**Terrorism and Global Business Performance**

**Abstract**

This paper contributes to the literature on business performance by investigating the relationship between terrorism and global business performance at country level. A measure of a country’s distance from the frontier score of the World Bank’s *Doing Business* index is used to proxy for business performance. The results of the fixed-effects estimations based on 173 countries over seven years (2009–2017) show that terrorism has no significant relationship with global business performance. We then partition our sample into developed, developing and fragile countries. The results still show that there is no robust significant relationship between terrorism and business performance for the sub-samples of developed and developing countries. However, the results based on the fragile countries’ sub-sample suggest a significant negative relationship between terrorism and business performance. The results are consistent with an alternative measure of business performance and estimation technique that controls for endogeneity.

**KEYWORDS:**

Terrorism, global business performance, developing, developed, fragile country

**JEL Classification:** G14, G21 and G22

1. **INTRODUCTION**

Terrorism incurs significant economic as well as human costs. For example, the global economic impact of terrorism reached US$89.6 billion in 2015 which was only 15% less than the year before, when it was $105.6 billion. Overall, the costs arising from terrorism have increased eleven-fold over the past 15 years (Dudley, 2016). The human cost of terrorism is equally staggering given that, globally, deaths from terrorism rose from just over 11,000 in 2007 to over 26,000 in 2017. Over the same time period, terror attacks rose from about 2,800 in 2007 to approximately 11,000 in 2017. Among the Organisation for Economic Co-operation and Development (OECD) countries, deaths increased over 900% between 2007 and 2016, with the largest increases occurring in Turkey, France, the United States, and Belgium (Institute for Economics and Peace, 2017).

The growing economic and human cost of terrorism has led to many empirical studies seeking to establish the impact of terrorism on business performance (e.g., Abadie and Gardeazabal, 2008; Aslam and Kang, 2015; Chen and Siems, 2004; Chesney, Rashetar, and Karaman, 2011; Drakos, 2004; 2010; Graham and Ramiah, 2012; Ito and Lee, 2005; Procasky and Ujah, 2016). Collectively these studies evince that terrorism has a negative impact on business performance although the impact is often reversed either in the short run or long run. For example, focusing on the effect of terrorism on the tourism sector, Pizam (2000) found that a large portion of the terrorism incidents (79%) caused a significant decline in tourism demand that lasted from one month to six months, with recovery in approximately 50% of the cases within three months.

In their study on the effects of terrorism on the London and Athens stock markets Kollias, Maanou, Papadamou and Stagiannis (2011, p. s75), concluded that

in very broad terms, the findings of our event study methodology do not seem to point to any clear and unequivocal picture or pattern and no significant and notable change over time has emerged in terms of abnormal returns in either market. In line with other studies, the effects generally appear to be transitory in both markets.

Despite the largely consistent findings by existing studies, our knowledge of the relationship between terrorism and business performance is still limited for a number of reasons; hence the need for our study. First, current studies mainly focus on the effects of terrorism on the share prices of firms listed on stock exchanges (e.g., Arif and Suleman, 2017; Drakos, 2004; Ito and Lee, 2005; Ramia, Cam, Calabro, Maher, and Ghafouri, 2010) or the tourism sector (e.g., Aran˜a and Leo´n, 2008; Llorca-Vivero, 2008; Pizam, 2000; Yaya, 2009). Unlike previous studies, this paper seeks to relate the effects of terrorism to business performance at a country level rather than at firm/sector level as established by prior evidence. This highlights the overall aggregate impact of terrorism on the aggregate performance of businesses in a country. The main advantage of this approach is that it captures the general business environment in each country rather than at firm/sector level and therefore proxies business performance from all firms, both listed and unlisted. This is the first time such evidence has been established in current literature.

Second, despite the suggestions that terrorism may affect business performance in developing and fragile (failed) countries differently (e.g., Essaddam and Karagianis, 2014; Llorca-Vivero, 2008; Piazza, 2008; Procasky and Ujah, 2016) very few but contradictory studies exist. For example, in respect of the developing/developed dichotomy, Procasky and Ujah (2016) found that terrorism results in a higher cost of debt for the country’s sovereign risk and, by extension, the firms in the impacted countries. Moreover, the impact was more pronounced in developing markets where the authors found that a comparable two-point increase in terrorism on average resulted in an entire notch downgrade in the sovereign credit rating of the country. Essaddam and Karagianis (2014) found that firms operating in wealthier, or more democratic countries, face greater volatility in stock returns relative to firms in developingcountries. Conversely, Llorca-Vivero (2008) found that the negative consequences of terrorism are greater in developing countries. The contradictory evidence from Essaddam and Karagianis (2014) and Llorca-Vivero (2008) means that it is not clear whether developed or developing countries are impacted more by terrorism.

In respect of fragile countries, we found no study that has examined whether terrorism affects these countries differently given the severity of terrorism incidents in such countries. The severity of such terrorism incidents is due to these countries’ lack of ability to project power internally; they also have incompetent and corrupt law enforcement capabilities which create opportunities for terrorist groups to penetrate, recruit and operate within them at lower cost and with little government interference or scrutiny (Piazza, 2008). For instance, Al-Qaeda and other terrorist groups are using the southern region of Afghanistan as a secure base to mass-produce trained terrorists due to the region’s inability to project power internally (Stephen, 2006). Given that businesses have long been the favourite targets of these attacks, there have been several calls for the need for research and policy to focus more on these countries (Bader, Berg, and Holtbrügge, 2015; Newman, 2007; Piazza, 2008).

Against this backdrop, the paper is motivated to determine whether the effect of terrorism on business performance may vary depending on whether the country is classified as developed, developing, or fragile. We argue that the effect of terrorism in these countries may depend how they are classified because of the existence of institutional voids, which tend to be very pervasive and undermine the conduct of international businesses operating in these regions (Doh, Rodrigues, Saka-Helmhout and Makhija, 2017; Mair and Marti, 2009; Suder, Reade, Riviere, Birnik, and Nielsen, 2017). ‘Institutional voids’ refer to conditions where institutional arrangements needed to support normal functioning of the market are absent, or weak, or fail to accomplish the role expected of them (Mair and Marti, 2009). This often results in higher cost of doing business. Most fragile states are characterised by sustained degradation of preconditions relevant for markets to exist as well such as governance structure, rules of exchange (Fligstein, 2001) and autonomy (McMillan, 2002) as well as the institutions needed for the market to function well – e.g., governance mechanism, disclosure requirements and functioning judiciary (La Porta et al., 1998; Rotberg, 2003). In more severe cases of institutional voids, multinational enterprises (MNEs) are better able to fill these voids for their host countries, which often create high costs for these firms (Doh et al., 2017; Oetzel and Getz, 2012). We argue that the combination of high security risk and severe institutional voids, where businesses are learning to adapt to dangerous and high-risk environments whilst operating and protecting staff and assets, makes fragile countries an extreme business environment. Given that the challenges in developing countries and fragile countries particularly are very difficult to tackle, it is interesting to find out how terrorism affects businesses in such an environment.

In order to achieve our objective, we used a panel of 173 countries over the period 2009–2017. To capture business performance, the World Bank’s *Doing Business* index was used. The *distance to the frontier score* benchmarks economies with respect to regulatory best practice across several indicators that cover topics on areas of *Doing Business*. A country’s distance to the frontier score illustrates the extent of the gap between the economy and the regulatory frontier at any given time (World Bank, 2017). We therefore argue that economies that are farther away from the frontier are more likely to perform better. Our justification for this argument stems from the characteristics of the topics on areas of doing business[[1]](#footnote-1) used in constructing the frontier. The results of the fixed-effects estimations show that terrorism has no significant impact on global business performance for the full sample, developed and developing countries. However, terrorism has a significant negative relationship with business performance in fragile countries.

The study contributes to the literature in a number of ways. First, our study contributes by examining the relationship between terrorism and global business performance at country level rather than at firm level (e.g., Chesney et al., 2011; Drakos, 2004; 2010). We achieved this by utilising the World Bank’s *Doing Business* index as a proxy for global business performance. By estimating business performance at country level, it means that we are able to approximate the general performance of all businesses within a particular country regardless of industry or listing status. Second, the study also contributes by providing evidence of the impact of terrorism on business performance in developed and developing countries. Our findings add to very limited and contradictory evidence (e.g., Essaddam and Karagianis, 2014; Llorca-Vivero, 2008; Procasky and Ujah, 2016) on whether terrorism has different effects on business performance in developed and developing countries. Contrary to existing results, our results suggest that terrorism does not affect business performance in either developed or developing countries. Finally, despite studies on the relationship between terrorism and economic performance in individual fragile countries (e.g., Khan and Estrada, 2016; Shahzad et al., 2016), ours is the first to provide evidence of how terrorism affects business performance in fragile countries.

The rest of this paper is structured as follows: Section 2 reviews the literature on terrorism and business failure. In Section 3, the data are defined and the models outlined. Section 4 presents the empirical results followed by a discussion. The summary and conclusions are in Section 5.

1. **LITERATURE REVIEW**
	1. **Empirical Evidence on Terrorism and Business Performance**

Many empirical studies seek to establish the impact of terrorism on business performance (e.g., Abadie and Gardeazabal, 2008; Aslam and Kang, 2015; Chen and Siems, 2004; Chesney et al., 2011; Drakos, 2004; 2010; Graham and Ramiah, 2012; Ito and Lee, 2005; Procasky and Ujah, 2016; Tingbani et al., 2019). The collective evidence suggests a significant relationship between terrorism and business performance. For instance, Arif and Suleman (2017) found a significant mixed positive *and* negative impact of terrorism on stock prices of different sectors on the Karachi Stock Exchange. In a related study, Aran˜a and Leo´n (2008) also found the 9/11 attacks caused a shock to tourists’ utility and that some destinations experienced a strongly negative impact on their image and attractiveness, while others upgraded as a consequence of the terrorism.

