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Has Export Credit Guarantee Any Role in
Promoting Exports in Arab Countries?

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Abstract

Limitations on the availability of timely and affordable trade financing, including export credit guarantee, are contributing to modest trade growth during the last five years, therefore it must be a matter of priority to improve our understanding of the linkages between financing/risk mitigation and trade activity, ensuring adequate levels of the former, to help fuel growth of the latter.

The existing research works on the effects of export credit insurance on export promotion mostly are concentrated around several European countries. Yet nothing is known about the influence of export credit guarantees on exports in the Arab region, where the structure of export industries and key trading partners significantly differ from other regions. The purpose of this paper is to bridge this gap by investigating empirically the significance of the relationship between exports and credit-worthiness of importing countries, using Arab merchandise export values. Corroborating evidence for such relationship gives support to the usefulness of specialized export financial institutions to finance exports, mitigate credit risk and keep trade finance markets in Arab countries from drying up. A dynamic panel approach is adopted to estimate an adjusted gravity model. The empirical results, based on a balanced panel of 107 Arab partner countries (importer countries) observed between 1997 and 2017, provide a strong and robust justification to the role of export credit insurance and guarantees in promoting merchandise exports in the Arab region.

Keywords: Empirical Studies of Trade, Non-bank Financial Institutions, International Linkages to Development

JEL classification: F14, G23, O19

1. Introduction

International trade is incontestably dependent on trade financing, including the availability of risk mitigation. This reality is increasingly appreciated in business, policy and academic circles, and directly relates to the effectiveness of trade as a driver of economic growth, global development and perhaps even world stability. Today, up to 80% of trade is financed by some form of credit, guarantee or insurance.

After the 2008 global financial crisis, major global banks have pulled back from developing markets, thereby restricting access to trade finance. As a result, there is a significant and persistent gap between the demand and supply of trade financing, estimated by the Asian Development Bank to be worth US\$1.5 trillion, mostly related to micro, small, and medium-sized enterprises in low-income and developing economies (ICC, 2017). Access to trade finance remains costly and scarce particularly in regions, which have the strongest potential for trade expansion like Africa and Middle East. Such a gap exists despite the fact that trade finance is traditionally far safer than other banking products, with a default rate of less than 1%. According to the ICC's Global Risks – Trade Finance Report 2013, the average transaction default rate on short-term international trade credit is no more than 0.021 %, of which 57 % is recovered through the sale of the underlying asset, the merchandise (ICC, 2013).

When analyzing the global and regional impacts and trends in trade finance it is important to distinguish between trends in the volume versus trends in the monetary value of international merchandise trade. Trade finance limits, fees and business development are based on forecasts and evaluations in monetary and currency terms. Merchandise trade in volume terms, recorded a modest average increase during the last five years (2013-2017) of 2.1%. However, the US dollar value of world merchandise trade declined during the same period (-0.6%) because of a sharp decline in 2015 (-12.9%) and 2016 (-3%). Limitations on the availability of timely and affordable trade financing, including export credit guarantee, are contributing to modest trade growth during the last five years, therefore it must be a matter of priority to improve our understanding of the linkages between financing/risk mitigation and trade activity, ensuring adequate levels of the former, to help fuel growth of the latter.

Promoting and selling goods into foreign markets incur without doubt numerous risks, including country and political risk, bank risk, commercial/counterparty risk, operational risks and foreign currency risk, among others. The risks can arise from voluntary default actions of private or government buyers as well as involuntary default actions of buyers due to their countries' unexpected economic, financial, and political crises leading to sovereign crises. Export credit insurance offers companies a simple way to manage such risks. By insuring their accounts receivable, exporters can reduce their exposure to both commercial and political risks. Accordingly, it is a crucial step for an exporter company to consider carefully any available information about foreign buyers when reviewing a new potential foreign market. The accuracy of the risk assessments will help the exporter to define not only the export profitability conditional on non-payment risks, but also to decide whether it is worthy to seek appropriate export credit insurance instrument to mitigate or effectively manage risks in export business.

Risk mitigation instruments designate financial instruments that transfer certain defined risks from exporters to creditworthy third parties (guarantors and insurers) that have a better capacity to accept such risks. These instruments are especially useful for developing country governments and local firms that are not sufficiently creditworthy or do not have a proven track record in the eyes

of exporters to be able to import goods without support. Effective risk mitigation in international trade often involves trade and export finance banks or other providers working in partnership with Export credit agencies (ECAs), international financial institutions or private risk insurers to provide the appropriate level of mitigation for a particular market, trading relationship or individual counterparty, such as a foreign bank.

With an increasingly short-term nature of private financial markets, ECAs and public financial institutions play progressively a critical and relevant role for exporters and investors. In 2017, new business underwritten by members of the Berne Union, an international organization representing the credit and investment insurance industry including both public and private institutions, totaled USD 2.33 trillion in export credits and investment insurance, the equivalent of 14% of the world merchandise trade (Bern Union, 2018).

Twenty years ago, the Export Credit Agency world was an exclusive club of public ECAs established in some rich OECD countries, and their long-term activities were mostly concentrated on supporting exporters through export credits. These latter are *government financial support, direct financing, guarantees, insurance or interest rate support provided to foreign buyers to assist in the financing of the purchase of goods from national exporters*¹. Over the last 15 years, this world has changed dramatically especially because of the emergence of new players, mostly in developing countries. Some other players, fundamentally multilaterals and private insurers, also began to appear in the insurance of long-term trade loans. As a result, the market share of non-OECD ECAs has increased from 28% in 2012 to 41% in 2016 (ICC, 2018).

The Arab countries are relatively new in the business of export credit support, as compared with the OECD countries. Out of the 22 Arab League members, only 12 have ECAs, Export-Import banks or similar programs². These 12 ECAs are also members of regional entity, the Islamic Corporation for the Insurance of Investment and Export Credit (ICIEC). It is important to note that all Arab countries are members of another pioneering regional entity created in 1974, the Arab Investment and Export Credit Guarantee Corporation (Dhaman)³.

The Arab ECAs vary across countries with respect to their status and corporate form, ranging from privately owned companies with no government ownership and those with state/private ownership with government holding majority or minority shares to fully government owned companies, agencies and programs. They also vary across the adopted business model, ranging from insurance only ECA (insurance or guarantees) to full service ECA (lending, insurance, and other products conventional and Islamic under one roof). Their estimated business volumes, including ICIEC and Dhaman, represent less than 2% of total exports from the Arab region, which is very low by international standards.

Because Arab countries in general and non-oil export oriented Arab countries in particular benefit from improved allocation of scarce resources, trade promotion should be considered as an essential part of the policy strategy of these countries. Government credit insurance schemes play an important role in financing and insuring export business, and many academic papers confirmed the positive effect of insured or directly financed transactions on trade. In that field, Meon and Sekkat (2004) provided evidence that political risk restrains the participation of higher risk countries in Middle East and North African countries in the international trade arena. Bernard and Jensen (2004) argued that ECAs may have a positive effect on export participation by gathering information on foreign markets and thereby reducing entry sunk costs. Auboin and Engemann (2014) showed a significantly positive effect of insured transactions on international trade. Moser,

Nestmann and Wedow (2008) and Egger and Url (2006) have also provided a causal link between ECAs support and merchandise exports. Authors such as Chor and Manova (2012) as well as Amiti and Weinstein (2011) have shown the effect of trade credit on trade. Associated with other economic development instruments, Klasen (2012) highlighted the role of ECAs in terms of fostering innovation, diversifying the economy and supporting foreign direct investment. A causal link between ECAs support and good exports as well as job creation has been discussed by Badinger and Url (2013) and Felbermayr and Yalcin (2013). According to Ellingsen and Vlachos (2009), public support of trade finance volumes can be more effective than support for other types of credit.

The existing research works on the effects of ECA's export guarantees on export promotion mostly are concentrated around several European countries, such as Germany (Moser et al., 2006; Felbermayr and Yalcin, 2011), Austria (Egger and Url, 2006), Switzerland (Herger and Lobsiger, 2010) and the Czech Republic (Janda et al., 2013). Yet nothing is known about the influence of export credit guarantees on exports in the Arab region, where the structure of export industries and key trading partners significantly differ from other regions. The purpose of this paper is to bridge this gap by investigating empirically the significance of the relationship between exports and credit-worthiness of importing countries, using Arab merchandise export values. Corroborating evidence for such relationship gives support to the usefulness of specialized export financial institutions to finance exports, mitigate credit risk and keep trade finance markets in Arab countries from drying up. The lack of detailed statistics on the activities of ECAs in the Arab world prevents us to adopt a direct empirical strategy to test whether public export credit guarantees lead to a significant amount of additional exports. Arab ECAs are indeed very secretive about all their financial operations, including past and current project information, figures regarding guarantees issued, amounts recovered and outstanding claims, which are only reported on aggregate levels and for few countries.

The remainder of the paper is organized as follows. Section 2 exposes a simple model that take into account the non-payment risks associated with the importing countries into the certainty equivalent profit maximization approach to determine the relationship between exports and credit-worthiness of the importing countries. Section 3 presents the empirical frameworks to evaluate the key finding of the theoretical model using Arab export data by product category. Section 4 discusses some issues that require particular attention when setting up an ECA in the Arab region. Section 5 concludes.

