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Terrorism and country-level global business failure

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ABSTRACT

This paper contributes to the literature on business failure by investigating the relationship between terrorism and country-level global business failure. A sample of 174 countries over the period of 2009 to 2015 was used. To proxy for business failure, an insolvency index, which is a component of the World Bank's Doing Business index, was used. The results of the fixed-effects estimations show that terrorism has a negative and significant relationship with business failure for the full sample. When the sample is divided into developed, developing and fragile states, the results show that terrorism is negatively and significantly associated with business failure in developing and fragile states only. The marginal effects of the interactions show that an increase in terrorist incidents by 100 will reduce business failure in South Asia and Sub-Saharan Africa (SSA) countries by 1% and 0.7%, respectively. There are also relationships between our control variables relating to measures of financial development and business failure. These findings contribute to our understanding of the effects of terrorism on business failure and how this differs based on whether the country is developing, developed, or a fragile.

1. Introduction

This paper investigates the impact of terrorism on country-level global business failure and determines whether there are differences in its effects on business failure in developed, developing, and fragile countries. Terrorism is a new global business threat that has become a major challenge in the conduct and survival of global business (Jain & Grosse, 2009). Terrorism assumes many forms, making it difficult to predict its occurrence and impact (Enderwick, 2006; Shrivastava, 2005). Its impact on global business has been the focus of several recent theoretical and empirical research papers (Abadie & Gardeazabal, 2008; Bader & Berg, 2013; Enderwick, 2001; Jain & Grosse, 2009). Collectively, evidence from these studies suggests that beyond the loss of life and personal injuries that the victims of terrorist actions suffer and the atmosphere of fear that terrorists seek to create with their premeditated use of brutal violence, terrorism has multiple real economic consequences (Kollias, Papadamou, & Stagiannis, 2011) that are detrimental to the survival of international business.

Our motivation to focus on the effect of terrorism on global business failure is because of normative disagreements and a dearth of empirical evidence on whether terrorism causes business failure. The major normative argument for expecting terrorism to lead to business failure is

that it will increase costs for businesses that cannot be met from the revenue stream. For example, some have suggested that, following a terrorist attack where there is a need for structural repairs (Enderwick, 2001; Ghemawat, 2003; Suder, 2004), employees would be unwilling to work at night or on weekends, which will increase costs (Brodeur, 2017; Enderwick, 2001). Additionally, it has been suggested that safety concerns in terrorism-affected countries often generate stress for expatriate staff, leaving them unable to perform their work to satisfactory levels (Bader & Schuster, 2015; Oetzel & Getz, 2012), which may affect the business and lead to failure. Furthermore, the literature contests that a terrorist attack often leads to business failure beyond the businesses or industries targeted. These effects include increased interruptions to supply chains and to new government regulations and procedures intended to stem emergent threats (Bouchet, 2004; Ketata & McIntyre, 2008; Spich & Grosse, 2005).

The contrasting arguments for not expecting terrorism to lead to business failure hold that a terrorist attack is normally limited to a few businesses and therefore should not affect those not directly affected by the incident. For example, Enderwick (2001) suggests that the airline and tourism industries were the primary sectors affected following the September 11 (9/11 hereafter) attack in the United States (US). Furthermore, some have also suggested that terrorism should not lead to

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business failure because businesses will quickly recover following an attack. For example, following 9/11, the US GDP dropped by only half a percentage point, while the stock market recovered all its losses within a month (Abadie & Gardeazabal, 2008; Becker & Murphy, 2001). A study by Aslam and Kang (2015) found that the effect of a terrorist attack on the Pakistani stock market was short-lived because the market recovered from the terrorist shock in one day. The findings by Brounrm and Derwell (2010) and Nikkinen, Omran, Sahlstrom, and Aijo (2008) also point to financial markets' quick recovery following an attack.