Similarly, Arin, Cifferi and Spagnolo (2008) provided evidence that the response to terror shocks varies across the six countries investigated (Indonesia, Israel, Spain, Thailand, Turkey, and the UK). Specifically, they found that Spain and the UK are generally less affected by terror shocks, which suggested that financial investors in these two countries are more resilient to these events. Very recently, Tingbani, Okafor, Tauringana and Zalata (2019) investigated the impact of terrorism on global business failure. Evidence from their fixed effects estimations reveals a significantly negative relationship between terrorism and business failure. Specifically, the authors found the impact to be more pervasive in developing and fragile states. Unlike Tingbani et al. (2019), though, our study focuses on performance rather than on business failure.

Overall, the evidence presented in this section, which is mainly based on stock markets’ and tourism industries’ reaction to terrorism incidents, shows that there is an initial negative reaction. However, much of the reviewed literature also suggests that the negative reaction is reversed either in the short term or the long term. There is also limited evidence from these studies that the reaction to incidences of terrorism will differ according to whether the country involved is a developed or a developing one, and the severity of the attack. However, despite the suggestion that the severity of terrorism incidents can impact performance differently, there is no empirical evidence as to whether terrorism has a different effect on fragile states where terrorism incidents are ongoing. Thus, besides adding empirical evidence to the limited research on the relationship between terrorism and global business performance, the paper also contributes by providing evidence on how terrorism affects business performance in fragile countries.

**2.2 Hypotheses Development**

***2.2.1 Terrorism and global business performance***

Several prior studies provided a range of theoretical and empirical evidence to establish a link between terrorism and business performance. The growing evidence suggests that terrorism induces both direct and indirect costs, which adversely affect business performance. Lenain et al. (2002) contended that, during periods of terror attacks, resources devoted to improving security in both public and private sectors may crowd out more productive spending, thereby raising the cost of capital and labour. Such adverse business conditions exert differential impacts on business performance both in the short run and in the long run (Liu, 2009).

Similarly, the fear of terrorism also limits investment to drive business growth. Becker and Rubinstein (2004) argued that the fear of terrorism heightens the level of uncertainty in the market, which adversely impacts on consumer behaviour and the firm’s investment decisions (see Drakos, 2010). According to Sandler and Enders (2008), the immediate cost of terrorism is localised, thereby causing a substitution of economic activities from relatively vulnerable sectors to relatively safer sectors. This substitution allows large diversified firms to cushion their losses. Consumer choices are also likely to be affected due to the likelihood of been harmed through a terror attack (Greenbaum et al., 2007).

Terrorism also hinders the performance of businesses by raising the cost of doing business in terms of higher wages and greater expenditure on security. Brodeur (2017) contended that the overall psychological effect of the risk of a future terror attack and the direct cost of increased airport security have an adverse economic consequence on business survival and growth. Other costs (including security and surveillance expenditure, repairs and replacement of stolen properties) adversely deplete the already scarce financial resources, which may result in adverse business performance (Fernandez, 2008).

On the other hand, the fear of uncertainty under such conditions most likely creates a beneficial environmental jolt for firms to ensure they thrive (Carter and Auken, 2006). For instance, following the September 11th attack, homeowners in Ohio increased their preference for lower-density housing. Zycher (2003) found that after the September 11th attack there was a significant increase in demand for security and technology-related businesses, whilst tourism-related businesses experienced a decline in demand. Drakos and Kutan (2003) found a similar drop in demand for tourism in those Mediterranean countries that had experienced terror attacks, and a significant rise in destinations deemed to be safer. Furthermore, it is also been argued that differences in resources between countries could cushion the effect of terrorism or speed up recovery from either a large-scale attack or prolonged attack (Sandler and Enders, 2008). Given the overall indirect and direct costs associated with terrorism and the fact that it creates a beneficial environmental jolt for firms to thrive and maximise their performance, we expect terrorism to significantly affect business performance. Against this backdrop, we formulate the following hypothesis:

 ***H1: Terrorism is significantly associated with global business performance.***

***2.2.2 Terrorism and business performance in developed and developing countries***

The conceptual case for expecting a significant relationship between terrorism and business performance is based on the suggestion that the fear of terrorism heightens the level of uncertainty in the market, which significantly impacts on consumer behaviour and the firm’s investment decisions (Becker and Rubinstein, 2004; Drakos, 2010). However, in this section, we highlight that the impact of terrorism on global business performance is likely to vary from one country to another due to the existence of institutional voids which tend to influence the conduct and performance of businesses (Doh et al., 2017; Mair and Marti, 2009; Suder et al., 2017). ‘Institutional voids’ refer to conditions where institutional arrangements needed to support normal functioning of the market are absent, or weak, or fail to accomplish the role expected of them (Mair and Marti, 2009). This often results in higher costs of doing business. We postulate that the severity of the impact of terrorism incidents on business performance depends on the level of institutional voids countries face. Liu (2009) contended that institutional voids exert differential impacts on business performance both in the short run and in the long run (Liu, 2009). For example, Llorca-Vivero (2008) suggested that terrorism has greater adverse effects in developing countries due to the sustained degradation of preconditions relevant for markets to exist.

In a related study, Procasky and Ujah (2016) indicated that, compared to developed countries, businesses in developing countries are likely to experience more effects of terrorism in terms of high insurance costs. Unlike most developed countries, developing ones are often perceived to be riskier due to their coercive inability to control their national borders, or project power throughout their national territory. According to Rotberg (2003) most of these countries continually face the threat of secession, civil war, and large-scale violent internal struggles for control between the government and one or more non-state actors, all of which make them riskier and more costly to do business with. Over time insurers can take advantage of the heightened uncertainty by raising high premium charges for businesses operating in those zones. This has had a significant impact on the growth and survival of firms operating within such regions compared to developed countries (International Monetary Fund – IMF, 2001b).

Notwithstanding this, terrorism is found to have a significant impact on the performance of businesses operating in developed countries although it is short-lived due to their resource capabilities and high institutional quality (Tingbani et al., 2019). For instance, a study by Arin et al. (2008) on the responses of businesses to terror shocks across the six countries investigated (Indonesia, Israel, Spain, Thailand, Turkey, and the UK) suggested that the impact varies across countries. Specifically, they found that Spain and the UK generally recovered quickly from the negative effects of terrorism due to their resource capabilities and high institutional quality (see Arin, Cifferi and Spagnolo, 2008). In a similar vein, Essaddam and Karagianis (2014) found that firms operating in wealthier or more democratic countries face greater volatility in stock returns relative to firms in developing countries. However, conversely, Llorca-Vivero (2008) found that the negative consequences of terrorism are greater in developing countries. The contradictory evidence from Essaddam and Karagianis (2014) and Llorca-Vivero (2008) means that it is not clear whether developed or developing countries are impacted more by terrorism. Given this overall evidence, we develop the following hypotheses:

***H2: Terrorism has a significant association with business performance in developed countries.***

***H3: Terrorism has a significant association with business performance in developing countries*.**

***2.2.3 Terrorism and business performance in fragile states***

Most fragile states are characterised by sustained degradation of preconditions relevant for markets to exist as well such as governance structure, rules of exchange (Fligstein, 2001) and autonomy (McMillan, 2002) as well as the institutions needed for the market to function well – e.g., governance mechanisms, disclosure requirements and functioning judiciary (La Porta et al., 1998; Rotberg, 2003). As a result, the impact of terrorism tends to be more severe and pervasive on the performance of businesses operating in these regions.

According to Gaibulloev and Sandler (2009), trans-terrorism has growth-limiting effects on fragile states. It reduces growth by crowding-in government expenditures. Reade and Lee (2012) argued that businesses operating in terror-endangered areas, particularly fragile states, are more likely to face challenges from the organisational commitment of their workforce compared to their peers operating in less terror-endangered areas. Several studies (Warr, 2000; Wilcox et al., 2003) suggested that the fear of violence could drive changes in the routine activities of workers. Such fear also generates organisational stress, which impacts adversely on employees’ work attitude, and increases their disaffection with host country nationals in the case of expatriates which eventually impedes their performance (Bader and Berg, 2013).

Bader and Schuster (2015) found that large and diversified social networks positively impact on the psychological wellbeing of international expatriates working in terror-endangered countries and that safety-related intra-family tensions have diminishing influence on the performance of expatriates. Dreher et al. (2011) stated that the fear and uncertainty impact on the individual migration decisions of staff; they impact on individuals’ perceptions of their living and working conditions, thus forcing them to migrate to safer locations. This and other induced indirect costs adversely affect the performance of businesses operating in most fragile states. On the basis of this, we formulate the following hypothesis:

***H4: Terrorism has a significantly negative impact on business performance in fragile states.***

1. **SAMPLE CONSTRUCTION AND EMPIRICAL METHODS**
	1. **Sample Construction**

We sourced our data from the World Bank Ease of Doing Business Index, the World Bank Development Indicators (WDI) and the Global Terrorism Database (GTD). We employed data from all the global countries for which data on business performance was available. The sample (173 countries) was further disaggregated into developed (40 countries), developing (133 countries), and fragile (failed) sub-samples[[2]](#footnote-2) (39 countries). However, since the study was mainly on terrorism, only countries that are known for terrorism and are regarded as fragile were used. This category of fragile countries was also adopted by Okafor and Piesse (2017) in their study of terrorism. This is because countries such as Zimbabwe and North Korea, among others, are ranked highest on the fragile index but are not known for terrorism. Conversely, countries such as the UK, France and Germany that are highly terror-prone are not ranked high in the fragile states index. Somalia was excluded from the sample due to the unavailability of data. The period 2009–2017 was employed for the analyses. The sample of countries employed in the data collection is shown in Tables 1a & 1b.

