

The Impact of Civil Financial Markets on Environmental Quality

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Abstract— *Background and Aim: In the financial development process, financing various projects, including environmental projects, is possible with greater ease and lower cost. Financial development by providing the necessary financial resources to form more equipped and advanced research and development units, as well as the possibility of accessing more efficient and environmentally friendly technologies that require more financial resources, the possibility of attracting foreign investment with pollution. Developed countries, on the other hand, tend to emit their polluting industries to countries with poorer environmental standards. The result of the arrival of this type of foreign direct investment in the host country is an increase in pollution. In this regard, the main purpose of this paper is to investigate the impact of financial markets on air pollution as an indicator of environmental quality in selected middle-income countries. Methods: The present study is applied, causal research in terms of the inferential research method. The method and tool of collecting information and statistical sources is also the method of written documents, electronic information, and recording showed that - Results: The results of model estimation in Isfahan's environment using the fixed effects method in the group of selected countries in 2015, the ratio of domestic credits granted to the private sector (% of GDP) as an indicator of money market and exchange rate in Isfahan in 2022. As an indicator of environmental quality in Isfahan's second municipality region, the volume of stock market transactions as an indicator of the capital market has a positive and significant effect on the emission of CO₂ in the group of selected middle-income countries. In other words, financial development has increased pollution in middle-income countries. The effect of the ratio of domestic credits granted to the private sector (% of GDP) as an indicator of the money market on more than the ratio of stocks exchanged to the volume of stock market transactions as an indicator of the capital market in selected countries.*

Keywords— *Financial Markets, Environmental Quality, Panel Models, Isfahan.*

I. INTRODUCTION

Financial markets as a vital artery for attracting, accumulating, and transferring capital and providing long-term financial resources needed for product production and service activities. Financial markets, according to some economists, are the engine of economic growth. Financial markets are considered because of their key role in gathering resources through small and large savings in the national economy, optimizing the flow of financial resources, and directing them to the costs and investment needs of productive sectors of the economy (Aghazadeh

Dizaji., 2017). The positive effects of financial markets on economic development, including increasing investment incentives by reducing risk, risk pricing and facilitating liquidity risk, equipping and mobilizing deposits, etc., are so great and sensitive that some economists believe that the difference between developed and underdeveloped economies is not in the advanced technology of developed countries but the existence of integrated financial markets.

Studies show that the level of development of financial markets, especially the stock market, and the impact they have on corporate financing and the choice of corporate

financing methods, ultimately have a (dramatic effect on economic growth) 1 bank and capital market Are the main financial markets (Arash Sohrabi, 2024 a, b). Financial markets are the brain of the economic system and the main center of decision-making. If these markets fail, the functioning of the economic system as a whole will suffer. Therefore, the development of financial markets is one of the important factors that can play a key role in achieving rapid and continuous economic growth. The importance of developing the financial sector and having an efficient financial sector is reflected in equipping financial resources for investment, encouraging the inflow and equipping of foreign capital, and optimizing the resource allocation mechanism.

The development of financial markets in two ways: the effect of level 4 and the effect of efficiency 5 increases economic growth by increasing investment (Dizaji, 2024, a, b). The level effect shows that the development of the financial sector directs resources from inefficient projects to productive investments. Transparency in financial market regulations, such as compliance with accounting standards and reporting systems, increases investor confidence, which is very important in attracting investors. The efficiency effect also shows that with the development of financial markets, diversity, and liquidity increase, and resources are directed to high-yield projects (Naghbi Iravani et al., 2024).

II. THEORETICAL

Financial markets as a vital artery for attracting, accumulating, and transferring capital and providing long-term financial resources needed for product production and service activities. Financial markets, according to some economists, are the engine of economic growth. Financial markets are considered because of their key role in gathering resources through small and large savings in the national economy, optimizing the flow of financial resources, and directing them to the costs and investment needs of productive sectors of the economy (Naghbi Iravani et al., 2024). The positive effects of financial markets on economic development, including increasing investment incentives by reducing risk, risk pricing and facilitating liquidity risk, equipping and mobilizing deposits, etc., are so great and sensitive that some economists believe that the difference between developed and underdeveloped economies is not in the advanced technology of developed countries but in the existence of integrated financial markets.