2. The Economic Effect of Export Credit Guarantees on Export Promotion

We consider a risk averse representative exporting firm i facing default and various political risks on its exports in the foreign market but having the opportunity to hedge against such risks. The considered exporting firm's decision problem is to choose the optimal level of export and amount of insurance coverage. Following Abraham and Dewit (2000) and Rienstra-Munnicha and Turvey (2002), we adopt a mean-variance approach to simplify the optimization of the certainty-equivalent profit function U_i :

$$MaxU_i = E(\pi_i) - \frac{\lambda}{2}Var(\pi_i) \quad (1)$$

where $E(.)$ Is the expectation operator, π is the random profit function of the exporting firm, λ denotes the coefficient of risk aversion and $Var(.)$ Is the variance operator. $E(\pi_i)$ and $Var(\pi_i)$ denote expected profits and variance of profits respectively defined as follows:

$$E(\pi_i) = (1 - \bar{\alpha}_i)P_iX_i + \bar{\alpha}_i\beta_iP_iX_i - \delta\omega_iX_i - cX_i - F \quad (2)$$

$$Var(\pi_i) = \sigma_\pi^2 = (1 - \beta_i)^2X_i^2\sigma_i^2 \quad (3)$$

where X_i is the exporting volume, P_i is the negotiated contract price of the exporting merchandise, α_i symbolizes the share of the contract value that is un paid considered as a stochastic variable with mean $\bar{\alpha}_i$ and variance σ_i^2 , β_i is the share of the export contract value insured, δ represents the administrative costs of providing the insurance scheme, ω_i is the premium per unit of the exporting good rate, c denotes the constant marginal cost of exporting in the absence of non-payment risks and F is a constant fixed costs of production.

In equation (2), the insurance premium rate per unit of the exporting good is defined as a function of the expected probability of non-payment $\bar{\alpha}_i$, prices P_i and the coverage level β_i :

$$\omega_i = \omega(\bar{\alpha}_i, \beta_i, P_i) \text{ with } \frac{\partial \omega_i}{\partial x} > 0 \text{ for } x = P_i, \bar{\alpha}_i, \beta_i \quad (4)$$

According to the proportional reimbursement method, the compensation paid by the underwriter in case of non-payment is in proportion of the purchased amount of coverage.

Consequently, the certainty-equivalent profit function maximization problem can be expressed as follows:

$$\text{Max}_{X_i} \left\{ (1 - \bar{\alpha}_i)P_iX_i + \bar{\alpha}_i\beta_iP_iX_i - \delta\omega(\bar{\alpha}_i, \beta_i, P_i)X_i - cX_i - F - \frac{\lambda}{2}(1 - \beta_i)^2X_i^2\sigma_i^2 \right\} \quad (5)$$

The first order condition of the maximization problem (5) with respect to X_i is formulated as:

$$(1 - \bar{\alpha}_i)P_i + \bar{\alpha}_i\beta_iP_i - \delta\omega(\bar{\alpha}_i, \beta_i, P_i) - c - \lambda(1 - \beta_i)^2X_i^*\sigma_i^2 = 0 \quad (6)$$

Solving equation (6) in terms of the optimal exporting quantity X_i^* leads to:

$$X_i^* = \frac{(1 - \bar{\alpha}_i)P_i + \bar{\alpha}_i\beta_iP_i - \delta\omega(\bar{\alpha}_i, \beta_i, P_i) - c}{\lambda(1 - \beta_i)^2\sigma_i^2} \quad (7)$$

It follows that in absence of an insurance contract ($\beta_i = 0$), the optimal exporting quantity is formulated as:

$$X_i^0 = \frac{(1 - \bar{\alpha}_i)P_i - c}{\lambda\sigma_i^2} \quad (8)$$

Proposition 1: *In presence of export credit insurance, the optimal level of export increases with increasing share of the export contract value insured β_i .*

From equation (7), the partial derivative with respects to β_i is as follows:

$$\frac{\partial X_i^*}{\partial \beta_i} = \frac{\bar{\alpha}_iP_i - \delta\frac{\partial \omega_i}{\partial \beta_i}}{\lambda(1 - \beta_i)^2\sigma_i^2} + \frac{2X_i^*}{(1 - \beta_i)} \quad (9)$$

Since $X_i^* > 0$, the second term of the right side pf equation (9) is positive. The partial derivative $\frac{\partial \omega_i}{\partial \beta_i}$ is positive and it is reasonable to assume that $\bar{\alpha}_iP_i \geq \delta\frac{\partial \omega_i}{\partial \beta_i}$, which means that the expected benefit of the insurance contract is greater than its marginal cost, otherwise the exporting firm chooses no coverage. As a result, the right hand side of (9) is positive and the firm increases exports in the presence of an export credit insurance contract with a fair marginal cost (fair premium is charged).

Proposition 2: *The larger the proportion of subsidized insurance premium is, the greater the exported volume is.*

The premium subsidy is generally granted by the public insurance agency to strengthen the competitive position of the local exporting firm, given that a lower premium is translated in a decrease of the export price, leading to an expansion of exports. The impact of the subsidized premium can be analyzed by taking the partial derivative of (9) with respect to the loading factor δ :

$$\frac{\partial^2 X_i^*}{\partial \beta_i \partial \delta} = - \left(\frac{\frac{\partial \omega_i}{\partial \beta_i}}{\lambda(1-\beta_i)^2 \sigma_i^2} + \frac{2\omega}{\lambda(1-\beta_i)^3 \sigma_i^2} \right) < 0 \quad (10)$$

The considered impact can also be analyzed by taking the partial derivative of equation (7) directly:

$$\frac{\partial X_i^*}{\partial \delta} = - \frac{\omega}{\lambda(1-\beta_i)^2 \sigma_i^2} < 0 \quad (11)$$

Proposition 3: *Even in presence of export credit insurance with a fair premium rate, a higher degree of risk aversion of the exporting firm implies a lower optimal exports volume.*

The result derives directly from the partial derivative of equation (7) with respect to λ :

$$\frac{\partial X_i^*}{\partial \lambda} = - \frac{(1-\bar{\alpha}_i)P_i + \bar{\alpha}_i \beta_i P_i - \delta \omega(\bar{\alpha}_i, \beta_i, P_i) - c}{\lambda^2 (1-\beta_i)^2 \sigma_i^2} = - \frac{X_i^*}{\lambda} < 0 \quad (12)$$

The impact of the exporting firm's risk attitude can be offset by increasing the coverage levels:

$$\frac{\partial^2 X_i^*}{\partial \lambda \partial \beta_i} = - \frac{1}{\lambda} \frac{\partial X_i^*}{\partial \beta_i} < 0 \quad (13)$$

or by increasing subsidization:

$$\frac{\partial^2 X_i^*}{\partial \lambda \partial \delta} = - \frac{1}{\lambda} \frac{\partial X_i^*}{\partial \delta} > 0 \quad (14)$$

However, if the risk attitude results fundamentally from informational asymmetries, it may be possible for a decision maker to reduce risk aversion by increasing the flow of credible and accurate information to the exporter. He could thus decrease λ and increase X_i^* accordingly.

Proposition 4: *The optimal exporting quantity decreases with the prior probability of non-payment.*

Given that the variance of α_i increases with the prior probability of non-payment ($\partial \sigma_i / \partial \bar{\alpha}_i > 0$), it follows that:

$$\frac{\partial X_i^*}{\partial \bar{\alpha}_i} = - \left(\frac{(1-\beta_i)P_i + \delta \frac{\partial \omega_i}{\partial \bar{\alpha}_i}}{\lambda(1-\beta_i)^2 \sigma_i^2} + \frac{2X_i^*}{\sigma_i} \frac{\partial \sigma_i}{\partial \bar{\alpha}_i} \right) < 0 \quad (15)$$

Proposition 5: *The optimal level of export volume is greater in presence of export credit insurance with a fair premium rate than without insurance.*

Indeed, it is easy to verify that X_i^* can be rewritten as follows:

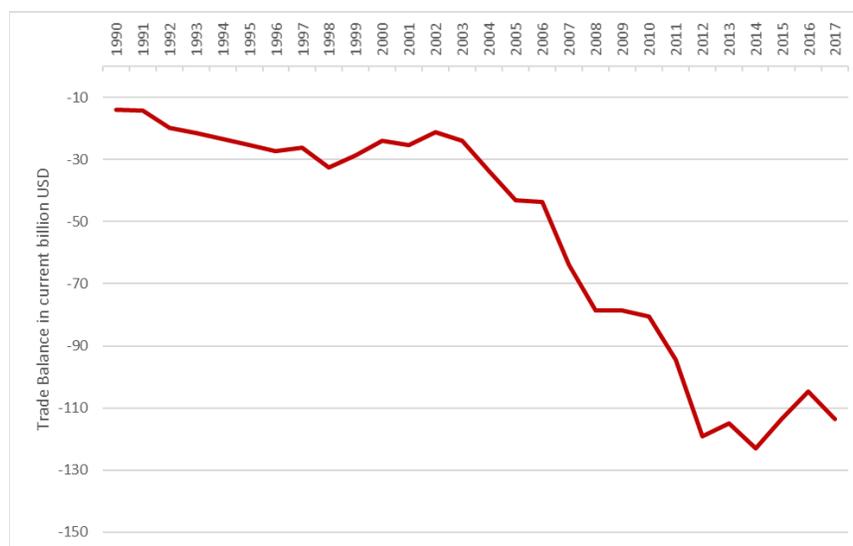
$$X_i^* = \underbrace{\frac{1}{(1-\beta_i)^2}}_{>1} X_i^0 + \underbrace{\frac{\bar{\alpha}_i \beta_i P_i - \delta \omega(\bar{\alpha}_i, \beta_i, P_i)}{\lambda(1-\beta_i)^2 \sigma_i^2}}_{\text{Expected net benefit of the insurance contract, supposed to be positive}} \quad (16)$$

3. Empirical Framework: Are ECAs useful in Arab Region?

3.1. ECA in the Arab Countries

In general, and without considering risks inherent to international trade, exporters have to bridge a time gap between their expenditures on production and receiving payment from the importers. A time gap that tends to be particularly large in international transactions because of longer transportation times and customs procedures. This meant that exporters have to pre-finance working capital and/or the purchase of production inputs by using internal funds or through external funds, for example, by taking out a credit. However, export finance is very scarce in many Arab Countries. The scarcity of trade credit can generate liquidity problems for exporters that disrupt their business or lead, in an extreme scenario, to forego the export order. This is a significant issue in almost all Arab non-oil exporting countries, whose trade deficit has widened dramatically in the past ten years (cf. Figure 1). One of the reasons lies in the lack of trade finance for exporters and certain financial sector shortcomings more generally. In this respect, boosting exports has become a policy imperative.