[INSERT TABLE 1a & 1b]

* 1. **Variable Description**
		1. *Dependent variable*

The main dependent variable for the study is the distance to the frontier score[[3]](#footnote-3), in country *i* at time *t*. The measure represents the best performance observed on each of the *Doing Business* indicators. Basically, the topics on areas of *Doing Business* used in the construction of the distance to the frontier suggest that countries with lower scores have a deteriorating business environment and, thus, such countries are more likely to be characterised by poorer levels of business performance. For example, a score of 25 means that a country is 75 percentage points away from the frontier of best performance across all economies and across time. The topics on areas of *Doing Business* used to construct the frontier include ease in starting a business, dealing with permits, getting electricity, registering a property, getting credit, protecting investors, paying taxes, trading across borders, enforcing contracts and resolving insolvency. Broadly, some studies have established links between the quality of institutional environment and business performance. For example, in their empirical study, Tingbani et al. (2019) used the *resolving insolvency* indicator of the Doing Business Index to proxy for business failure. [In addition, see Xavier et al. (2014) and He et al. (2015)] for an extensive review of the relationship between institutional business environment and business.] To further justify our rationale for using this construct as a proxy for business performance, we present the following discussions based on the topics on areas of *Doing Business*, which the World Bank uses in constructing the distance to the frontier score.

Economies that experience enormous difficulties in starting up a business would be characterised by the presence of numerous informal businesses. It is very important to formalise a business since most often fail in the first couple of years of existence (Cressy, 1999). The informal nature of businesses within such a country means that they ‘operate in the shadows’ and are afraid of marketing themselves for fear of the law. They may also not be able to trade with certain customers or increase their customer base, the consequences of which can be productivity losses, lower sales, difficulty in accessing finance, and lack of access to government benefits (Bruhn and McKenzie, 2014). Similarly, businesses in economies with inefficient regulatory systems on construction permits are more likely to underperform. The absence of basic infrastructures and safety standards that can be consequences of the inability to easily obtain such permits is not just costly but can also pose serious operational challenges for businesses. In contrast, ease in dealing with such permits can save time for businesses and will allow them to direct their efforts and resources more efficiently, hence achieving better performance (World Bank, 2013).

Access to an electricity supply is very important for businesses to operate and grow. According to a World Bank report in 2017, businesses in mostly developing countries perceive difficulty with electricity supply as a major obstacle to their operations (World Bank, 2017a). According to Abeberese (2012), shortages in electricity can also cause businesses to reduce their productive investments, with negative implications for performance. Difficulty in registering a property for business operations can also create a burdensome environment for business activities to thrive in and pose serious challenges for industrial development (Agboli and Ukaegbu, 2006). Also, the difficulty businesses encounter in registering their property can reduce their ability to access credit facilities and also expose them to incidents of bribery at the land registry. Both scenarios can have severe consequences for business performance (World Bank, 2015).

There is evidence to suggest that credit has an important role to play in the overall business environment of a country through its ability to enhance business growth and productivity. This is because access to credit in a country can boost the ability of businesses to grow to their optimal size since there will be lower transaction costs and lower risk premia (Beck and Demirguc-Kunt, 2006; Harvie et al., 2013). Economies where the interests of investors are not protected run the risk of low business performance levels. This is because investors will be more reluctant to invest their money for fear of management misusing the funds for personal gains (Lobet, 2008). Also, where investors’ interests are not protected, businesses will struggle to maintain good corporate governance standards that are necessary for business performance and growth (Klapper and Love, 2004). Efficient tax-related procedures are beneficial for businesses because overly complicated tax systems are associated with large informal sectors and less investment (World Bank, 2017b). Thus, when tax compliance systems are effectively designed, they encourage businesses to participate in the formal economy by stimulating investment and enhancing performance (Baliamoune-Lutz and Garello, 2014; World Bank, 2017b).

The ease of trading across borders is often as a result of trade liberalisation and trade reforms. Businesses within a country that easily trades internationally often enjoy favourable economic conditions and can benefit through the following channels: improved allocation of resources, greater competition, and access to better technologies, inputs and intermediate goods (Boubakri et al., 2005). All of these would enhance the overall performance and productivity of businesses (Topalova and Khandelwal, 2011). The ability of a country to effectively enforce contracts through fair, speedy trials are very important for businesses entangled in disputes. If business disputes take a very long time to resolve through the courts, firms – particularly the small ones – may not possess the financial strength to stay in business that long, regardless of the outcome (World Bank, 2013). This is because businesses will incur huge costs in pursuing legal means to protect themselves against uncompetitive behaviours such as piracy, contract violations, counterfeiting, and false advertising (Sheng et al., 2011). Therefore, effective contract systems have great significance for business performance as they can reduce informality, improve access to credit, promote investment, and increase trade (World Bank, 2013). Last, effective insolvency laws can stimulate the reorganisation of businesses and enhance their performance and survival (Dewaelheyns and Van Hulle, 2008). They can save struggling businesses when possible, or reallocate insolvent resources of failing firms more productively, thereby speeding up their recovery. Investors and entrepreneurs are more willing to commit to productive activities when they know they are not putting their entire personal fortunes in jeopardy (Cirmizi et al., 2011).

* + 1. ***Independent variables***

Our main independent variables are the number of terrorist incidents and the number of fatalities and injured. We normalised our main independent variables per 100,000 of population as this would allow for better comparability across countries. Furthermore, using the numbers of fatalities and injured would also enhance the analysis as it allows an investigation of the severity of terror attacks.

* + 1. ***Control variables***

The study also used control variables that can impact on business performance. These variables mainly proxy for financial development, productivity and economic openness. According to the available literature, financial development has positive implications for a country’s long-run level of real activity (Boyd et al., 2001). Financial development comes with better economies of scale, increased supervision and regulation, and sustainable competition. This we argue will mitigate against the performance and growth of businesses, since there will be higher levels of savings, greater availability of credit, lower levels of inflation, and more efficient lending rates within that economy. Banks and other lending institutions often create loans from savings. This means that businesses are less likely to be credit-constrained in countries with access to savings and credit (Demirguc-Kunt & Levine, 2001; Lensink et al., 2017). According to Detragiache et al. (2008), studies have shown that firms benefitted immensely in terms of profit through an increase in loan size. Tsoukas (2011) also showed that financial development played an important role in firm performance; that is, more liquid markets improved the survival chances of firms. In contrast, inflation and high lending rates can erode the profit and increase the cost of doing business, respectively. The latter can also imply that firms find it difficult to access credit, resulting in a fall in competitiveness, cost efficiency and performance levels.

With respect to productivity, we used the growth rate in per capita income and gross fixed capital formation. There is evidence to suggest a positive relationship between changes in per capita growth rate, investment, return on capital (Gruber and Kamin, 2007) and subsequently business performance (Ma et al., 2006). Gross fixed capital formation can also motivate the business performance through its impact on economic output (Jiang and Tang, 2008). For general economic openness, trade openness and FDI were used. Trade openness is often used in literature to capture a country’s connectedness to the global market. A country with fewer barriers can be attractive for foreign capital and, thus, can positively impact business performance (Moral-Benito and Roehn, 2016). In addition, there is empirical evidence to suggest that FDI in an economy can have a positive spill-over effect on the performance of firms within an economy (Buckley et al., 2002; Cubillo-Pinilla, 2008). See Table 2 for variable category and description.

 **[INSERT TABLE 2]**

***3.3 Preliminary data analysis***

Tables 3a and 3b show the descriptive statistics of the variables used. On average, the business performance measure is around the 60% points. The minimum is at around the 21% points while the maximum is at around the 91% points. The sub-samples in Table 3b show that, at the mean, the group of fragile countries achieve business performance at around the 51% points. While the minimum is 27.5% points, the maximum is around 78% points. The percentiles show that, overall, 25% of countries in the sample have business performance that is less than 37.9% points. However, the fragile countries have values at the 25th percentile that are below the 32.6% points. The fragile countries on average record the highest number of terrorist incidents (per 100,000 of population) and number of fatalities and injured (per 100,000 of population). At the mean, about 0.04 terrorist incidents (per 100,000 of population) and 0.073 fatalities and injured (per 100,000 of population) were recorded over the period under review in the overall sample of countries. The values for the fragile countries are 0.40 and 1.58, respectively. The rest of the descriptive analysis can be interpreted from Tables 3a and 4b. The correlation matrix is reported in Tables 4a and 4b. As can be seen, there are no obvious multicollinearity concerns.

**[INSERT TABLES 3a, 3b, 4a & 4b]**

1. **EMPIRICAL APPROACH**

**4.1 The Baseline Specification and Method**

The modelling uses a panel of 173 countries. The panel of countries was further disaggregated into developed, developing and fragile countries. The data are annual and for the period 2009–2017. The data were estimated using a fixed-effects technique, as this was favoured by the Hausman test[[4]](#footnote-4) against the random effects. There are numerous advantages for using a fixed-effects technique. First, the technique can address heterogeneity across countries, as revealed in the summary statistics. This eliminates the risk of obtaining biased estimates that could arise due to countries operating under different political, regulatory and business environments. Second, the technique allows for different intercepts for the individual countries in the sample, but still maintains constant slope coefficients. Third, by also allowing for the cross-section and the time aspects of the panel data, more explanatory power is added to the regressions, thus increasing the degrees of freedom of the model (Baltagi, 1995; Gujarati, 2004). The estimating equation can be expressed as

 , (1)

where is business performance in country at time . is a matrix of independent and control variables and and are the coefficients to be estimated. and represent the disturbance term – country-specific effects and random errors distributed. An expanded version of equation (1) is expressed as

 (2)

And

 (3)

 The model was first estimated for the entire sample (173 countries). This was followed by disaggregating into developed (40 countries), developing (133 countries), and fragile terror-prone countries (39 countries). Finally, regional (SSA, South Asia and MENA) dummies were interacted[[5]](#footnote-5) with the independent variables in order to observe differences in the marginal effects across these regional sub-samples. The inclusion of the regional dummies of SSA, South Asia and MENA is because countries in these regions are the most terror-prone in the top ranked category of fragile states index (Okafor and Piesse, 2017). Also, these countries contribute a very significant share of global terrorism. The time period of the panel data is very short; hence, unit root test and co-integration are not suitable. Moreover, these tests are best suited for time-series studies.