Further arguments about why terrorism should not result in business failure are centred on the assertion that multinational companies can manage terrorism risks to avoid business failure (Enderwick, 2006; Oetzel & Getz, 2012) and, through knowledge development derived from such incidents, can gain a competitive advantage. According to Gao, Zuzul, Jones, and Khanna (2017), a business can manage the effects of terrorism by using reputation as one of many intangible assets, which can facilitate its long-run survival needs. It has also been suggested that multinational corporations (MNCs) can improve their chances of survival through knowledge development as a prerequisite for competitive advantage relevant for the long-run survival needs of these businesses (Petersen, Pedersen, & Lyles, 2008). Suder, Birnik, Nielsen, and Riviere (2017) find that HR practices and interventions adopted in hostile environments play a critical role in leveraging rare knowledge subsequently used by MNCs for their long-run survival needs.

The paper also investigates whether terrorism has a different effect on business failure depending on whether the country is developed, developing, or fragile for several reasons. First, there is anecdotal evidence that terrorism has different economic consequences in developed and developing countries — hence the suspicion that this may extend to business failure. For instance, evidence by Cinar (2017) suggests that terrorism negatively affects economic growth in all types of countries but particularly low-income countries. The finding by Procasky and Ujah (2016) that terrorism results in a higher cost of debt, particularly for developing markets, also suggests the differential impact of terrorism on developed and developing countries. Second, because of differences in resources between developed and developing countries, the former has more resources that can cushion the effect of terrorism, such as applying monetary, fiscal and other policies to speed up recovery from either a large-scale attack or prolonged attack (Sandler & Enders, 2008). For example, US Congress approved emergency insurance to cover catastrophic losses due to terrorism in the wake of the 9/11 attack (Kunreuther, Michel-Kerjan, & Porter, 2003), which meant that some businesses failures were avoided.

Finally, terrorism may lead to more business failures in developing and fragile states compared to developed countries because of institutional voids that tend to be pervasive and undermine the conduct of international businesses operating in these countries (Khanna & Palepu, 1997, 2005). Institutional voids refer to conditions where institutional arrangements needed to support normal functioning of the market are absent, weak, or fail to accomplish the role expected of them (Mair & Marti, 2009). This often results in a higher cost of doing business. Most fragile states are also characterised by sustained degradation of pre-conditions relevant for markets to exist, such as the governance structure, rules of exchange (Fligstein, 2001) and autonomy (McMillan, 2002) and the institutions for the market to function well (e.g., governance mechanisms, disclosure requirements, and functioning judiciary) (Rotberg, 2003). We argue that the combination of high security risks and severe institutional voids where businesses must learn to adapt to dangerous and high-risk environments whilst operating and protecting staff and assets makes fragile states an extreme business environment in which to operate.

Panel data of 174 countries over the period 2009–2015 were used to achieve our objectives. The sample was then divided into developed, developing, and fragile countries. To capture business failure, we used the insolvency index. The results of the fixed-effects estimations show

that terrorism has a significant negative impact on country-level global business failure. However, when the sample is divided, the results indicate that terrorism has a significant negative impact on business failure in developing and fragile countries but not in developed countries. The marginal effects of the interactions with regional dummies of the fragile countries show that an increase in terrorist incidents by 100 will reduce business failure by 1% and 0.7% in the South Asia and SSA regions, respectively.

The study makes two main contributions to the literature on the impact of terrorism on economic outcomes. First, the study contributes by improving our understanding of the relationship between terrorism and business failure. This is significant given that, despite normative arguments suggesting a negative relationship (e.g., Brodeur, 2017; Enderwick, 2001) and no relationship (Aslam & Kang, 2015; Brounrm & Derwell, 2010; Enderwick, 2001), there is no empirical evidence on whether terrorism leads to business failure. Second, the study also contributes by providing evidence that terrorism has a negative effect on business failure, but only in developing and fragile countries. Such evidence follows limited evidence (e.g., Blomberg, Hess, & Orphanides, 2004; Çinar, 2017) that shows that terrorism affects economic growth differently in developed countries compared to developing 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 are outlined. Section 4 presents the empirical results followed by a discussion. A summary and the study's conclusions are presented in Section 5.