Figure 1:
Trade Balance of Non-Oil Exporting Arab Countries



Sources: UnctadStat

To promote exports, some countries rely on state-owned development banks to facilitate exporters' access to finance. Other countries try to boost exports through depreciating their exchange rates. More generally, countries can also choose from a variety of trade policy instruments to promote exports, such as entering into trade agreements or introducing duty drawback schemes, bonded warehouses, tax exemptions, or trade facilitation measures including simplifying export procedures and export documentation requirements. Setting up special economic zones is also a popular policy instrument, as is the establishment of export promotion agencies offering export support services such as exporter training and information on trade finance, logistics, customs, marketing, market research and publications. Industrial policies can also play an important role in fostering exports, especially in a developing country context where they can accelerate structural transformation and help promote a shift towards higher value exports by supporting the development of productive capacities of local firms, strengthening their technological capabilities

and productivity, and boosting their international competitiveness. One specific and hitherto underexplored option is to set up an ECA.

As mentioned in introduction, compared to other regions of the world, the Arab countries are relatively new to the business of export credit support and many Arab countries have no facilities at all. From the 22 Arab League members, slightly more than half have facilities or institutions providing export credit and/or export finance. Table 1 below indicates those Arab countries with export credit or finance facilities and the related institution, agency or program.

Table 1
Arab Countries with ECA Facilities and Corresponding Entity

Country	Entity Providing Facilities	Status	Established
Algeria	Compagnie Algérienne Assurance et de Garantie des Exportations (CAGEX)	Public Corporation	1996
Bahrain	Export Credit Guarantee Program under Bahrain Development Bank	Other – Program	2011
Egypt	Export Development Bank of Egypt (EDBE)	Joint-Stock Company	1985
	Export Credit Guarantee Company of Egypt (ECGE)	Joint-Stock Company	1992
Jordan	Jordan Loan Guarantee Corporation (JLGC)	Public Shareholding Company	1994
Lebanon	The Lebanese Credit Insurer (LCI)	Private Company	2001
Morocco	Société Marocaine d'Assurance à l'Exportation	Mixed Company	1992
Oman	Export Credit Guarantee Agency of Oman (ECGA)	Closely-held Company	1991
Qatar	Qatar Export Development Agency (TASDEER/QDB)	Closed Shareholding Company	2011
Saudi Arabia	Saudi Export Program (SEP) under the Saudi Fund for Development (SFD)	Other – Program	1999
Sudan	National Agency for Insurance and Finance of Exports (NAIFE)	Public Corporation	2005
Tunisia	Compagnie Tunisienne pour l'assurance du commerce extérieur (COTUNACE)	Public Company	1984
United Arab Emirates	Export Credit Insurance Company of the Emirates (ECIE)	State-owned Company	2008-2017
	Etiihad Export Credit Insurance (or Etiihad Credit Insurance – ECI)	Public Joint Stock Company	late 2017

In addition to the mentioned national ECAs/Programs, within the Arab region there are two multilateral ECAs which serve member countries:

- The Arab Investment and Export Credit Guarantee Corporation (Dhaman) is a multinational institution, with full juridical personality and multilateral status, established in 1974 by 21 Arab countries and 4 Arab regional financial institutions with the intention of contributing to the economic development in the Arab region by insuring inter-Arab investments against non-commercial or political risks. In 1986, Dhaman started guaranteeing also exports of member states against both commercial and non-commercial risks. It provides both guarantees and insurance products. Its guarantees protect Arab and non-Arab investments in member countries against non-commercial risks which may result in loss of investments including capital and expected earnings. The insurance program

covers both commercial and non-commercial risks in the form of five products including export credit insurance, domestic credit insurance, factoring insurance, lease insurance and bank insurance. In 2017, Dhaman's total risk exposure was almost 1404 million USD.

- The Islamic Cooperation for the Insurance of Investment and Export Credit (ICIEC) is an international organization, established in 1994 based on an agreement among members of the Organization of the Islamic Cooperation (OIC) and as a member of the Islamic Development Bank (IDB) Group. The main objective of ICIEC is to provide investment and export credit insurance based on *Sharia* principles, also known as Takaful Insurance. It provides various types of products that are tailored for a wide range of clientele including trading institutions, investors, banks and financial institutions and ECAs. These products are provided through three main programs: Trade credit insurance program, foreign investment insurance program and reinsurance program. In 2017, ICIEC's total exposure was 4659 million USD.

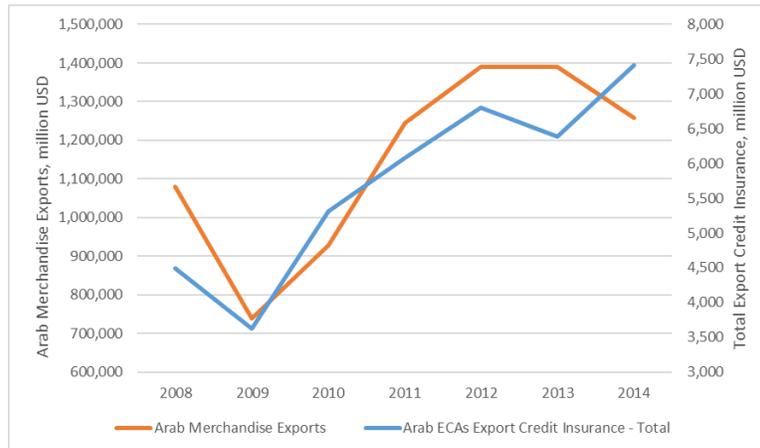
Among the Arab ECAs, we distinguish broadly three categories of business models. The first category of institution provides a full service ECA encompassing lending, insurance, and other products –conventional and Islamic - under one roof. Saudi Export Program and Sudan's NAIFE could be classified in this category. The second category, called insurance only ECA, provides on contingent liability products such as insurance or guarantees and do not direct lend. Examples of this type of ECA include Algeria, Jordan, Morocco, Oman, Qatar, Tunisia and UAE. The third category concerns the situation where insurance and lending facilities are present in two separate entities as in Egypt.

The published data from the Arab ECAs of their respective business volumes shows the relative sizes of the programs, as well as their contribution to national exports. Only 12 entities, including Dhaman and ICIEC, published this data even if, for many Arab ECAs these published figures are significantly out of date. Figure 2 below illustrates the evolution of both global trade and export credit insurance (both short, medium and long term) volumes provided by those entities from 2008 to 2014. Merchandise trade volumes dropped sharply between 2008 and 2009 and have been recovering gradually since then. Mirroring trade volumes, total insurance commitments of Arab Aman Union's members have also dropped between 2008 and 2009⁴. Total insurance volumes have recovered side by side with trade volumes since 2009 except in 2013 and 2014, probably due to continued downward trend in oil prices since 2012.

Intuitively, a growing volume of trade will produce an increase in the demand for trade insurance and guarantees, independently of any change in the risk environment. However, it is striking that insurance volumes have fallen by much less (-19.4 %) than Arab merchandise trade volumes (- 31.6 %) during the financial crisis of 2008. According to Chauffour et al. (2010), *the finding that insurance volumes fell by less than trade volumes during the most severe period of the crisis [...] is consistent with earlier anecdotal evidence suggesting that trading partners have resorted to more formal, bank intermediated instruments to finance trade since the outbreak of the financial crisis in order to reduce the high probability of default in open account financing. In addition, the increase in bank counter-party risk may have led to a substitution of export credit insurance for other trade finance products such as letters of credit. Such developments would lead to a greater relative demand for external credit insurance and guarantees despite the substantial increase in risk premia and the cost of insurance, thus reflecting the increasingly important role of insurance and guarantees during times of crisis.*

Figure 2:

Arab Trade and Arab ECAs Trade Insurance

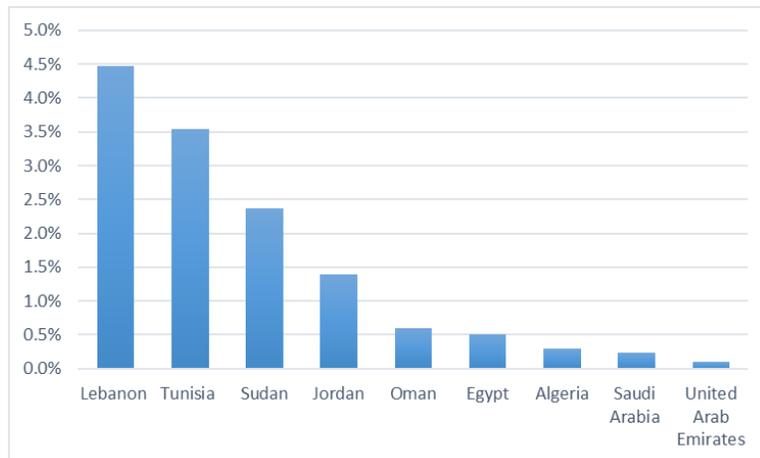


Sources: Aman Union for credit export insurance series covering 9 Arab ECAs plus ICIEC and Dhaman; UnctadStat for merchandise exports series.

