

## **Credit Rating as A Determinant of FDI Flows in Egypt**

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### **Abstract**

Domestic financing gap resulting from the lack of sufficient domestic savings to finance national investments, is one of the major economic problems in developing countries, putting these countries in the midst of a constant need for foreign capital in the form of direct or indirect investments. economic history indicates that the ability of the countries of the world to attract the optimal pattern of foreign direct investment, as it indicates that foreign investors do not risk their investments without studying the economic, political and social environment in the host country.

this paper used analytical methods by analysis the data by using econometric models' framework which it allows measure the impact of the credit rating for the FDI, by using the variables credit rating from the Moody's agency and other variables such as credit GDP and Trade-GDP and gross fixed capital formulation growth rate, Exchange Rate as independent variable's and FDI as Dependent Variable.

This paper reach to the positive rate is insignificant in the short run and the negative rating is significant that's mean the negative rate for the economy will decreasing the FDI to the Egyptian Economy (short Run) while the positive rating will not affect in the investment inflows. The variables such as (credit GDP) and

(trade) are significant in the short run that mean the government should decreed the policies and procedures are related to trade and credit to attractive the FDI.

Paper recommended to Introducing “Mixed-financing” approaches and risk transfer mechanisms such as “Export-Credit” and political risk insurance, where Mixed finance can stimulate investment by shifting some risk away from investors. such as Political Risk Insurance and Dispossession, wars, and civil unrest.

**Keywords:** FDI, Credit rating, Creditworthiness, GDP, Mixed-financing

## ١- Introduction

Foreign direct investment has been one of the important issues that have dominated the interest and thinking of developing countries since the middle of the last century, and then this interest has grown since the mid-eighties of the last century, as a manifestation of economic globalization. Where interest in foreign investment and competition to attract it has increased as it is one of the main growth engines

However, foreign direct investment will not achieve the previous goals, except in the presence of a national strategy, directed to attracting foreign direct investment. This is in addition to creating an investment climate, as previous studies have indicated that foreign direct investment operates under inflexible government restrictions.

Interest in foreign direct investment does not mean neglecting interest in its domestic counterpart, as paying attention to the first alone without interest in domestic investment is undesirable. Policymakers should therefore design policies that enable both types of investment to maximize development goals.

This paper will use analytical methods by analysis, the models' framework which it allows measure the impact of the credit rating in the FDI, by using the variables credit rating from the Moody's agency and credit GDP and Trade-GDP and gross fixed capital formulation growth rate, Exchange Rate as independent variable's and FDI as dependent Variable

This paper is divided into five basic parts, where the first part devotes the theoretical framework of foreign direct investment such as the concepts, types, and difference between foreign direct investment and other financial flows, while the second part is devoted to referring to theories of foreign direct investment, and the third part is devoted to referring to theories of foreign direct investment.

To review the most important determinants of foreign direct investment emanating from foreign direct investment theories, and finally the fourth part is devoted to studying the relationship between foreign direct investment and some economic and social variables and its relationship to credit ratings. Egypt as one of the determinants the study concludes with findings and recommendations.

## ٢- Literature Review

The World Bank defines foreign direct investment as "net investment inflows to acquire a permanent share in management (١٠% or more of voting shares) in an enterprise operating in an economy other than the investor's economy. It is the sum of capital, equity and reinvested profits as well as long-term capital and short-term capital, as shown in the balance of payments".<sup>١</sup>

The International Monetary Fund (IMF) defines foreign investment as direct "when the investor owns ١٠ per cent or more of the equity of an enterprise and that ownership is linked to the ability to influence the management of the enterprise".<sup>٢</sup> The Arab Investment and Export Credit Guarantee Corporation (AIGC) defines FDI as "that type of international investment that reflects the fact that a direct investor from one economy has acquired a permanent or long-term interest in the economy of another State, with the investor enjoying a significant degree of influence in the management of the institution".<sup>٣</sup>

The Organization for Co-operation and Development (OECD) defines it as "an ownership interest in a foreign company or enterprise carried out by an investor, company or government from another country".<sup>٤</sup>

Direct investments are subject to several classifications depending on the perspective from which the specific purposes of the classification are studied. In this section, we will examine the classifications of foreign direct investments in terms of

destination, patterns of entry into the host country, and in terms of operations.

**a. FDI in terms of destination**

**Ossano et al.** (٢٠١٦) defines foreign direct investment (FDI) flows as statistics of the value of transactions across the borders of the countries between which direct investment takes place over a specified period of time. two fundamentals are FDI inflows (FDI) and outflows (FDI) outflows, the result of the positive and negative difference between the two flows is called net FDI inflows (Net Inflow).<sup>٥</sup>

**OECD** defines inflows (Inflow), transactions that increase foreign investors' investment in domestic institutions in the host country, which are often measured in U.S. dollars, while outflows represent transactions that increase the investment held by domestic or foreign investors in other economies outside the borders of the state through the purchase of shares or the reinvestment of profits.<sup>٦</sup>

**b. Foreign investments in terms out flow patterns**

Foreign investment when flowing into the host country can take several forms, namely:

**Greenfield Investments:** Incorporation investments are carried out when a foreign investor invests in the establishment of new productive capacities in the host country. Start-up investments are among the most desirable and welcome foreign investments in host <sup>٧</sup> countries, due to the economic and social benefits they

provide to the host country's economy. Such as contributing to reducing high unemployment rates, creating new productive capacity, transferring technology and knowledge,

**Acquisitions and Mergers:** Mergers and acquisitions take place when the assets of local companies based in the host country are transferred to foreign companies, to establish a new legal entity. The most important benefit of this type of investment is that it can contribute to increasing the productivity of the work element, as a result of the transfer of knowledge, experience, and skills.

**Venture Joint:** This type of investment is defined as a long-term agreement between two parties, one local and the other foreign, to practice a specific productive activity within the host country, and this type of investment differs from the previous one, in the principle of participation in: capital, management decisions, production processes and associated technology, marketing and other project operations.

### **C. Foreign direct investment compared to other financial flows**

The economic literature refers to two basic types of financial flows that appear as an item in the capital account in the balance of payments and capital account they are: <sup>^</sup>

**FDI and Foreign investment in portfolios (FPI)** which is defined as the foreign investor's acquisition of domestic financial instruments through the acquisition of existing financial assets (equity/debt).

Although there are many supporters of the positive effects of portfolio flows to host countries, due to their ability to grow trading in the stock exchange in general in the host country, and in shares of new or existing companies. However, recurrent global financial crises have underscored the risks involved, making FDI an acceptable and desirable alternative for many countries in the developing world.<sup>٩</sup>

Countries and corporations generally resort to foreign portfolio investments, along with short-term external borrowing in times of economic crises and turmoil. On the other hand, FDI is seen as the optimal long-term alternative, in order to avoid the problems already mentioned in the preceding paragraph, in addition to the fact that FDI is careful in taking the decision to exit the host country when economic or political upheaval occurs.<sup>١٠</sup>

### **٣- Determinants of Foreign Direct Investment**

From the previous review, it is clear that the economic literature that examines the determinants of foreign direct investment is divided to (traditional, Non-traditional), (traditional), such as market size, macroeconomic stability, creditworthiness, economic openness, infrastructure, and the cost of labor in the host country.

Other potential determinants of FDI also include (Non-traditional) like domestic rates of return, exchange rate, foreign direct investment flows received by other large emerging

economies, foreign economic performance, interest rates, and below the link to a specific order is as follows:

### **First: Traditional Determinates of FDI**

**a- Market size:** is one of the main determinants of FDI. Countries with a large market size attract larger inflows of FDI, due to its association with the advantages of economies of scale, and lower cost of production, especially in the case of foreign investment in horizontal markets. **Pami Dua Reetika Garg (٢٠١٥)**, indicate to the market size is not an influencing factor in the case of vertical foreign investment, where FDI does not flow due to market search in the host State.<sup>١١</sup>

**b- GDP and economic stability:** In a cohort study of ٢٢ countries, researchers found that countries with large economies receive larger FDI inflows than small, stagnant economies. **Schneider, Others (١٩٨٥)** found a positive correlation <sup>١٢</sup> between FDI flows and real GDP per capita, with researchers demonstrating that countries with higher GDP have better investment opportunities.<sup>١٣</sup>

**Faeth, I. (٢٠٠٩)** found the Foreign investors often fear that the negative impact of high fluctuations in output and high inflation rates may limit FDI flows to the host State.<sup>١٤</sup>

**c- Creditworthiness:** The financial risks of the host country are factors that the foreign investor considers when making an investment decision at the international level. The foreign



investor looks at sovereign debt, the availability of foreign exchange reserves in the host country, and controls for capital outflows during financial crises.

