Sustainability of Iranian Banks: Role of Financial and Non-Financial Determinants

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This study aimed to investigate the role of financial and non-financial determinants of the sustainability of Iranian banks. Accordingly, the sustainability score of 27 public and private Iranian banks were evaluated in 2017 by employing a sustainability model. The model was developed by the acquisition of sustainability codes, themes, and categories in the banking industry through Meta Synthesis, while its casual structure was determined by a combined method of Interpretive Structural Modeling and Analytical Network Process. Subsequently, we calculated the sustainability scores by using our proposed model to analyze the content of the banks' disclosed information. Then, the effect of capital adequacy, total assets, financial leverage, loan to deposit ratio, return on assets and number of branches were investigated using multiple regressions on the banks' sustainability scores. Findings depict that total assets have a positive and significant relationship and capital adequacy has a negative and significant relationship with a bank's sustainability. Therefore, banks with more assets are more willing to participate in sustainability activities, due to more appropriate financial resources, as well as to support the bank's brand and its reputation to stakeholders. On the other hand, due to the wrong belief that sustainability is costly, and non-value adding for the banks, they get less involved in order to increase their capital adequacy ratio.

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1 Introduction

Today, due to the effects of organizations activity on society, the environment, and the economy, attention to the issues of sustainability and corporate social responsibility (CSR)has increased, because most decisions that organizations take will affect different stakeholders; therefore, considering sustainability

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issues and influencing factors is one of the concerns of any organization's stakeholders(Horrigan, 2010). Over the last 50 years, phenomena and issues such as pollution, resource scarcity, waste, salaries and employee safety, and organizational scandals have increased. Therefore, attention to corporate social responsibility is important to deal with these issues (Carroll & Shabana, 2010). In the past, the main purpose of managers in financial theories was to maximize financial performance, stock value, and shareholder profit, whereas every organization is also responsible for other stakeholders such as customers, employees, community, competitors, and suppliers. Hence, consideration of the rights of other stakeholders and ethical, environmental, and social issues in the processes and strategies of the organization is referred to as "sustainability". Financial institutions, especially the banks, play a key role in sustainability issues because they provide a wide range of services to the community and as a financer of projects, play an important role in investing and creating responsible businesses for the community and the environment (Akin & Yilmaz, 2016). Taking into account, sustainability in the organization's strategy is like a tool that establishes a balance between financial and non-financial goals and is also considered to be concerned with the interests of the community and the environment.Therefore, it is indispensable to investigate the bank's sustainability activities and the factors affecting it. Accordingly scrutinizing the relationship between the bank's sustainability performance and various bank characteristics is fruitful and desirable to the scholars (Saha, 2018).

The banks, in the past, seemed to have a little effect on the issues related to sustainability, compared to other industries(Kiliç, Kuzey, & Uyar, 2015). But new studies have shown that this understanding is inconsistent with reality, Because banks, as an investor, influence the activities of other organization and may finance projects that engage in irresponsible social and moral activities(Branco & Rodrigues, 2008; Douglas, Doris, & Johnson, 2004; Scholtens, 2009).In this regard, social responsibility in the bank is the process of managing the social and environmental impacts of bank economic activities on specific groups and even the entire society (Gray, Javad, Power, & Sinclair, 2001).This definition covers various social and economic aspects such as employee issues, community participation, environmental concerns, and other ethical issues.Social Responsibility is related to the interaction of the organization with society(Castelo Branco & Lima Rodrigues, 2006). In addition to the power and influence of banks on the economic and social development of countries, the impact of banks on the environment is also significant(Achua, 2008). Branco and Rodriguez (2006) pointed out that

financial institutions, as responsible independent institutions, have a great impact on the environment. Thompson and Couthon (2004) considered some banks as pollutant industriesactivities facilitator for the environment. Therefore, Banking activities, such as investment policies and facility provision, are as important for the environment as the direct effects of companies in pollutant industries(Branco & Rodrigues, 2008). On the other hand, these financial institutions consume large quantities of sources such as paper and energy. Therefore, the adopted policies are of great importance in environmental activities by banks to save energy and natural resources(Birindelli, Ferretti, Intonti, & Iannuzzi, 2015). Then, it can be acknowledged that banks have an important role in the development of sustainability in each country and their sustainability performance and effective factors on it should be considered.

Organizations in different sectors consider sustainability issues in their strategiesfor a variety of reasons, including reputation, competition, the need to legitimize community activities and meet legal requirements(El-Bannany, 2007). Hamid (2004) stated that because of the diversity of sustainability issues in different sectors, sustainability issues in each industry have a certain pattern, all of which industry organizations are complying with.Therefore, the effecting factors and characteristics (financial and non-financial) in each industry should be investigated separately on the sustainability of organizations and this research addresses this important issue in the banking industry. Sustainability activities are beneficial to both the Bank's stakeholders and shareholders and are a win-win game(Wu & Shen, 2013).

The banks generally play an important role in the economic development of each country (Beck, Demirgüç-Kunt, & Levine, 2010; Levine, 2005; Shen & Lee, 2006). The main function of the banks as a mediatorbetween depositors and creditors, makesa healthy banking system play a pivotal role in the country's sustainable welfare(King & Levine, 1993).In this regard, as banks use significant resources from the community, they are more responsible for providing feedback to the community than other industries; The bank's assets, for example, are funded directly from depositors, not shareholders.Scholtens (2009) states that Organization for Economic Cooperation and Developmentmember countries consider savings accounts for investment in social and environmental issues; Therefore, banks in most countries have considered economic activities aimed at sustainable development.However, considering sustainability issues has benefits for society, the environment, the economy, and future generations.But it worth noted that some organizations are using sustainability reports as portrayal toolsand don't really care about

their core responsibilities for sustainability (Adams, 2004; Boiral, 2013; Patten, 2012).

Consequently, giving attention to the importance of sustainability in the banking industry, the main purpose of the present study is to investigate the financial and non-financial determinants affecting Iranian banksustainability.In this regard, the main question of the study includes what determinants (financial and non-financial) affect Iranian banks' sustainability?There are two novelties in this study: the first one is related to the structural model provided to achieve the sustainability score of the banks as a dependent variable and the latter one is investigating the effects of financial and non-financial variables (as independent variables) on the Iranian banking sustainability score, so far, it has been neglectedby the scholars and practitioners within the country.