**4.2 Empirical Evidence**

The baseline results are shown in Tables 5 and 6. For the entire sample estimation (Models 1 and 2), the number of terrorist incidents was negative but insignificant while the number of fatalities and injured was negative and significant. Therefore, our hypothesis 1 (H1) is rejected. Savings, FDI and trade openness are positive and significant. The results in Table 5 (Models 3 to 6), also show that both measures of terrorism are negative but do not have a significant impact on business performance in developed and developing countries. Thus, there is enough empirical evidence to reject our hypotheses 2 and 3 (H2 and H3). Although trade openness remained positive and significant across the different categories, savings and FDI only remained positive and significant in the sample of developing countries. Credit to private investors and GDP per capita growth are positive and significant in the sample of developed countries.

The results in Table 5 (Models 7 and 8) show that there is a negative and significant relationship between both measures of terrorism and business performance in fragile countries. Therefore, our hypothesis 4 (H4) is accepted. An increase in the numbers of terrorist incidents, and the numbers of fatalities and injured by 1 per 100,000 of population, will significantly reduce business performance by 0.43% and 0.09% points, respectively. Surprisingly, the severity of terrorism does not seem to have any greater impact on business performance. In addition, credit to private investors was negative and significant. The rest of the control variables were insignificant except for inflation, which was only significant in Model 3 of Table 5. Results of the marginal effects analysis with respect to the fragile countries are presented in Table 6. An increase in the numbers of terrorist incidents, and the numbers of fatalities and injured by 1 per 100,000 of population, will significantly reduce business performance by 1.08% and 0.24% points, respectively, for South Asia. While this result is not surprising with respect to SSA, it is for the MENA countries. This is because South Asia records more terrorism per 100,000 of population compared to SSA but less in comparison to MENA.

The finding that terrorism does not have a robust significant impact on business performance at country level can be interpreted in the light of number of studies on stock market performance (e.g., Arif and Suleman, 2017; Brounrn & Derwell, 2010; Ramiah et al., 2010) and demand for tourism (e.g., Drakos and Kutan, 2003; Pizam, 2000; Yaya, 2009) depending on the interpretation. It could be argued that our findings are inconsistent with some existing studies. Nevertheless, these studies often show that terrorism either has a very small negative effect (e.g., Abadie and Gardeazabal, 2008) or the effect actually lasts for a matter of days or a few months (Aslam and Kang, 2015; Becker and Murphy, 2001; Nikkinena et al., 2008). In addition, the our findings that terrorism does not have an effect on both the developed and developing countries’ sub-samples contribute to the limited and contradictory evidence on whether developed or developing countries are more affected by terrorism. This could be explained by the fact that consequences of terrorism may be temporal if there are mechanisms and institutional structures in place that can help cushion its negative effects (Khalid et al., 2019; Oh and Oetzel, 2011). Our findings of no difference in impact of terrorism between developed and developing countries are inconsistent with some studies (see Llorca-Vivero, 2008; Procasky and Ujah, 2016).

Our finding of the significant negative relationship between terrorism and business performance only in the sample of fragile countries is because these groups of countries record by far the highest share of global terrorism. The fragile countries are also known to lack institutional mechanisms and structures that can help reduce or cushion the effects of terrorism. Terrorism is known to crowd out businesses’ productive activities by raising the cost of capital and labour. In addition, the results could also suggest that the inability to trade across borders or across intra-country regions, lack of competitiveness, and loss of economic activity that can all be associated with terrorism have negatively affected the ability of these countries to be at the frontier of business performance. The findings are consistent with the ‘institution voids’ explanation since, in such countries, there is sustained degradation for markets to exist and lack of governance structures and functioning judiciary (see Fligstein, 2001, La Porta et al., 1998; Rotberg, 2003). Thus, while hypothesis 2 is confirmed, there is not enough empirical evidence for hypothesis 1.

**[INSERT TABLES 5 and 6]**

The finding of a consistent positive and significant impact of the savings variable in the sample of developing countries is consistent with Aghion et al. (2016) who suggested that savings, particularly in poorer countries, matter a great deal more for innovation, productivity and growth because catching up with the frontier requires efforts from foreign investors and domestic banks or domestic entrepreneurs. Such efforts promote cooperative ventures; this in turn eases an agency problem that has the potential to deter foreign investors from participating in them. But in richer countries closer to the frontier, this is less so because they do not need foreign investment to undergo innovation projects that are necessary for productivity and growth. The mixed findings of the relationship between credit to private investors and business performance is consistent with the arguments by Boyreau-Debray (2003) and Tsoukas (2011) that credit might not always positively relate to performance. Inflation is negative but mainly insignificant, but nevertheless confirms the notion that inflation erodes the value of investment and profit, and adds additional cost to a business’s operating activities. Lending rate and gross fixed capital were insignificant across all models. Trade openness and FDI were positive but the significance of the FDI was not robust across all the models. The positive relationship confirms the importance of global market links to business performance.

**4.3 Robustness to Alternative Specifications**

We carried out some robustness analyses by employing an alternative dependent variable measure and estimation technique. Our measure of business performance (Doing Business) was replaced with the Current Account Balance in country *i* at time *t*. The *Current Account Balance (% of GDP)* measures the difference between a country’s trade balance (exports revenue minus imports expenditure) (Holmes, 2006). A positive current account reflects an economy’s degree of competitiveness, investment, exports, and increasing terms of trade (Zemanek et al., 2010). All of these have important implications and direct positive relationships with business performance. For example, Sousa et al. (2008) carried out an extensive review of the relationships between competitiveness, exports and business performance. Empirical studies by Singh (2009) also support the link between competitiveness, performance, and export propensity or intensity.

Also, there is a potential that our results may suffer from reverse causality (endogeneity). The lack of entrepreneurial activities and incidents of poor business performance can lead to high unemployment rates which in turn, can lower the opportunity costs of joining terrorist organisations. Thus, the relationship can also run from business performance to terrorism. To help address endogeneity concerns, we estimated our data using the General Method of Moments (GMM). Unfortunately, these were not reported because the estimates were inconsistent due to the inefficiency of the instruments. This is not particularly surprising because GMM is best suited for panels with large cross-sections and small time-series (Baltagi, 2013). Econometrically, the 2SLS can also address problems of endogeneity. However, it was not feasible to get instruments that impact on business performance only through the channel of terrorism. Thus, we used the lagged explanatory variables to estimate our models. This approach has been supported and used by several studies such as Afonso and Jalles (2013) and Bellemare et al. (2017). This is because cannot possibly cause so, by replacing with , we can eliminate the concerns that is endogenous to .

Tables 7 and 8 show estimations of the alternative dependent measure (current account balance, percentage of GDP). The results are mainly similar and consistent with those of the baseline regression although the number of fatalities and injured is now negative and significant for the SSA region. Tables 9 to 12 are estimates of the lagged regressors. Interestingly, the number of fatalities and injured is negative and significant except for the sample of developed countries. These results may confirm the better institutional structures and mechanisms available in developed countries that can help cushion the severity of the impact of terrorism although, similar to the baseline regression, there also is no evidence to suggest that the severity of terrorism will have a greater impact on business performance. From the data, it will be difficult to investigate why this is the case. However, a speculative reason may be that terror incidents that recorded fewer numbers of fatalities and injured could have had a more direct impact on business activities.

1. **CONCLUSION AND POLICY IMPLICATIONS**

This study investigated the impact of terrorism on global business performance. To achieve this, we used a panel data fixed-effect regression model on a global sample of 173 countries over the period 2009-2017. To proxy for business performance, we used a measure of the distance to the frontier score which captures best performance observed on each area of *Doing Business* across all economies. The results of the fixed-effects estimations showed that, for the full sample, terrorism is not significantly related to business performance. We then partitioned our sample into developed, developing and fragile countries on the basis of existing literature that terrorism may affect these categories of countries differently. The findings suggest that terrorism does not have a significant effect on business performance in both developed and developing countries, but we found that terrorism does have a significant effect on business performance in fragile countries. However, the marginal effects showed that this significance is only sustained for the South Asian countries. Our results are robust and considerably consistent to (a) severity of terrorism (number of fatalities and injured), (b) an alternative measure of business performance, and (c) an estimation technique that controls for potential endogeneity.

Our results contribute to existing academic literature on the impact of terrorism on business performance in many ways. For example, the study contributes by showing that terrorism does not affect business performance equally across different country classifications. Thus, these results contribute to the limited and contradictory evidence on whether terrorism affects developing or developed countries more (e.g., Llorca-Vivero, 2008; Piazza, 2008; Procasky and Ujah, 2016). Finally, we also contribute to existing literature by showing that terrorism does have a negative effect on business performance in fragile countries. This is because, in fragile countries, there are usually problems with institutional structures and mechanisms that may help cushion the negative impact of terrorism.

