



## The Effects of Terrorism on Business Failure in the MENAP Region

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**Abstract:** This article contributes to the related literature on business failure by investigating the relationship between terrorism and business failure in the MENAP (Middle East, North Africa, Afghanistan and Pakistan) region over the period 2004-2017. As an indicator of business failure, we used an insolvency index that is part of the World Bank's Doing Business. As an index of terrorism, we used the number of terrorist attacks. According to the GMM results terrorist attacks have a negative impact on business and they lead to their failure. These findings contribute to our understanding of the effects of terrorism on the survival of businesses.

**Keywords:** *Terrorism, business failure, uncertainty, MENAP region*

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### INTRODUCTION

This article deals with the notion of uncertainty in its applicability to economic outcomes. It considers the cases in which uncertainty is used, such as the terrorist attacks. This article attempts to analysis the relationship between terrorist attacks and business failure in the MENAP region.

Since the ignition of the Arab spring in 2011 and the brought about political instability, the MENA region, wholly, has been susceptible to the proliferation of terrorism, especially in Tunisia, Egypt, Libya, Yemen and Syria. In fact, over the period 2011-2017, the accumulated number of recorded terrorist attacks in the region exceeded 31,000, while the Casualties toll surpassed 85,0002. Beyond the urging humanitarian concerns, the repercussions of terrorism and political instability in the region are propagating to the regional economies. The economic costs of terrorism are several, including the direct impact in terms of destroyed infrastructure and capital.

This paper tackles an indirect channel through which terrorism and violence adversely impact the economic activity that is uncertainty. In this view, violent attacks perturb the investment environment by increasing uncertainties and intensifying risks. Such market frictions considerably impact the economic activity by altering the rational economic agents' decision-making process, as value of information, especially for irreversible investments is magnified (Bernanke, 1983). In other words, risk-averse economic agents tend to postpone their investment spending, especially those at long-run horizon, as well as cut down their consumption spending, particularly that on durable commodities, to a later period when uncertainty is resolved. As the consumption and investment spending shrink, the economic activity is likely to slow down.

This paper endeavors to assess the relationship among terrorism and business failure in the MENA region. The findings of this paper may help better understand plausible mechanisms through which economic consequences of terrorism propagates to the aggregate economy. Given the intricate interconnection between the political and economic spheres and given the high association of MENA region with terrorism, this paper underlines the need for regional

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governments to combat terrorism arising in the region that is hindering the regional development and growth. In this article, we are going to investigate the impact of terrorist attacks on business in the MENAP region.

All global business has long been a favored target of terrorism. They are likely to be victims of terrorist attacks that have become a major concern in the last few years.

The U.S government began to monitor terrorism in 1968 when 80% of terrorist attacks have been against U.S businesses. We conclude that while the majority expects that a few companies are victims of a terrorist attacks, they are classified as a top priority and should be seen by many as an issue of increasing importance.

Terrorism had a major impact on business to the point that it threatens its survival, and therefore it has been the focus of many researchers and the main subject of many recent articles.

Some studies suggest that, along with the loss of personal life, personal injury and the atmosphere of fear suffered by victims of terrorist attacks, terrorism has many economic consequences that harm business survival.

The motivation of this study is due to the lack of evidence and empirical research that attempts to determine whether terrorism causes business failure.

We use a sample of 21 MENAP countries between 2000 and 2017. The study reveals two significant contributions to the literature on the effect of terrorist acts on business. Firstly, it helps to reinforce our understanding of the relationship between business failure and terrorism in the MENAP region. This is important because, despite some studies have found a negative relationship (Hyder, Akram, & Padda., 2015; Maitah, Mustofa, & Ugur, 2017) and no link between them (Aslam & Kang, 2015). Secondly, we use the event indicator of terrorism for this reason.