Global, in order to discuss the financial merit of the host country, and its policies in dealing with the exit of investments in times of crisis. **Ricardo Hausmann and others** (٢٠٠٠)<sup>١٥</sup> found a limited impact of financial risk on FDI flows from a group of ٩٣ countries.

Credit rating agencies rely on a letter-based bond and debt rating system to assess the financial strength of companies and governments, particularly in relation to their ability to meet capital payments and interest on their debts.

**Pennartz, J. – Snoeij, P. J** (٢٠١٢) indicated that the S&P rating is more accurate in predicting short-term defaults, while the classification of "Moody's" Best in long-term forecasting. While the rating was "S&P٥٠٠" The best in terms of timeliness in terms of default, and the performance of the agency came "Moody's" The best in terms of stability, due to the lack of sudden downgrades<sup>١٦</sup>.

**Adel Abdel Azim Hassanein Ibrahim, others** (٢٠١٩) found credit rating agencies are heavily criticized for the last two decades of the twentieth century until now because of their strong and direct influence on the financial, economic, and investment decisions of countries and major institutions. This has raised many questions about the impartiality and impartiality of these

agencies, and their ability to assess future risks<sup>١٧</sup> The criticisms of credit rating agencies are as follows:

**Ferri, G., Liu, L. G., & Stiglitz, J.E (١٩٩٩)** indicate the institution's "unstable or negative outlook" rating, the inclusion of a State or institution on the "Review" list, the "Close Watch" list, or through actual changes to the credit ratings themselves, directly affect the performance of the financial markets.<sup>١٨</sup>

The report of the “Stiglitz” Committee on the Reform of the International Monetary and Financial System at the request of the United Nations, issued in ٢٠٠٩, pointed to the problem of the independence of credit rating agencies from the owners of the debt they classify, and to the unethical competition between agencies and their resort to this kind of unfair practices in order to attract more customers. and to the obvious conflicts of interest that characterize its current economic model.

The report demonstrates this through the functional role of credit rating agencies<sup>١٩</sup> that act as a double customer on the one hand to provide investors with real information about rated debt, and on the other hand, they give good ratings to the debts of borrowers who resort to their services without other agencies, in order to increase their profits and market share. If one agency wants to work with integrity and professionalism, the inevitable result is its loss, because the client will turn to one of the other agencies.

In conclusion, it should be said that the reports of these agencies are in part important to give a picture of the economic and financial performance of the state, considering the need to communicate with these agencies and invite their experts to the state to verify the existence of other neutral parties from international financial and economic experts from the validity of the classification.

#### **d- Trade openness**

The degree of trade openness affects the encouragement or discouragement of foreign direct investment, especially if foreign direct investment is export-oriented, as trade restrictions increase the cost of exports to other countries, especially in the case of vertical foreign direct investment, where foreign investment import their intermediate resources from abroad. In general, trade openness in the host country attracts FDI. Moreover, trade liberalization also improves the business climate and expects better economic growth rates for the host country.

On the other hand, FDI can negatively affect the trade openness of the host State if that State adheres to restrictive trade policies. Therefore, foreign investors seek to access the markets of this country through foreign direct investment in it, in light of export restrictions to it, especially if the cost of transportation and trade barriers is greater than the costs of foreign direct investment<sup>٢٠</sup>. Many researchers have also found that greater trade openness can

reduce FDI flows, or that trade openness is insignificant in attracting more FDI.<sup>٢١</sup>

#### **e- Infrastructure**

Several <sup>٢٢</sup> studies have found the positive role that good infrastructure can play in attracting foreign direct investment. Where the developed infrastructure helped to optimize the use of factors of production, increase the profits of the foreign company. Although the foreign investor prefers to invest <sup>٢٣</sup>in countries that It has a strong infrastructure, but the reciprocal relationship between social capital and foreign direct investment is important when studying the impact of foreign investments on infrastructure, as the positive impact of foreign investments does not stop only on productive sectors but also on social capital. Where investments help Foreign direct improvement and development of infrastructure such as roads, telecommunications sector, housing and health services. <sup>٢٤</sup>

#### **f- Cost of work**

The cost of working in multinational companies that use labor-intensive production technologies is an important factor in attracting foreign direct investment. International companies reduce their production costs by investing in surplus labor economies that offer cheap labor. However, it should be noted that lower wages can be an indicator of a decline in wages. Efficient labor element, and consequently, economies with good

human capital and quality, as well as lower wage rates, are expected to attract higher FDI inflows. The conclusion of quantitative studies points to conflicting results regarding the relationship between the cost of labor and FDI, while some see a positive impact Low wages on FDI<sup>٢٥</sup>.

### **g- Domestic Returns**

The rules of capital market theory suggest that foreign direct investment will flow to countries that offer higher returns on investment. It has well-functioning capital markets. However, this may not be true for all countries, especially developing countries<sup>٢٦</sup>

### **h- Exchange rate**

Some studies during the seventies of the last century tried to study the relationship between the exchange rate and foreign direct investment.<sup>٢٧</sup> These studies have assumed that multinationals are more likely to invest in those countries whose local currencies depreciate against the home country's currency. The cost of borrowing from domestic sources is lower compared to the cost of borrowing from external sources.<sup>٢٨</sup>

The depreciation of the host country's currency also increases the relative value of the wealth owned by the companies, and increases the overall rate of return in the host country, prompting multinationals to increase the volume of their investments in the host country. Other effects of the host country's currency depreciation such as the real depreciation of the cost of labor and

the decrease in the value of the host country's currency could also play the cost of production compared to double in countries whose currencies are depreciating increases foreign direct investment flows. A country with a real depreciation of its currency therefore becomes more attractive to receive investment in production by foreign companies.<sup>٢٩</sup>

#### **i- Output & Interest rates**

The impact of foreign output and foreign interest rates on FDI can be measured by measuring the impact of income and the impact of substitution. According to the income impact, increased income in the main FDI exporting countries will increase corporate profits in these countries, thereby increasing the availability of funds available for investment at home more than abroad. It follows consequently an increase in the flow of FDI from these countries to the host countries. The impact of substitution indicates that the increase in the production of firms in source countries increases the marginal output of capital, making investment abroad less attractive to these companies.

With regard to increasing interest rates, a substitution effect means that if returns in the investor's country are high, the investor tends to keep his investments in his country. The net result depends on whether the income or substitution effect is dominant, but in the case of interest rates, the effect of

substitution is stronger than the impact of income because investors may want to exploit all possible opportunities.

## **Second: Non- traditional Determinates of FDI**

### **a- FDI, employment, wages and poverty levels**

World Bank in ٢٠٢٠ looked at the heterogeneous impact of FDI on employment levels and wage levels in three types of domestic firms (local foreign-owned companies and branches of multinational corporations, local companies that are suppliers or customers of this multinational companies, and domestic companies that compete with subsidiaries of multinational corporations). The study suggests that foreign-owned companies positively affect job generation in subsidiaries, and the wage gap in domestic and foreign firms is greater for highly skilled workers<sup>٢٠</sup>.

### **b- Foreign Investment and Economic Growth**

Many previous research points to the positive impact of FDI on economic growth and development. In two studies covering developing economies, **Farole, T., & Winkler, D. (٢٠١٤)** FDI has a significant positive impact on high rates of economic growth. Achieving the objectives of the development process<sup>٢١</sup>.

**OECD Report (٢٠٠٢)** indicate to "**Foreign Investment and Economic Development**" recognizes the positive impact of FDI on growth by increasing the productivity of macro factors and, more broadly, on improving the efficiency of resource use in the

receiving economy, through three channels: (Positive impact of FDI on foreign trade flows, Other external savings,, Improving economic structures in the host economy)<sup>٣٢</sup>.