2. Literature review

2.1. Why terrorism should lead to business failure

Terrorism has direct and indirect effects on the performance of businesses, which may lead to their failure. For example, the direct effect of terrorism is the immediate effect experienced by individual businesses during a terror attack (Greenbaum, Dugan, & Lafree, 2007; Knight & Czinkota, 2008; Suder, 2004). This effect includes the immediate loss of lives and property, the cost of rescue and rebuilding, and additional resources to prevent future terrorist attacks (Greenbaum et al., 2007; Lenain, Bonturi, & Koen, 2002; Mueller & Stewart, 2014). Terrorism not only physically destroys global business but also indirectly alters the rank and value of global brands. Linking the threat of terrorism to the rank and value of 100 global brands after the 9/11 attack, Suder, Chailan, and Suder (2008) find significant moderation in the rank and value of global brands in the first five years after the 9/11 attack. Jain and Grosse (2009) contend 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 global business transactions. Other costs (including security and surveillance expenditures, delays in issuing visas, repairs, and replacement of stolen properties) adversely deplete the financial resources of fragile states (Rotberg, 2003), which may cause business failure. 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.

According to Jain and Grosse (2009), the increased uncertainty and risk related to terrorism also create unpredictable disruption in the supply- and value-chain operations, resulting in slowing or shutting down production lines, loss of revenue due to stock-outs, and higher insurance and transportation costs for more expedient shipment among businesses. Businesses under such conditions rely more on firm strategy than on traditional risk management strategy to manage such supply- and value-chain disruption to avoid failure (Enderwick, 2006). According to Wernick (2006), terrorism risk hurts the operation of multinational businesses or value-chain partners due to the disruptions it brings to the flow of resources (moving goods, money, people and information), leading to increased cost, time delay and missed

opportunities.

The effects of terrorism have also been found to include willingness of employees to work at certain times or on certain days of the week (Brodeur, 2017; Greenbaum et al., 2007). For example, several studies (e.g., Warr, 2000; Wilcox, Land, & Hunt, 2003) contend that the fear of violence could also cause changes in the routine activities of workers, and this change in behaviour translates to a greater cost to the business. According to Hamermesh (1999), the fear of crime reduces the willingness of employees to work on weekends and in the evening. As a result, businesses are more likely to offer higher wages to entice staff to work during these periods. Dreher, Krieger, and Meierrieks (2011) state that the fear and uncertainty in the aftermath of a terrorist attack also affects the individual migration decisions of skilled workers. This outcome is reinforced by potential host countries, which increasingly resort to quality-selective immigration policies and prefer skilled immigrants over medium- and low-skilled immigrants (e.g., Docquier, Lohest, & Marfouk, 2007), making it relatively easy for skilled workers to leave their terror-ridden home countries for safer locations. Such conditions may lead to business failures due to the decline in human capital to sustain firm operations (Amankwah-Amoah, 2016; D'Aveni & MacMillan, 1990; Hambrick & D'Aveni, 1992).

In addition, operating in a terror-endangered area has a tremendously negative effect on organisational commitment of a workforce (Reade & Lee, 2012). Overall, the evidence suggests that global relocation involves many changes and stressful challenges and often exposes expatriates to various stressors (Harrison, Shaffer, & Bhaskar-Shrinivas, 2004; Shaffer & Harrison, 1998). Some of these challenges include learning a new language, adapting to different cultural norms, and establishing new social networks (Caligiuri, 1997; Selmer, 2001). These challenges are multiplied by safety concerns linked to living in terrorism-endangered countries. Because there is often only limited support for those who relocate, this can lead uncertainty and stress for the psychological wellbeing of expatriates working in terrorism-endangered countries (Bader & Schuster, 2015; Oetzel & Getz 2011). The post-traumatic stress, anxiety and feelings of insecurity result in the failure of most managers assigned to terror-endangered countries to complete their tasks or in underperformance. For instance, Bader and Schuster (2015) analyse the impact of expatriate social networks on the psychological wellbeing of 175 expatriates working in four terrorism-endangered countries (Afghanistan, India, Pakistan, and Saudi Arabia). The evidence suggests that a large and diversified network positively affects the psychological wellbeing of international expatriates operating in these four regions exposed to terrorism. Similarly, Bader and Berg (2013) investigate how terror-induced stress affects the attitude and performance of 143 expatriate managers in high-risk countries. The evidence suggests that terror-induced stress decreases expatriates' work attitudes and attitudes towards host country nationals (disaffection). This change eventually impedes their performance and may lead to business failure.