Studies show that the level of development of financial markets, especially the stock market, and the impact they have on corporate financing and the choice of corporate

financing methods, ultimately have a (dramatic effect on economic growth) 1 bank and capital market Are the main financial markets (Aydin et al., 2020). Financial markets are the brain of the economic system and the main center of decision-making. If these markets fail, the functioning of the entire economic system will suffer. Therefore, the development of financial markets is one of the important factors that can play a key role in achieving rapid and continuous economic growth (Gheitarani et al., 2020). The importance of developing the financial sector and having an efficient financial sector is reflected in equipping financial resources for investment, encouraging the inflow and equipping of foreign capital, and optimizing the resource allocation mechanism (Zaker Haghghi et al., 2014).

The development of financial markets in two ways: the effect of level 4 and the effect of efficiency 5 increases economic growth by increasing investment (Gheitarani et al., 2013). The level effect shows that the development of the financial sector directs resources from inefficient projects to productive investments (Karimimansoob et al., 2024 a, b). Transparency in financial market regulations, such as compliance with accounting standards and reporting systems, increases investor confidence, and this increase in investor confidence is very important in attracting investors. The efficiency effect also shows that with the development of financial markets, diversity, and liquidity increase, and resources are directed to high-yield projects (Dizaji, 2024).

Studies on the factors affecting environmental pollution began when environmental pollution was raised as an economic and social issue. Most researchers believe that factors such as economic growth, energy consumption, foreign trade, and population growth play a decisive role in the spread of pollution, among which, economic growth is one of the important factors in terms of the source and source of environmental impacts; Because the increase in economic growth, in addition to extracting more natural resources, leads to an increase in the release of undesirable and polluting emissions, which leads to the destruction of the environment (Dizaji et al., 2023).

Achieving the desired economic growth is impossible without efficient financial institutions and proper equipping of financial resources. Most studies that have examined the relationship between economic growth and the environment are based on the Kuznets hypothesis (Gheitarani et al., 2024). In 1955, Kuznets proposed the idea of an inverse relationship between environmental quality and U-level per capita income, which became the basis of Kuznets's environmental hypothesis (Norouzian, 2024). This relationship is relatively similar to the

argument that with increasing per capita income, the environmental impact of economic activity first increases and then reaches a maximum and decreases after reaching the peak. 6) Proponents of the Kuznets environmental hypothesis argue that at high levels of financial and economic development, the economic structure shifts to new industries, technologies, and services, and the composition of polluting inputs and energies is modified (Norouzian and Gheitarani, 2023).

Also, environmental awareness is gradually increased, more useful environmental laws are enacted and enforced, and the quality of the environment is improved. In this regard, financial markets can encourage investors to invest in the shares of companies that pay special attention to environmental protection by valuing the shares of companies, and thus encourage financial development to protect and guide the quality of the environment (Mohammad Mehdi Norouzian et al., 2024). Financial development by providing the financial resources needed to form more equipped and advanced research and development units, as well as the possibility of accessing more efficient and environmentally friendly technologies that require more financial resources, the possibility of attracting more foreign direct investment combined with pollution. Provides less. Thus, for a certain level of economic growth, less pollution is created.

On the other hand, financial development, due to equipping financial resources and making it possible to access more efficient technologies in the field of energy consumption, by reducing the intensity of energy consumption or increasing energy efficiency, brings more economic growth and less pollution. As a result, financial development prevents further environmental degradation at the rate at which it promotes economic growth through direct foreign investment and more efficient energy consumption. Since the majority of environmental activities belong to the public sector, the ability to increase such investments can be important for governments at the national, regional, and even global levels.

III. METHODOLOGY

The developed financial sector can increase technological innovations. Therefore, it significantly reduces the emission of pollutants. Financial markets are an important tool in reducing emissions because they can facilitate the process due to the financing of environmentally friendly investment projects. Developed countries, especially those active in polluting industries, are mainly inclined to send their polluting industries to countries with lower environmental standards (Zakerhaghghi et al., 2015). This is often done in the form of foreign trade and direct

investment. As a result of the influx of foreign direct investment into the host country with low levels of environmental standards, which often have low incomes, pollution is increasing (Karimimansoob et al., 2024).

According to Grossman 1, foreign direct investment affects the quality of the environment by changing the composition of production and based on Rybinski's theory. According to Rybinski's theory, the accumulation of human capital leads to the growth of clean industries and thus reduces pollution, and in contrast to the growth of physical capital, increases polluting industries and leads to increased pollution. Thus, in the early stages of economic development, countries grow through the accumulation of physical capital, and in the later stages of economic development, they continue to grow through the acquisition of efficient manpower (Ghadarjani et al., 2013).