**Freund, Caroline, and Martha Denisse Pierola (٢٠١٢)** argue the FDI flows contribute to alleviating scarcity of financing, restrictions on capital movement, increasing government revenues, and contributing to economic growth to achieve sustainable development goals. FDI, on the other hand, increases overall productivity through knowledge and technology transfer and deepens intra-firm trade and trade linkages.<sup>٣٣</sup>

#### **c- Foreign direct investment and economic resilience**

**Prakash Loungani and Assaf Razin, (٢٠٠١)**<sup>٣٤</sup> argue that FDI increases the resilience of the host country during global financial crises. Citing what happened in East Asian countries during the ١٩٩٨ global financial crisis, foreign direct investment (FDI) enjoyed remarkable stability during the crisis, compared to other forms of private capital inflows such as short-term debt flows, which It showed fluctuation and sharp decline during the crisis. As was the case during the Mexican crisis of (١٩٩٤-١٩٩٥) and the Latin American debt crisis of the ١٩٩٠s<sup>٣٥</sup>. In general, FDI's flexibility compared to other forms of capital flows leads many developing countries to prefer FDI over other forms of capital flows



### ٤- Determinants of FDI for Egypt

There are many factors that would determine the host country's ability to attract direct investment, and most economic literature relies on many sets of economic indicators to determine the host country's ability to attract foreign investments, some of them relied on six determinants, namely, market size, economic stability indicators. Aggregate, External Sector Indicators, Economic Liberality Indicators, Government Capital Expenditure Index, and Ease of Doing Business<sup>٢٦</sup>. Whatever classification is used, they all overlap with each other, and in the following section we will review some of the indicators used to determine the Egyptian state's ability to invest in foreign direct investment:

#### **a. Market size:**

Egypt is statistically among the most populous countries in the African continent and the Middle East, and the largest in the Arab world, not to mention the structure of the Egyptian demographics, the largest proportion of which is occupied by young age groups with a high tendency to consume. This gives a significant market advantage to Egyptian and foreign investors to dispose of their products.

According to ٢٠٢٢ statistics, the population in Egypt reaches about ١٠٢,٨ million, of which ٤٤,٢ million live in urban areas, and about ٥٨,٧ million people in rural areas. The composition of the age groups is ideal for a distinct consumer market, where the

age group under ١٥ years represented about ٣٤,٣%, from ١٥-٣٩ years about ٤١,٤%, from ٤٠-٦٤ years about ٢٠,٥%, and +٦٥ about ٣,٩% of the population size, which reflects the high percentage of youth who are able to work, their consumption levels rise and thus increase the Egyptian market advantage compared to many other countries.<sup>٣٧</sup>

## **b. GDP**

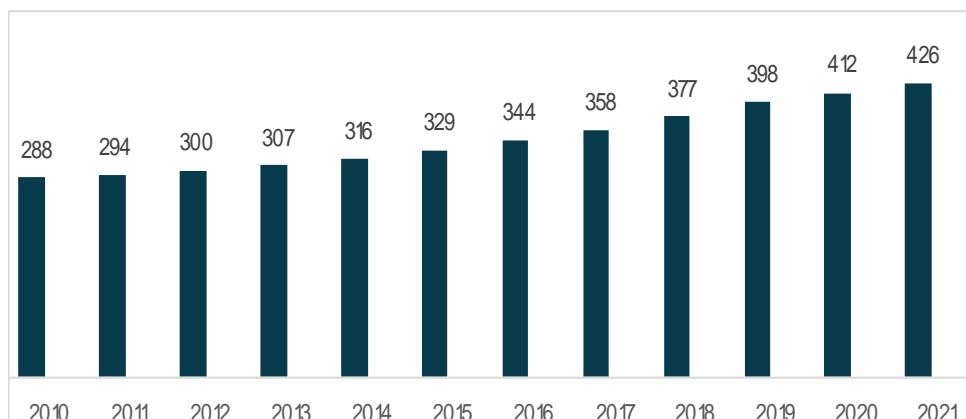
GDP growth rate, stability, GDP per capita, disposable income and population size are among the determinants influencing foreign investors' decisions. Many studies have found that countries enjoy a higher economic growth rate and per capita output than other countries with the same level of development.

Perhaps the main justification behind this is that stable growth increases the degree of economic resilience of the state and its economic ability to withstand periods of economic weakness. Therefore, foreign investments concentrate their investment activities in areas characterized by high population as well as GDP per capita and disposable income. In order to ensure the demand for the purchase of products of foreign investor projects. (<sup>٣٨</sup>).

Figure (١) shows the evolution of Egypt's GDP during the period (٢٠١٠-٢٠٢١) at constant prices for ٢٠١٥, and the evolution of GDP per capita in US dollars and constant prices for ٢٠١٥ for the same period, according to World Bank databases. The figure shows the increase in the value of GDP from US\$ ٢٨٨ billion in

٢٠١٠ to US\$ ٤٢٦ billion during the In ٢٠٢١, despite the fact that Egyptian economic activities were affected by the multiple external and internal shocks that Egypt and the world witnessed as well, the Egyptian economy was able to recover strongly to growth in many periods, as the GDP grew during the aforementioned periods with growth rates ranging between (٢,٢% and ٥,٣%), which is an incentive for foreign investors to trust the capabilities of the Egyptian economy.

**Figure (١)**  
**Evolution of GDP at constant prices during the period (٢٠١٠-٢٠٢١) - billion US dollars**



**Source: IMF**

After Egypt has succeeded in implementing the economic reform program, international institutions expect the GDP growth rate to adapt to global challenges and crises, and continue to achieve a high growth rate compared to other countries, at a time when global economic growth rates may slow, as the International Monetary

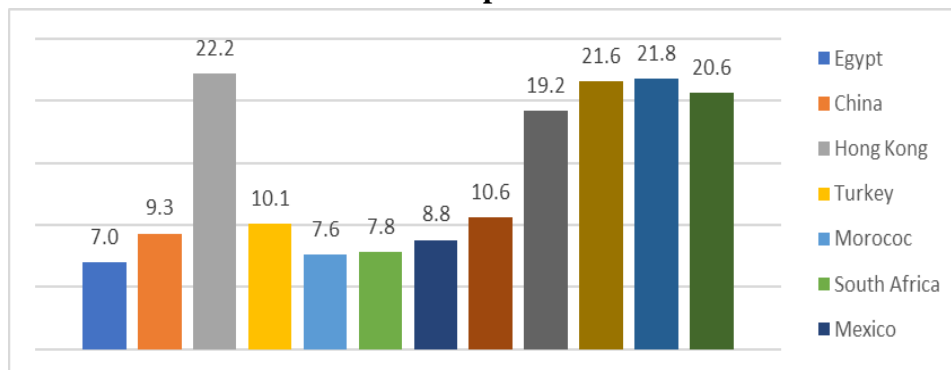
Fund report expects that the Egyptian GDP in light of the current international conditions will achieve a high growth rate of up to ٤,٨% during the year ٢٠٢٣/٢٠٢٢, while the World Bank expects it to reach The output growth rate to ٤,٤%, which is a high growth forecast in which Egypt is preceded only by India, Indonesia, the Philippines, and Malaysia, with growth rates of ٦,١%, ٥,٠%, ٥,٠%, and ٤,٧%. Respectively, the bank expects China to achieve the same rate of Egyptian GDP growth<sup>٣٩</sup>.

### c. Digital Transformation

The Egyptian government is making unremitting efforts to develop the ICT sector through the Digital Egypt initiative, which has contributed to attracting many foreign investments, including Ericsson's Digital Services Center in Cairo, which provides advanced technological and software services to global markets.

According to "UNCTAD", Egypt made a remarkable development in relation to its ICT index during the period ٢٠٠٠-٢٠١٨, with the value of the index jumping from ٣,٧ in ٢٠٠٠ to ٩,٨ in ٢٠١٨. When comparing the average value of the index for the same period mentioned with countries at the same level of development, we find that Morocco, South Africa, Mexico and China did not all exceed ١٠ points with values of ٧,٦, ٧,٨, ٨,٨, and ٩,٣ points respectively, while Turkey obtained ١٠,١ points as an average for the same period. This is as can be seen from Figure (٢).

**Figure (٢)**  
**ICT index for the period ٢٠٠٠-٢٠١٨**



Source: <https://unctadstat.unctad.org/wds/TableViewer/downloadPrompt.aspx>

A positive outlook on this data shows that there is an attractive scope for foreign investors to make outstanding profits if they invest in ICT.