For those Arab ECAs whose business volumes are published, the average business volumes to exports during the period 2008-2014 ranges from a minimum of 0.10 % in UAE to a maximum of 4.47 % in Lebanon, which is very low by international standards (cf. Figure 3 below).

Figure 3:

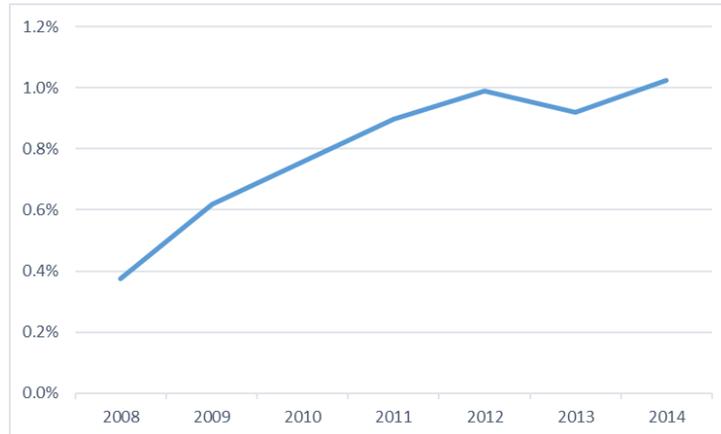
Trade Insurance Volumes as a Share of Merchandise Exports for Selected Arab ECAs, Average 2008-2014.



Sources: Aman Union for credit export insurance series covering 9 Arab ECAs; UnctadStat for merchandise exports series.

Despite overall weakness in terms of merchandise exports share covered by export credit insurance, it is important to highlight, as shown in Figure 4, the continuing upward trend of this share from 0.37 % in 2018 to 1.02 % in 2014.

Figure 4:
Trend of Trade Insurance Volumes as a Share of Merchandise Exports for the Group of Selected Arab ECAs (Weighted Average)



Sources: Aman Union for credit export insurance series covering 9 Arab ECAs; UnctadStat for merchandise exports series.

3.2. Data and Empirical Strategy

The theoretical framework presented previously asserts the existence of a positive relationship between credit worthiness and exports. In this section, we attempt to provide evidence that supports such relationship by conducting an empirical analysis focusing on the impact of countries economic and political risk score on exports. We test whether economic and political risks hamper Arab exports. Before presenting the empirical results, we briefly describe the data in use and the estimation methodology. Finally, we present the results as well as robustness checks.

We use a balanced panel of 107 Arab partner countries (importer countries) between 1997 and 2017 absorbing in average 85% of the total Arab merchandise exports (898.5 billion US\$ in 2017). The relatively short time periods (T) with respect to the relatively large number of cross-section units (N) in our sample does not call into question the (short) panel data approach appropriateness for our study. However, such data do not allow unfortunately an explicit treatment of complex dynamics, including unit roots and cointegration.

The data used in this paper come from various sources: The United Nations Conference on Trade and Development UNCTADstat database (for the export series by product groups and partner, population, FDI inward stocks), the International Monetary Fund World Economic Outlook database (GDP, GDP on purchasing-power-parity, GDP deflator) and the Fitch Macro Intelligence Solutions (also known as BMI) Database (short term and long term economic risks index).

We adopt an econometric specification in line with the gravity model approach. The basic idea behind this approach is that trade flows between Arab region and other countries depend on the countries' economic size and all kinds of transaction costs, ranging from apparent logistic costs and information costs to hidden transaction costs such as economic and political risks. The most common economic outcome based on gravity models is still the amount of international trade but many other authors use the same approach for explaining other types of flows. Among them are, for example, Frankel and Wei (1993) who applied this approach on exchange rate variability, Rose (2000) who showed an impact of currency unions and Egger and Url (2006), Nestmann and

Wedow (2008) and Janda et al. (2013) who studied the effect of credit support for export. In line with the last three papers, our adjusted level-log gravity model specification is as follows:

$$\ln(Export_{it}) = c + \alpha \ln(Creditw_{it}) + \beta \ln(FDI_{it-1}) + \gamma \ln(Manuf_{it}) + \varepsilon_{it} \quad (17)$$

where subscript i stands for the receiving (importing) country and t for time (year). The dependent variable, $\ln(Export_{it})$, corresponds to the logarithm of real export values per capita of importing country i from Arab region in year t . Accordingly, data are normalized across importing countries. The set of regressors includes:

- $\ln(Risk_{it})$, the logarithm of a combination of short term and long term economic risks in country i in year t ,
- $\ln(FDI_{it-1})$, the logarithm of real FDI inward stock per capita in country i in year t and
- $\ln(Manuf_{it})$, the logarithm of the share of manufacturing imports in overall imports in country i in year t .

ε_{it} corresponds to a random error term and is defined as a sum of country unobserved effect μ_{it} and an error term u_{it} with zero mean and constant variance. All variables are converted in real terms by using the appropriate GDP deflator.

Using a limited number of independent variables may seem questionable, especially because of the omission of relevant explanatory variables commonly introduced in gravity model specifications as GDP, exchange rate, distance or tariff and regulatory trade barriers. However, it is important to highlight the components of credit score, *Creditw* variable, derived from Fitch Macro Intelligence Solutions Database. Indeed, the credit scores are based on two index: Short-Term Economic Risk index and Long-Term Economic Risk index. The former includes five components and the latter has six components covering a broad range of economic, monetary, fiscal, external and financial indicators (see Table A1 and Table A2 in appendix). Accordingly, including additional explanatory variables raises the possibility of multicollinearity. The variable *Creditw* is then defined as a weighted geometric mean of Short-Term Economic Risk index and Long-Term Economic Risk index, with weights 1/3 and 2/3 respectively. The composite score ranges between 0 (low or uncreditworthy) and 100 (high or creditworthy). Hence, a higher credit score indicator implies very limited risk in the importing country and we anticipate a positive coefficient on *Creditw* ($\alpha > 0$).

FDI and international trade are increasingly complementary and mutually supportive. This stylized fact, generally supported by empirical evidence, points fundamentally the multinational firms (MNCs) reasons that justified the investment decision. In the late 1990s, a unified approach has been developed by Markusen et al. (1996) and Markusen (2000), under the name of knowledge-capital models, that endogenizes MNCs in general-equilibrium trade models and integrates separate contributions on multiplant horizontal MNCs with research work on vertical ones. The results show that vertical multinationals dominate, and consequently complementarity between trade and FDI, when countries differ in their relative factor endowments and, conversely, horizontal multinationals dominate, and accordingly substitutability between trade and FDI, when trade costs are moderate to high, and countries are similar in size and in relative endowments. Accordingly, the sign of the coefficient β associated to $\ln(FDI_{it-1})$ would depend on the substitutability or complementarity existing between import and FDI in the considered partner countries. The lag structure in the adopted specification is to capture the relatively longer time period, which may be required for the impacts of FDI to be felt on trade.

As in Egger and Url (2006), we include a country's share of manufacturing imports in overall imports, *Manuf*, to proxy for a country's relative factor endowment. We expect negative coefficient ($\gamma < 0$) as the Arab region has relatively low levels intra-industry trade, i.e. exports are, ceteris paribus, directed to countries with a dissimilar factor endowment. Most countries in the region do not participate in the forms of value chain production and trade that have driven growth in East Asia and in Central and Eastern European countries (Hoekman, 2016).

The starting point for our empirical analysis is to use a standard static model as a benchmark and estimate the static regression model given by (17). However, theory and a large number of empirical work corroborate the hypothesis that trade is a dynamic process and that estimating static equations may produce upward biased estimates. Thus, the next step is to explicitly introduce dynamics in the gravity equation by controlling for the lagged effects of the dependent variable and detecting the short-term influences of *Creditw* and of all other variables that affect Arab exports. We then assume that past exports exert a significant effect on current exports. Such dynamic specification is mainly motivated by repeated interactions between business partners and sunk costs related to distribution and service networks (Eichengreen and Irwin 1996). The dynamic specification is the following:

$$\ln(Export_{it}) = c + \theta \ln(Export_{it-1}) + \tilde{\alpha} \ln(Creditw_{it}) + \tilde{\beta} \ln(FDI_{it-1}) + \tilde{\gamma} \ln(Manuf_{it}) + \tilde{\epsilon}_{it} \quad (18)$$

The long run solution is defined as follows:

$$\ln(Export) = \frac{c}{1-\theta} + \frac{\tilde{\alpha}}{1-\theta} \ln(Creditw) + \frac{\tilde{\beta}}{1-\theta} \ln(FDI) + \frac{\tilde{\gamma}}{1-\theta} \ln(Manuf)$$

and the long run effect of *Creditw* on *Export* is measured by $\frac{\tilde{\alpha}}{1-\theta}$.

A serious difficulty arises with the one-way fixed effects model in the context of a dynamic panel data model particularly in the small T , large N context. If trade is a static process, the fixed-effect estimator is consistent for a finite time dimension and a large number of partners. However, if trade is a dynamic process as supposed in equation (18), the transformation needed to eliminate the country-specific fixed effects produces a correlation between the lagged dependent variable and the transformed error term that renders the least square estimator biased and not consistent. To avoid the inconsistency problem, Arellano and Bond (1991) derived one-step and two-step GMM estimators using moment conditions in which lagged levels of the dependent and predetermined variables were instruments for the differenced equation. Arellano and Bover (1995), describe how, if the original equations in levels were added to the system of first-differenced equations, additional moment conditions could increase efficiency.