In the remainder of the paper, the theoretical background and literature review related to the determinants affecting bank sustainability and CSR are discussed in section 2. Then, section 3 scrutinizes the research methodology and data collectionwhereas section 4provides the banks' sustainabilityscores and investigates the relationships between the independent factors and the bank sustainabilityby the means of the ordinary least squares(OLS) regressionmodel. Ultimately section 5, discusses the conclusions and some managerial implications.

2 Theoretical Foundations and Literature Review

2.1 Sustainable Bank

A sustainable bank is a bank that observes environmental, natural resources, and human rights issues in its internal processes, payment facilities, and investments and strives to flourish society by contributing effectively(Weber, 2016). Sustainability in the bank has several dimensions. The first is the environmental dimension, which refers to the consideration of proper energy consumption within the bank's internal processes, attention to environmental issues in payment facilities, mitigation of environmental impacts of products and services and so on.The second dimension deals with economic issues; the purpose of this is to examine the economic implications of the Bank's activities, the Bank's participation in the national economy, the development of domestic infrastructure, participation in international businesses, and so on.the third dimension, as mentioned in most of the researches, is social; it refers to bank participation in society, effects of products and bank activities on society, considering the rights of bank stakeholders including employees,

customers, and others in the community(Sobhani, Amran, & Zainuddin, 2012).

2.2 Determinants Affecting the Banks Sustainability in Previous Studies

Several factors have been investigated to influence the bank's Sustainability. This section attempts to review the effective banking factors on the sustainability of these financial institutions, using a research background and appropriate indicators to measure these factors are also provided.

2.2.1 Bank Size

Bank size is one of the factors that has always been investigated in relation to CSR and sustainability.Most researchers have found a significant positive relationship between bank size and different dimensions of bank sustainability(Akin & Yilmaz, 2016; Andrikopoulos, Samitas, & Bekiaris, 2014; Bose, Khan, Rashid, & Islam, 2018; Branco & Rodrigues, 2008; Chih, Chih, & Chen, 2010; El-Bannany, 2007; Hu & Scholtens, 2012; Kiliç et al., 2015; Sharif & Rashid, 2014; Wu & Shen, 2013), Because large organizations have more stakeholders, they are more pressured by society, the media, and the government to address sustainability issues(Hackston & Milne, 1996).In this regard, Watts and Zimmerman (1986) argue that large organizations are more likely to disclose information about their social responsibilities because they are exposed to society's vision. As well as according to the legitimacy theory, it can be said that large organizations are under the supervision of different sections of society(Saha, 2018).Large organizations also have more resources to spend on environmental and social activities(Veronica Siregar & Bachtiar, 2010).

El-bannany(2007) describes five reasons for sustainability and social responsibility disclosure:1) Motivation to compete: Large companies are more capable of competing in the market than small companies and this might motivate these companies to disclose more information in all areas.2) Requesting of the external fund. Large companies depend on obtaining external funds and hence disclosing wider information might help in attracting more investors from different interest groups to invest in these companies.3) Legitimacy theory:Legitimacy is defined as "a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values,beliefs, and definitions" and large companies rather than small ones might be more interested in fulfilling this assumption by disclosing some information about

their social and environmental activities in their annual reports to improve their image in the society and hence legitimize their existence.4) Government monitoring: Large companies tend to disclose social information in the annual reports to avoid government interfering because large companies are more monitored by the government than small companies because of their effects on society.5) Political visibility: Large companies are more politically visible and hence requested to be involved in social activities than small ones. On the other hand, some studies have found no relationship between size and bank sustainability performance(Saha, 2018; Ullah & Rahman, 2015). Several indicators have been used to measure bank sizes, such as total assets, number of branches, number of employees, and total income; the most used indicator in the study is the total asset.

2.2.2 Profitability
Profitability is also one of the factors that have been frequently investigated by researchers as influencing bank sustainability and social responsibility but the result are not so specific about the effect of this factor on the bank's sustainability. Some studies have found a positive relationship between bank profitability and sustainability (Branco & Rodrigues, 2008; Hu & Scholtens, 2012; Khalil & O'sullivan, 2017; Saha, 2018; Sharif & Rashid, 2014; Simpson & Kohers, 2002). Belkaoui and Karpik (1989) argued that profitable organizations have the necessary knowledge necessary to engage in social activities.Dye (1985) also argued that profitable organizations disclose information about social activities in order to improve their social image in the community and to differentiate themselves from other organizations.But the main reason for the positive impact of profitability on bank sustainability and CSR is stated by Cowen, Ferreri, and Parker (1987): Profitable organizations, due to available financial resources, are more likely to participate in social and environmental activities. On the other hand, several studies in the banking industry have found no relationship between profitability and sustainability and bank social responsibility performance (Akin & Yilmaz, 2016; Andrikopoulos et al., 2014; Chih et al., 2010; Hamid, 2004; Soana, 2011; Ullah & Rahman, 2015). On the contrary, some papers show a negative relationship between profitability and sustainability indicators (Bose et al., 2018; El-Bannany, 2007).In fact, the reason for this negative relationship is that when a bank is profitable, it is preferable to continue its existing processes and activities and do not participate in other costly activities such as social activity and environmental protection. A number of indicators have been used in bank research for profitability that the

most important ones are the Return on Asset (ROA), Return on Equity(ROE), and profit margin.

2.2.3 Bank Age
Another factor that has been overlooked in terms of both profitability and bank size is Bank Age. Few studies in the banking industry have found a positive relationship between age and sustainability score(Akin & Yilmaz, 2016; Menassa, 2010). According to the legitimacy theory, the reason for this positive relationship is that older banks strive to maintain their credibility over many years of market presence(Menassa, 2010). Many papers have found no significant relationship between bank age and the sustainability and social responsibility activity(Bose et al., 2018; El-Bannany, 2007; Hamid, 2004; Hu & Scholtens, 2012; Khalil & O'sullivan, 2017; Ullah & Rahman, 2015)The only Saha (2018) found a negative relationship between bank age and social responsibility disclosure. He pointed out that the new entrants banks tend to increase their market share by providing more sustainability and CSR disclosure.