The "COVID-١٩" pandemic has highlighted the importance of digital technology. It has become part of all economic sectors. The experience of "COVID-١٩" has shown that digital optimization can increase the positive effects of FDI in Egypt and reduce the cost of providing service and producing goods. Egypt is working hard to digitize many service and productive sectors, where the process of digitizing the ICT sector has been accelerated, and major steps have been taken in the financial sector. According to "Turner", the

proportion of FDI in the IT services sector more than tripled from ١,٧% in ٢٠٠٣ to ٥,٣% in ٢٠٢٠.<sup>٤٠</sup>

These efforts can help enhance the empowerment of the Egyptian private sector and improve its competitiveness through the development of the digital capabilities of MSMEs. Later, FDI could support the integration of MSMEs into the formal economy, stimulate creativity and innovation, increase the overall productivity of the Egyptian economy, facilitate access to new markets, accelerate the development of new products and services and promote innovative business models in agriculture, manufacturing, healthcare, finance, trade, retail, transport and logistics.<sup>٤١</sup>

#### **d. Government spending on infrastructure**

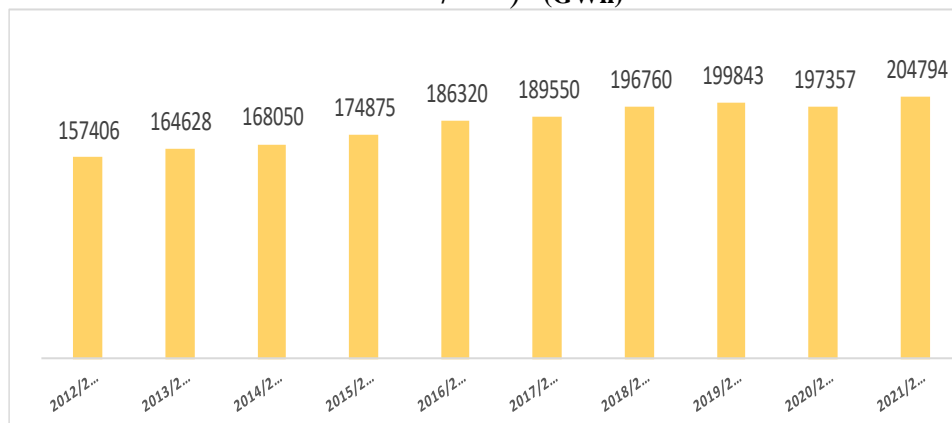
Government spending on integrated infrastructure development that promotes economic growth is an important determinant in attracting long-term foreign direct investment, as advanced infrastructure creates a favorable business environment to encourage investment flows to host countries, as is the case in East Asian countries. The remarkable development in the field of Egyptian infrastructure is evident in an unprecedented way, especially in the sectors of transport and roads, electricity and energy, and oil and natural gas.

Therefore, it was necessary for Egypt to rank four places in the infrastructure index in the Global Competitiveness Report ٢٠١٩, from ٥٢ compared to ٥٦ in the same report for ٢٠١٨. In terms of

infrastructure quality, Egypt ranked ٢٨th globally in the Global Competitiveness Report ٢٠١٩. This was reflected in the reduction of the road accident mortality rate by ٤٤% during the year ٢٠١٩/٢٠٢٠.

With regard to the availability of energy, which is one of the main pillars to achieve the objectives of the comprehensive development process, and one of the basic requirements for doing business, the Egyptian government has developed a long-term vision based mainly on rational use of the available energy, and work to diversify the sources of electricity production. Whether traditional or renewable and environmentally friendly, from all its available sources within the geographical borders of the Arab Republic of Egypt, in addition to increasing the local component of electrical equipment and tasks by ٤٢% of the electrical equipment of generating stations, ٨٠% of transmission and control networks, and ١٠٠% of distribution networks, in order to keep pace with the development of domestic and productive consumption rates. Figure ٩ shows the evolution of electricity production in Egypt during the period ٢٠١١-٢٠١٢ to ٢٠٢٠-٢٠٢١.<sup>٤٢</sup> The figure (٣) shows an increase in energy output from (١٥٧٤٠٦ GWh) during the fiscal year ٢٠١١-٢٠١٢ to (٢٠٤٧٩٤ GWh) during the fiscal year (٢٠٢٠-٢٠٢١), with a rate of change of ٣٠,١%.

**Figure (٣)**  
**Evolution of electricity production in Egypt during the period (٢٠١١/٢٠١٢ - ٢٠٢٠/٢٠٢١) - (GWh)**

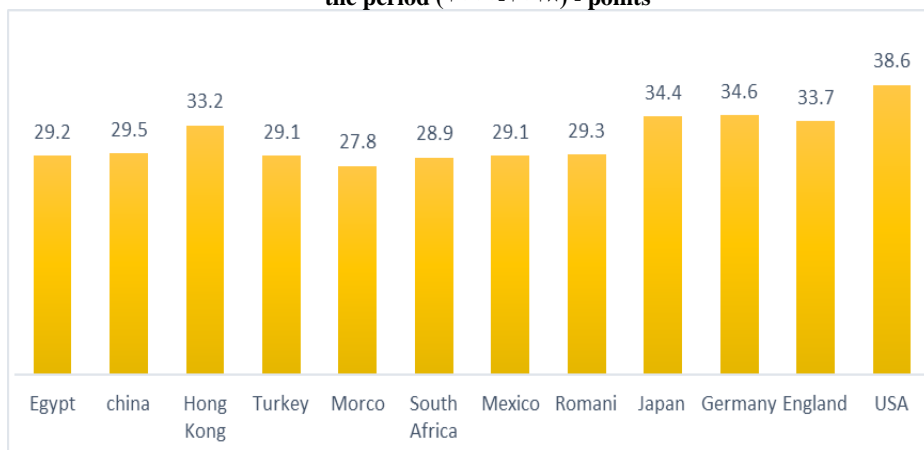


Source: Ministry of Electricity and Renewable Energy.

These efforts contributed to the improvement of the Egyptian Energy Index issued by UNCTAD during the period ٢٠٠٠-٢٠١٨ to ٢٩,٥ in ٢٠١٨ compared to ٢٨,٥ in ٢٠٠٠, and Figure (٤) shows a comparison between the average value of the Egyptian Energy Index and the same indicator for a selected group of countries during the period ٢٠٠٠-٢٠١٨. The figure shows that Egypt has a strong index that is higher than the value of the same index for Mexico and Turkey by ٢٩,١ for both countries, and more than Morocco and South Africa, which achieved ٢٧,٨ and ٢٨,٩ indices respectively. It is slightly lower than China and Romania, which achieved ٢٩,٥ and ٢٩,٣ respectively.



**Figure (٤) The average energy index of Egypt and a number of countries during the period (٢٠٠٠-٢٠١٨) - points**



**Source:**

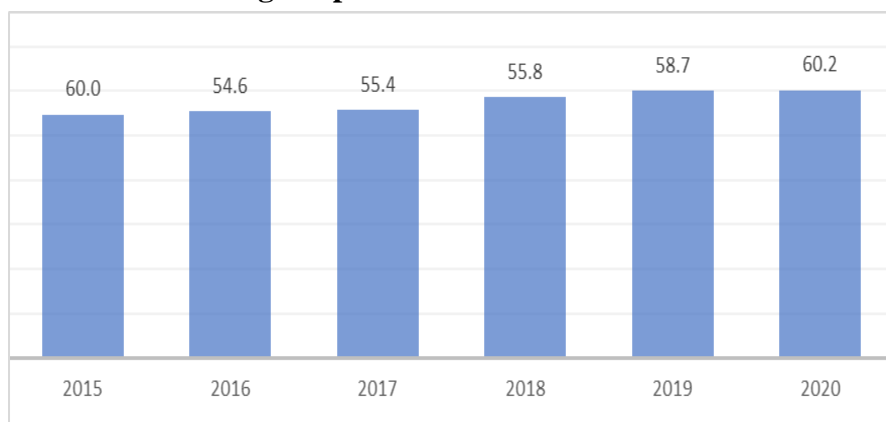
<https://unctadstat.unctad.org/wds/TableViewer/downloadPrompt.aspx>

#### **d- Ease of Doing Business**

The ease of doing business index measures the ease of implementing the processes of establishing a business and starting a business, obtaining a building permit, access to electrical energy, ease of implementing property transfer procedures, ease of access to credit, protection for investors, fairness and ease of tax systems, degree of engagement in international trade, credibility in enforcing contracts and dealing with bankruptcies, in addition to paying attention to the laws governing the recruitment process and working hours, as well as government contracts.

Figure (٥) shows the evolution of the ease of doing business index during the period ٢٠١٥-٢٠٢٠ for Egypt according to World Bank data, and the figure shows the continuous improvement in the value of the index for the Arab Republic of Egypt from ٦٠,٠, ٥٤,٦, ٥٥,٤, ٥٥,٨, ٥٨,٧ points to ٦٠,٢ points, during the years ٢٠١٥, ٢٠١٦, ٢٠١٧, ٢٠١٨, ٢٠١٩, and ٢٠٢٠ respectively, placing Egypt in ١١٤th place during ٢٠٢٠, and among the countries with medium ease of doing business.