An important and remarkable distinction is that among what we can call loss indicators and event indicators which we have chosen in our study. The use of loss indicators could reflect Nonlinearity in the true effects and these indicators have an endogeneity problem through a regular lack of reporting; underreporting is an obvious problem in the GTD data. It cannot be that there are terror attacks with zero damages, but that there is a lot of missing information in this database.

Data can be missing for the two simple reasons that no one really knows the amount of damages or the number of deaths and injuries. Another reason is deliberate over reporting. The event indicators capture the incidence and reflect the number of reported events of all terrorist attacks. The event indicators are clearly less problematic in this respect than are the loss indicators.

This article is conducted according to the following structure: The second section is a literature review. The third section presents the data and methodology. The fourth section shows and discusses the results. Finally, the study's conclusions and remarks are presented in Section 5.

## LITERATURE REVIEW

Since the early decade of 2000s and post the September 11 attacks, terrorism incidences have significantly increased and have led to massive humanitarian suffering, along with considerable economic damage. Hence, this global phenomenon gained a relatively recent traction among researchers, who examined its determinants and repercussions, theoretically and empirically.

The theoretical literature mainly underscore that terrorism adversely impacts economy through distinct channels (Irshad & Taib, 2017). Chesney, Reshetar, and Karaman (2011) highlight that terrorism economic costs are varied, ranging from impairing human and physical capital as well as destroying infrastructure to crumbing investor confidence and triggering financial instability. More specific to investors' confidence, Byman and Pollack (2008) and Keeney and Von Winterfeldt (2010) accentuate the feelings of panic and ambiguity amid the violence episodes.

The empirical literature on terrorism complements the theoretical literature. Several researchers have found a negative effect of terrorist acts on several macro-economic indicators such as foreign investment inflow and economic growth (Barth, Li, McCarthy, Phumiwasana, & Yago, 2006; Jain & Grosse, 2009; Rasheed & Tahir, 2012; Saka Mada, Defriandi, Suhirwan, & Agus, 2019). This emphasizes the role violent attacks play in the plummet of investors' confidence, that of foreigners as well as locals, amid the instability and uncertainties. At a micro-level, Tingbani, Okafor, Tauringana, and Zalata (2019) find a statistically significant positive impact of terrorist acts on business, especially in fragile and developing states.

Tingbani et al. (2019) affirm that the direct effect of terrorism "includes the immediate loss of lives and property, the cost of rescue and rebuilding, and additional resources to prevent future terrorist attacks." This is also mentioned by Greenbaum, Dugan, and LaFree (2007); Mueller and Stewart (2014); Patrick, Marcos, and Koen (2002) in their studies.

The direct effect of terrorism on the performance of businesses is the direct impact experienced by individual businesses during a terror act, which may lead to the business failure (Greenbaum et al., 2007). Becker and Rubinstein (2004) affirm that the level of uncertainty increases with the increase of the scare of terrorism, which in turn could impact negatively on consumer behavior and investment decisions.

According to Wernick (2006), the risk of terrorism offends the multinational companies or value-chain partners because of the unrest brought about by the flow of resources (transport of goods, funds and information). Terrorism destroys business and alters indirectly the value and rank of brands. Suder, Chailan, and Suder (2008) found significant relationship in the two latter, in the 5 years after the attacks of September, 11.

The direct effect of terrorism is the effect suffered by individual companies during a terrorist attack. For example, vacancy average, in the three most special and distinctive landmark buildings in the City of Chicago, have been increasing more clearly compared to another territory post 9/11 terror act, which Abadie and Gardeazabal (2008) suggest, in their study, in addition to that the “economic activity in the Central Business Districts can be greatly affected by changes in the perceived level of terrorism” (Tingbani et al., 2019).

Jain and Grosse (2009) confirm that the risk of future terror attack has a most psychological effect which leads to negative economic effects on global trade transactions. Similarly, (Gaibullov & Sandler, 2008) found that transnational terrorism has effects that limit the growth in countries vulnerable to terrorism. This may lead to more of the failure of the companies in these cities vulnerable to terrorism because it decreases the growth through increased government expenses.