2.2.4 Financial Leverage
The effect of leverage on bank social responsibility has been analyzed in a few studies.Financial leverage means using debt to finance assets(Khalil & O'sullivan, 2017). Researchers' findings have shown that further analysis is needed to investigate the effect of this factor on bank sustainability.Jensen and Meckling(1976), based on the agency theory, stated that highly leveraged institutions are trying to reduce their agency costs. Accordingly, these organizations tend to reduce agency costs by disclosing social and environmental activities. On the other hand, Purushothaman, Tower, Hancock, and Taplin (2000) noted that organizations with high financial leverage have a close relationship with their creditors and provide sustainability reports to them, so that makes this information not publicly available.Uwuigbeand Egbide (2012) stated that organizations that are heavily indebted and at risk of bankruptcy are less likely to impose the additional costs of participating in social and environmental activities.

But this is not the case for banks because much of the bank's liabilities come from deposits, not from bank debt. Thereupon, as deposits increase, financial leverage also increases, which is due to the attraction of more customer deposits, which also generates revenue(Khalil & O'sullivan, 2017). Hence, most of the studies that examined the relationship between financial leverage and bank sustainability have found positive and significant results (Andrikopoulos et al., 2014; Bose et al., 2018; Khalil & O'sullivan, 2017; Wu

& Shen, 2013). Sanchez, Cuesta-Gonzalez, & Paredes-Gazquez (2017) also found no relationship between financial leverage and bank social responsibility. There are many indicators for financial leverage, but according to the literature, the ratios of debt to equity and debt to total assets have been frequently used.

2.2.5 Ownership Structure

Some studies have also examined the impact of ownership structure on the social and environmental responsibilities of banks.The ownership structure is how the bank owns the shares(Khalil & O'sullivan, 2017). The conflict between managers and shareholders increases when the number of owners of an organization grows (Jensen & Meckling, 1976). As a result, the tendency for sustainable activities to reduce agency problems increases(Khalil & O'sullivan, 2017). Therefore, if the number of owners is few, participation in sustainability activities will also decrease. On the other hand, some researchers have found a positive relationship between the low number of owners and social and environmental reports.They state that when a company has limited shareholders, the information disclosed reflects the interests of those shareholders(P.H. Fan & Wong, 2002). As a result, lower shareholders pressure more on managers to participate in sustainability activities(Anderson, Mansi, & Reeb, 2003).Many studies have shown a positive relationship between government share in bank ownership and participation in social and environmental activities (Akin & Yilmaz, 2016; Bose et al., 2018; Khalil & O'sullivan, 2017; Saha, 2018). On the contrary, Hu and Scholtens(2012) found no relationship between the number of shareholders and the bank's social responsibility. An indicator of the number of shareholders or the share of the government in a bank's ownership can be used to measure the ownership structure.Another indicator is bank releasing on the stock exchangewhich many studies have shown that it increases the bank's accountability to stakeholders and shareholders, leads to greater attention to bank sustainability issues(Akin & Yilmaz, 2016).

2.2.6 Board Structure

Bank Board also influences the bank's social and environmental activities.There are three main indicators in this regard: the number of board members, the composition of the board, and the number of female board members. Board members are one of the most important monitoring factors on management performance in organizations(Said, Hj Zainuddin, & Haron, 2009). Due to the complexity of the banking industry, board members play a vital role in managers' behavior and strategies(De Andres & Vallelado, 2008).

Increasing the number of board members reduces the power of executives(Kathy Rao, Tilt, & Lester, 2012).On the other hand, the large number of these members leads to lack of coordination and communication, low decision making speed and risk ofmanagers over-controlling(De Andres & Vallelado, 2008; Kathy Rao et al., 2012). Increasing board members reduces the quality of financial reports because the board will not be able to play an effective role(Said et al., 2009). On the other hand, increasing board members will provide a resource of different expertise and experiences to banks that have more concerns about social and environmental issues(Bose et al., 2018). Kilis et al (2015) stated that the larger number of board members provides more communication with a broad range of stakeholders and allows the bank to participate in sustainability activities due to greater access to financial resources. The only research that has found a positive relationship between board members and bank sustainability performance was Bose et al. (2018).Other studies found no significant relationship between these two variables(Barako & Brown, 2008; Branco & Rodrigues, 2008; Kiliç et al., 2015).

The second indicator is the composition of the board, which indicates the number of non-executive members.The board non-executive members lead to improved management oversight, reduced stakeholder conflict, and increased effective management(De Andres & Vallelado, 2008; Kathy Rao et al., 2012).The existence of non-executive members, due to differing perspectives, encourages banks to participate in social activities(Haniffa & Cooke, 2005; Khan, 2010). Some studies confirmed the positive relationship between these two factors (Barako & Brown, 2008; Bose et al., 2018; Branco & Rodrigues, 2008; Kiliç et al., 2015).The third indicator is the gender of board members.Some studies found a relationship between board members' gender diversity and sustainability reports (Barako & Brown, 2008; Branco & Rodrigues, 2008; Kathy Rao et al., 2012; Khalil & O'sullivan, 2017; Kiliç et al., 2015).The reasons for the positive relationship include increased board independence, increased quality of decisions made, and an appropriate atmosphere in boardroom. According to Carter, Simkins, & Simpson (2003) board diversity increases the independence of the board because directors with heterogeneous gender, ethnicity or cultural backgrounds will ask questions that might not be asked by directors with homogeneous backgrounds. In fact, gender diversity increases accountability, resulting in an increase in the level of disclosure (Kathy Rao et al., 2012). It may also vary from experience, worldview, and expertise of female members. Moreover, according to Huse and Solberg (2006)female directors have more wisdom and diligence than

their male counterparts. Thus, the existence of female board members has resulted in increasing the quality of decision making and finding suitable solutions for CSR issues(Kiliç et al., 2015).

2.2.7 Other Determinants

One of the factors that has been less examined, compared to the above, is Capital Adequacy Ratio. This ratio serves as a criterion for the financial stability of the bank which is expressed as a ratio of base capital to total risk-weighted assets in percentage terms. Capital adequacy ratio is one of the indicators of healthy performance and financial stability of financial institutions. Banks should have sufficient capital to cover the risk of their activities and be careful not to pass on the shocks to depositors. It seems that banks with higher capital adequacy ratio provide more social and environmental activity in CSR reports and if that ratio is low, the manager will try to disclose less information so as not to show poor performance(Ullah & Rahman, 2015). Two studies analyzed the impact of this ratio on banks 'social responsibility performance. Findings showed that there is no significant and positive relationship between capital adequacy and banks' social responsibility(Ullah & Rahman, 2015; Wu & Shen, 2013).On the other hand, banks need to increase capital adequacy by increasing their capital through income. Therefore, they reduce cost-effective activities, thus a negative relationship between these two variables is also possible.