In terms of policy implications, the findings suggest that businesses need not overly avoid countries due to terrorism and there is no evidence to suggest that it significantly impacts on business performance. However, this is different for fragile countries that are terror-prone. Such countries should take necessary steps to minimise the incidents of terrorism including pursuing institutional structures and mechanism that can help cushion the negative effects of terrorism. Since the results of this study suggest and seem to confirm that terrorism has no significant negative effect except in the case of fragile countries, future research may need to focus on how long the effect of terrorism may last on overall business performance in those countries and how different institutional structures and mechanisms may help moderate its impact. Although there is anecdotal evidence of how long the effects of terrorism last in terms of stock markets and tourism there seems to be no consensus.

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**TABLE 1A** Sample countries

This table presents the sample of countries employed for our analysis on the impact of terrorism on global business performance over the period 2009-2017. + is for developed countries.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Afghanistan | Comoros | Hungary+ | Moldova | South Africa |
| Albania  | Congo Democratic | Iceland+ | Montenegro | South Sudan |
| Algeria | Congo Rep | India | Morocco | Spain+ |
| Angola  | Costa Rica | Indonesia | Mozambique | Sri Lanka |
| Antigua and Barbuda | Cote d'Ivoire | Iran | Myanmar | St Lucia |
| Argentina  | Croatia+ | Iraq | Namibia | St. Kitts and Nevis |
| Armenia  | Cyprus+ | Ireland+ | Nepal | Sudan |
| Australia+ | Czech Republic+ | Israel+ | Netherlands+ | Suriname |
| Austria+ | Denmark+ | Italy+ | New Zealand+ | Swaziland |
| Azerbaijan | Djibouti | Jamaica | Nicaragua | Sweden+ |
| Bahamas | Dominica | Japan+ | Niger | Switzerland+ |
| Bahrain  | Dominican Republic | Jordan | Nigeria | Syria |
| Bangladesh | Ecuador | Kazakhstan | Norway+ | Tajikistan |
| Barbados | Egypt | Kenya | Pakistan | Tanzania |
| Belarus | El Salvador | Korea Rep+ | Panama | Thailand |
| Belgium+ | Equatorial Guinea | Kosovo | Papua New Guinea | Timor-Leste |
| Belize | Eritrea | Kuwait | Paraguay | Togo |
| Benin | Estonia+ | Kyrgyz Republic | Peru | Trinidad and Tobago |
| Bhutan | Ethiopia | Laos | Philippines | Tunisia |
| Bolivia  | Fiji | Latvia+ | Poland+ | Turkey |
| Bosnia and Herzegovina | Finland+ | Lebanon | Portugal+ | UAE |
| Botswana | France+ | Lesotho  | Qatar | Uganda |
| Brazil  | Gabon  | Liberia | Romania+ | Ukraine |
| Brunei Darussalam | Gambia  | Libya | Russian Federation | United Kingdom+ |
| Bulgaria+ | Georgia | Lithuania+ | Rwanda | United States+ |
| Burkina Faso | Germany+ | Luxembourg+ | Saudi Arabia | Uruguay |
| Burundi | Ghana | Madagascar | Senegal  | Uzbekistan |
| Cambodia | Greece+ | Malawi | Serbia | Vanuatu |
| Cameroon | Grenada | Malaysia | Seychelles | Venezuela |
| Canada+ | Guatemala | Maldives | Sierra Leone | Vietnam |
| Central African Republic | Guinea | Mali | Singapore+ | West Bank |
| Chad | Guinea-Bissau | Malta+ | Slovak Republic+ | Yemen |
| Chile+ | Guyana | Mauritania | Slovenia+ | Zambia |
| China | Haiti | Mauritius | Solomon Islands | Zimbabwe |
| Colombia | Honduras  | Mexico |  |   |

**TABLE 1B** Sample countries

This table presents the sub-sample of countries employed for our analysis on the impact of terrorism on business performance in 39 fragile countries over the period 2009-2017. \* is for SSA countries, \*\* is for South Asian countries, \*\*\* is for MENA countries.

|  |  |  |
| --- | --- | --- |
| Afghanistan\*\* | Indonesia | Philippines |
| Algeria\*\*\* | Iran\*\*\* | Rwanda\* |
| Bangladesh\*\* | Iraq\*\*\* | Senegal\*  |
| Burundi\* | Kenya\* | Sri Lanka\*\* |
| Cameroon\* | Lebanon\*\*\* | South Sudan\* |
| Central African Republic\* | Libya\*\*\* | Sudan\* |
| Chad\* | Mali\* | Syria\*\*\* |
| Colombia | Mozambique\* | Thailand |
| Congo Democratic\* | Myanmar | Tunisia\*\*\* |
| Cote d'Ivoire\* | Nepal\*\* | Turkey\*\*\* |
| Egypt\*\*\* | Niger\* | Uganda\* |
| Ethiopia\* | Nigeria\* | West Bank\*\*\* |
| India\*\* | Pakistan\*\* | Yemen\*\*\* |

**TABLE 2** Variable definitions

|  |  |
| --- | --- |
| **Variable Category**  | **Definitions**  |
| ***Dependent Variables***  |  |
| Distance to the Frontier (Business Performance)  | This measures the distance of each economy to the “frontier,” which represents the best performance observed. A country’s distance to frontier is reflected on a scale from 0 to 100, where 0 represents the lowest performance and 100 represents the frontier (WDI, 2017). |
| Current Account Balance  | This measures the difference between a country's trade balance (exports minus imports). It is represented as a share of GDP (Holmes, 2006). |
| ***Independent Variables***  |  |
| Number of Terrorist Incidents (per 100,000 of population  | This captures the number of terrorist incidents in a given year. Terrorism is defined as the planned use of threat of extra normal violence by subnational groups to obtain a political, religious, or ideological objective through threats to a large audience, usually not directly involved with the decision making (GTD, 2019; Ismail and Amjad, 2014).  |
| Number of Fatalities and Injured (per 100,000 of population  | This captures the number fatalities and injured from terror attacks in a given year (GTD, 2019) |
| ***Control Variables***  |  |
| Savings (% of GDP) | Measures the difference between GDP and total consumption (WDI, 2019). |
| Credit to Private Investors (% of GDP) | This refers to financial resources provided to the private sector by financial corporations, such as through loans, purchases of non-equity securities, and trade credits (WDI, 2017). |
| Inflation  | Annual % change in the cost of consumer goods and services (WDI, 2019). |
| Lending Rate (%) | This refers to the bank rate that usually meets the short- and medium-term financing needs of the private sector (WDI, 2019). |
| GDP per Capita Growth Rate  | This measures the annual growth rate of gross domestic product per capita (WDI, 2019) |
| FDI (% of GDP) | This is the net inflows of Foreign direct investment in an economy as a share of GDP. The net inflows of investment are to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor (WDI, 2019) |
| Trade Openness  | This measures the degree of openness of a country. It is calculated as the sum of exports and imports of goods and services as a share of GDP (WDI, 2019) |
| Gross Fixed Capital Formation (% of GDP) | This includes land, plant, machinery, equipment and infrastructural purchases and improvements including the construction of roads, railways, commercial and industrial buildings, etc. (WDI, 2019)  |

**TABLE 3A** Descriptive **s**tatistics

This table presents the summary statistics of the variables employed in the analysis.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Variable category** | **Mean**  | **25th Percentile** | **75th Percentile** | **Std. Dev.** | **Min.** | **Max.** |
| ***Dependent Variable*** |  |  |  |  |  |  |
| Business Performance | 60.121 | 37.960 | 69.268 | 13.243 | 20.925 | 91.240 |
| ***Alternative Measure for the Dependent Variable***  |  |  |  |  |  |  |
| Current Account Balance (% of GDP) | -3.154 | -19.001 | 1.444 | 10.199 | -65.029 | 45.454 |
| ***Key Independent variable*** |  |  |  |  |  |  |
| Terrorist Incidents (per 100000 of Population) | 0.184 | 0.000 | 0.040 | 0.826 | 0.000 | 11.544 |
| Number of Fatalities and Injuries (per 100000 of Population) | 0.919 | 0.000 | 0.073 | 5.197 | 0.000 | 90.518 |
| ***Control variables***  |  |  |  |  |  |  |
| Saving (% of GDP) | 19.490 | -6.767 | 28.025 | 17.345 | -66.922 | 75.550 |
| Credit to Private Investors (% of GDP) | 66.306 | 6.499 | 89.610 | 57.297 | -114.694 | 317.410 |
| Inflation (%) | 5.204 | -0.594 | 6.089 | 14.396 | -6.811 | 379.848 |
| Lending Rate (%) | 11.726 | 3.477 | 14.808 | 8.031 | 0.500 | 65.418 |
| GDP/Capita Growth Rate (%) | 1.581 | -5.405 | 3.722 | 5.635 | -62.378 | 121.780 |
| FDI (% of GDP)  | 8.729 | -0.077 | 5.731 | 52.288 | -28.583 | 1282.630 |
| Trade Openness  | 88.869 | 34.971 | 105.387 | 51.771 | 0.167 | 408.362 |
| Gross Fixed Capital Formation (% of GDP) | 24.248 | 12.899 | 27.782 | 8.370 | -3.744 | 85.101 |

**TABLE 3B** Descriptive **s**tatistics

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Variable category** | **Mean**  | **25th Percentile** | **75th Percentile** | **Std. Dev.** | **Min.** | **Max.** |
| ***Dependent Variable*** |  |  |  |  |  |  |
| Business Performance | 50.869 | 32.614 | 57.875 | 10.717 | 27.500 | 78.453 |
| ***Alternative Measure for the Dependent Variable***  |  |  |  |  |  |  |
| Current Account Balance (% of GDP) | -5.591 | -22.328 | -1.044 | 9.167 | -46.262 | 29.114 |
| ***Key Independent variable*** |  |  |  |  |  |  |
| Terrorist Incidents (per 100000 of Population) | 0.655 | 0.000 | 0.401 | 1.600 | 0.000 | 11.544 |
| Number of Fatalities and Injuries (per 100000 of Population) | 3.828 | 0.000 | 1.582 | 10.436 | 0.000 | 90.518 |
| ***Control variables***  |  |  |  |  |  |  |
| Saving (% of GDP) | 16.556 | -8.515 | 23.851 | 13.902 | -30.939 | 48.452 |
| Credit to Private Investors (% of GDP) | 40.082 | -1.864 | 57.395 | 39.038 | -114.694 | 202.879 |
| Inflation (%) | 8.589 | -0.039 | 8.892 | 24.352 | -6.811 | 379.848 |
| Lending Rate (%) | 12.281 | 5.039 | 15.148 | 7.093 | 4.334 | 28.447 |
| GDP/Capita Growth Rate (%) | 2.280 | -5.920 | 4.789 | 9.349 | -62.378 | 121.780 |
| FDI (% of GDP)  | 2.747 | -0.036 | 3.115 | 4.574 | -4.852 | 39.456 |
| Trade Openness  | 59.199 | 30.885 | 72.023 | 24.447 | 0.167 | 139.676 |
| Gross Fixed Capital Formation (% of GDP) | 24.990 | 13.204 | 30.985 | 9.170 | 0.000 | 53.988 |

Note: This table presents the summary statistics of the variables employed in the analysis for the fragile countries. Sources: WDI, (2019) and GTD (2019).