Liu (2009) mentioned that the adverse business conditions after the terror act exert differential effects on business in the short and long term. This immediate effect is firstly the loss of property and lives, secondly, the expenditure of rescue and reconstruction, and also “additional resources to prevent future terrorist attacks” (Mueller & Stewart, 2014). Cinar (2017) found that the terrorism negatively affects economic growth in all types of countries but particularly low-income countries. According to Tingbani et al. (2019) and Jain and Grosse (2009), increasing the risks and uncertainty associated with terrorism also make unexpected turbulence in value chain operations and supply, resulting in loss of revenue due to inventories, closing or slowing production lines, higher transport and insurance costs for more shipping relevance between companies. In such circumstances, companies depend more on corporate strategy than on the classical strategy of risk management to manage rate chain breaks to avert failure (Enderwick, 2006).

Several terrorism costs may cause business failure like surveillance expenditures, security. “It is estimated that the 9/11 attacks cost US companies US\$30,7 billion in lost revenue from delaying visas to visitors and foreign business personnel travelling to the United States” Tingbani et al. (2019). Although most of the evidence indicates that terrorism cause the business failure, several have proposed that it must not be a significant effect because the companies regain quickly after the attack (Abadie & Gardeazabal, 2008). For instance, some have stated that a terrorist attack destroys only a small fraction of the stock of capital of a country (Tingbani et al., 2019). For example, after Sept. 11, United States GDP fell by half a percentage point, whereas the US stock exchange recovered all its losses within thirty days.

Also, the markets rebounded within days after the London attack in 2005. Similarly, in France 2015, after the Paris attack, the CAC-40 index locked just 0.1% reduces on the twenty four hour. Consistent with this notion, Nikkinen, Omran, Sahlström, and Äijö (2008) recall that financial markets, depending on the sector, although they react strongly to terrorist events, are recovering quickly and returning to business as usual. Tingbani et al. (2019) affirm that more severe attacks eliciting a more negative response from the Karachi Stock Exchange and that the effect of the terror attack depends on the location and type of attack. Similarly, Arif and Suleman (2017) found mixed negative and positive effects of terrorist attacks on the stock prices of diverse sectors on the Stock Exchange of Karachi (Pakistan).

We formulate the two hypotheses that the first predicts a positive relationship between terrorism and business and the second predicts that there is no relationship between this two latter.

**H1:** *Terrorism is negatively related with business failure.*

There is no empirical evidence on whether terrorist acts have an effect on business in the MENAP countries where terrorism incidents are ongoing.

**H2:** *Terrorism isn't associated with business failure*

As depicted, the literature on business failure and terrorist attacks is relatively limited. The dearth of literature is more pronounced when examining the MENAP region, especially given the data availability constraints. This study contributes to the literature on the terrorism by filling this gap and examining one of most regions threatened by

terrorism. To best of our knowledge, little literature has examined the MENAP region and none have examined the interlinkage between uncertainty, terrorism and business failure in this region.

## DATA AND METHODOLOGY

### *Sample Construction*

This paper examines the effect of terrorism on business in 21 MENAP countries over the period 2004-2017. The table below show the sample of countries included for our analysis.

Table 1 *Sample Countries*

| Country Names |              |                      |
|---------------|--------------|----------------------|
| Algeria       | Kuwait       | Sudan                |
| Afghanistan   | Lebanon      | Syria                |
| Bahrain       | Libya        | Pakistan             |
| Egypt         | Morocco      | Tunisia              |
| Iran          | Oman         | United Arab Emirates |
| Iraq          | Qatar        | West Bank and Gaza   |
| Jordan        | Saudi Arabia | Yemen                |

### *Variable Description*

**Dependent variable:** The dependent variable is the insolvency index. Following previous evidence of [Shepherd, Wiklund, and Haynie \(2009\)](#), using insolvency index to capture business failure, this letter exists when the firm cannot attract new equity funding or debt and becomes insolvent because the increase in expenses and/or fall in revenues. So, we adopt our dependent variable from the World Bank Doing Business database. “Countries that obtained a lower score on the index have low recovery rates by secured creditors through reorganization, liquidation or debt enforcement proceedings and are more likely to be insolvent compared to those holding higher scores” ([Tingbani et al., 2019](#)).