Another Determinant mentioned in some research on bank sustainability is thecredit risk. AlNajjar (2000) suggested that social responsibility may report being disclosed by organizations that do not pay much attention to social responsibility but via that control public opinion and maintain the reputation of the organization.As a result, high-risk bank participates in social and environmental activities to maintain their reputation. In fact, CSR reports are used as a tool by high-risk banks to show that they are not only capable of controlling high risk, but are also investing in social activities(El-Bannany, 2007). In order to maintain their appropriate image at the community. An indicator used for credit risk is the ratio of loans to deposits. El-Bannany (2007) found a positive relationship between credit risk and bank sustainability performance, whereas Wu and Shen (2013) found no relationship between these two variables.

Soana (2011) examined the impact of cost-to-income ratios on banks' social responsibility performance and results indicated no significant relationship between these two variables. Akin and Yilmaz (2016) analyzed the relationship of net income to total assets ratio with the social responsibility of Turkish banks and results showed that there was no significant relationship

between them. In addition, El-Bannany (2007) used the ratio of bank deposits to total bank deposits of the country as an indicator of bank market share.However, the increase in bank market share is expected to increase the bank's sustainability due to pressure by more stakeholders but the regression results showed a negative relationship between market share and bank sustainability performance. Therefore, banks with high market share have been found to be reluctant to add the costs of participating in social and environmental activities due to their profitability.

2.3 Previous Studies

A number of studies have been done abroad on the impact of determinants on the sustainability of organizations and less research has been done on the determinants affecting sustainability in the banking industry. Given that the influence of organizational factors and characteristics on sustainability and CSR in different sectors is different and depends on the type of organization. Empirical researches have shown that the type of industry is an important variable in determining these factors, in this section, we attempt to review studies related to the Determinants affecting the sustainability and CSR of the banks.

One of the first studies on the determinants of sustainability in the banking industry was done by Simpson and Kohres (2002). The aim of the study was to investigate the relationship between social responsibility and bank financial performance.In this study, Community Reinvestment Act ratings were used to measure social performance. Results emphasized that there is a positive relationship between financial performance and social performance within the banks. El-Bannany (2007) presented an article entitled "A Study of Determinants of Social Disclosure Level in U.K Banks". Using multivariate regression analysis, he concluded that market structure, investment in information technology, risk factors, bank size, and profitability were significantly correlated with the level of social reporting of banks But bank age and listed banks are not significantly correlated with social disclosure.Hamid (2004) found that the size, age, and listed Bank had a significant impact on social responsibilitydisclosures.

Branco and Rodriguez (2008) investigated the Relationship between CSR and Portuguese Banks using the Legitimacy Theory.In this paper, they examined the relationship of four dimensions of CSR with four independent variables of employees, total assets, profits, number of branches and indicators of branch distribution using the Spearman correlation matrix. Findings showed that all variables had an appropriate relationship with CSR. Chih,

Chih, & Chen (2010) examined the factors influencing CSR in 520 financial institutions in 34 countries during 2003 and 2005. The findings proved that the more financial institution grows, the more it considers CSR,although there is no relationship between corporate social responsibility and financial performance. Also in fierce competition, Banks tended to participate in social activities to gain competitive advantage. It also concluded that a good employee-employer relationship, the existence of high-quality management training institutions, and a proper macroeconomic environment have significantly a positive relationship with the disclosure of CSR.

Braco and Brown (2008) examined the relationship between board characteristics and Sustainability performance in Kenyan banks. Using Multivariate regression revealed that the composition and gender diversity of board members had a positive and significant relationship with Sustainability. Soana (2011) also examined the relationship between financial performance and Sustainability performanceand used accounting and market ratios for financial performance. Using a correlation matrix, findings showed that there is no relationship between financial performance and Sustainability performance of banks.

Hu and Scholtens (2012) analyzed CSR policies in commercial banks in 44 developing countries. They then examined the impact of national and banking characteristics on these policies. The regression model showed that there is a significant relationship between total assets, rate of return on capital and country characteristics including economic development and citizen's freedom with banks' social responsibility policies.It also found that the country's openness to foreign investments has a negative impact on CSR policies.Sharif and Rashid (2014) analyzed the relationship between corporate governance and CSR reports in Pakistani banks.The results of incremental regression declared that there was a positive and significant relationship between non-executive directors, bank size, ROE, and debt-to-equity ratio with CSR reports.

Wu and Shen (2013) investigated the impact of financial performance and other incentives on CSR in 162 banks in 22 countries. They used Heckman's two-step regression. Findings debated a positive relationship between CSR and ROA, ROE, interest and non-interest income, and a negative relationship between Non-performing loans and CSR. Andrikopoulos, Samitas, and Bekiaris (2014) in an article entitled "Corporate Social Responsibility Reports in European Financial Institutions" employed multivariate regression to assess the effects of bank size, financial leverage, profitability, and market value on

book value. Finally, it was found that bank size and financial leverage had a positive effect on CSR.

Kilic, Kozey, and Uyar (2015) first analyzed the CSR reports of banks in five dimensions of environment, energy, human resources, products, and community participation, and then examined the impact of board structure and ownership factors on CSR scores. Findings depicted that bank size, ownership structure; board composition and gender diversity on board were significantly and positively correlated with CSR. Ullahand Rahman (2015) also analyzed the relationship between bank characteristics and sustainability performance in Bangladeshi banks. Ordinary least squares regression was used and the results showed that there was no significant relationship between bank size, profitability, costs and capital adequacy with sustainability performance in Bangladeshi banks.

Akin and Yilmaz (2016) examined the determinants of corporate social responsibility in Turkish banks.They, therefore, investigated the relationship between the level of CSR disclosures and corporate governance features in these banks.The results showed that bank ownership, type, and stock market listedinfluencing these disclosures. In addition in another study, Yılmaz (2012) showed that there is a significant relationship between financial performance and CSR in Turkish banks.In 2017, Khalil and O'Sullivan analyzed the environmental and social online reports of Lebanese banks, and examined the impact of bank characteristics on the level of these reports, using multivariate regression. It concluded that the net profit margin, total assets, ownership structure, and financial leverage had a positive and significant effect on the level of these reports and the region and bank age were not significant.