Blundell and Bond (1998) have refined the system GMM estimator. The authors proposed a system estimator that uses moment conditions in which lagged differences are considered as instruments for the level equation in addition to the moment conditions of lagged levels as instruments for the differenced equation. Due to the relatively short time period data availability and the relevance of persistence effect in the modified gravity model, system GMM estimator seems the right choice for our empirical investigation. It is worth noting that first differencing the equation removes fixed effects but also the time invariant regressors in the specification. If the latter are of interest, the resulting loss of information may be a serious inconvenience.

3.3. Empirical Results

This section presents the results of the estimation. Table 2 reports the estimates result and related tests of the static model. Given that our panel contains most of the partner countries (85 % of Arab total exports of goods) and not just a random sample of them, we consider the fixed effects static model as a benchmark. Our choice is corroborated by Hausman test as the null hypothesis that the preferred model is random effects is rejected. The quality of the regression in terms of data variability is very good with an R-squared of 92 %, which is typical for gravity models, and highly significant F-test. It is important to note that fixed effects absorb a very significant part of the variation in the dependent variable (rho coefficient of 89 %).

The relationship between credit worthiness and Arab total real export per capita of the importing countries is unambiguously positive and statistically significant. The result is consistent with the theoretical framework presented in Section 2. The magnitude of the *Creditw* variable effect is also very significant. A 10 % increase in the credit score of an importing partner suggests an increase of 8.8 % in the volume of Arab total goods exporting to that partner. The estimated elasticity is robust to the introduction of other explanatory variables.

Table 2
Estimation of Static Model

	<i>Fixed Effects</i>	<i>Random Effects</i>	<i>Fixed Effects</i>
$\ln(Creditw_{it})$	1.112*** (0.225)	1.182*** (0.221)	0.880*** (0.238)
$\ln(FDI_{it-1})$	-	-	0.291*** (0.087)
$\ln(Manuf_{it})$	-	-	-1.170*** (0.318)
<i>Number of observations</i>	2247	2247	2140
<i>Number of partners</i>	107	107	107
<i>R-squared</i>	0.90	0.90	0.92
<i>F test for FE and Wald Chi2 for RE</i>	114.64***	131.22***	22.81***
<i>Hausman test</i>	Ho: difference in coefficients not systematic chi2(1) = 38.49***		

Notes:

Robust White heteroscedastic consistent standard errors in parentheses. All variables are in logarithms. Specific effects dummies included but not shown. The response variable is the logarithm of real total export of goods per capita of importing country. *** Significant at 1 %, ** Significant at 5 % and * Significant at 10 %.

The coefficients of the other explanatory variables are as expected. The volume of exports per capita is positively influenced by the previous period's FDI inward stock per capita in the importing country. The estimated coefficient value of 0.291 implies that a 10 % change in the level of inward FDI stock per capita in previous year in the importing country is associated with almost 2.91 % increase in Arab exports in the next year to that country. This means that complementarity relationship between trade and FDI dominate. One reason could be, FDI decision makers in the importing country, rather than engaging in import substitution activities, they are more involved in import of inputs of production. Another explanation may be that FDI decision makers focus on production of goods or services that are complementary to other import products that increase the import of complementary product.

The positive and statistically significant coefficient of $\ln(Manuf_{it})$ mean that a larger share of manufacturing imports in total imports in the importing country is associated with less imports or less exports from the Arab region. The result is consistent with the very low intra-industry trade index in the region, as an indicator of Arab countries' ability to compete in a more open trade setting. All other things being equal, Arab exports are directed to countries with a dissimilar factor endowment.

As has been mentioned by Moser et al. (2008), two important econometric caveats could undermine the regression analysis presented so far. First, the estimates for both the short and long run effects of the considered regressors will be biased if the underlying data-generating process is potentially dynamic. Second, the empirical static specification, equation (17), may suffer from an endogeneity problem causing biased and inconsistent estimated coefficients. Indeed, the causality may also run in the opposite direction with Arab exporters requiring more credit worthiness for countries where they export more. In order to deal with both issues, we estimate the dynamic specification (18) by applying the instrumental variable approach or system GMM estimator developed by Blundell and Bond (1998).

Table 3 reports the estimates result and related tests of the dynamic model. The results confirm that the data generating process is indeed dynamic. The coefficient of the lagged dependent variable $\ln(Export_{it-1})$ is positive and significant. The magnitude of the persistence effect is in line with the empirical literature. The Arellano-Bond tests for AR(1) and AR(2) confirm the consistency of the System GMM estimator. The Sargan test of over-identifying restrictions shows that the hypothesis that all moment restrictions are satisfied is not rejected.

Table 3
Estimation of Dynamic Model

	<i>System GMM</i>
$\ln(Export_{it-1})$	0.534*** (0.051)
$\ln(Creditw_{it})$	0.386*** (0.161)
$\ln(FDI_{it-1})$	0.237*** (0.036)
$\ln(Manuf_{it})$	-1.191*** (0.316)
<i>Dummy variable for years 2008 and 2009¹</i>	-0.077*** (0.254)
<i>Number of observations</i>	2033
<i>Number of partners</i>	107
<i>Wald Chi2</i>	605.48***
<i>Sargan test of overidentifying restrictions p-value</i>	1.00
<i>Arellano-Bond AR(1) p-value</i>	0.00***
<i>Arellano-Bond AR(2) p-value</i>	0.36

Notes:

Robust White heteroscedastic consistent standard errors in parentheses. All variables are in logarithms. Specific effects dummies included but not shown. The response variable is the logarithm of real total export of goods per capita of importing country. *** Significant at 1 %, ** Significant at 5 % and * Significant at 10 %.

¹ Global merchandise trade sharply declined in late 2008 and early 2009. Therefore, a crisis dummy variable is added as independent variable; it takes the value one for years 2008-2009 and 0 elsewhere.

The dynamic specification shows that the long-run effect of credit worthiness on exports is given by an elasticity of 0.83 ($\tilde{\alpha}/(1 - \theta) = 0.386 / (1 - 0.534)$) and thus slightly lower than based on the static specification. A 10 % increase in the credit score of an importing country leads to 8.3 % increase in Arab exports of goods to that country.

If the long-term effect is correctly captured by the dynamic specification, the estimation results suggest a direct and significant positive relationship between credit worthiness and exports coming from the Arab countries. The magnitude of the relationship especially in the long run leaves no doubt about the importance of the repayment risk as an important determinant of goods exports in the Arab region. Factors such as guarantees, reduced loadings, subsidies and lower default probability are all factors that contribute significantly to the credit worthiness of a considered importing country and hence lead to higher exports.

3.4. Robustness of the Results

In this section, we check the robustness of our results for non-high income countries. The principal argument for excluding high-income countries is that short-run and long-run economic risks are potentially more important in non-industrial countries. Accordingly, it is especially interesting to confirm the impact of credit score for this sub-group of importing countries.

We run separate regressions for each export product group defined according to the Standard International Trade Classification (SITC) Revision 3. In addition to the initial total merchandise products group, three broad sub-categories have been introduced: primary commodities group, manufactured goods group and machinery and transport equipment group. The results exposed in Table 4 show that the coefficients for credit score is significant and substantially larger regardless of the product group. The long-run effect of credit worthiness on exports ranges between 1.14, for primary commodities group, and 1.88, for machinery and transport equipment group. Based on these results, a 1 % increase in the credit score of an importing non-high income country suggests an increase of 1.14 % in the value of Arab primary commodities exporting to that country, but 1.88 % for the value of Arab machinery and transport equipment goods exports.

Despite their popularity in practical empirical work with dynamic panel regression, it is well understood that GMM approaches to the estimation of autoregressive parameters in dynamic panels often suffer from problems of inefficiency and substantial bias, especially when there is weak instrumentation as in the commonly occurring case of persistent or near unit root dynamics. In our case, one may be concerned about a unit-root process in the export series. It is worth noting that the estimation approach adopted in our paper, and proposed by Arellano and Bover (1995) and Blundell and Bond (1998), provides a convenient solution to the weak instrument problem. We remind that this approach focuses on the levels equation, where there is no loss of signal in the unit root case, and uses differenced lagged variables as instruments under the assumption that the fixed effects are uncorrelated with the idiosyncratic errors. We need, however, to address the concerns related to a presence of unit-root process in the series. For that purpose and taking the small T dimension of our panel into account, we use the Harris–Tzavalis test (Harris and Tzavalis, 1999), which assumes that the number of panels tends to infinity while the number of time periods is fixed. The test has a null of unit root versus an alternative with a single stationary value. As shown in Table 5, we find overwhelming evidence against the null hypothesis of a unit root and therefore conclude that there is no unit-root process in the considered series.

Table 4
Estimation of Dynamic Model for Non-High Income Countries and 4 Product Groups
System GMM, 1997-2017

	<i>Total Goods</i>	<i>Primary Commodities</i>	<i>Manufactured Goods</i>	<i>Machinery and Transport Equipment</i>
$\ln(\text{Export}_{it-1})$	0.609*** (0.050)	0.489*** (0.068)	0.629*** (0.063)	0.615*** (0.057)
$\ln(\text{Creditw}_{it})$	0.466*** (0.151)	0.584*** (0.224)	0.426*** (0.147)	0.723*** (0.157)
$\ln(\text{FDI}_{it-1})$	0.196*** (0.042)	0.206*** (0.057)	0.261*** (0.072)	0.271*** (0.074)
$\ln(\text{Manuf}_{it})$	-0.897*** (0.340)	-1.397*** (0.542)	-0.208 (0.169)	-0.146 (0.216)
<i>Dummy for 2008 and 2009¹</i>	-0.114*** (0.040)	-0.084* (0.052)	-0.077* (0.042)	-0.082 (0.060)
<i>Number of observations</i>	1197	1197	1197	1197
<i>Number of partners</i>	63	63	63	63
<i>Wald Chi2</i>	458.84***	169.01***	486.78***	446.05***
<i>Sargan test p-value</i>	1.00	1.00	1.00	1.00
<i>Arellano-Bond AR(1) p-value</i>	0.0014***	0.0014***	0.0015***	0.0004***
<i>Arellano-Bond AR(2) p-value</i>	0.130	0.130	0.497	0.308

Notes:

Robust White heteroscedastic consistent standard errors in parentheses. All variables are in logarithms. Specific effects dummies included but not shown. The response variable is the logarithm of real total export of goods per capita of importing country. *** Significant at 1 %, ** Significant at 5 % and * Significant at 10 %.

