ratio [17, 43].

The economic, environmental and social indices are calculated by the multiplication of each element of the normalized table with the corresponding relative weights produced with the AHP. The purpose of this process is to create three integrated indicators that can be studied separately over a period of years. Decision makers will be able to assess whether the bank's environmental index has changed from year to year and decide on the appropriate strategy in line with the business objectives.

The ensuing composite index of corporate viability is the result of the sum of the values of its three indices preceded multiplied by the relative weights. In view of the equivalence of all three dimensions to sustainability, it is proposed that the relative weight is 1/3, meaning that the same importance is given to three areas. This stage completes the construction of a complex integrated indicator for the banking sector. In this way, it is possible to examine the performance of bank business viability over a period of years and the comparison between banks.
6. Conclusions
The concept of corporate sustainability has been gradually transformed into a more holistic perspective. Corporations are integrating the three aspects of sustainability into their strategic planning and organization system. Reasons for pursuing a business behavior according to sustainability criteria involves motives such as reputation, corporate image, stakeholder’s and NGO’s pressures and expectations as well as ethical behavior [49]. They also perceive it as an opportunity to achieve its corporate objectives and to enhance competitiveness [50]. Corporate sustainability presents an attractive topic for academic research concerning the assessment of sustainability behavior and evaluation of the corporate performance. This paper provides a conceptual framework which incorporates terms of sustainable entrepreneurship including environmental, societal and corporate sustainable performance. It analyzes previous studies on the construction of composite sustainability indicators and the links between sustainability and the banking sector. We advance this field of research by proposing a systematic structuring of corporate sustainability performance with a focus on the banking sector. The contribution of this paper is the construction of an integrated index for banks addressing the three aspects of sustainability using secondary data according to GRI guidelines. The construction of the index is composed by the aggregation of three sub-indexes representing the economic, environmental and societal dimension. The proposed index has the advantage of providing quantitative information and the comprehensive appraisal of the performance over a specific timespan. More importantly, it allows comparing sustainable performance between banks and providing a comparative assessment of a particular sub-index. The introduced framework has direct managerial implications. Especially during a financial crisis, the banking system has a crucial role in the economic welfare representing a financial equilibrium at the global level. Conducting a direct comparison of the performance of banks and analyzing how banks incorporate the environmental and societal aspects of sustainability presents an added interest in the perspective of their business. Benchmarking the corporate efficiency is a useful supportive tool for decision makers and managers. It correlates and compares the way different policies and external incidents affect the sustainable performance of a bank and its competitors. Identifying the best policies is a continuous process driving the improvement of the overall performance of a bank in a way that satisfies the stakeholders, protects the environment and is socially responsible.

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