However, it has been suggested that terrorism attacks only affect a few businesses and therefore should not be considered responsible for all business failures. For instance, following the 9/11 attack in New York, Enderwick (2001) identified only the airline and tourism sectors as being severely affected. According to Enderwick, the attack had an immediate impact on the propensity for and the cost of airline travel given that the terrorists had utilised commercial aircrafts to carry out the attack, which damaged the tourism sector. The higher level of uncertainty resulted in higher security costs and delays, which by implication had a differential adverse effect on the productivity of short-haul carriers and the growth of the tourism sector. For instance, in anticipation of the decrease in orders following the 9/11 attack, Boeing and other major airlines announced layoffs of between 20,000 and 30,000 staff, while others, such as Air Canada, which depended heavily on the US market, grounded several planes.

Although terrorism directly affects a few businesses, some have suggested that it can lead to business failure beyond the businesses

attacked because the indirect effects of terrorism tend to be widely felt. These effects include decline in buyer demand, increased inter-business transaction costs, interruptions in international supply chains, decline in foreign direct investment (FDI), and the imposition of new government regulations and procedures intended to stem emergent threats (Barth, Li, McCarthy, Phumiwasana, & Yago, 2006; Bouchet, 2004; Czinkota, Knight, & Liesch, 2004; Lenain et al., 2002; Spich & Grosse, 2005). For instance, the fear of terrorism heightens the level of uncertainty in the market, which adversely affects consumer behaviour and the businesses' investment decisions (Becker & Rubinstein, 2004; Drakos, 2010).

Becker and Rubinstein (2004) argue that the fear of terrorism heightens the level of uncertainty in the market, which in turn adversely affects consumer behaviour and investment decisions. According to Sandler and Enders (2008), the immediate cost of terrorism is localised, resulting in a substitution of economic activities from relatively vulnerable sectors to relatively safer sectors. This substitution allows large diversified businesses to cushion their losses. In an open economy, the intensity of terrorism is likely to force a large movement of international investments to avoid other types of risk (Enderwick, 2006). A portion of such expensive investment is again used to support anti-terrorism measures, raising further costs of capital and the transactional costs of doing business.

The substitution argument is supported by results from several studies (e.g., Abadie & Gardeazabal, 2008; Abadie & Dermisi, 2008; Suder & Czinkota, 2005). For example, Abadie and Gardeazabal (2008) find that the increased level of uncertainty associated with terrorism causes a large movement of international capital across countries in an attempt by international investors to avoid other types of countries' risk. This eventually results in low levels of return on investment due to the lack of productive capital to support business operations. Following 9/11, Suder and Czinkota (2007) find a significant increase in the migration of investment to less risky countries with more expensive capital requirements for investment in risky countries. Similarly, Abadie and Dermisi (2008) suggest that vacancy rates experienced a more pronounced increase in the three most distinctive landmark buildings in Chicago and their vicinities compared to other areas post-9/11, which suggested that economic activity in the Central Business Districts can be greatly affected by changes in the perceived level of terrorism.

According to Gaibullov and Sandler (2009), transnational terrorism has growth-limiting effects on terror-prone countries. This may lead to more businesses failures in such countries because it reduces growth by crowding-in government expenditures. Lenain et al. (2002) contend that during periods of terror attacks, resources devoted to improving security in both the public and private sector may crowd out more productive spending, raising the cost of capital and labour. Such adverse business conditions exert differential impacts on business failures, both in the short run and in the long run (Liu, 2009).

2.2. Why terrorism should not lead to business failure

Despite most evidence suggesting that terrorism may lead to business failure, some have suggested that it should not have much impact since businesses quickly recover after the attack. For example, some have stated that a terrorist attack destroys only a small fraction of the stock of capital of a country (Abadie & Gardeazabal, 2008; Becker & Murphy, 2001). For example, after 9/11, the US GDP dropped by only half a percentage point, while the stock market recovered all its losses within a month. Similarly, after the Paris attack in 2015, the CAC-40 closed just 0.1% lower on the day. After the London attack in 2005, the markets rebounded within days. Consistent with this notion, Aslam and Kang (2015) find that although terrorist attacks hurt the Pakistani stock market, such an effect was short-lived because the market recovered from the terrorist shock in one day. They also find evidence that the impact of the terrorist attack depends on the location and type of attack, with more severe attacks eliciting a more negative response from

the Karachi Stock Exchange. Similarly, [Broun and Derwell \(2010\)](#) and [Nikkinen et al. \(2008\)](#) report that financial markets react strongly to terror events but then recover swiftly and soon return to business as usual, depending on the sector.