**TABLE 4A** Correlation Matrix (Global Sample)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|   |   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 1 | Business Performance  | 1.000 |  |  |  |  |  |  |  |  |  |  |  |
| 2 | Current Account Balance (% of GDP) | 0.270 | 1.000 |  |  |  |  |  |  |  |  |  |  |
| 3 | Terrorist Incidents (per 100000 of Population) | -0.182 | -0.086 | 1.000 |  |  |  |  |  |  |  |  |  |
| 4 | Number of Fatalities and Injuries (per 100000 of Population) | -0.202 | -0.045 | 0.866 | 1.000 |  |  |  |  |  |  |  |  |
| 5 | Saving (% of GDP) | 0.282 | 0.627 | -0.052 | -0.031 | 1.000 |  |  |  |  |  |  |  |
| 6 | Credit to Private Investors (% of GDP) | 0.635 | 0.142 | -0.111 | -0.124 | 0.192 | 1.000 |  |  |  |  |  |  |
| 7 | Inflation (%) | -0.221 | -0.085 | 0.007 | 0.042 | -0.063 | -0.262 | 1.000 |  |  |  |  |  |
| 8 | Lending Rate (%) | -0.365 | -0.183 | -0.014 | 0.025 | -0.211 | -0.363 | 0.151 | 1.000 |  |  |  |  |
| 9 | GDP/Capita Growth Rate (%) | 0.008 | 0.016 | -0.058 | -0.039 | -0.023 | -0.075 | -0.123 | -0.025 | 1.000 |  |  |  |
| 10 | FDI (% of GDP)  | 0.053 | -0.140 | -0.046 | -0.059 | -0.033 | 0.285 | -0.067 | 0.010 | -0.014 | 1.000 |  |  |
| 11 | Trade Openness  | 0.250 | 0.126 | -0.015 | -0.047 | 0.258 | 0.200 | -0.107 | -0.187 | 0.017 | 0.283 | 1.000 |  |
| 12 | Gross Fixed Capital Formation (% of GDP) | -0.024 | -0.218 | -0.078 | -0.066 | 0.318 | -0.101 | -0.027 | -0.072 | 0.205 | -0.004 | 0.103 | 1.000 |

**TABLE 4B** Correlation Matrix (Fragile and Terror-prone Countries)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|   |   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 1 | Business Performance  | 1.000 |  |  |  |  |  |  |  |  |  |  |  |
| 2 | Current Account Balance (% of GDP) | 0.136 | 1.000 |  |  |  |  |  |  |  |  |  |  |
| 3 | Terrorist Incidents (per 100000 of Population) | -0.218 | -0.155 | 1.000 |  |  |  |  |  |  |  |  |  |
| 4 | Number of Fatalities and Injuries (per 100000 of Population) | -0.233 | -0.034 | 0.874 | 1.000 |  |  |  |  |  |  |  |  |
| 5 | Saving (% of GDP) | 0.133 | 0.532 | -0.113 | -0.024 | 1.000 |  |  |  |  |  |  |  |
| 6 | Credit to Private Investors (% of GDP) | 0.555 | -0.111 | -0.179 | -0.187 | -0.038 | 1.000 |  |  |  |  |  |  |
| 7 | Inflation (%) | -0.149 | 0.049 | -0.037 | 0.008 | 0.139 | -0.047 | 1.000 |  |  |  |  |  |
| 8 | Lending Rate (%) | -0.201 | -0.078 | -0.033 | 0.039 | -0.050 | -0.229 | 0.046 | 1.000 |  |  |  |  |
| 9 | GDP/Capita Growth Rate (%) | 0.046 | 0.230 | -0.108 | -0.075 | 0.067 | 0.028 | -0.172 | -0.009 | 1.000 |  |  |  |
| 10 | FDI (% of GDP)  | 0.041 | -0.546 | -0.211 | -0.211 | -0.119 | 0.042 | -0.133 | 0.109 | 0.060 | 1.000 |  |  |
| 11 | Trade Openness  | 0.096 | -0.135 | 0.267 | 0.164 | -0.016 | 0.098 | -0.244 | -0.205 | -0.029 | 0.256 | 1.000 |  |
| 12 | Gross Fixed Capital Formation (% of GDP) | 0.148 | -0.221 | -0.179 | -0.159 | 0.415 | 0.094 | -0.056 | -0.081 | 0.229 | 0.356 | 0.056 | 1.000 |

**TABLE 5** Fixed-effects (country and year effects) – Baseline Estimations

This table presents the regression results of the estimations for the entire sample and sub-samples. Standard errors are in parentheses. \*Significance at the 10% Level; \*\*Significance at the 5% Level; \*\*\*Significance at the 1% Level.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Model 1**  | **Model 2**  | **Model 3** | **Model 4**  | **Model 5**  | **Model 6**  | **Model 7** | **Model 8** |
|  | **(All Sample)** | **(All Sample)** |  **(Developed)** | **(Developed)** | **(Developing)** | **(Developing)** |  **(Failed)** |  **(Failed)** |
|  | **Fixed Effects**  | **Fixed Effects**  | **Fixed Effects**  | **Fixed Effects**  | **Fixed Effects**  | **Fixed Effects**  | **Fixed Effects**  | **Fixed Effects**  |
| **Dependent Variables** | **Business** | **Business** | **Business** | **Business** | **Business** | **Business** | **Business** | **Business** |
|  | **Performance** | **Performance** | **Performance** | **Performance** | **Performance** | **Performance** | **Performance** | **Performance** |
| **Independent Variables**  |  |  |  |  |  |  |  |  |
| **Terrorist Incidents (per 100000 of Population)** | -0.241 |  | -0.437 |  | -0.275 |  | -0.434\* |  |
|  | (0.289) |  | (0.623) |  | (0.254) |  | (0.261) |  |
| **Number of Fatalities and Injuries (per 100000 of Population)** | -0.042\* |  | -0.217 |  | -0.051 |  | -0.094\*\* |
|  |  | (0.025) |  | (0.283) |  | (0.039) |  | (0.037) |
| **Saving (% of GDP)** | 0.088\*\*\* | 0.088\*\*\* | -0.025 | -0.025 | 0.082\*\*\* | 0.081\*\*\* | 0.064 | 0.053 |
|  | (0.028) | (0.028) | (0.136) | (0.250) | (0.022) | (0.022) | (0.040) | (0.040) |
| **Credit to Private Investors (% of GDP)** | 0.001 | 0.000 | 0.029\*\* | 0.029\* | -0.017 | -0.018 | -0.175\*\*\* | -0.182\*\*\* |
|  | (0.020) | (0.020) | (0.011) | (0.014) | (0.015) | (0.015) | (0.027) | (0.027) |
| **Inflation (%)** | -0.034 | -0.034 | -0.343\*\* | -0.346 | -0.031 | -0.032 | -0.018 | -0.023 |
|  | (0.051) | (0.051) | (0.162) | (0.209) | (0.026) | (0.026) | (0.044) | (0.044) |
| **Lending Rate (%)** | -0.034 | -0.033 | -0.096 | -0.091 | -0.025 | -0.023 | 0.036 | 0.042 |
|  | (0.043) | (0.043) | (0.158) | (0.175) | (0.040) | (0.040) | (0.048) | (0.048) |
| **GDP/Capita Growth Rate (%)** | -0.007 | -0.007 | 0.279\*\* | 0.279\*\* | -0.013 | -0.013 | 0.019 | 0.010 |
|  | (0.032) | (0.032) | (0.112) | (0.125) | (0.032) | (0.032) | (0.049) | (0.049) |
| **FDI (% of GDP)**  | 0.045\*\*\* | 0.044\*\*\* | 0.005 | 0.005 | 0.060\*\*\* | 0.059\*\*\* | 0.009 | -0.019 |
|  | (0.014) | (0.015) | (0.020) | (0.010) | (0.022) | (0.022) | (0.121) | (0.120) |
| **Trade Openness**  | 0.065\*\*\* | 0.065\*\*\* | 0.119\*\*\* | 0.120\*\*\* | 0.059\*\*\* | 0.058\*\*\* | 0.073\*\* | 0.069\*\* |
|  | (0.016) | (0.016) | (0.021) | (0.032) | (0.012) | (0.012) | (0.031) | (0.030) |
| **Gross Fixed Capital Formation (% of GDP)** | -0.058 | -0.056 | -0.174 | -0.172 | -0.046 | -0.043 | 0.027 | 0.051 |
|  | (0.038) | (0.038) | (0.113) | (0.180) | (0.030) | (0.030) | (0.060) | (0.060) |
| **Constant** | 51.996\*\*\* | 52.034\*\*\* | 66.525\*\*\* | 66.352\*\*\* | 49.892\*\*\* | 49.953\*\*\* | 49.632\*\*\* | 49.805\*\*\* |
|  | (1.956) | (1.960) | (4.740) | (6.762) | (1.529) | (1.527) | (2.367) | (2.340) |
| **F stat** | 13.890 | 14.190 | 7.720 | 88.100 | 15.190 | 15.230 | 8.760 | 9.130 |
| **Prob. > F** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| **Observations** | 944 | 944 | 151 | 151 | 793 | 793 | 231 | 231 |
| **R-squared Within**  | 0.267 | 0.267 | 0.533 | 0.531 | 0.275 | 0.275 | 0.443 | 0.454 |

Note: Number of observations vary due to missing data of some of the dependent and control variables. Values in table have been approximated to 3 decimal places.