**Figure (٥) Evolution of the value of the ease of doing business index during the period ٢٠١٥-٢٠٢٠<sup>٤٣</sup> - Points**



World Bank, link: <https://data.albankaldawli.org/indicator/IC.BUS.DFRN.XQ>

With regard to the Arab environment for Egypt, the United Arab Emirates achieved an index during ٢٠١٩ of ٨٠,٨ points, followed by Morocco ٧٣,٤ points, Saudi Arabia ٧٠,٩, Qatar and Tunisia ٦٨,٧ points, and finally Kuwait ٦٧,٤ points. As for Latin American countries, Mexico achieved an index of ٧٢,٤ points,

followed by Peru with ٦٨,٧ points, Brazil with ٥٩,١ points, and finally Argentina with ٥٩ points. As for a selected sample of Asian countries, Hong Kong achieved an index of ٨٥,٣, followed by Korea ٨٤,٠ points. Malaysia ٨١,٥ points, China ٧٧,٣ points, India ٧١,٠ points, Vietnam ٦٩,٨ points and Indonesia ٦٩,٦ points. In some Eastern European countries, Russia achieved an index of ٧٨,٢ points, followed by Poland ٧٦,٤ points, Romania ٧٣,٣ points, and finally Ukraine ٧٠,٢ points. Turkey, Greece and South Africa scored ٧٦,٨, ٦٨,٤ and ٦٧,٠ respectively.

Procedures have varied in many countries to improve the value of the associated ease of doing business index. These measures have significantly reduced the financial constraints that hinder the official entry of investors into the economies of countries, and the investment of their initial capital in productive activities. In ٢٠٠٣, ٥٥ countries eliminated the minimum paid-up capital requirement at the time of starting a business, while another ٦٢ economies reduced the amount of capital at the time of starting a business. By mid-٢٠١٩, investors could start their businesses without any minimum paid-up capital requirements in ١٢٠ economies around the world.

With regard to Egypt, the Egyptian government has reduced the time required to establish companies to one working day, the time required to obtain a license to ٢٠ working days, in addition to reducing the minimum issued capital to ٢٥٠,٠٠٠ EGP pounds for joint stock companies.<sup>٤٤</sup>

### e- Creditworthiness

For this determinant, creditworthiness ratings imply clear variations across economic regions and income levels, and many developing countries, especially Latin America and the Middle East and North Africa, continue to record positive credit ratings when global economic crises occur and indicate great resistance and resilience. In dealing with the data and consequences of the financial crisis. Egypt is one of the countries that have been subject to the same rule.

**Table No. (١)**  
**Egypt's credit rating for the period ١٩٩٦- Feb ٢٠٢٣<sup>(١٥)</sup>**

years	International Credit Rating Agencies					
	Moody's		Fetch		S & B	
	Classifying	Future outlook	Classifying	Future outlook	Classifying	Future outlook
١٩٩٦	Ba <sup>٢</sup>	stable	unavailable	unavailable	unavailable	unavailable
١٩٩٧	Ba <sup>٢</sup>	Positive	BBB-	unavailable	BBB-	stable
٢٠٠٠	unavailable	unavailable	BBB-	negative	BBB-	negative
٢٠٠١	Ba <sup>١</sup>	negative	unavailable	unavailable	unavailable	unavailable
٢٠٠٢	Ba <sup>١</sup>	stable	BBB-	stable	BB+	stable
٢٠٠٣	Ba <sup>١</sup>	stable	BB+	stable	BB+	negative
٢٠٠٥	unavailable	stable	unavailable	unavailable	BB+	stable
٢٠٠٧	unavailable	stable	BB+	stable	unavailable	unavailable
٢٠٠٨	Ba <sup>١</sup>	negative	BB+	stable	unavailable	unavailable
٢٠٠٩	Ba <sup>١</sup>	stable	unavailable	unavailable	unavailable	unavailable
٢٠١١	B <sup>٢</sup>	Review	BB-	negative	B+	negative
٢٠١٢	B <sup>٢</sup>	negative	B+	negative	B-	negative
٢٠١٣	Caa <sup>١</sup>	negative	B-	negative	B-	stable
٢٠١٤	Caa <sup>١</sup>	stable	B	stable	B-	stable

٢٠١٥	B <sup>+</sup>	stable	B	stable	B-	stable
٢٠١٦	B <sup>+</sup>	stable	B	stable	B-	stable
٢٠١٧	B <sup>+</sup>	stable	B	stable	B-	stable
٢٠١٨	B <sup>+</sup>	Positive	B	Positive	B	stable
٢٠١٩	B <sup>+</sup>	stable	B+	stable	B	stable
٢٠٢٠	B <sup>+</sup>	stable	B+	unavailable	B	stable
٢٠٢١	B <sup>+</sup>	stable	B+	unavailable	B	stable
٢٠٢٢	B <sup>+</sup>	negative	B+	negative	B	stable

[www.Tradingeconomics.com](http://www.Tradingeconomics.com)

Table (١) shows the credit rating and outlook for the Egyptian economy issued by the main credit rating agencies during the period ١٩٩٦ until the seventh of February ٢٠٢٣.

**Pennartz, J. – Snoeij, P. J.** (٢٠١٢) indicate to the Standard & Poor's rating is more accurate in predicting short-term defaults than other agencies, while Moody's is the best long-term forecaster. While Standard & Poor's rated the best in terms of timeliness in terms of default, Moody's performed the best in terms of stability, due to the lack of sudden downgrade <sup>٤٦</sup>.

**Adel Abdel Azim, others** (٢٠١٩) Credit rating agencies have been heavily criticized since the twentieth century until now because of their strong and direct influence on the financial, economic and investment decisions of countries and major institutions, with each report issued by one of these three agencies, the economic situation of any country can change for the worse or for the better. This raised many questions about the impartiality and integrity of these agencies, their ability to assess

future risks, and the delay in downgrading credit ratings. The impact of reliance on changing these ratings on the performance of financial markets, and on the enactment of legislation and regulation on the handling of risks of financial institutions <sup>٤٧</sup>.

In theory, the downgrade will increase the cost of borrowing for the Egyptian government, due to the increase in the interest rate on new foreign loans that the government, banks, Egyptian companies and banks may apply for in the future, as a result of the increased degree of risk and the psychological factor of lenders due to doubts in the ability to repay. The impact could spill over to foreign and domestic investments as well as investors' concern over the uncertainty of the Egyptian economy's ability to absorb external shocks, with the decline in foreign aid, and the ability of monetary policy to manage inflation risks declined, leading to increased financing pressures on the Egyptian economy.

Here, the important question is, did Moody's, when preparing the classification, consider other reassuring indicators? <sup>٤٨</sup> These include:

- a) The Egyptian government reaches an agreement with the International Monetary Fund? Under the agreement, Egypt secured a \$٣ billion loan as part of a nearly four-year program.
- b) The International Monetary Fund (IMF) ensures that Gulf dollar funds will remain as deposits with the Central Bank of Egypt until September ٢٠٢٦.

- c) The Egyptian government's decision to sell some of its assets and sell them to the private sector.
- d) The downgrading of the credit rating of the Egyptian government's bond issuances from B<sup>+</sup> to B<sup>-</sup> is significant, but not to the degree of a complete exit from the B to the lower category.
- e) Egypt's ranking has improved in many international indicators.
- f) The successful offering of the first Islamic sovereign sukuk issue in Egypt's history, worth \$ ١,٥ billion, with a subscription value of about \$ ٦,١ billion, which means that the subscription is covered more than four times<sup>٤٩</sup>.

All of the above will undoubtedly lead to a reasonable percentage of dollar resources annually, which will increase the solvency of the Egyptian state, which will contribute to enhancing the ability of the Egyptian economy to meet its external obligations and resist external shocks, and finally open the way for the flow of more investment. Direct foreign to Egypt.