This index was used for the two following reasons: Firstly, the efficiency of insolvency framework can motivate the reorganisation of businesses in the country, so that ensuring a reduction in business failures. Moreover, the stronger investment climate reduces ineffective debt recovery processes. Secondly, countries can ensure a reduction in business failures by stimulating corporate reorganization if they have effective insolvency laws ([Dewaelheyns & Van Hulle, 2008](#)).

**Independent variable:** Our main independent variable is the number of terrorist attacks by year. The data for the terrorism index is taken from the online portal "vision of humanity" by The Institute for Economics and Peace.

**Control variables:** Based on the research background this study controls for different variables those affect the survival of businesses:

- **Index Inflation rate (INF):** The Consumer Price Index (CPI) inflation rate which measures macroeconomic stabilization (with bad macroeconomic policies being associated with high inflation). The CPI inflation rate reflect the annual percentage change in the cost to the average consumer of acquiring a basket of services and goods that can be changed or set at specified intervals ([Mghaieth & Khanchel, 2015](#)).
- **GDS:** Gross domestic savings are calculated as GDP less final consumption expenditure (total consumption).
- **TradeS:** Trade in services is the sum of services exports and imports, divided by the value of GDP, in current US dollars.
- **FDI:** Foreign direct investment refers to direct investment equity flows in an economy. It is the sum of equity capital, reinvestment of earnings, and other capital. Direct investment is a category of cross-border investment associated with a resident in one economy having control or a significant degree of influence on the management of an enterprise that is resident in another economy. Ownership of 10 percent or more of the ordinary shares of voting stock is the criterion for determining the existence of a direct investment relationship. This series shows net outflows of investment from the reporting economy to the rest of the world. Data are in current U.S. dollars.

## Methodology

We will employ a dynamic panel model, based on a Generalized Method of Moment (GMM) estimator developed by Arellano and Bond (1991). Our model choice of a GMM in dynamic panel is based on two premises. First, the GMM estimation provides efficient estimate by allowing to control for specific effects individual and temporal and to overcome any potential endogeneity bias of the variables. Second, there exists an ample of prominent literature on the impact of other exogenous shocks on economics that employ the GMM estimator. For instance, studies by Creel, Hubert, and Labondance (2015) on relationship between economic performance and financial stability and Tang and Abosedra (2014) examine the effects of political instability, energy consumption and tourism on economic growth in the MENA countries using a dynamic GMM and static panel data approach. Similarly, Bezić, Galović, and Mišević (2016) on terrorism and FDI in the EU and EEA countries use the GMM method. The model used to estimate the relationship between terrorism and business failure is as below:

$$Insolvency_{c,t} = f(Insolvency_{t-1}, NTA_t, INF_t, GDS_t, TradeS_t, FDI_t)$$

The econometrical model is the following:

$$Insolvency_{c,t} = \alpha_0 + \beta_1 Insolvency_{c,t-1} + \beta_2 NTA_{c,t} + \beta_3 INF_{c,t} + \beta_4 GDS_{c,t} + \beta_5 TradeS_{c,t} + \beta_6 FDI_{c,t} + \varepsilon_{c,t}$$

Where *Insolvency* is the business failure index, *NTA* is the terrorism index, *INF* is the CPI inflation rate, *GDS* is the Gross domestic savings, *TradeS* is the Trade in services (% of GDP), *FDI* is the foreign direct investment, and  $\alpha$  are coefficients to estimate, and  $\varepsilon$  is the error term.