Bose, Khan, Rashid, & Islam (2017) analyzed the determinants of green banking with regard to corporate governance.The results showed that corporate governance factors such as board size, ownership structure, and non-executive board members have a positive relationship with green banking. In 2018, Saha discussed the factors that influence CSR and CSR costs.In this paper, he also examines the relationship between CSR and CSR costs. The results of this study showed that size, age, government ownership share in banks affect CSR costs and CSR costs and profitability, age, government ownership share, and Islamic bank affect CSR.

Limited research has also been done in Iran on the determinants of sustainability and CSR. Dianati, Manteghi, and Esfahani (2016) examined the impact of the bank type (private or public) on social responsibility reporting, and the results showed private banks reported more. Amin Ali Vandy (2014)

examined the impact of legitimacy theory on the social responsibility of banks. Using the content analysis technique to analyze Iranian Banks' Sustainability Reports, he concluded that the number of ATMs and existence in the stock exchange list had an impact on the Bank's social responsibility report.Taghavi fard, Habibi and Gorgin (2019) Evaluate Bank Sustainability Performance Based on Multi-Attribute Utility Model. To evaluate the bank's sustainability performance, they identified four groups of supervisors, shareholders, customers, and staff-managers as stakeholders and assessed satisfaction with each of them and ultimately obtained bank sustainability scores by using Multi-Attribute Utility Model. The results indicated that privatized banks were more sustainable than privately owned banks

Fakhari, Rezaei, and Noroozi (2017) used multiple linear regression and concluded that disclosing social responsibility would lead to improved investment efficiency in companies. Yablluei Khamesluei et al (2018) examined the impact of disclosed sustainability indices on the earnings quality of listed companies. Employing generalized least squares regression, they concluded that disclosed sustainability indices had a significant positive effect on earnings quality.

According to the literature, it is evident that the effects of financial and non-financial variables on the sustainability of the banking industry have not been examined within the country. Therefore, the main purpose of the present study is to determine the effect of these factors on the sustainability performance of Iranian banks.

3 Research Methodology

3.1 Research Method

In this study, a qualitative and quantitative mixed approach was employed as applied research which can be classified into a descriptive correlation study. The qualitative part of the study is about obtaining sustainability scores based on the banks' sustainability assessment model. In order to obtain this model, first, the Meta-Synthesis approach was employed to extract the bank's codes, themes, and sustainability categories. Then, the Structural model of sustainability assessment was obtained using Interpretive Structural Modeling(ISM) and Analytical Network Process (ANP). We obtain information about the bank's sustainability activities is through content analysis of the sustainability reports, annual reports, social responsibility disclosure on the bank's website and bank news (Nobahar, Dehghan Nayeri, and Rajabzadeh,2019). Ultimately, the relationship between the sustainability

scores and determinants of sustainability according to the literature were scrutinized by a multivariateregression method.

3.2 Data Collection and Sampling

For data collection, firstly, the papers and research related to sustainability in the banking industry have been studied with regard to the Meta-Synthesisapproach. Then two series of questionnaires, one for interpretive structural modeling and the other for pairwise comparisons of Analytic Network Process, were designed and responded by selected banking managers as experts. Due to the novelty of sustainability in the banking industry, the purposeful sampling method with the snowball approach was employed for sampling, which was saturated after eleventh samples.The validity of both questionnaires was approved through content and facial validity and the reliability of the first questionnaire was approved by 89% Alpha Cranach's and the latter one was investigated by the inconsistency rate of the pairwise comparisons.

In addition, information on the sustainability of banks as a dependent variable was obtained using the content analysis from disclosed sustainability reports, annual reports, news section, and social responsibility part of the bank's website.Accordingly, in order to obtain a bank score in theme and category, which finally leads to the bank's sustainability score, it is necessary to obtain the codes' values. Thus, the sustainability reports, annual reports, and news sections of the bank's website were analyzed by content analysis and if the relevant code was in the bank reportsone was assigned, zero otherwise. Some codes were also on a cardinal scale, for example, codes related to economic themes such as the amount of participation in national projects and participation in infrastructure investments were entered in a currency which normalized then.Also in HR theme are some codes like percentage of female employees etc, in participation in community theme, some codes like the amount of financial support to victims of natural disasters such as earthquake in-country, etc. and in environmentaltheme, some codes like facilities volume with environmental goals and so on were all entered in cardinal scale and then normalized. In some other themes, such cardinal scale codes exist.The information on the independent variables was also the actual data that was extracted from the annual report of bank and profit and loss statements from ww.codal.ir Given that the total number of governmental and non-governmental banks licensed by the Central Bank of Iran was 28 in 2017, it was decided to use the information of the entire statistical community, including 8 governmental and 20 non-governmental banks. Only one Bank

was excluded from the study due to a lack of financial and sustainability information. The target year was2017, as there was no access to the studied banks' financial information for2018 due to the yearly auditing process.

4 Data Analysis

4.1 Dependent Variable: Banks Sustainability Score

As mentioned, the Bank's sustainability score, which is employed as a dependent variable in regression analysis, calculated through a structural model in Fig 1.For this purpose, first using the Meta-Synthesis approach, the papers and researches related to sustainability in banking have been examined. After screening 148 initial papers by title, abstract, content and results, 38 final studies on sustainability factors in banks were thoroughly analyzed. Based on these studied papers, 270 codes were obtained. These codes were grouped into 10 themes based on the researcher's interpretations and findings accompanying banking experts' opinions as well. The selected themes include economic, financial, energy consumption, environment,participation in the community, human resources, human rights, customer relationships, products and services, and governance. Due to the concepts of sustainability and commonality of themes, a higher level was also considered as the category level and they were classified into 4 general categories, including economic, social, environmental, and governance sustainability. Table 1 provides a summary of the process.

In this study, the authors used comparisons of opinions with the other experts to control the extractive concepts. As it mentioned ultimately 10 extraction themes were done. The results were evaluated by Cohen's kappa coefficient and K = 0.829 proved the validity of the agreement index between the two coders; because the closer K is to one (the best score of the agreement), the greater the agreement is. K Index is calculated from Eq. (1)(Sandelowski & Barroso, 2006):

$$k = \frac{P_0 - P_e}{1 - P_e} \tag{1}$$

In this respect, P_e represents the ratio of units to which there is agreement and P_0 is also the ratio of the units that are likely to be in random agreement.