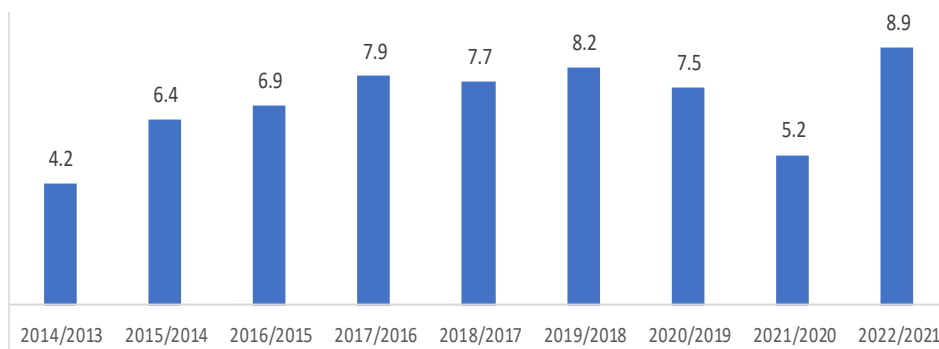
#### ٥- Foreign Direct Investment in Egypt

Net foreign direct investment in Egypt reached about \$ ٨,٩ billion during the fiscal year (٢٠٢١-٢٠٢٢), an increase of \$ ٣,٧ billion over the previous fiscal year, and an increase of \$ ٥ billion over the fiscal year ٢٠٠٤-٢٠٠٥, as shown in Figure (١٦), and the series indicates the usual fluctuation in foreign investment flows

to host countries, and the fiscal year ٢٠٠٧-٢٠٠٨ had the highest percentage of net foreign capital inflows with a value of \$ ١٣,٢ billion, the highest level of inflows during The total net foreign investment flows to Egypt reached \$ ١٢٢,١ billion during the period ٢٠٠٤-٢٠٢٢, according to data published on the Central Bank of Egypt website. The above figure also indicates that despite the successive decline in foreign investment flows during some years, as a result of the financial crises that hit most countries of the world, which affected the investment behavior of the most important foreign investors in Egypt, the shift in the ranking of countries exporting foreign capital, the change in oil prices, the spread of the Covid-١٩ pandemic, in addition to the internal crises experienced by the Egyptian state, they are rising again, but Egypt deserves after strenuous and tireless efforts. The state's efforts to develop its economic structures, improve the investment climate, in addition to Egypt's excellence in many elements of attracting foreign investment, the flow of much larger balances from foreign capital, especially Arab ones.



**Figure (٦)**  
**Evolution of net foreign direct investment in Egypt during the period (٢٠١٣/٢٠١٤ - ٢٠٢١/٢٠٢٢)**  
**- USD billion**

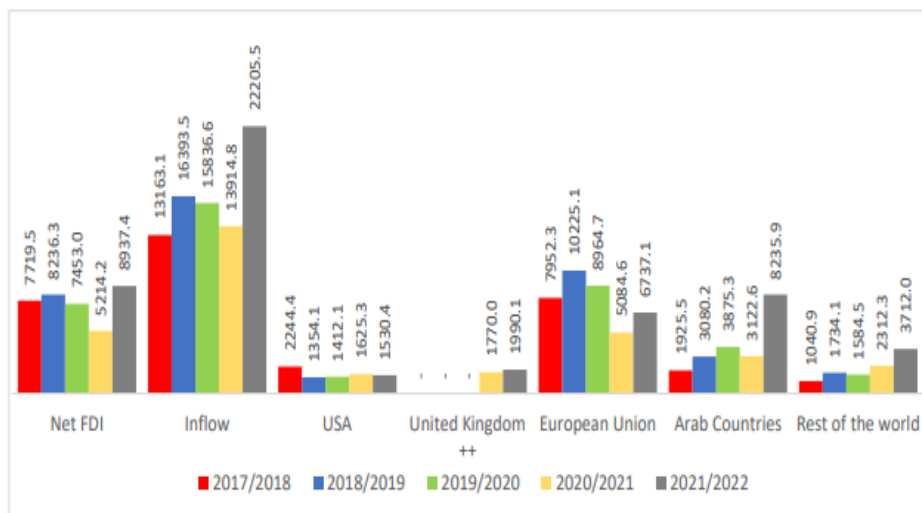


**Source: Central Bank of Egypt**

With regard to the statistics of foreign investment flows in the regions during the period (٢٠١٧/٢٠١٨ - ٢٠٢٢/٢٠٢١), the total flows amounted to \$ ٨١,٥ billion, and net flows amounted to \$ ٣٧,٥ billion, of which the United States of America, England, the European Union, the Arab countries, and the rest of the world contributed \$ ٨,٢, \$ ٣,٨,

٣٩,٠, ٢٠,٢, and \$ ١٠,٤ billion, respectively, with average annual flows to the same regions and countries amounting to \$ ١,٦, ١,٩, ٧,٨, ٤,٠, and \$ ٢,١ billion, respectively.

**Figure (٧)**  
**Evolution of the Distribution of FDI Flows by World by Region during the Period**  
 (٢٠١٧/٢٠١٨ - ٢٠٢١/٢٠٢٢) - Million USD



\*\* The UK officially left the EU (Brexit) on 31 January 2020.

Source: Central Bank Of Egypt

However, the Egyptian economy is not primarily rent-wise, as it is for many others. Countries of the Arab region. Egypt can focus on its industrial, agricultural and commercial infrastructure that is more advanced than other countries in the region. However, this does not mean that FDI is irrelevant in providing foreign exchange sources, employment opportunities and increasing exports in the long run, thus achieving high growth rates.

### ٦- Data and Variables

The study uses the ARDL model to study the long-run relationship between credit rating for countries and FDI in Egypt during the period ١٩٩٠ to ٢٠٢٢. The Credit rating is measured by two dummies  $CR_{it}^1$  and  $CR_{it}^2$ .  $CR_{it}^1$  takes the value of ١ if the country rating is positive and ٠ otherwise. Whereas,  $CR_{it}^2$  takes the value of ١ if the country rating is negative and ٠ otherwise. The study uses time-series data from the World Bank database as seen in table (٢).

**Table ٢: the study variables**

Variable	Description	Source
FDI_GDP	Foreign direct investment inflows as % of GDP	World bank indicators
Credit GDP	Domestic credit provided to the private sector as % of GDP	World bank indicators
Trade	Exports plus Imports as percentage of GDP	World bank indicators
GFCF	Gross fixed capital formulation growth rate	World bank indicators
EXCR	Exchange rate (local currency units relative to the U.S. dollar).	World bank indicators
$CR_{it}^1$	Credit rating (positive) (Dummy variable=١)	Trading economics
$CR_{it}^2$	Credit rating (Negative) (Dummy variable=٠)	Trading economics

### ARDL model and Test Bounds

Researchers have recently been more interested in employing variables in their state form to explore the long-run and dynamic relationships between the underlying variables. Because many macro variables are not stable at the level, using traditional models will result in spurious regression. The concept of co-integration emerged, which suggests that even if individual

variables are non-stationary on their own, the residuals will be stationary. So, in our research, we will employ a co-integration approach.

Whether the independent variables are  $I(0)$  or  $I(1)$  or jointly co-integrated, the ARDL bound testing approach established by (Pesaran et al., 2001) can be employed. Furthermore, when small sample sizes are used, like in this study, the test produces more efficient findings than previous co-integration tests.

### **The unit root tests**

In order to utilize the ARDL bounds testing technique. First, we checked for variable stationarity. Because the ARDL bound approach implies that variables are either purely  $I(1)$ , strictly  $I(0)$ , or co-integrated, it fails when variables are  $I(2)$ . And, as shown in table 4 of the appendix, this requirement is met in our situation.

Table ٣: Unit root test results

Variable	Level (intercept)	Level (trend)	Difference (intercept)	Difference (trend)
<i>FDI_GDP</i>	-٣,٢٠ (٠,٠٢٩٥)	-٣,١٠٩ (٠,١٢٢٤)	-٣,٥٨٦٨ (٠,٠١٢٢)	-٣,٥٦١ (٠,٠٥٠٨)
<i>Credit GDP</i>	-١,٠٥٤ (٠,٧٢١١)	-٢,٢٥٧ (٠,٤٤٣٣)	-٣,٤٤ (٠,٠١٦٨)	-٣,٦٦ (٠,٠٤٠٥)
<i>Trade</i>	-٢,٤٩٣ (0.1269)	-٢,٤٨٦ (0.3321)	-٤,٤١ (0.0015)	-٤,٢٦٦٥ (0.01040)
<i>EXCR</i>	٠,٤٧٦ (0.9831)	-١,٠٨٨ (0.9154)	-٤,٠٥ (0.0037)	-٤,٢٨٩٩ (0.0099)
<i>GFCF</i>	-٤,٥٣٥ (0.0010)	-٤,٤٥٩ (0.0064)	-٧,٥٨٧٥ (0.0000)	-٧,٤٤٨٦ (0.0000)

Source: Eviews١٢

The results in table (٣) indicate the stationarity of the variable of gross fixed capital formulation at the level, While the percentage of credit provided to the private sector as a percentage of GDP, trade openness and FDI variables are stationary at the first difference using the Trend and Intercept direction. This indicates the validity of using the Bound test and the ARDL model which is used to illustrate the cointegration between the variables in the long run.