Therefore, with the accumulation of capital in the early stages of economic development, pollution increases, and with the growth of per capita income and the movement of the economy from the industrial sector to services and the use of manpower instead of capital, pollution. (2017) In this group, the results of the study of the meter and colleagues of the GCC countries in the period 1980 GDP, CO2011 showed that between the emission of domestic gas, financial development in the long run (Dehghan et al., 2024). Also in Oman, UAE, and Kuwait a long-term causal relationship between financial development and bilateral gas emissions, and the UAE, Saudi Arabia, and Kuwait a long-term one-way causal relationship between energy consumption and emissions 2017 using (there are) 7 (H) et al., CO2 gas model 2, self-explanation with distribution interruptions in Pakistan in Figure U 2011 found that there is a relationship - 1971 time period and energy consumption (Sarabi et al., 2023). Inverse co between gas emission 2 also Granger causality results indicate a one-way causality of energy consumption co, trade openness, and financial development to gas emissions 2 and a two-way causality relationship between energy consumption and financial development in (2012 Using the test - Turkey in the period 1971 Granger causality shows a long-term relationship between industrialization (Farrokhiraad & Gheitarani, 2024).

Findings also show that financial development and gas emissions show a one-way relationship between financial development and gas emissions in a 2011 study, Shahbaz et al. examined the relationship between financial development and the factors affecting carbon dioxide emissions in Pakistan. The results showed that since financial development is related to other factors affecting emissions such as economic growth and foreign trade,

CO2 other studies that have examined the effect of these factors on the environmental quality of Pakistan without considering the factor of financial development, in Estimation of coefficients is magnified. That financial development has led to a reduction in environmental pollution (GHADARJANI, & GHEITARANI, 2013).

Income, energy consumption, and trade liberalization are also major drivers of carbon dioxide emissions in the long run. In addition, the results indicate the existence of the Kuznets environmental curve in China (Tamazian 6), (Examining the link between financial development and) and Bhaskara Rao (2010). Environmental quality and financial development and institutional quality in 24 emerging economies. Transition using the generalized torque method the results in 2004 confirm the Kuznets environmental hypothesis and the importance of financial development and institutional quality in environmental quality (Norouzian & Gheitarani, 2023).

According to the results of this study, if financial liberalization is not carried out in a strong institutional framework, it will be harmful to environmental quality. The United States, Japan, Brazil, India, and Russia, it was named as the country with the highest share of gas emissions. The results showed that higher levels of economic growth and financial development in these countries have reduced environmental pollution (Gheitarani et al., 2024). Also, if the necessary policies are *CO2 emissions (metric tons per):*

taken for financial freedom, it can be expected that by attracting higher levels of resources, attracting foreign direct investment in the research and development activities of the mentioned countries will reduce environmental pollution in 2009 (in the country). The results of the 2005 study by Halicioglu show that revenue, - Turkey in the period 1960 had the greatest effect on gas emissions in 2001-2002 and also in the period 1995 (also Talukdar and Meissner 1987) Private sector participation in A developing economy causes less environmental degradation (Norouzian et al., 2024).

Also, more efficient capital markets and partnerships with developed economies in private sector development will further reduce environmental degradation. In a study by Behboodi and Goladani (2014), they examined the effect of economic growth on environmental pollution in 21 2004 in oil-rich countries, including Iran in the 1980s. The model, Kuznets's environmental hypothesis, was confirmed. The results of a 2007 study by Asgharpour et al. The results also show that there is a relationship between economic growth and emissions. From N in the studied countries, in the form of gas 2, therefore, the most important political recommendation of this study is to further develop the financial sector to improve the quality of the environment in the studied countries (Nilofar Akbarzadeh et al., 2016; Samami et al., 2024).

$$CO2METRIC_{it} = \beta_0 + \beta_1PRIVATE_{it} + \beta_2STOCK_{it} + \beta_3QG_{it} + \beta_4GDPCON2011_{it} + \beta_5TELEPHONE_{it+Uit}$$

Model specification and estimation in this paper using theoretical foundations and experimental studies 2009 (for 2011), Tasmanian et al. 2 (Jalil and Fereydoun).