After developing themes and categories by the means of Metal-Synthesis approach, the ISM method is used to structure and communicate the themes. At first, a questionnaire, in the form of a self-interaction matrix, was distributed among 11 sampled bank managers based on the snowball sampling

method.Then, by adapting the initial self-interaction matrix, the final matrix was obtained Reachability Matrix. In the following, based on the similarity of the output set and the common set in the Reachability, the themes were leveled. According to the relationship between the themes and their casualty structure, the structural model obtained as depicted in Fig. 1.
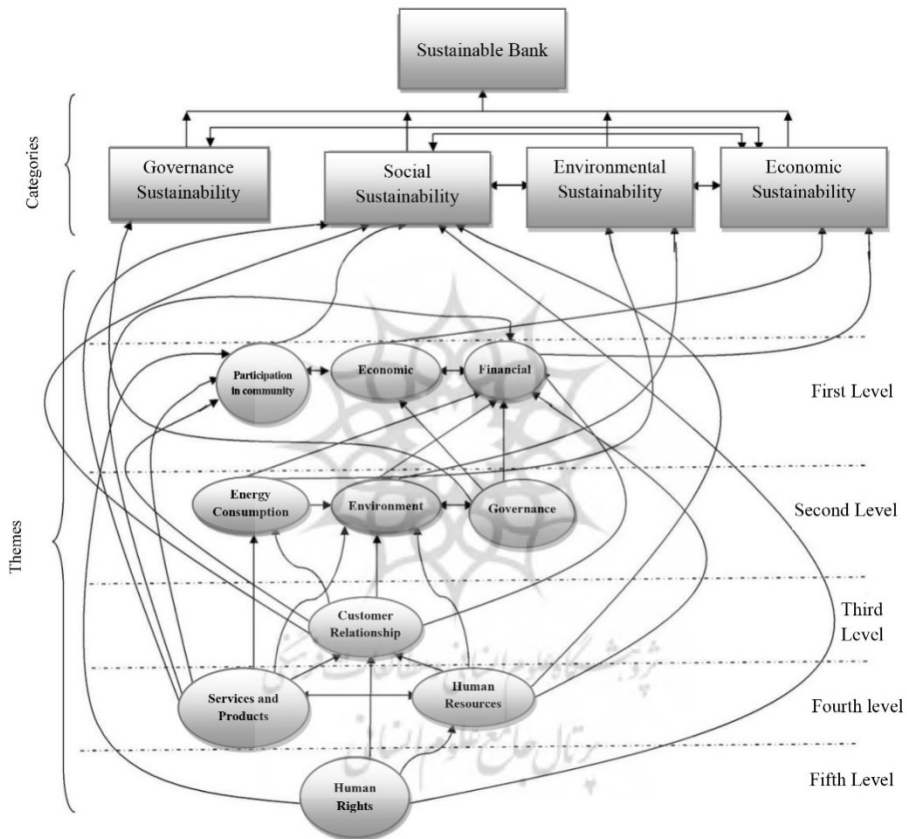

Figure1. The structural model derived by Meta-Synthesis and ISM

The casual model obtained from the previous step was considered as input of ANP, aiming to obtain the weights of categories and themes of the model.Due to a large number of relationships between themes and categories, ANP was performed using Super Decision software. The paired comparison

questionnaires were designed at the level of categories and themes. Table 1 illustrates the weights for themes and categories.

Table 1
Summary of categories, theme, and codes and relevance weights

Category	Theme	Number of codes	importance Weights*
Environmental Sustainability (0.2118)*	Energy Consumption	4	0.7928
	Environment	8	0.2072
Economic Sustainability (0.5944)	Financial	12	0.1866
	Economic	57	0.8134
Governance Sustainability (0.0468)	Governance	57	**1**
Social Sustainability(0.1452)	Human Resource	43	0.1478
	Customers Relationship	11	0.0756
	Participating in Community	23	0.3929
	Products and Services	20	0.1125
	Human Rights	35	0.2711
* weight scores			

According to the assigned weights, economic is the most important category ofbanking sustainability. The second most important category is environmental whereas social and governance is ranked third and fourth respectively.

In the following, deploying the model, sustainability scores were computed for each of the 27 studied banks. The descriptive statistics of the scores are summarized in Table 2.

Table 2
Descriptive Statistics for Sustainability Scores(Score Criterion is One)

Indicator	Min	Max	Mean	Variance
Bank Sustainability	0.2475	0.7711	0.4327	0.021
Economic Sustainability	0.2858	0.8020	0.5296	0.034
Environmental Sustainability	0.00	0.8352	0.1642	0.039
Social Sustainability	0.2665	0.8182	0.4717	0.017
Governance Sustainability	0.0360	0.8740	0.4329	0.039

As it is clear, the mean score of sustainability within Iranian banks is 0.4327 which emphasizes the industry weakness. Meanwhile, the environmental category has the lowest score, due to neglecting the issue by Iranian banks. In summary, the Economic dimension is more intended by Iranian banks within all sustainability dimensions.

Worth to declare that, Jarque-bratest was also employed to check the normality(Weisberg, 2005) of the sustainability scores within the banks set. The probability of the test value was achieved 0.5216, which was higher than 0.05, proving that the data follows a normal distribution(Weisberg, 2005).

4.2 Regression Model and Independent Variables

In this study, independent variables are literature frequent factors that influence sustainability scores. Thus, based on the literature, 16 independent variables were entered into the multiple regression model.ROA, ROE, and profit margin were considered as profitability indicators. Total assets, number of branches and bank employees were also used as indicators of bank size.The ratio of debt to total assets and debt to total equity was used as finance leverageand for the board structure, only the number of board members was considered. Since that in terms of gender diversity, there was only one bank with a female member of the boardand also it was difficult to explain the type of board members including executive or non-executive members, due to the lack of accurate information on the board of directors this was also ignored. On the other hand, given that the board members of all Iranian banks are 5 or 7, this indicator will not play a decisive role. For the ownership structure factor, the existence of a bank in the stock exchange list is used. Other determinants including age, market share, loan-to-deposit ratio, totalincome, capital adequacy, and cost-to-income ratio were incorporated as well.