### Bounds Testing Procedure

Second, we estimated the co-integration equation

$$\Delta FDI_t = \alpha_0 + \beta_{1i} \Delta FDI_{t-i} + \beta_{2i} \Delta Credit\_GDP_{t-i} + \beta_3 \Delta Trade_{t-i} + \beta_{4i} \Delta EXCR_{t-i} + \beta_{5i} \Delta GFCF_{t-i} + \varphi_1 FDI\_GDP_{t-i} + \varphi_2 EXCR_{t-i} + \varphi_3 Credit\_GDP_{t-i} + \varphi_4 Trade_{t-i} + \varphi_5 GFCF_{t-i} + \varepsilon_t$$

Where  $\beta$ 's are short run coefficients,  $\phi$ 's are long run coefficients and  $\varepsilon_t$  is the error term which is assumed to have zero mean and homoscedastic.

The test uses the well-known Wald or F-statistics in augmented Dicky-Fuller type regression, but with two distinct asymptotic critical values. The lower value assumes that the independent variables are  $I(0)$ , whereas the greater value assumes that they are entirely  $I(1)$  regressors. If the F-statistic is greater than the upper critical value, we may reject the null hypothesis of no co-integration. On the other hand, if the Test statistic is less than the lower bound, we accept the null hypothesis. However, if the Wald or F-statistic value is between these boundaries, we cannot conclude if variables are co-integrated.

In our data, the calculated F-statistics (5.396) is above the upper bound critical value (4.223) at the 5 per cent level. Thus, we reject null hypothesis and there is long-run co-integration relationship among our variables.

**Table 4: Bound Cointegration test**

	F-statistics	Significance	Lower limit	Upper limit
F-bound test	5.396	10%	2.525	3.56
		5%	3.058	4.223
		1%	4.28	5.84

Source: Eviews 12

## The ARDL Model Results

ARDL model is the Auto regressive distributed lag model. The model depends on determining the existence of a cointegration relationship between the two variables or not. The ARDL model is a dynamic model since it incorporates lags to both the dependent and independent variables, allowing us to assess both the short and long-term relationship between variables of interest. The model equation becomes:

$$FDI_t = \alpha + \beta_1 Credit\_GDP_t + \beta_2 Trade_t + \beta_3 GFCF_t + \beta_4 EXCR_t + \varepsilon_t$$

Where FDI is Foreign direct investment inflows as % of GDP and dependent variable, Credit\_GDP is Domestic credit provided to the private sector as % of GDP trade is the trade openness variable, GFCF is gross fixed capital formulation growth rate, and EXCR is the exchange rate.  $\alpha$  is constant term,  $\beta_1, \beta_2, \beta_3$  and  $\beta_4$  are independent variables' parameters, and  $\varepsilon_t$ : random error term.

The ARDL model is quite efficient, with  $R^2=78\%$ , which implies that the variation in the independent variables can explain  $78\%$  of the variance in the dependent variable. F-statistics also, indicates that all independent variables in the model are significant and demonstrate the dependent variable. According to the VIF test, the model also does not suffer from multicollinearity among variables.

### The long run relationships

$$FDI_t = a_0 + \sum_{i=1}^p (\beta_1 FDI_{t-i}) + \sum_{i=0}^Q (\beta_2 Credit\_GDP_{t-i}) + \sum_{i=0}^M (\beta_3 EXCR_{t-i}) \\ + \sum_{i=0}^M (\beta_4 Trade_{t-i}) + \sum_{i=0}^M (\beta_5 GFCF_{t-i}) + U_t$$

Where t refers to years and  $\beta_s$  are long run coefficients, and  $U_t$  is the error term

**Table ٥: the long run coefficients**

Variable	Coefficient	St. Error	t-statistics	Prob.
Credit_GDP	٠,٠٥٦	٠,٠٢٦٨	٢,٠٨٢	٠,٠٥٢
Trade	٠,١٢٦	٠,٠٣٢	٣,٩٩٨	٠,٠٠٠٨
EXCR	٠,٢٢٣	٠,٠٧٣	٣,٠٥	٠,٠٠٧
GFCF	٠,٠٥١	٠,٠١٩	٢,٦٦	٠,٠١٦
C	-٧,٧٧٥	٢,٢٧٩٦	-٣,٤١	٠,٠٠٣

Source: EvIEWS١٢

We can find that credit provided to private sector as percentage of GDP has a positive and highly significant impact on FDI in the long run. A ١% increase in credit results to approximately ٠,٠٥٦ million dollars increase in FDI, keeping other things constant. Where credit could promote FDI through providing finance which is one of the main obstacles that can hinder investment.

In addition, trade openness shows positive and highly significant impact on FDI. A ١% increase in trade leads to ٠,١٢٦ million increases in FDI. where increase in trade transactions means that economy is open to



the outside world which in turn lead to increase in the FDI. A ١% increase in exchange rate leads to ٠,٢٢٣ million increase in FDI. Where increase in real exchange rate means a depreciation of local currency which in turn lead to increase in the competencies and quantity of exports that FDI will export. Finally, gross fixed capital formulation leads to ٠,٠٥١ expansions in FDI. Since if gross fixed capital formulation increased, so FDI increase.

### The Short run dynamics

$$\Delta FDI_t = a_0 + \sum_{i=1}^{p-1} (\beta_{1i} \Delta FDI_{t-i}) + \sum_{i=0}^{Q-1} (\beta_{2i} \Delta Credit\_GDP_{t-i}) + \sum_{i=0}^{M-1} (\beta_{3i} \Delta EXCR_{t-i}) \\ + \sum_{i=0}^{Q-1} (\beta_{2i} \Delta Trade_{t-i}) + \sum_{i=0}^{Q-1} (\beta_{2i} \Delta GFCF_{t-i}) + \varphi ECT_{t-1} + U_t$$

Where  $\Delta$  refers to first difference operator,  $\beta_s$  refer to short run coefficients and  $\varphi$  is speed of adjustment term which shows convergence towards long run.

**Table ٦: Error Correction model for the applied ARDL Model**

Variables	Coefficient	t-statistics	P-value
D(FDI)	٠,٧٠	٥,٠٣٧	٠,٠٠٠١
D(Credit_GDP)	-٠,١١	-٢,٠٣٦	٠,٠٥٦٨
D(trade)	-٠,٠٧	-١,٨٨٧	٠,٠٧٥٤
CR٠١	-٠,٣٥	-٠,٧٢	٠,٤٧٩٨
CR٠٢	٠,٩٩٦	١,٩٢٦	٠,٠٧٠١
CointEQ(-١)	-٠,٨٨٨٩	-٦,٤٣٢	٠,٠٠٠٠
R-squared	٠,٧٠	Adjusted R-squared	٠,٦٤
Durbin Watson	٢,٢٦		

Source: EvIEWS١٢

We obtained the results of the short-run dynamic coefficients by applying ECM (Error correction model). We can find that the signs of the relationship between variables are the opposite to the long-run. However, we can find that  $CR \cdot 1$  (positive credit) is insignificant in the short run in the other site the  $CR \cdot 2$  (Negative credit) is significant that's mean the negative rate for the economy will decreasing the FDI to the Egyptian Economy (short Run).

The other variables like (credit GDP) and (trade) are significant in the short run that mean the government should decreed the policies and procedures are related to trade and credit to attractive the FDI

The equilibrium correction coefficient  $\phi$ , is highly significant and negative and imply a moderate speed of adjustment to equilibrium. where it takes FDI about "a year and 2 months" to return to equilibrium. In other words, about 88,89 % of disequilibria is adjusted yearly.

### Tests for robustness

1- **The first test is the Breusch-Godfrey test (sometimes known as the LM test). Autocorrelation analysis**

If the model has autocorrelation, OLS will incorrectly estimate t values, and we may fall victim to type I error, in which we conclude that variables are statistically significant when they are

not. We apply the Breusch-Godfrey Test to determine if the error term is correlated or not by regressing residuals on its lags and all of the X variables included in the original model. From the test results as seen in table (), we accept the null hypothesis that residuals are pairwise independent.

## ٢- The second test is called the Heteroscedasticity Test.

Heteroscedasticity tests look to determine if the variance of residuals varies if any of the explanatory variables  $X_s$  changes, as shown in the equation  $\text{var}(u|x_1, x_2, \dots, x_j) = \sigma^2$ . If the model has heteroscedasticity, the error variance will be skewed, resulting in incorrect standard errors, Void t-statistics, and F statistics.