[Arif and Suleman \(2017\)](#) find mixed positive and negative impacts of terrorism on the stock prices of different sectors on the Karachi Stock Exchange. Furthermore, the fear of uncertainty under such conditions most likely creates a beneficial environmental jolt for businesses to thrive ([Carter & Van Auken, 2006](#)). For example, [Zycher \(2003\)](#) finds that after the 9/11 attack, there was a significant increase in the demand for security- and technology-related businesses, whilst tourism-related businesses experienced a decline in demand. [Drakos and Kutan \(2003\)](#) also find a similar decrease in demand for tourism in Mediterranean countries that had experienced terror attacks and a significant rise in destinations deemed safer. In another tourism-based study, [Araña and León \(2008\)](#) report that 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 experienced an improved impact due to terrorism. [Arin, Ciferri, and Spagnolo \(2008\)](#) provide evidence on the response to terror shocks by the stock markets of six countries (Indonesia, Israel, Spain, Thailand, Turkey and the UK). Their study findings show that terror has a significant impact on both stock markets and stock market volatility and that the magnitude of these effects is larger in emerging markets. Specifically, they found that the impact on both stock markets and stock market volatility in Spain and the UK to be generally less affected by terror shocks, which suggests that financial investors in these two countries are more resilient to these events. This result can be explained by the investors' awareness of the higher institutional quality in Western democracies and implies that the relevant authorities might absorb the shocks caused by terrorist attacks to the financial markets, as suggested by [Johnston and Nedelescu \(2006\)](#).

According to the resource-based view (RBV) theory of the firm, a business can avoid failure even if it is affected by terrorism by developing distinct resources and hard-to-imitate, rare, and valuable capabilities, which will increase its survival probability and drive superior performance by generating a sustainable competitive advantage ([Barney, 1991](#)). Any failure in any of these resources and capabilities adversely affects the organisation ([Mellahi & Wilkinson, 2010](#)). [Knight and Czinkota \(2008\)](#) argue that businesses with better resources are in a good position to, and are more likely to, respond to terrorism. In his integrative process model of organisational failure, an array of external factors and internal factors precipitating organisational failure was identified. According to [Amankwah-Amoah \(2016\)](#), external factors are industry-specific and businesses have less control over environmental factors. Terrorism is a cause of external environmental jolts, which are difficult to foresee and cause significant disruption to business and potential businesses failure. [Tirole \(1988\)](#) contends that businesses that cannot meet the demands of their environment are often either “selected out” or “die”. Therefore, the effect of terrorism on business failure may depend on the resources available to each business. Specifically, those with more resources are likely to survive the effects of a terrorist attack, while those with fewer resources are likely to fail.

The other argument for suggesting that terrorism should not lead to business failure is that business now tries to manage terrorism. For instance, [Harvey \(1993\)](#) finds that fewer than 50% of MNCs had a formal programme to address with terror attacks. However, a survey by [PricewaterhouseCoopers \(2004\)](#) identified that 30% of global CEOs recognised terrorism as one of the biggest threats facing their organisations. This means that businesses consider proactively responding to violent conflict as strategically important for their performance and legitimacy ([Kolk & Lenfant, 2016](#); [Oetzel & Getz, 2012](#)) and to avoid business failure ([Enderwick, 2001, 2006](#); [Kolk & Lenfant, 2016](#); [Oetzel & Getz, 2012](#); [Shrivastava, 2005](#)).