Afterward, initially, the backward regression model was implemented to eliminate individually the heuristic independent variables that have little effect on bank sustainability. According to the findings, the best model with the highest coefficient of determination (R^2)and the significance level below 0.05 was selected which is depicted in Eq. (2)

$$SUS = \beta_0 + \beta_1 CAPITADEQ + \beta_2 RISK + \beta_3 BRANCH + \beta_4 TA + \beta_5 ROA + \beta_6 LEV \text{Eq} \tag{2}$$

Whereas SUS denotes for Bank Sustainability Score obtained from Structural Model, CAPITALADEQ denotes for Capital Adequacy, RISK denotes for Bank Credit risk with loan-to-deposit Ratio, TA denotes for Total Asset, BRANCH denotes for Total Number of Branches, ROA denotes for

Return on Asset, LEV denotes for financial leverage with debt-to-equity ratio.Descriptive statistics for independent variables and Jarque-bra normality test values are presented in Table 3.

Table 3
Descriptive statistics of independent variables and Jarque bra test values

Indicator	Min	Max	Mean	Standard deviation	Jarque bra value	Jarque bra probability
ROA	0.001	0.18	0.0181	0.0435	3.5129	0.1726
Number of Branches	17	3077	682	804.19	3.7719	0.1516
* Total Asset	7409	2265501	600671	655869	3.9325	0.1327
Financial %Leverage	3.22	144.75	24.407	39.439	2.1423	0.2641
Loan-to-Deposit	0.16	1	0.6592	0.1787	1.2823	0.5267
Capital Adequacy	0.019	0.33	0.0699	0.0646	4.1221	0.1019

* Figures in billion Rials

As can be seen, the probability value of the Jarque-bra test is higher than 0.05 for all independent variables, indicating that all the included variables follow a normal distribution at 95% confidence level.

4.3 Regression Findings

The regression model of Eq.1 was estimated using SPSS22 software. Regression Results are summarized in Table 4. The table demonstrates the correlation coefficient(R) 0.755 and the coefficient of determination (R^2) 0.57 for the whole model. According to the coefficient of determination, it can be said that 57% of banks' sustainability score is affected by 6 incorporated variables. The first column of Table 4 depicts the model's contribution to the total variation is greater than the error or residual contribution. In addition, one of the prerequisites for the ordinary least squares regression model is the normality of the residualsthat are proved by Jarque bra p-value. The Durbin-Watson was also used to detect residual or error autocorrelation in the regression model.Given that the value of 1.728 is in the range of 1.5 to 2.5(Weisberg, 2005), then there is no high correlation in the residuals.

Table4
Results of Regression Model Eq(2)

Model		Sum of squares	Degrees of freedom	Average of squares	F	p-value
1	Regression	0.317	6	0.053	4.410	0.005
	Residual	0.240	20	0.012		
	Total	0.557	26	1.728		Jarque bra=1.1423
	R=0.755	R^2=0.570	R^2adjusted=0.440			probability=0.5472

Table 5, examines the existence of a significant relationship between the independent variables and the dependent variables of banks' sustainability. If the level of significance of the independent variable is less than 0.05, then there is a significant relationship effect on the dependent variable.Another prerequisite of ordinary least squares regression is the lack of colinearity between independents variables which are investigated by variance Inflation Factor (VIF). If this factor is greater than 10, there is a problematic colinearity(Weisberg, 2005)As can be seen from Table 5. There is no collinearity problem in the estimated model. Worth noting that the bank age variable was excluded from the initial model because of high collinearity.

Table 5
Matrix of coefficients of independent variables relative to sustainability as dependent variable

Independent variables	Non-standard coefficients		standard coefficients	Sig.	Colinearity index	
	b	standard error	β		Tolerance	VIF
Constant	0.316	0.096	---	0.004	---	---
ROA	0.998	0.742	0.286	0.194[*]	0.444	2.254
Number of Branches	0.343	0.211	-0.642	0.073[*]	0.187	5.344
Total Asset	0.544	0.000	0.788	0.014	0.249	2.009
Financial Leverage	-0.001	0.001	-0.155	0.323[*]	0.923	1.084
Loan-to-Deposit	0.215	0.146	0.263	0.160[*]	0.666	1.052
Capital Adequacy	-0.797	0.367	-0.352	0.047	0.783	1.267

* Rejected at 95 percent of a confidence interval

According to Table 2, there is a significant positive effect of total assets on bank sustainability performance; this has been proved in numerous prior studies (Akin & Yilmaz, 2016; Andrikopoulos et al., 2014; Bose et al., 2018;

Branco & Rodrigues, 2008; Castelo Branco & Lima Rodrigues, 2006; Chih et al., 2010; El-Bannany, 2007; Hamid, 2004; Hu & Scholtens, 2012; Sharif & Rashid, 2014; Wu & Shen, 2013). The justification is that the banks with more assets have more resources to participate in environmental and social activities. In addition, if the bank is bigger, there will be more stakeholders and their pressure makes sustainability issuesinto the account.According to the legitimacy theory, big banks are more in view of society, so they strive to have more social and environmental partnerships to improve their image.

According to the results, capital Adequacy has a negative significant effect on bank sustainability activities. Two prior studies that investigated the relationship between capital adequacy and bank social responsibility found no significant relationship between these two variables(Hu & Scholtens, 2012; Ullah & Rahman, 2015). Although Ullah and Rahman (2015) expected a positive relationship between capital adequacy and bank CSR, they argued that banks with higher capital adequacy had higher financial stability and financial strength, it can be concluded that this negative relationship is predictable within Iranian banks.Basel Committee 1 set the minimum capital adequacy ratio at 8% and Basel Committee 2 set minimum capital adequacy ratio at 12% to keep banks away from bankruptcy risk.Among the Iranian banks in 2017, only 4 banks had a capital adequacy ratio above 8% and only one bank capital adequacy ratio was above 12%.Given the low ratios in most Iranian banks, it is concluded that most banks seek to increase capital adequacy. As regards the capital is in the numerator of this ratio, one of the sources of banks' capital increase is retained earnings.Hence, banks try to reduce their costs to increase retained earnings and convert it to capital.Therefore, they should reducetheir participation in costly activities such as environmental and social, while this leads to a negative relationship between capital adequacy and bank sustainability. Thus they neglect the fact proved by many studies; sustainability activities are costly in the short term, but they will definitely generate revenue and profit in the long term(Weber, 2016).