**TABLE 6** Estimations of the Marginal Effects of Fragile Regions– Baseline Estimations

This table presents the regression results of the marginal effects of the fragile countries. \*Significance at the 10% Level; \*\*Significance at the 5% Level; \*\*\*Significance at the 1% Level.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Model 1**  | **Model 2** | **Model 3** | **Model 4**  | **Model 5**  | **Model 6** |
|  | **(SSA)** | **(SSA)** |  **(South Asia)** |  **(South Asia)** | **(MENA)** | **(MENA)** |
|  | **Fixed Effects**  | **Fixed Effects**  | **Fixed Effects**  | **Fixed Effects**  | **Fixed Effects**  | **Fixed Effects**  |
| **Dependent Variables** | **Business** | **Business** | **Business** | **Business** | **Business** | **Business** |
|  | **Performance** | **Performance** | **Performance** | **Performance** | **Performance** | **Performance** |
|  |  |  |  |  |  |  |
| **Independent Variables**  |  |  |  |  |  |  |
| **Terrorist Incidents (per 100000 of Population)** | -0.214 |  | -1.082\* |  | -0.311 |  |
|  | (1.821) |  | (0.588) |  | (0.290) |  |
| **Number of Fatalities and Injuries (per 100000 of Population)** | 0.138 |  | -0.244\*\*\* |  | -0.067 |
|  |  | (0.211) |  | (0.088) |  | (0.044) |
| **CONTOL VARIABLES** | **YES** | **YES** | **YES** | **YES** | **YES** | **YES** |
| **Constant** | 49.632\*\*\* | 49.901\*\*\* | 50.198\*\*\* | 50.948\*\*\* | 50.058\*\*\* | 50.451\*\*\* |
|  | (2.373) | (2.340) | (2.408) | (2.403) | (2.408) | (2.399) |
| **F stat** | 8.230 | 8.700 | 8.380 | 8.930 | 8.330 | 8.72 |
| **Prob. > F** | 0.000 | 0.000 | 0.000 | 0.000 | 0.015 | 0.000 |
| **Observations** | 231 | 231 | 231 | 231 | 231 | 231 |
| **R-squared Within**  | 0.443 | 0.457 | 0.448 | 0.464 | 0.446 | 0.458 |

Values in table have been approximated to 3 decimal places. For brevity, the control variables are not reported.

**TABLE 7** Robustness Checks using Alternative Business Performance Measure

This table presents the regression results of the estimations for the entire sample and sub-samples. Standard errors are in parentheses. \*Significance at the 10% Level; \*\*Significance at the 5% Level; \*\*\*Significance at the 1% Level.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Model 1**  | **Model 2**  | **Model 3** | **Model 4**  | **Model 5**  | **Model 6**  | **Model 7** | **Model 8** |
|  | **(All Sample)** | **(All Sample)** |  **(Developed)** | **(Developed)** | **(Developing)** | **(Developing)** |  **(Failed)** |  **(Failed)** |
|  | **Fixed Effects**  | **Fixed Effects**  | **Fixed Effects**  | **Fixed Effects**  | **Fixed Effects**  | **Fixed Effects**  | **Fixed Effects**  | **Fixed Effects**  |
| **Dependent Variables** | **CA** | **CA** | **CA** | **CA** | **CA** | **CA** | **CA** | **CA** |
|  | **Balance**  | **Balance**  | **Balance**  | **Balance**  | **Balance**  | **Balance**  | **Balance**  | **Balance**  |
|  | **(% of GDP)** | **(% of GDP)** | **(% of GDP)** | **(% of GDP)** | **(% of GDP)** | **(% of GDP)** | **(% of GDP)** | **(% of GDP)** |
| **Independent Variables**  |  |  |  |  |  |  |  |  |
| **Terrorist Incidents (per 100000 of Population)** | -0.276 |  | 0.121 |  | -0.303 |  | -0.509 |  |
|  | (1.238) |  | (0.486) |  | (0.359) |  | (0.350) |  |
| **Number of Fatalities and Injuries (per 100000 of Population)** | -0.066 |  | 0.250 |  | -0.071 |  | -0.149\*\*\* |
|  |  | (0.242) |  | (0.556) |  | (0.055) |  | (0.051) |
| **CONTROL VARIABLES** | **YES** | **YES** | **YES** | **YES** | **YES** | **YES** | **YES** | **YES** |
| **Constant** | 9.865\*\*\* | 9.916\*\*\* | 10.351\*\*\* | 10.470\*\*\* | 9.174\*\*\* | 9.253\*\*\* | 6.263\*\* | 6.868\*\* |
|  | (3.364) | (3.365) | (3.674) | (3.676) | (2.151) | (2.147) | (2.873) | (2.830) |
| **F stat** | 20.100 | 20.070 | 19.470 | 19.500 | 55.310 | 55.440 | 6.090 | 6.670 |
| **Prob. > F** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| **Observations** | 929 | 929 | 153 | 153 | 776 | 776 | 223 | 223 |
| **R-squared Within**  | 0.519 | 0.520 | 0.739 | 0.739 | 0.586 | 0.586 | 0.365 | 0.386 |

Note: Values in table have been approximated to 3 decimal places. For brevity, the control variables are not reported.

**TABLE 8** Marginal Effects of Fragile Regions– Robustness Checks using Alternative Business Performance Measure

This table presents the regression results of the marginal effects of the fragile countries. \*Significance at the 10% Level; \*\*Significance at the 5% Level; \*\*\*Significance at the 1% Level.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Model 1**  | **Model 2** | **Model 3** | **Model 4**  | **Model 5**  | **Model 6** |
|  | **(SSA)** | **(SSA)** |  **(South Asia)** |  **(South Asia)** | **(MENA)** | **(MENA)** |
|  | **Fixed Effects**  | **Fixed Effects**  | **Fixed Effects**  | **Fixed Effects**  | **Fixed Effects**  | **Fixed Effects**  |
| **Dependent Variables** | **CA** | **CA** | **CA** | **CA** | **CA** | **CA** |
|  |  **Balance**  |  **Balance**  |  **Balance**  |  **Balance**  |  **Balance**  |  **Balance**  |
|  | **(% of GDP)** | **(% of GDP)** | **(% of GDP)** | **(% of GDP)** | **(% of GDP)** | **(% of GDP)** |
| **Independent Variables**  |  |  |  |  |  |  |
| **Terrorist Incidents (per 100000 of Population)** | -1.197 |  | -5.092\*\*\* |  | 0.507 |  |
|  | (2.351) |  | (0.679) |  | (0.333) |  |
| **Number of Fatalities and Injuries (per 100000 of Population)** | -0.735\*\* |  | -0.809\*\*\* |  | 0.033 |
|  |  | (0.327) |  | (0.106) |  | (0.051) |
| **CONTOL VARIABLES** | YES | YES | YES | YES | YES | YES |
| **Constant** | 6.751\*\* | 7.548\*\*\* | 8.769\*\*\* | 9.819\*\*\* | 8.907\*\*\* | 10.103\*\*\* |
|   | (2.857) | (2.786) | (2.529) | (2.542) | (2.551) | (2.501) |
| **F stat** | 9.820 | 11.320 | 18.010 | 18.060 | 17.460 | 19.330 |
| **Prob. > F** | 0.000 | 0.000 | 0.000 | 0.000 | 0.015 | 0.000 |
| **Observations** | 223 | 223 | 223 | 223 | 223 | 223 |
| **R-squared Within**  | 0.344 | 0.377 | 0.491 | 0.491 | 0.483 | 0.508 |

Note: Values in table have been approximated to 3 decimal places. For brevity, the control variables are not reported.