¹ Global merchandise trade sharply declined in late 2008 and early 2009. Therefore, a crisis dummy variable is added as independent variable; it takes the value one for years 2008-2009 and 0 elsewhere.

Table 5
Harris-Tzavalis (HT) Test of Unit-Root

<i>Series</i>	<i>HT Statistic</i>
$\ln(\text{Export}_{it})$	
<i>Total Goods</i>	0.657*** (0.000)
<i>Primary Commodities</i>	0.474*** (0.000)
<i>Manufactured Goods</i>	0.736*** (0.000)
<i>Machinery and Transport Equipment</i>	0.656*** (0.000)
$\ln(\text{Creditw}_{it})$	0.792*** (0.000)
$\ln(\text{FDI}_{it})$	0.763*** (0.000)
$\ln(\text{Manuf}_{it})$	0.591*** (0.000)

Notes:

P-value in parentheses. *** Significant at 1 %, ** Significant at 5 % and * Significant at 10 %.

4. Important issues to Consider When Setting up an ECA

The empirical results discussed in the previous sections provide a clear and compelling justification to the usefulness of specialized export financial institutions to finance exports, mitigate credit risk and keep trade finance markets from drying up, particularly in Arab non-oil exporting countries. Establishing or developing an already present public ECA could help relieve export constraints by, first, facilitating access to credit for exporters by mitigating risk and increasing banks' willingness to lend, second, helping exporters to offer better payment terms to importers, and third, contributing to enhance confidence in both Arab banks and enterprises among foreign entities. Looking at the experience of other countries, the aim of this section is to point to a number of guiding principles that policymakers should consider when pondering the idea of setting up or enhancing the activity of an ECA.

ECAs provide government-backed loans, guarantees and insurance to corporations seeking business opportunities principally in developing countries and emerging markets. Their mandate is to promote their own countries' exports and foreign investments. Generally, they only provide financing when the private sector is either unable or unwilling to provide financing or when domestic exporters are facing foreign competition backed by official export credit support. ECAs therefore perform fundamentally three basic functions:

1. They help exporters meet officially supported foreign credit competition. In this case, the ECAs support or export credits action takes the form of a direct loan.
2. They provide financing to foreign buyers when private lenders cannot or will not finance those export sales, even with the risks removed.
3. They assume risks beyond those that can be assumed by private lenders by providing export credit insurance to cover two types of risk, commercial and political. The former refer to the buyer's own ability to pay for the goods delivered, the latter to dangers arising out of country-specific problems as the cancellation of an import license, war, or the prevention by the authorities in the buyer's country of the transfer of the foreign exchange required to pay the supplier. ECAs also provide investment insurances covering the political risks connected to an investment overseas.

Following the global financial crisis and the European debt crisis, many governments, which can no longer rely on traditional fiscal and monetary policy options, turned to export activities to drive national growth. In this environment, ECAs have been identified as a central tool for achieving export-related national goals. Accordingly, governments typically shape their ECAs based upon domestic and trade policy goals, the ability of commercial banks and insurers to provide export finance, and the needs of domestic exporters.

Today, ECAs are collectively the largest sources of public financial support for foreign corporate investment in, and trade with, the developing and newly-industrialized world. For example, ECAs are estimated to support twice the amount of oil, gas and mining projects as do all multilateral development banks such as the World Bank Group, African and Asian Development Banks combined. Half of all new greenhouse gas-emitting industrial projects in developing countries have some form of ECA support. ECAs often back such projects even though the World Bank Group and other multilateral banks find them too risky and potentially harmful to support.

Against this backdrop, Arab ECAs tend to see themselves as very small players with extremely limited resources facing a fast changing global economy without a sound industrial strategy. Many Arab countries need to set up ECAs, or to enhance the effectiveness of existing ones, to finance exports and alleviate market failures and market imperfections.

The establishment of this type of public financial institution always represents an intervention into the resource allocation process of the domestic economy. The question of whether such intervention adds value should be carefully examined given the complexity of the issues involved in this regard. More specifically, Chauffour et al. (2010) highlighted two main dimensions regarding the impacts of any financial institution that aims to play a part in the financing of exports in the country it is located in: financial sector dimension and real sector dimension. The former refers to the changes in the structure of the financial sector and the impacts on other financial institutions behavior, the latter to the incentive framework changes in the real sector. The net result of these impacts depends on many factors ranging from the structure of the real economy and its competitive position to the overall governance environment in the country.

Furthermore, ECAs are also fundamental financial institutions operating as insurers or lenders, or both. Similar to commercial organizations, they require a robust risk management framework and systems or enterprise risk management linked to business model and objective-setting in order to identify, assess, monitor and manage their risks. Taking into account this requirement adds a new dimension, which the authors call a business model dimension.

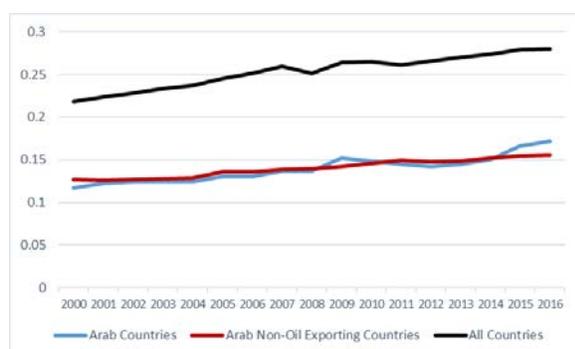
Examining the need for a specialized export finance institution requires in the first place a comprehensive analysis of the current conditions and trends within the financial sector of the considered country. More specifically, the analysis should detect any market failures and imperfections that may adversely affect the volume of exports. For that purpose, the depth of financial system and actual lending practices should be examined carefully.

Despite reform efforts, there are still various financial sector constraints in many countries in the Arab region that hamper the competitiveness of exporters, and hold back the expansion and upgrading of exports. These include several financial market regulations and institutional shortcomings that complicate transactions between foreign and local entities in many Arab countries, including businesses and banks, thereby making local suppliers less attractive to foreign buyers. In particular, a lack of access to trade finance (and credit more generally) imposes constraints on the cash flow of exporters. In particular, many SMEs exporters in the region, which have a purchase order from a foreign buyer, or even a letter of credit (L/C) from a foreign bank, have problems in general to convert this payment promise into liquidity or cash to meet their financial needs during production time and between shipment of goods and receiving payment from foreign buyers.

We find that within the Arab region there is substantial variation in the degree of financial system development. Accordingly, we find that GCC countries are fairly well advanced, whereas several others have significant room for improvement. However, as a group, Arab countries perform relatively poorly, in the financial institutions depth index as well as in financial institutions access index (cf. Figures 5 and 6). The comparatively low degrees of financial depth and financial access are reflected in the fact that many firms in the region perceive and experience access to finance as key constraint. Moreover, in the World Bank's Enterprise Surveys, the MENA region has the lowest percentage of firms with credit lines or loans from financial institutions, at 25 %, compared

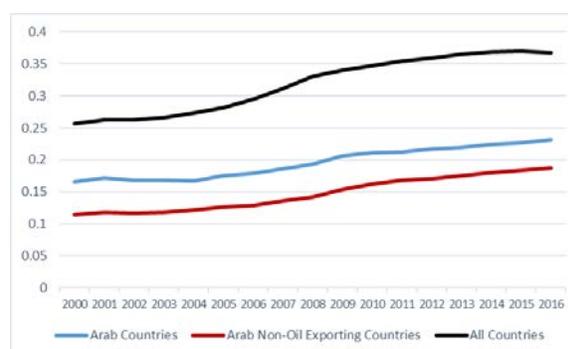
to almost 57 % for Eastern Europe and Central Asia, or 45 % for South Asia (Alvarez de la Campa, 2011).

Figure 5:
Financial Institutions Depth Index Trend, 2000-2016.



Source: Financial Development Index Database, IMF
The index varies from 0 (worse) to 1 (best) and encompasses 4 sub-indicators: Private-sector credit to GDP, Pension fund assets to GDP, Mutual fund assets to GDP and Insurance premiums, life and non-life to GDP. For more details, please refer to: <https://www.imf.org/external/pubs/ft/wp/2016/wp1605.pdf>

Figure 6:
Financial Institutions Access Index Trend, 2000-2016.



Source: Financial Development Index Database, IMF
The index varies from 0 (worse) to 1 (best) and takes encompasses 2 sub-indicators: Bank branches per 100,000 adults and ATMs per 100,000 adults. For more details, please refer to: <https://www.imf.org/external/pubs/ft/wp/2016/wp1605.pdf>

Arab region is also characterized by the lack of supply of trade finance products. The region is not alone with this challenge, referring to banks surveyed for a trade finance study by the Asian Development Bank (Di Caprio et al., 2017). The study estimates the global trade finance gap at \$1.5 trillion, 14 % of which are originates in Middle East and Africa. About three-quarters of rejected trade finance transactions come from SMEs and midcap firms. There are no separate estimates for Arab countries but given the region's comparatively low level of financial sector depth and access, it seems reasonable to expect that trading companies there face a significant trade finance gap.