In his work on managing new global threats, [Enderwick \(2006\)](#) emphasises the need for businesses to focus more on strategy than on

the traditional risk management approaches of managing new global threats. These key strategic responses include supply chain management, diversification and scenario planning, and ensuring business continuity. [Shrivastava \(2005\)](#) presented a crisis management framework for understanding the organisational and social processes, causes and consequences of terrorism. [Shrivastava \(2005\)](#) suggests that having such an expanded view of terrorism affords policy makers in government and private organisations a better opportunity of identifying preventive measures to reduce the impact of terrorism on businesses and economic activities. On the question of why and how businesses respond to violent conflicts, [Oetzel and Getz \(2012\)](#) suggest that the proximity of stakeholders affects the strategy that businesses are likely to adopt in response to a conflict. The authors find that although local stakeholder pressure is associated with the likelihood that businesses will respond directly to violent conflict, collaborate with other organisation(s) or work alone, international stakeholders respond indirectly to conflicts.

There has also been a suggestion that businesses can alleviate the effects of terrorism by using reputation as one of many intangible assets that can facilitate its long-run survival needs ([Gao et al., 2017](#)). A favourable reputation can help a firm realise the potential of its resources, thereby enhancing its ability to attract and retain strategic human capital ([Turban & Cable, 2003](#)), lowering its cost of capital, increasing its ability to increase financing ([Stuart, Hoang, & Hybels, 1999](#)), increasing its ability to choose high-quality partners ([Dollinger, Golden, & Saxton, 1997](#)) and form alliances ([Stern, Dukerich, & Zajac, 2014](#)), and helping mitigate the impact of negative events ([Love & Kraatz, 2009](#)). According to [Gao et al. \(2017\)](#), businesses can explore their reputation through their brands to gain a competitive advantage in emerging markets to overcome institutional voids to ensure long-run survival. To assess reputation, buyers “tend to use brand names as signals of quality and value and often gravitate to products with brand names they have come to associate with quality and value” ([Herbig & Milewicz, 1995: 8](#)). Brands can also induce economies of scale in generating and spreading reputation; for example, a firm with a favourable reputation due to high-quality performance in one product can transfer that positive reputation to another product via its brand name ([Moorthy, 1985](#)).

Several prior studies have also explored how MNCs operating in failed states can improve their chances of survival from an HRM perspective ([Czinkota, Knight, Liesch, & Steen, 2010](#); [Suder, 2006](#); [Suder, Birnik, et al., 2017](#); [Suder, Reade, Rivierec, Birnikd, & Nielsen, 2017](#)). Knowledge development through the internationalisation of foreign markets has been recognised by prior studies as a prerequisite for market expansion, competitive advantage, and increased resource commitment relevant for the long-run survival needs of these businesses (see [Johanson and Vahlne \(1997\)](#) and [Petersen et al. \(2008\)](#)). Recently, [Suder, Birnik, et al. \(2017\)](#) adopted an in-depth case study approach to provide an understanding of the role of ‘rare’ knowledge and the mechanisms that link the knowledge paths of MNCs operating in failed states. The key findings of the study suggest that HR practices and interventions adopted within hostile environments, with expatriates' willingness to learn and share new knowledge, play a critical role in the creation, capturing and leveraging of rare knowledge used by MNCs for their long-run survival needs. [Firing, Moen, and Skarsvåg \(2015\)](#) also highlight potential ways through which businesses can capture and leverage knowledge classified as ‘rare’ through HR interventions such as debriefing so more can be learned from experiences gained during extreme events. Given that there are reasons for expecting terrorism to either lead or not to lead to business failure, we formulate the alternative hypotheses predicting a positive relationship between terrorism and business failure. It is, therefore, hypothesised that:

H₁. Terrorism is positively associated with global business failure.

H_{1a}. Terrorism is positively associated with business failure in developed countries.

H_{1b}. Terrorism is positively associated with business failure in developing countries.

H_{1c}. Terrorism is positively associated with business failure in fragile countries.

2.2.1. How the effect of terrorism may differ due to institutional voids

Although we have discussed why terrorism might lead to business failure, the effect of terrorism may not be the same for all countries because of institutional voids. For example, it is well documented that MNCs operating in terrorism-endangered countries such as failed states are often faced with pervasive institutional voids (Gao et al., 2017; Khanna & Palepu, 1997, 2005). Most fragile states are often perceived as riskier due to their pervasive inability to control their own national borders or project power throughout their national territory, and they 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 (Rotberg, 2003). These countries also lack institutions that can help facilitate market transactions (Khanna & Palepu, 2010). For example, banks cannot always ensure credit to businesses, and the absence of rule of law means that courts cannot guarantee enforcement of intellectual property rights (Gao et al., 2017).