Based on regression findings, there is no significant relationship between ROA and the sustainability score which is emphasized by many other studies before(Akin & Yilmaz, 2016; Andrikopoulos et al., 2014; Chih et al., 2010; Hamid, 2004; Soana, 2011; Ullah & Rahman, 2015). While it may be initially thought that banks with better financial performance are more likely to engage in sustainability activities, the results proved that there is no significant relationship between these two variables; So, more attention to sustainability issues is related to sustainability culture and strategies in the bank. In addition,

there is no significant relationship between credit risk (loan to deposit ratio) and bank sustainability performance Which aligns with Wu and Shen (2013). The results suggest that banks that lend more often do not necessarily participate in social and environmental activities.The next variable that has no significant relationship with sustainability is the financial leverage as measured by the debt-to-equity ratio. It also supported by Sanchez et al. (2017).

Another indicator for measuring bank sizeis the number of branches. The results showed that there is no significant relationship between the number of branches and the bank sustainability scores supported by Ullah and Rahman (2015) and Saha (2018).It should be noted that the coefficient of this variable is negative; The main reason is that some sample banks with higher sustainability scores, had significantly fewer branches than many older, low-Sustainable banks.

In the end, the best variable which predicts the most variation in sustainability scores is the total assets which explain 78% of the sustainability variation.The next variable is capital adequacy, which predicts negatively the 35% of sustainability scores variation.

5 Conclusion

Today, bank sustainability is a very flourishing issue given its important role in development.Therefore, various studies have been conducted on bank sustainability and CSR all around the world.Unfortunately, it has not attracted much attention in Iran so far. even though it is crucial. Hence, this study aimed to investigate the determinants of sustainability in the Iranian banking industry. In this regard, the sustainability of banks as a dependent variablewas calculated according to their sustainability activities by the means of content analysis. Results of the banks' sustainability scores showed that the environmental category scores were lower than other categories which reflects the fact that Iranian banks do not pay much attention to environmental issues.Therefore, it is recommended to take environmental issues more closely by self and especially in the provision of facilities to other parties.

Afterwards, a regression model with 6 independent variables was obtained using backward OLS regression, and the effect of capital adequacy, credit risk, number of branches, total assets, ROA and financial leverage on bank's sustainability scores were investigated. The results showed that the total assets (bank size) have a positive and significant effect on bank sustainability. This means banks with more assets have more financial resources to participate in sustainability activities and they also strive to participate in social and

environmental activities to maintain their image among their larger stakeholders. Findings proved a significant negative effect of capital adequacy on sustainability. This implies that banks, in order to increase their capital adequacy ratio, decide to increase their capital through increased retained earnings, It has therefore reduced the costs of sustainability activities to avoid the risk of bankruptcy. In fact, it can be suggested to Iranian banks not to decrease focus on sustainable activities in order to increase their capital adequacy ratio and increase capital from other sources, such as cash contribution of shareholders, asset re-evaluation, and equity premium method. There was no significant relationship between credit risk and sustainability score which indicates that the increase in the issued loan does not have a significant relationship with bank sustainability. In fact, banks do not consider environmentally friendly activities and community participation in their loan payments, therefore, it is recommended that banks need to consider environmental and social issues when providing their facilities. No significant relationship was found between financial leverage and banks' sustainability score. This indicates that the amount of bank debt has no relationship with sustainability and even with increasing in bank debt, the bank's willingness to engage in social activities may be lessened.

There was also no relationship between bank financial profitability and participation in sustainability activities; it suggests that banks' financial performance does not necessarily contribute to their involvement in social and environmental activities and, in fact, to promote the concept of sustainability in the bank, it is important to promote a culture of sustainability and necessarily the bankprofitability does not lead to consider sustainability issues. Also, there was no significant relationship between bank stability and the number of branches.

In order to further investigate the impact of variables presented in the literature on the banks' sustainability, the impact of these factors on the sustainability categories was investigated separately.The results of the social category indicated, as in Akin and Yilmaz(2016), Branco and Rodriguez(2008), Castelo Branco and Lima Rodriguez(2006), Sharif and Rashid(2014)and Saha(2018), that more than 70% of the variation of this category(R^2) was explained by the three factors of total assets (0.594) and the ratio of facilities to deposits (0.354) and capital adequacy (-0.419). However, for the economic and environmental categories, in contrast to other studies, no meaningful model is developed and forthe governance category, more than 57% of the variation is justified by the two factors of total assets (0.788) and capital adequacy (-0.352).

It is worth mentioningthat all sustainability information in this study has been extracted and analyzed from the sustainability, social responsibility, annual reports and news and social responsibility section of the banks website.Therefore, if the information is not disclosed by a bank through its channels, it may result in the Bank not obtaining the relevant scores. On the other hand, neglecting the sustainability reports within the bank managers may lead to addressing the importance of promoting sustainability culture and considering disclosure of sustainability reports.

According to findings, it can be concluded that in order to increase sustainability and social responsibility, Iranian banks can concentrate on increasing their total assets and not to consider the cost of sustainability activities in the short term, since, in the long term, these activities gain competitive advantage in sustainability issues which will lead to profitability.Bank participation in social and sustainability activities improves its reputation for stakeholders and thus increases new customers and enhances loyalty of existing customers.The findings also showed that profitable banks do not necessarily participate more in sustainability activities. Sustainability is more concerned with promoting and disseminating the sustainability culture within the bank. Therefore, it is recommended for managers to promote this important concept at all organizational level by craftingprograms to align with the banking macro-policies. On the other hand, given the low environmental score, it is essential to adapt the banks' internal business activities and processes with the environment, to pay for specific facilities with environmental objectives, to consider environmental criteria in facility allocation, and to provide transparency and disclosuresustainability issues. In addition, considering sustainability as a neglected factor in the Iranian banking sector, due to its low score among Iranian banks (43%), it is necessary to pay more attention to this issue.Ultimately, this study in addition to presenting a model for measuring the sustainability of Iranian banks and providing their scores in 2017, also investigated its most important determinants, affecting the bank's sustainability score. It will be fruitful for banking sector policymakers to provide effective and efficient elaborating strategies for banking sustainability.

6Study Limitations

The first limitation of the study is the low number of Iranian banks in the regression model. The second limitation is the access to banks' sustainability information that has been extracted and analyzed solely on the basis of

sustainability, social responsibility, annual reports and news and social responsibility section of the studied bank's websites.

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