**TABLE 9** Robustness Checks using Lagged Values of the Independent Variables

This table presents the regression results of the estimations for the entire sample and sub-samples. Standard errors are in parentheses. \*Significance at the 10% Level; \*\*Significance at the 5% Level; \*\*\*Significance at the 1% Level.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Model 1**  | **Model 2**  | **Model 3** | **Model 4**  | **Model 5**  | **Model 6**  | **Model 7** | **Model 8** |
|  | **(All Sample)** | **(All Sample)** |  **(Developed)** | **(Developed)** | **(Developing)** | **(Developing)** |  **(Failed)** |  **(Failed)** |
|  |  |  |  |  |  |  |  |  |
| **Dependent Variable** | **Business** | **Business** | **Business** | **Business** | **Business** | **Business** | **Business** | **Business** |
|  | **Performance** | **Performance** | **Performance** | **Performance** | **Performance** | **Performance** | **Performance** | **Performance** |
| **Independent Variables (Lags)** |  |  |  |  |  |  |  |  |
| **Terrorist Incidents (per 100000 of Population)** | -0.315 |  | 0.190 |  | -0.357 |  | -0.627\*\* |  |
|  | (0.355) |  | (0.141) |  | (0.253) |  | (0.257) |  |
| **Number of Fatalities and Injuries (per 100000 of Population)** | -0.080\*\*\* |  | 1.097 |  | -0.084\*\* |  | -0.140\*\*\* |
|  |  | (0.024) |  | (0.799) |  | (0.039) |  | (0.037) |
| **Control Variables**  | **YES** | **YES** | **YES** | **YES** | **YES** | **YES** | **YES** | **YES** |
| **Constant** | 53.689\*\*\* | 53.726\*\*\* | 65.834\*\*\* | 68.140\*\*\* | 51.667\*\*\* | 51.755\*\*\* | 53.425\*\*\* | 53.740\*\*\* |
|  | (2.023) | (2.029) | (5.918) | (5.088) | (1.651) | (1.645) | (2.419) | (2.357) |
| **F stat** | 13.130 | 14.510 | 6.730 | 6.040 | 10.120 | 10.330 | 6.980 | 7.860 |
| **Prob. > F** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| **Observations** | 857 | 857 | 139 | 139 | 718 | 718 | 210 | 210 |
| **R-squared Within**  | 0.198 | 0.201 | 0.448 | 0.482 | 0.211 | 0.214 | 0.401 | 0.430 |

Time and Year fixed effects were included. Values in table have been approximated to 3 decimal places. For brevity, the control variables are not reported.

**TABLE 10** Marginal Effects of Fragile Regions– Robustness Checks using Lagged Values of the Independent Variables

This table presents the regression results of the estimations for the entire sample and sub-samples. Standard errors are in parentheses. \*Significance at the 10% Level; \*\*Significance at the 5% Level; \*\*\*Significance at the 1% Level.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Model 1**  | **Model 2** | **Model 3** | **Model 4**  | **Model 5**  | **Model 6** |
|  | **(SSA)** | **(SSA)** |  **(South Asia)** |  **(South Asia)** | **(MENA)** | **(MENA)** |
|  |  |  |  |  |  |  |
| **Dependent Variable** | **Business** | **Business** | **Business** | **Business** | **Business** | **Business** |
|  | **Performance** | **Performance** | **Performance** | **Performance** | **Performance** | **Performance** |
|  |  |  |  |  |  |  |
| **Independent Variables (Lags)** |  |  |  |  |  |  |
| **Terrorist Incidents (per 100000 of Population)** | -0.792 |  | -1.431\*\* |  | -0.450 |  |
|  | (1.903) |  | (0.580) |  | (0.283) |  |
| **Number of Fatalities and Injuries (per 100000 of Population)** | 0.135 |  | -0.247\*\*\* |  | -0.126\*\*\* |
|  |  | (0.210) |  | (0.087) |  | (0.042) |
| **CONTOL VARIABLES** | **YES** | **YES** | **YES** | **YES** | **YES** | **YES** |
| **Constant** | 53.430\*\*\* | 53.822\*\*\* | 54.111\*\*\* | 54.446\*\*\* | 54.099\*\*\* | 54.048\*\*\* |
|  | (2.427) | (2.353) | (2.450) | (2.409) | (2.455) | (2.408) |
| **F stat** | 6.530 | 7.530 | 6.770 | 7.540 | 6.740 | 7.390 |
| **Prob. > F** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| **Observations** | 210 | 210 | 210 | 210 | 210 | 210 |
| **R-squared Within**  | 0.401 | 0.436 | 0.4094 | 0.436 | 0.408 | 0.431 |

Note: Time and Year fixed effects were included. Values in table have been approximated to 3 decimal places. For brevity, the control variables are not reported.

**TABLE 11** Robustness Checks using Alternative Business Performance Measure and Lagged Values of the Independent Variables

This table presents the regression results of the estimations for the entire sample and sub-samples. Standard errors are in parentheses. \*Significance at the 10% Level; \*\*Significance at the 5% Level; \*\*\*Significance at the 1% Level.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Model 1**  | **Model 2**  | **Model 3** | **Model 4**  | **Model 5**  | **Model 6**  | **Model 7** | **Model 8** |
|  | **(All Sample)** | **(All Sample)** |  **(Developed)** | **(Developed)** | **(Developing)** | **(Developing)** |  **(Failed)** |  **(Failed)** |
|  |  |  |  |  |  |  |  |  |
| **Dependent Variable** | **CA** | **CA** | **CA** | **CA** | **CA** | **CA** | **CA** | **CA** |
|  | **Balance**  | **Balance**  | **Balance**  | **Balance**  | **Balance**  | **Balance**  | **Balance**  | **Balance**  |
|  | **(% of GDP)** | **(% of GDP)** | **(% of GDP)** | **(% of GDP)** | **(% of GDP)** | **(% of GDP)** | **(% of GDP)** | **(% of GDP)** |
| **Independent Variables (Lags)** |  |  |  |  |  |  |  |  |
| **Terrorist Incidents (per 100000 of Population)** | -0.285 |  | 0.716 |  | -0.408 |  | -0.004 |  |
|  | (0.552) |  | (0.684) |  | (0.479) |  | (0.372) |  |
| **Number of Fatalities and Injuries (per 100000 of Population)** | -0.116 |  | -0.091 |  | -0.126\* |  | -0.110\*\* |
|  |  | (0.123) |  | (0.855) |  | (0.074) |  | (0.054) |
| **CONTROL VARIABLES** | **YES** | **YES** | **YES** | **YES** | **YES** | **YES** | **YES** | **YES** |
| **Constant** | 3.014 | 3.048 | 5.593 | 5.610 | 1.639 | 1.733 | 1.570 | 2.434 |
|  | (3.625) | (3.602) | (5.358) | (5.408) | (3.081) | (3.072) | (3.171) | (4.657) |
| **F stat** | 7.250 | 7.150 | 4.940 | 4.820 | 13.330 | 13.510 | 2.860 | 3.190 |
| **Prob. > F** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| **Observations** | 843 | 843 | 140 | 140 | 703 | 703 | 202 | 202 |
| **R-squared Within**  | 0.236 | 0.238 | 0.429 | 0.423 | 0.265 | 0.267 | 0.222 | 0.242 |

Note: Time and Year fixed effects were included. Values in table have been approximated to 3 decimal places. For brevity, the control variables are not reported.

**TABLE 12** Marginal Effects of Fragile Regions – Robustness Checks using Alternative Business Performance Measure Lagged Values of the Independent Variables

This table presents the regression results of the estimations for the entire sample and sub-samples. Standard errors are in parentheses. \*Significance at the 10% Level; \*\*Significance at the 5% Level; \*\*\*Significance at the 1% Level.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Model 1**  | **Model 2** | **Model 3** | **Model 4**  | **Model 5**  | **Model 6** |
|  | **(SSA)** | **(SSA)** |  **(South Asia)** |  **(South Asia)** | **(MENA)** | **(MENA)** |
|  |  |  |  |  |  |  |
| **Dependent Variable** | **CA** | **CA** | **CA** | **CA** | **CA** | **CA** |
|  |  **Balance**  |  **Balance**  |  **Balance**  |  **Balance**  |  **Balance**  |  **Balance**  |
|  | **(% of GDP)** | **(% of GDP)** | **(% of GDP)** | **(% of GDP)** | **(% of GDP)** | **(% of GDP)** |
| **Independent Variables (Lags)** |  |  |  |  |  |  |
| **Terrorist Incidents (per 100000 of Population)** | -0.138 |  | -2.337\*\*\* |  | 0.354 |  |
|  | (1.859) |  | (0.360) |  | (0.617) |  |
| **Number of Fatalities and Injuries (per 100000 of Population)** | -0.178 |  | -0.395\*\*\* |  | -0.047 |
|  |  | (0.322) |  | (0.063) |  | (0.057) |
| **CONTOL VARIABLES** | YES | YES | YES | YES | YES | YES |
| **Constant** | 2.334 | 2.407 | 4.085 | 4.139 | 4.075 | 4.062 |
|  | (4.667) | (4.691) | (4.455) | (4.599) | (4.465) | (4.444) |
| **F stat** | 5.070 | 4.680 | 89.350 | 162.110 | 29.580 | 39.930 |
| **Prob. > F** | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| **Observations** | 202 | 202 | 202 | 202 | 202 | 202 |
| **R-squared Within**  | 0.188 | 0.213 | 0.230 | 0.239 | 0.227 | 0.243 |

Note: Time and Year fixed effects were included. Values in table have been approximated to 3 decimal places. For brevity, the control variables are not reported.

1. These areas of topics are ease in starting a business, getting permits, getting electricity, registering property, getting credit, protecting investors, paying taxes, trading across borders, enforcing contracts and resolving insolvency. [↑](#footnote-ref-1)
2. See the FSI, 2019 report for fragile countries’ ranking. [↑](#footnote-ref-2)
3. Calculating the distance to frontier score for each economy involves two main steps. In the first step, individual component indicators are normalised to a common unit where each of the component indicators y (except for the total tax rate) is rescaled using the linear transformation (worst-y)/(worst-frontier). In the second step, the scores obtained for individual indicators for each economy are aggregated through simple averaging into one distance to frontier score, first for each topic and then across all the topics of the areas of *Doing Business*. For more information, please see World Bank (2017c). [↑](#footnote-ref-3)
4. Hausman is a general test for specification of an econometric model that is applied to test for the appropriateness between the random and the fixed-effects models (Nerlove, 2005). [↑](#footnote-ref-4)
5. An interaction is formed as a product of two (or more) variables. An important application of the interaction variables is that it allows for differences in the slopes of two regression lines. For further reading, see Dielman,(2005). [↑](#footnote-ref-5)