Since institutional voids are more likely to occur in developing and fragile countries than in developed countries, it is possible that the impact of terrorism on global business failure may differ. This is based on the reasoning that developed countries have recovered quickly from the effects of terrorism compared to developing and fragile countries due to the differences in resources. However, despite such reasoning, there is no empirical evidence on whether terrorism has a different effect on business failure in developed, developing, and fragile countries where terrorism incidents are ongoing. Therefore, this paper adds to evidence from the existing literature of how terrorism affects global business failure in developed, developing and fragile countries. Base on the on-going evidence, we develop the following hypotheses:

H₂. The impact of terrorism on business failure is more in developing and fragile countries due to prevalent institutional voids.

3. Sample construction and empirical methods

3.1. Sample construction

Of the 195 countries in the world, 193 countries are member states of the United Nations, and 2 countries are non-member observer states. However, constrained by the unavailability of some countries' data, we employ a panel of 174 countries and independent territories for the period of 2009 to 2015. Comprehensive data for the independent variable (insolvency index) were not available prior to 2009. The sample of countries was further partitioned into developed, developing, and fragile countries. Fragile countries were systematically chosen because they are ranked high in the failed states index¹ and are terror-prone. For example, although countries such as Zimbabwe, North Korea and others are ranked high on the failed index, they are not terror-prone. Similarly, the UK, France, and others that are terror-prone are not ranked high in the failed states index. Finally, regional dummies for Sub-Saharan Africa (SSA), South Asia and the Middle East and Northern Africa (MENA) were paired in an interaction² with the independent variables to investigate the marginal differences of the impact of these variables on business failure in these regional sub-samples. These regions (SSA, South Asia and MENA) are the most terror-prone in the top-

ranked category of the fragile states index (Okafor & Piesse, 2017). The countries in these regions also contribute a significant share of terrorist incidents. The data used were sourced from the Global Terrorism Database (GTD) and World Bank Development Indicators (WBDI). In addition, all variables were winsorised at the 1% level (Rahaman, 2011) to reduce the influence of outliers. The sample of countries employed in the data are shown in Tables 1A and 1B.

3.2. Variable description

3.2.1. Dependent variable

The main variable of interest is a country-level business failure that we captured using the insolvency index for each country in the sample. Following prior evidence of Shepherd, Douglas, and Shanley (2000); Shepherd, Wiklund, and Haynie (2009), business failure occurs when a fall in revenues and/or an increase in expenses are of such a magnitude that the firm becomes insolvent and cannot attract new debt or equity funding; it cannot continue to operate under the current ownership and management conditions. Against this backdrop, we adopt the insolvency index from the World Bank Doing Business database. Countries that obtained a lower score on the index have low recovery rates by secured creditors through reorganisation, liquidation or debt enforcement proceedings and are more likely to be insolvent compared to those holding higher scores.

The insolvency index was used as a proxy for business failure for the following reasons. First, countries with effective insolvency laws can stimulate the reorganisation of businesses, thereby ensuring a reduction in business failures (Dewaelheyns & Van Hulle, 2008). Second, effective insolvency laws can save struggling businesses when possible or re-allocate insolvent resources of failing businesses more productively, thereby reducing business failure rates because 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, Klapper, & Uttamchandani, 2011). Third, an effective insolvency framework decreases the cost of capital and reduces the weak mechanisms often responsible for business failures. Finally, an effective insolvency framework allows for a systematic approach that reduces ineffective debt recovery processes, thus strengthening the investment climate (World Bank, 2017).

3.2.2. Independent variable

Our main independent variable is *terrorism*, which is measured by the number of terrorist incidents, as defined in Table 2, together with the dependent and control variables. Similar to Greenbaum et al. (2007), the study also adopts the US military definition of terrorism, which includes threats, actual violence and social, religious, political and economic motives, which allows easy comparability with other terror-related studies. Businesses in fragile and terror-prone countries face a significant number of terror threats and actual violence for a range of social, political and economic reasons. These threats and incidents of violence result in both direct and indirect costs, which hurt business growth and survival (see Greenbaum et al. (2007), Knight and Czinkota (2008), Lenain et al. (2002) and Mueller and Stewart (2014)).