## EMPIRICAL ANALYSIS

### Preliminary Data Analysis

Table 2 *The Matrix of Variables*

| Types of variables   | Notations  | Definition  |
|----------------------|--|---|
| Dependent variable   | Insolvency : Resolving insolvency: Recovery rate (cents on the dollar) - Score | The scores simple average of the scores for the recovery rate and the strength of insolvency framework index.     |
| Independent variable | NTA: Number of terrorist attacks   | Number of terrorist attacks given year  |
| Control variables    | GDS: Gross domestic savings  | Gross domestic savings are calculated as GDP less final consumption expenditure (total consumption).              |
|                      | TradeS: Trade in services (% of GDP)   | Trade in services is the sum of services exports and imports, divided by the value of GDP, in current US dollars. |
|                      | INF: The CPI inflation rate  | (CPI <sub>t</sub> - CPI <sub>t-1</sub> )/CPI <sub>t-1</sub>   |
|                      | FDI: Foreign direct investment   | Foreign direct investment refers to direct investment equity flows in an economy.                                 |

### Descriptive Statistics

The statistical results obtained from the Table 3, concerning the summary statistics of the variables employed in the analysis, show that during the period 2004-2017: There are 294 observations for each variable. On average, the proxy rate of business failure is 26.38129. The minimum is zero while the maximum is 53.5. The sub-samples in Table 3 show that the number of terrorist attacks has 166.5408 at the mean, while the minimum is 0 and the maximum is approximately 3373.

On average, the inflation rate has 7.07364, while the minimum is -6.811161 and the maximum is approximately 53.24779. The gross domestic savings has at the mean 27.00253 while the minimum is -39.65262 and the maximum is 75.54961.

The descriptive statistics show that at the mean, trade in services has 18.38424 with minimum equal to -4.299255

and maximum equal to 106.387. Finally, our final control variable (FDI) has at the mean 2.871679 with minimum equal to - 3.152789 and maximum equal to 23.53737.

Table 3 *Descriptive Statistics*

| Variables  | Obs | Mean     | Std.Dev  | Min       | Max      |
|------------|-----|----------|----------|-----------|----------|
| Insolvency | 294 | 26.38129 | 15.57066 | 0         | 53.5     |
| NTA        | 294 | 166.5408 | 448.4145 | 0         | 3373     |
| INF        | 294 | 7.07364  | 8.261967 | -6.811161 | 53.24779 |
| GDS        | 294 | 27.00253 | 25.46924 | -39.65262 | 75.54961 |
| TradeS     | 294 | 18.38424 | 16.22556 | -4.299255 | 106.387  |
| FDI        | 294 | 2.871679 | 3.325499 | -3.152789 | 23.53737 |

Provided by: Stata11

### **Correlation**

The correlation coefficients are in Tabl 4.

Table 4 *Correlation Matrix*

|            | Insolvency | NTA     | INF     | GDS     | TradeS | FDI    |
|------------|------------|---------|---------|---------|--------|--------|
| Insolvency | 1.0000     |         |         |         |        |        |
| NTA        | -0.2268    | 1.0000  |         |         |        |        |
| INF        | -0.0119    | -0.0211 | 1.0000  |         |        |        |
| GDS        | 0.1207     | -0.1457 | -0.0251 | 1.0000  |        |        |
| TradeS     | 0.0891     | -0.1930 | -0.2576 | -0.2369 | 1.0000 |        |
| FDI        | 0.0635     | -0.2270 | -0.1050 | -0.0908 | 0.5972 | 1.0000 |

Provided by: Stata11

According to [Tingbani et al. \(2019\)](#) “The coefficients of the independent variable do not suggest any problems of multicollinearity in our study. In agreement with expectations, terrorism has a great association with our measure of business failure. The control variables suggested a moderate association with our measure of business failure.”