Table 1- Study of meaning and anonymity of variables in the group of selected countries

Result	P-value insignificant level (t value)- first comparison	P-value insignificant level (t value)	Single root test	Variable
I (0)- Stable	-	-1.69478 (0.0451)	m, Pesaran, Shin	CO2METRIC
I (1)- Stable	-5.22266 0.0000	1.83923 (0.9671)	m,Pesaran,Shin	PRIVATE
I (1)- Stable	-8.57677 (0.0000)	2.68563 (0.9964)	m, Pesaran, Shin	GDPCONS2011
I (1)- Stable	-5.59927 (0.0000)	1.45165 (0.9267)	m, Pesaran, Shin	TELEPHONE
I (0)- Stable	-	-3.96884 (0.0000)	m,Pesaran,Shin	STOCK
I (0)- Stable	-	-1.60782 (0.0539)	m,Pesaran,Shin	QG

As can be seen in Table 1, based on the statistics of Shin Sons, gas emissions, environmental quality, the ratio of

exchanged stocks to the volume of stock market transactions as a capital market index, and the quality of

governance index at the level of the number of fixed telephone subscribers per 100 people, real GDP and the ratio of domestic credit granted to the private sector (% of GDP) as a money market indicator with a one-time margin difference (Khanian et al., 2013). Hence, the null hypothesis that there is a single root is rejected. As a result, the stability of the data used in the paper is confirmed before estimating the model. The results of the co-integration test in Table 2 also show that there is a long-run relationship between the variables used in the model.

Table 2 - Co-integration test results

P-value	t-Statistic	
0.0447	-1.698971	Kao test

To estimate equation (1), it is first necessary to determine the type of estimation method for a specific type of panel data. Table (3) Hypothesis 0 of the F-test the number of statistics based on the ordinary least squares method is rejected. As a result, constrained regression (ordinary least squares) is not valid and the width of different sources of fixed or random effects method should be considered in the model. Then, the Hausman test was used to test the model using the fixed or random effects method (Naghbi Iravani, 2024).

Done. Reviews this test uses the software obtained from the performance. According to the statistics of 2 calculations for this regression in Table 3 (the null hypothesis based on the use of the random method is rejected. These constant effects are confirmed for model estimation, the results of which are presented in Table 3.

Table 3 - Results of estimating the impact of financial markets on environmental quality using the fixed effects method in the group of selected countries (CO) dependent variable: gas emissions 2

Fixed effects method	
Coefficient (t) statistics (p-value)	Explanatory variables
-2.469710- 25.51095 (0.0000)	C
0.022067- 19.57809 (0.0000)	PRIVATE
(0.000637) 3.200322 (0.0015)	STOCK
0.000106- 34.46254 (0.0000)	GDPCONS2011

-2.345890 -16.30290 (0.0000)	QG
(0.085760) 35.71770 (0.0000)	TELEPHONE
0.847158	R2
345.7561 (0.0000)	F Statistics
F- 29.277 = 165.189561 P-value = (0.0)	Limer F Statistics
CHISQ-5= 13.515515 P-value = (0.01)	Hausmann test statistics

IV. RESULTS

In the group of selected middle-income countries using the fixed effects method in Table. 3 show: The ratio of domestic credits to the private sector (% of GDP) as a money market indicator has a positive effect and as an indicator of the quality of the environment has a significant effect on biogas emissions in selected middle-income countries. Therefore, the hypothesis of a significant relationship between domestic credit granted to the private sector (% of GDP) as an indicator of quality, money market index, and environmental gas emissions cannot be rejected. The ratio of exchanged stocks to the volume of stock market transactions as a capital market index has a positive and significant effect on emissions as an indicator of environmental quality in the co-gas group of the two selected middle-income countries.

Therefore, the hypothesis of a significant relationship between the ratio of traded stocks to the volume of stock market transactions as an indicator of the capital market and gas emissions as an indicator of environmental quality cannot be rejected by CO2 (Norouzian & Sarabi, 2023). The effect of the ratio of domestic credits granted to the private sector (% of GDP) as an indicator of the quality of the money market environment co on biogas emissions in the group of selected middle-income countries more than the ratio of exchanged stocks to the market volume The stock market is an indicator of the capital market (Norouzian and Gheitarani, 2023). This indicates that the money market has been more inefficient than the capital market and has not had adequate and precise oversight of domestic lending.