There are a number of reasons that trade finance may be insufficient to meet demand in Arab region. The common reasons include high risk, lack of regulations needed to offer different instruments, low demand, or low profit. To this list we could add two additional reasons that prevent markets from meeting demand, even as trade finance default rates are low and firms are willing to pay higher prices. The first reason is related to the limited capacity of local markets to offer trade finance products. The second reason is banks inability to establish correspondent relations globally (Auboin and Di Caprio, 2017). Accordingly, strengthening the capacity by local banks to provide adequate trade finance flows is considered as a real challenge in many Arab countries. Meeting this challenge requires to pay close attention to the following issues: The levels and terms of working capital and investment finance; the mechanisms to obtain working capital and investment finance; the presence of any peculiar constraints for exporting firms to obtain finance; and the capacity of the banking system to handle cross-border transactions (Chauffour et al., 2010).

Export credit guarantees could be considered as an assurance to financial institutions that are willing to lend to exporting firms, providing protections to them against losses that could arise from financing international trade transactions. In this regard, a distinction must be made between export credit insurance and export credit guarantees. The former is issued directly in favour of exporters who thereby insure themselves directly against the risk of importers' default. However, the latter cover lending institutions against the risk of non-repayment of export-related loans.

Export credit guarantees are particularly helpful for small and first-time exporters who have insufficient track records and do not dispose of the collateral needed to satisfy banks. Such guarantees to financial institutions facilitate export transactions by enabling exporters to obtain pre-shipment and post-shipment short-term credit. Acting as second-tier financial institution, ECAs stimulate the financial sector to increase its lending to targeted activities and incite competition among local banks, encouraging them to improve credit allocation and efficiency. Moreover, export credit guarantees allow banks to familiarize themselves with trade finance and its instruments in a low-risk fashion. This seems particularly suitable for many Arab countries' contexts where financial institutions are quite risk averse. An ECA can thereby increase lenders' interest in this segment and initiate a learning process through which banks not only develop expertise in export lending, but also introduce of new trade finance products such as trade credit insurance, forfeiting, export receivables-backed financing or back-to-back L/C.

Nevertheless, the ECAs could contribute more to the mechanisms of credit directing and rationing in case that they are not additional to the existing pool of funds within the financial sector. Such contribution dependent on the business model of the specialized institutions. For example, an ECA involved in retail lending and loans directly to final beneficiaries generally contributes to the reduction of lending by the rest of financial sector to the targeted activities. On the other hand, the financial sector also tends to increase its lending to targeted activities if the ECA issues guarantees. Which of these paths creates more distortion is an important issue that should be taken into account when taking a decision on an appropriate business model for the ECA (Chauffour et al., 2010).

In principle, export credit guarantees can be offered through public, private or public-private institutions. In practice, many countries have established ECAs or similar entities or programs as public or state-owned institutions. This is because most of these entities have a developmental mandate to promote national welfare through boosting exports. Das (2013) considers professional management and decision-making independent of government as desirable features for the design of a credit guarantee fund. Similarly, Chauffour and al. (2010) emphasize that for achieving an efficient functioning of an ECA as well as a strong governance record, it is important that the institution is given: first, operational independence; and second, a mandate that is both sustainable and compatible with its objectives. More fundamentally, these authors also point out the importance of understanding why an increase in export volumes is desired by policymakers and whether specific export products and/or markets are to be targeted. These issues are crucial in designing the broader incentive framework, including the financing element, as well as in determining the appropriate business model for the ECA.

Increasing export volumes may serve different policy objectives as reducing current account deficit, pursuing export-led growth strategy, diversifying the export base or expanding the political influence of the country. Each of this objectives has a specific type of ECA. For example, an export finance institution with wider reach may be better if current account deficit related concerns are dominant. If, on the other hand, export-led growth policies are to be pursued, an export finance institution could be useful to promote economies-of-scale by dealing only with firms above a certain threshold in terms of size.

5. Conclusion

The existing research works on the effects of ECA's export guarantees on export promotion mostly are concentrated around several European countries. Yet nothing is known about the influence of export credit guarantees on exports in the Arab region, where the structure of export industries and key trading partners significantly differ from other regions. In this paper, we bridge this gap by investigating empirically the significance of the relationship between exports and credit-worthiness of importing countries, using Arab merchandise export values.

We provide evidence that supports the existence of such relationship. Specifically, we find an economically significant effect of credit worthiness on exports. The dynamic specification of the gravity model shows that the long-run effect of credit worthiness on exports is given by an elasticity of 0.83, slightly lower than the estimated elasticity based on the static specification. In addition, our results confirm that the estimates with regard to the impact of credit score crucially hinge on the sample of countries and the export product group. In fact, based on a sample of non-high income countries alone, we confirm that credit worthiness has been effective over the entire period under consideration. The principal argument for excluding high-income countries is that short-run and long-run economic risks are potentially more important in non-industrial countries. Accordingly, it is especially interesting to confirm the impact of credit score for this sub-group of importing countries. The long-run estimated elasticities exceeded significantly the values derived over the whole sample. They range between 1.14, for primary commodities group, and 1.88, for machinery and transport equipment group. Based on these results, a 1 % increase in the credit score of an importing non-high income country suggests an increase of 1.14 % in the value of Arab primary commodities exporting to that country, but 1.88 % for the value of Arab machinery and transport equipment goods exports.

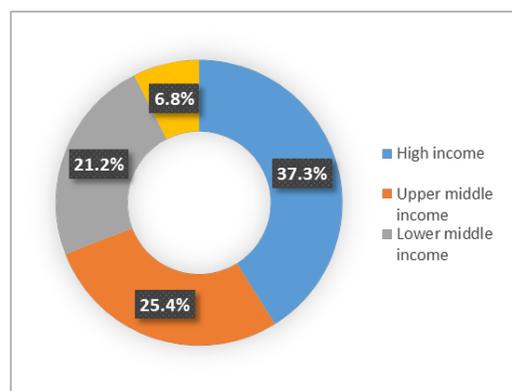
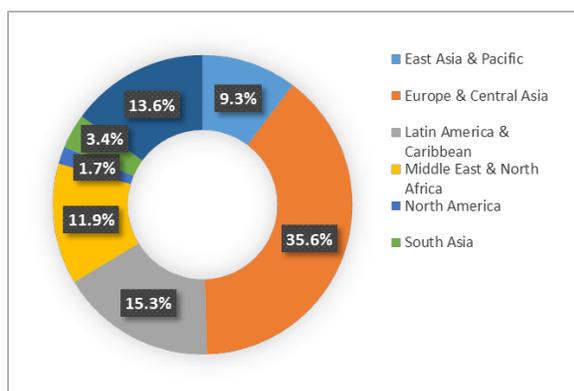
Consequently, our results provide a clear and compelling justification to the usefulness of specialized export financial institutions to finance exports, mitigate credit risk and keep trade finance markets from drying up, particularly in Arab non-oil exporting countries where export finance is very scarce. This scarcity can generate liquidity problems for exporters that disrupt their business or lead, in an extreme scenario, to forego the export order. This is a significant issue in almost all Arab non-oil exporting countries, whose trade deficit has widened dramatically in the past ten years. In this respect, boosting exports has become a policy imperative.

Compared to other regions of the world, the Arab countries are relatively new to the business of export credit support and many Arab countries have no facilities at all. Establishing or developing an already present public ECA in this part of the world could help relieve export constraints by, first, facilitating access to credit for exporters by mitigating risk and increasing banks' willingness to lend, second, helping exporters to offer better payment terms to importers, and third, contributing to enhance confidence in both Arab banks and enterprises among foreign entities. Looking at the experience of other countries, the paper also suggests some guiding principles that policymakers should consider when pondering the idea of setting up or enhancing the activity of an ECA.

Appendix

107 Importing Countries in the Sample

Albania	Burundi	Finland	Jordan	Nigeria	Sri Lanka
Algeria	Cambodia	France	Kazakhstan	Norway	Sweden
Angola	Cameroon	Georgia	Korea,	Oman	Switzerland, Liechtenstein
Argentina	Canada	Germany	Kuwait	Pakistan	Tajikistan
Armenia	China	Ghana	Kyrgyzstan	Panama	Tunisia
Australia	China, Hong Kong	Greece	Latvia	Paraguay	Turkey
Austria	Colombia	Guatemala	Libya	Philippines	Uganda
Azerbaijan	Côte d'Ivoire	Guyana	Lithuania	Poland	Ukraine
Bahrain	Croatia	Honduras	Madagascar	Portugal	United Kingdom
Bangladesh	Cyprus	Hungary	Malaysia	Romania	Tanzania
Barbados	Czechia	Iceland	Malta	Russia	United States of America
Belarus	Denmark	India	Mauritius	Saudi Arabia	Uzbekistan
Belgium	Dominican Republic	Iran	Mexico	Senegal	Venezuela
Bolivia	Ecuador	Ireland	Mongolia	Singapore	Viet Nam
Bosnia and Herzegovina	Egypt	Israel	Morocco	Slovakia	Yemen
Brazil	El Salvador	Italy	Netherlands	Slovenia	Zambia
Bulgaria	Equatorial Guinea	Jamaica	Nicaragua	South Africa	Uruguay
Burkina Faso	Estonia	Japan	Niger	Spain	