### **Empirical Evidence**

Generalized Method of Moments (GMM) is the most widely adopted method to work around the problems of traditional estimators and get a better estimate that efficiently accounts for measurement errors and endogeneity that can otherwise be problematic in country growth models. In addition to taking into account omitted variables and reverse causality, it also corrects the selection bias. It has the advantage of taking into account the possible indigenoussness of the variables by using internal instruments. The GMM consists in taking for each period the first difference of the equation to be estimated in order to eliminate the individual specific measures and effects an unbiased estimation [Hsiao \(2007\)](#) and [Byman and Pollack \(2008\)](#) make it possible to solve the problems of causality inverse, simultaneity, and omitted variables.

The main results of the relationship between terrorist attacks and business failure are shown in the table below.

The main results of the relationship between terrorist attacks and business failure in the MENAP region are shown in Table5. So, the results of this study show a negative and significant relationship between terrorist attacks and business failure mean that hypothesis H1 is confirming (H2 is rejected). The result shows that the 1% increase in the number of terrorist attacks increases the insolvency rate of 0.0001621.

This result confirms with some previous studies; for example, [Tingbani et al. \(2019\)](#), affirm that high terrorist

Table 5 GMM Estimation Results of the Relationship Between Terrorist Attacks and Business Failure in The MENAP Region

|                      | Parameters | Notation   | Coefficient | P_value  |
|----------------------|------------|------------|-------------|----------|
| Dependent Variable   | $\beta_1$  | Insolvency | 0.8781856   | 0.000*   |
| Independent Variable | $\beta_2$  | NTA        | 0.0001621   | 0.003*   |
| Control variables    | $\beta_3$  | INF        | 0.0681096   | 0.000*   |
|                      | $\beta_4$  | GDS        | -0.0222015  | 0.000*   |
|                      | $\beta_5$  | TradeS     | -0.0197394  | 0.000*   |
|                      | $\beta_6$  | FDI        | 0.034676    | 0.084*** |

\*Significant at the 1% level. \*\*Significant at the 5% level. \*\*\*Significant at the 10% level.

activities are more likely to contribute to high business failure, as countries would not be able to effectively resolve and mitigate against the insolvency of businesses.

On the control variables, the consumer price IN was negative and statistically significant. The inflation rate has a negative and statistically significant impact on companies; this suggests that an increase in the inflation rate is unfavorable for companies.

In other words, higher inflation has a greater influence on business failure in the MENAP region. Findings by Tingbani et al. (2019) also show that INF increases the business failure in their study on developed countries. The results of our estimation show that Gross domestic savings was positive and significant. So, it is clearly that insufficient savings lead to business failure. This result corroborates that of some similar studies like (Tingbani et al., 2019).

Trades in services have a positive and statistically impact on the survival of businesses. FDI helps to enables countries to develop frameworks and encourage corporate investment that allow businesses to renegotiate their credit terms and thus reduce the costs of financial distress, this means that insolvency issues are managed and, therefore, there is a decline in business failure.

## CONCLUSION AND POLICY IMPLICATIONS

Over the last two decades, there has been a steady increase in the terrorist incidents, especially in already poor countries such as the MENAP region.

The evidence suggests that Hundreds die every year beyond personal injuries because of these events and the international community often seeks to help terrorist victims by sending humanitarian aid. It is worth asking whether more aid can also be stimulated by referring to the effects of the negative effect of terrorism on the survival of businesses. Because literature to date is inconclusive with regard to the negative effects of terrorism on business, this study presents an empirical analysis, with the GMM estimation and a sample of 21 MENAP countries.

In terms of policy implications, we tried to provide better evidence of the negative effects to inform policy makers of the benefits of terrorist risk reduction and mitigation. Our findings suggest that, despite how small the terrorist attack, they should be concerned about its economic consequences for business survival. Our results argue that such attacks lead to business failure by their impact on the business environment of countries. In this paper, we tried to provide better evidence of the negative effect to inform policy makers of the benefits of terrorist risk reduction and mitigation.

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