While in the capital market, underwriting companies must obtain the necessary permits from the Environmental Protection Agency for their industrial activities. Real GDP has a positive and significant effect • As an indicator of the quality of the environment, CO2 has a bio-release in the group of selected countries. At low levels of economic growth, the amount and severity of environmental

degradation due to economic activities are higher (Maleki et al., 2024). Because agricultural activities and the intensity of resource extraction and subsequent industrialization cause depletion of resources and waste production) 17 Governance quality indicators have a negative and significant effect on dissemination (Gheitaranyet al., 2013). Good governance is an important and influential factor in moving towards a healthy environment for humans and creating a vibrant and dynamic ecosystem. Improving the six governance indicators is positively related to the quality of performance of governments and nations to protect the environment and ecosystem health.

Among other things, the improvement of the right to comment and accountability index creates conditions in society that oblige the authorities to implement policies such as improving the quality of water and sewage systems, providing safe drinking water, and improving air quality, which is among the basic concepts of civil rights (Khanian et al., 2019). Improving indicators of corruption control, government effectiveness, and the rule of law will also help implement policies to preserve wildlife and forests through a crackdown on smuggling and poaching, and political stability will help policymakers focus on issues. The environment and the dynamics of the ecosystem are absorbed (Kahvand et al., 2015). The CO2 emission coefficient of determination indicates that more than eighty • As an indicator of CO2 quality, the percentage of changes in environmental gas emissions 2 in the group of selected middle-income countries is explained by the independent model variable (Mehdi Norouzian, M., & Gheitarani, N. 2024).

V. CONCLUSION AND DISCUSSION

Achieving optimal economic growth is impossible without efficient financial institutions and proper equipping of financial resources. The role and importance of the financial system in the process of economic growth and development of countries are such that the difference between developed and underdeveloped countries in the degree of efficiency and effectiveness of their financial system can be sought (19). Financial systems are made up of a variety of financial markets, instruments, and products. The financial sector includes various markets such as money and capital markets. Hence, financial development is a multifaceted concept that in addition to the development of the banking sector, other dimensions such as non-bank financial sector development, monetary sector development, monetary policy, banking regulation and supervision, financial sector openness, and institutional environment.

Financial markets can be an important tool in reducing emissions because they can facilitate the process by financing environmentally friendly investment projects. Thus, the developed financial sector improves the quality of the environment by encouraging firms to use new technologies. Developed countries, on the other hand, especially those involved in polluting industries, tend to emit their polluting industries to countries with poorer environmental standards. As a result of the influx of foreign direct investment into the host country with low levels of environmental standards, which often have low incomes, pollution is increasing. In this regard, in this paper, the impact of financial markets on the quality of the environment was investigated. The results of this study in the group of selected middle-income countries in 2000 showed that the ratio of credits - 2015 domestic period granted to the private sector (% of GDP) as an indicator of the money market and the ratio of shares exchanged to the volume of stock market transactions.

A capital market index as a co-index has a positive and significant effect on gas emissions 2 environmental quality in the group of selected middle-income countries. Coordinated with the results of Jalil and 2009 studies (Asgharpour and (2011), Tasmanian et al. (Fereydoun et al.) 2013. Lotfalipour et al. Showed that financial development increased pollution in 2011 (Tamazian (Environment and Studies Jalil and Fereydoun 22009 (Asgharpour et al. 2013) showed (and colleagues 3 that the development of financial markets reduces environmental pollution). A developed financial sector can increase technological innovations in the energy sector and thus significantly reduce emissions. Since most of the countries studied in this paper have used the credits granted to extract more of their natural resources, and since the extraction of resources is associated with increased pollution.

Therefore, to increase their profitability by extracting more natural resources, these countries have caused more environmental pollution. Also, the financial system in this group of countries is inefficient and does not have strict laws on the prevention of environmental pollution, so the growth of economic activity is associated with more pollution. The effect of the ratio of domestic credits granted to the private sector (% of GDP) as a money market indicator on gas emissions 2 as an indicator of environmental quality in the group of selected middle-income countries is greater than the ratio of exchanged shares to stock market volume As an indicator of the capital market. This indicates that the money market has been inefficient in comparison with the capital market and has not had sufficient and precise supervision in granting domestic credit. While in the capital market, underwriting

companies must obtain the necessary permits from the Environmental Protection Agency for their industrial activities. According to the results of this paper, the following suggestions are presented. Reducing the size of the government and creating the necessary conditions for greater participation of the non-governmental sector Increasing public awareness of various segments of the population through public media to prevent environmental pollution Preventing the attraction of foreign investment in polluting industries. Development and allocation for training, formation, and development of environmental protection organizations.

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