Short term and long term economic risks index components

Table A1

BMI's Short Term Economic Risk Index Components

Component	Sub-Component	Rationale
Economic activity	GDP growth, %	Strong growth is generally a positive. Scores are weighted by economic development (proxied by GDP per capita), as developing states often have higher trend growth rates.
	Unemployment, %	Sustained high unemployment risks undermining the country's growth potential.
	Real investment spending growth, %	Fast growth is a more positive factor than slow growth, especially for developing states, but overly rapid expansion may generate investment bubbles.
	Real household spending growth, %	Fast growth is more positive than slow growth, especially for developing states, but overly rapid expansion can lead to overheating.
Monetary indicators	Inflation, %	A small amount of inflation is good, but high inflation and deflation can cause problems.
	Real interest rates, %	High real interest rates constrain investment, while very low or negative rates suggest misaligned monetary policy. Our scoring system considers the position of the economic cycle.
Fiscal indicators	Fiscal balance, % of GDP	Excessive deficit spending can be a source of vulnerability and is penalised. Our scoring system does take into account whether the economy is growing below trend.
	Government debt, % of GDP	The larger the better, though we are more tolerant of lower levels for states with a floating currency regime, as the currency's ability to move acts as an automatic stabiliser.
External indicators	Import cover, months of goods and services imports	High debt is a negative, and we also take into account three-year average debt as a percentage of exports (another distress indicator).
	External debt, % of GDP	A large deficit is a negative, but our scoring system is more lenient if growth is above trend.
	Current account, % of GDP	A long and deep local sovereign yield curve enables the government to efficiently manage its local debt pile and provides corporates with local benchmarks.
Financial indicators	Local debt markets	Local corporates and inward investors benefit from a wide variety of financial market instruments that help them to better manage liabilities. Examples include interest rate swaps, forward rate agreements, interest rate futures, cross-currency swaps and currency forwards. Not all products are available in all currencies/markets.
	Sophistication of financial market	Most countries have some form of restriction or regulations on the inflow and outflow of funds. This can range from full capital controls, which impede local and foreign businesses, to relatively benign anti-money laundering regulations. Businesses benefit from fewer restrictions.
	Capital control risk	Few states can source all of their budgetary financing needs from the domestic market and instead need to access international credit or money markets. States have varying degrees of access to foreign credit, given their perceived creditworthiness and credit history. The key proxy is the length of the foreign currency debt curve of the government and/or key quasi-sovereigns.
	External borrowing capabilities	Strong growth is generally a positive. Scores are weighted by economic development (proxied by GDP per capita), as developing states often have higher trend growth rates.

Table A2**BMI's Long Term Economic Risk Index Components**

Component	Sub-Component	Rationale
Structure of economy	Primary sector, % of GDP	A large primary sector leaves the economy vulnerable to commodity price volatility.
	GDP per capita	This indicator is a proxy for the state's absolute economic development.
	GDP volatility	A history of volatile growth is detrimental to the quality of economic growth.
	Trade concentration	Diversified export markets limit risks arising from a shock to a key trading partner.
	Reliance on commodity imports	A high reliance on commodity imports leaves a state vulnerable to fluctuating commodity prices.
	Percentage of exports from a single sector	An over-reliance on a single sector indicates greater vulnerability to an economic shock.
Economic activity	Central bank independence	Government control of monetary policy increases the risk that it will follow the political cycle rather than the economic cycle.
	GDP growth, %	Strong growth results in higher scores, but above-trend growth is a concern. The risks from fast growth are greater in rich states than poor states.
Monetary indicators	Unemployment, %	Sustained high unemployment risks undermining the country's long-term growth potential.
	Inflation, %	High inflation damages competitiveness and will most likely exacerbate currency volatility. Very low inflation and deflation tends to indicate a decline in money supply, which typically results in low growth.
Fiscal indicators	Real interest rates, %	High real interest rates constrain investment. Very low or negative interest rates suggest inappropriate monetary policy.
	Fiscal balance, % of GDP	A surplus is good; a small deficit is acceptable. We have greater tolerance for moderate deficits (-1.5 to -5.0% of GDP) for developing states, as they require greater capital investment.
	Government debt, % of GDP	Government debt must be serviced; this places a burden on government finances and suggests a need for higher tax levels over the longer term.
External indicators	Government revenue, % of GDP	A large but not overbearing tax base is essential to maintaining sound fiscal credentials into the long term.
	Import cover, months of goods and services imports	The larger the better, though we are more tolerant of lower levels for states with a floating currency regime, as the currency's ability to move acts as an automatic stabiliser.
	External debt, % of GDP	High levels of foreign debt leave the economy vulnerable to currency fluctuations. If this is government debt it will result in lower spending and can crowd out private sector investment.
Financial indicators	Current account, % of GDP	A high current account deficit leaves the currency - as well as inflation and growth - vulnerable to capital flow volatility.
	Local debt markets	A long and deep local sovereign yield curve enables the government to efficiently manage its local debt pile and provides corporates with local benchmarks.
	Sophistication of financial market	Local corporates and inward investors benefit from a wide variety of financial market instruments that help them to better manage liabilities. Examples include interest rate swaps, forward rate agreements, interest rate futures, cross-currency swaps and currency forwards. Not all products are available in all currencies/markets.
	Capital control risk	Most countries have some form of restriction or regulations on the inflow and outflow of funds. This can range from full capital controls, which impede local and foreign businesses, to relatively benign anti-money laundering regulations. Businesses benefit from fewer restrictions.
	External borrowing capabilities	Few states can source all of their budgetary financing needs from the domestic market and instead need to access international credit or money markets. States have varying degrees of access to foreign credit given their perceived creditworthiness and credit history. The key proxy is the length of the foreign currency debt curve of the government and/or key quasi-sovereigns.

Summary Statistics

Variable			Mean	Std. Dev.	Min	Max	Observations
Real Exports Total Goods, per capita	US dollar	overall	256.14	773.86	0.01	8626.78	N = 2247
		between		721.00	0.33	5149.54	n = 107
		within		289.23	-3058.73	3747.69	T = 21
Real Exports Primary Commodities, per capita	US dollar	overall	155.69	540.33	0.00	7211.84	N = 2247
		between		476.69	0.05	4237.48	n = 107
		within		258.35	-3391.42	3661.96	T = 21
Real Exports Manufactured Goods, per capita	US dollar	overall	84.88	313.75	0.01	3252.69	N = 2247
		between		293.84	0.27	2214.73	n = 107
		within		113.43	-1464.24	1639.99	T = 21
Real Exports Machinery Transport & Equipment, per capita	US dollar	overall	25.86	111.35	0.00	1679.30	N = 2247
		between		100.99	0.04	788.27	n = 107
		within		47.86	-643.20	916.89	T = 21
Real FDI Inward Stock per capita	US dollar	overall	11140.03	36541.71	0.00	479322.60	N = 2247
		between		28653.78	10.50	208938.70	n = 107
		within		22837.88	-194234.30	281523.90	T = 21
Short Term Economic Risk Index	Indicator from 0 to 100	overall	56.84	15.43	12.90	95.20	N = 2247
		between		12.48	25.60	86.12	n = 107
		within		9.14	15.81	88.17	T = 21
Long Term Economic Risk Index	Indicator from 0 to 100	overall	54.70	14.62	14.00	87.20	N = 2247
		between		13.11	26.85	81.07	n = 107
		within		6.59	25.34	80.92	T = 21
Share of Manufactured goods in total Imports	Percent	overall	66.97	10.35	28.74	91.57	N = 2247
		between		8.37	45.21	84.55	n = 107
		within		6.14	25.05	85.50	T = 21

Correlation Matrix

	1	2	3	4	5
1. Real Exports Total Goods, per capita	1				
2. Real FDI Inward Stock per capita	0.2856	1			
3. Short Term Economic Risk Index	0.1815	0.2164	1		
4. Long Term Economic Risk Index	0.2011	0.2678	0.8515	1	
5. Share Manufactured goods in total Imports	-0.0518	0.013	0.3207	0.3414	1

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¹ OECD definition of Export Credits; <https://stats.oecd.org/glossary/detail.asp?ID=909>.

² Algeria (Compagnie Algérienne Assurance et de Garantie des Exportations-CAGEX), Bahrain (Export Credit Guarantee Programme under Bahrain Development Bank), Egypt (Export Development Bank of Egypt-EDBE and Export Credit Guarantee Company of Egypt-ECGE), Jordan (Jordan Loan Guarantee Corporation-JLGC), Lebanon (The Lebanese Credit Insurer-LCI), Morocco (Société Marocaine d'Assurance à l'Exportation), Oman (Export Credit Guarantee Agency of Oman-ECGA), Qatar (Qatar Export Development Agency -ASDEER/QDB), Saudi Arabia (Saudi Export Program-SEP under the Saudi Fund for Development-SFD), Sudan (National Agency for Insurance and Finance of Exports-NAIFE), Tunisia (Compagnie Tunisienne pour l'assurance du commerce extérieur-COTUNACE), United Arab Emirates (Export Credit Insurance Company of the Emirates-ECIE)

³ The purpose of DHAMAN is to facilitate the development of Arab states' economies by providing insurance. Dhaman was created in 1974 as a supranational political (investment) risk insurer and export credit guarantee provider. Its membership comprises all Arab states and certain international Arab organizations, themselves backed by Arab governments in a normal shareholding structure.

⁴ Aman Union was launched on 28th October, 2009 following an agreement between DHAMAN and ICIEC to join their efforts for establishing a union for commercial and non-commercial risks Insurers and Reinsurers in their respective Member Countries. It aims at promoting and developing the commercial and non-commercial risks insurance industry in Member Countries and strengthening the mutual relationships among members through a range of activities including encouragement of exchange of information, technical assistance, expertise and consultation among Members.