The white Heteroscedasticity test demonstrated that the model's residuals had constant variance. Whereas the probability values are ٠,٧٩٥٥ and ٠.٧٠٣٤, respectively.

**Table٧: Heteroscedasticity and Autocorrelation Test Results**

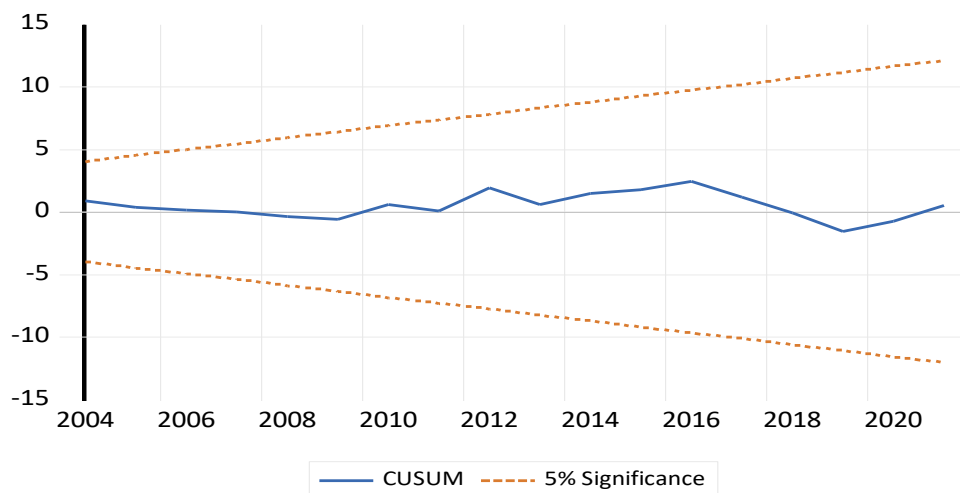
	F-statistics	Probability	Obs R-squared	Prob. Chi-square
<b>Breusch-Pagan serial correlation LM test</b>	٠,٣٣	٠,٧٢٣٥	١,١٥	٠,٥٦٢٨
<b>Breusch pagan Godfrey</b>	٠,٥٩٨	٠,٧٩٥٥	٧,٢٣	٠,٧٠٣٤

Source: Eviews<sup>١٢</sup>

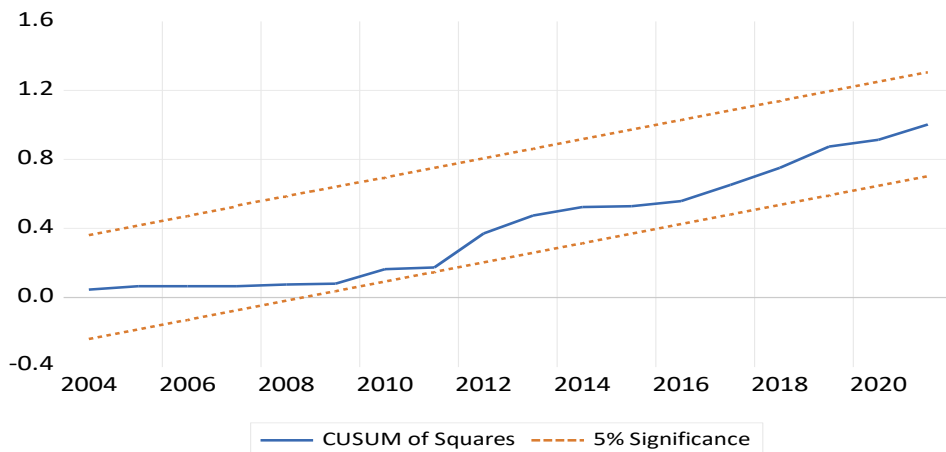
## The model Stationary test

There are several tests that can be used to ensure that the data used in the model are free of any structural changes, and the most important of these tests is (CUSUM) and this test clarifies two important things, namely to show whether there is any structural change in the data and the stability of long-term parameters with short-term parameters, and this test from ARDL accompanying the model

**Figure ٨: Cusum test**



Source: Eviews ١٢

**Figure ٩: Cusum square test****Source: Eviews١٢**

**Finally**, we tested for the stability of the parameters of the model using Cusum and Cusum square, and the study found that they are stable since the line falls within the borders

This means that there is consistency between the results of the model in the short and long term, and therefore the model can be relied upon and used to predict changes that may occur in foreign direct investment as a result of changes that may befall in credit ratings.

### ٧- Future trends of foreign direct investment

Nearly ٦٨% of international institutions studying the future foreign investment situation expect investments in foreign capital exporting countries to increase to recover from the effects of the COVID-١٩ pandemic (as the pandemic has negatively affected

many areas of private international investment, investments in energy infrastructure and distribution other than renewable ones have decreased by ٥٤%, in renewable energy production by ٨%, in water, sanitation and hygiene works by ٦٧%, and in health infrastructure by ٥٤% , agricultural investments ٤٩%, and education infrastructure ٣٥%). UNCTAD's ٢٠٢١ study of future trends of global FDI in ٢٠٢١ predicts a significant increase in its global flows despite difficult global economic conditions, in three main areas: food and agriculture, information and communication technology and pharmaceuticals.

**UNCATED (٢٠٢٢)** , With the growing interest in these areas in light of the global conditions that resulted from the Russian-Ukrainian crisis, especially by developing economies that are going through difficult economic conditions in terms of providing basic foodstuffs, in addition to meeting other sustainable development process goals, it is worth noting that ٢٠٢٠ is an indicator of the future direction of foreign direct investment, as the African renewable energy sector received an international financing volume of \$ ١١ billion, and ٢٨% of the total flows to the continent African.<sup>٥٠</sup>

## Results and Recommendation

١. When the Egypt economy take positive rate, this will not effectd in the FDI cause this rate is insignificant in the short run
٢. When the Egypt economy take (Negative rate) is significant that's mean the negative rate for the economy will decreasing the FDI to the Egyptian Economy (short Run).
٣. The variables like (credit GDP) and (trade) are significant in the short run that mean the government should decreed the policies and procedures are related to trade and credit to attractive the FDI
٤. The equilibrium correction coefficient  $\phi$ , is highly significant and negative and imply a moderate speed of adjustment to equilibrium. where it takes FDI about "A year and ٢ months" to return to equilibrium. In other words, about ٨٨,٨٩ % of disequilibria is adjusted yearly.
٥. Among the results of the model, it is clear that credit ratings, especially those of Moody's, have a significant impact on Egypt's foreign direct investment, but in the short term.
٦. It is also clear from the results that a negative rating has the most harmful impact on FDI flows to Egypt, as opposed to a positive valuation where it has no impact on attracting foreign investment.
٧. There is consistency between the results of the model in the short and long term, and therefore the model can be relied upon and used to predict changes that may occur in foreign

direct investment as a result of changes that may befall in credit ratings.

**The following recommendations are just Suggestions to improve Egypt's credit rating and attract more foreign direct investment: -**

- ١- Establishing a dedicated investment promotion authority that carries out a wide variety of marketing and service activities with the aim of enhancing Egypt's position as an attractive investment destination. These activities are categorized into four main functions:
  - **Building reputation** which is based on enhancing the positive image of the host country and promoting it as a profitable investment destination
  - **Generate investment** associated with direct marketing techniques targeting specific sectors, markets, projects, activities and investors, in line with national priorities
  - **Facilitation, retention** of investment, steps that provide support to investors to facilitate their incorporation phase as well as retain existing investors and encourage reinvestment by responding to their needs and challenges;
- ١- **Policy advocacy** includes identifying constraints in the investment climate and making recommendations to the government to address them.



- ٢- Using cost-based incentives rather than profits, as is the practice, tax credits enable investors to deduct their direct costs from their tax liability (not from their taxable income), which reduces the amounts of taxes. These tax credits depend on cost, and therefore reduce the cost of investment for companies, such as investment expenses and reinvested profits, or more targeted costs such as training and research and development programs.
- ٣- Other eligibility-based incentives to attract investment in less developed areas of Egypt. These incentives consist of improved tax deductions on transportation, electricity and water supply costs for ١٠ years and an additional ٢٥ % discount on the investment cost of installing or constructing utilities.
- ٤- Introducing “**Mixed-financing**” approaches and risk transfer mechanisms such as “Export-Credit” and political risk insurance, where Mixed finance can stimulate investment by shifting some risk away from investors. such as Political Risk Insurance and Dispossession and civil unrest.

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