3.2.3. Control variables

The study also controls for several variables that impact business failure. These variables mainly proxy for financial development. According to the available literature, financial development has positive implications for an economy's long-run level of real activity (Boyd, Levine, & Smith, 2001). Financial development comes with better economies of scale, increased supervision and regulation, and sustainable competition. These, we argue, mitigate against the survival and growth of businesses since there will be higher levels of GDP, higher levels of savings, lower levels of inflation, efficient lending rates, and greater availability of credit within that economy. Banks and other lending institutions often create loans from savings. This means that

¹ See the FSI (2017) report for fragile states ranking.

² 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).

Table 1A

Sample countries.

This table presents the sample of countries employed for our analysis on the impact of terrorism on global business failure over the period 2009–2015. + indicates developed countries.

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

Country classification was done by the United Nations (2017). Classifications reflect and are based on economic country conditions such as per capita gross national income, human assets, etc.

Table 1B

Sample countries.

This table presents the sub-sample of countries employed for our analysis on the impact of terrorism on business failure in 39 fragile countries over the period 2009–2015. * denotes SSA countries, ** denotes South Asian countries, *** denotes 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***

Source for the fragile country ranking is the Fragile States Index (FSI, 2017). The rankings are based on a conflict assessment framework that builds on indicators that capture those of cohesion, political, economic and social factors.

business is less likely to be credit-constrained in countries with better economic growth rates and the availability of savings and credit. According to Detragiache, Tressel, and Gupta (2008), studies have shown that businesses benefited immensely in terms of profit through an increase in loan size. Tsoukas (2011) also shows that financial development played an important role in firm survival. That is, more liquid markets improved the survival chances of businesses. In contrast, inflation and high lending rates can erode profits and increase the cost of

doing business, respectively. The latter can also imply that businesses find it difficult to access credit, resulting in a fall in competitiveness, cost efficiency, and survival rates.

3.3. Preliminary data analysis

Tables 3A and 3B show the descriptive statistics of the variables used. On average, the business failure proxy rate is approximately 43.68%. The minimum is approximately 4.60%, while the maximum is approximately 97.53%. The sub-samples in Table 3B show that at the mean, the group of fragile terror-prone countries has business failure proxy at 33.46%, while the minimum is approximately 3.46% and the maximum is approximately 75.24%. Three regions³ — Sub-Saharan Africa (SSA), South Asia and Middle East and North Africa (MENA) — in the sample of fragile countries record the highest number of terrorist incidents on average.

The descriptive statistics show that at the mean, MENA (34.11%) and South Asia (36.69%) have a slightly higher insolvency index when compared to SSA (28.86%). The percentiles show that, overall, 25% of countries in the sample have an insolvency index of less than the 28.64%. However, when the samples are disaggregated, it can be seen that developing and fragile countries have values at the 25th percentile that are considerably below 28.64%. At the mean, approximately 53 terrorist incidents were recorded over the period under review in the

³ World regional classifications according to the World Bank are as follows: East Asia and Pacific, Europe and Central Asia, Latin America & the Caribbean, MENA, North America, South Asia, and SSA.

Table 2
Variable definitions.

List of variables	Definitions
Dependent variables	
Insolvency index	This measures the strength of the insolvency framework on aspects of quality of insolvency laws and debt recovery rates through reorganisation, liquidation, and other debt enforcement proceedings (WDI, 2017).
Independent variable	
Terrorism	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 decision making (GTD, 2017; Ismail & Amjad, 2014).
Control variables	
GDP	Measures the sum of the gross value added by all resident producers in an economy (WDI, 2017).
Savings (\$US, Log)	Measures the difference between GDP and total consumption (WDI, 2017).
Credit to Private Investors (\$US, Log)	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 2013).
Lending rate (%)	This refers to the bank rate that usually meets the short- and medium-term financing needs of the private sector (WDI, 2017).

overall sample of countries. If disaggregated into developed and the entire sample of developing countries, the average numbers of terrorist incidents for the period are approximately 8 and 71, respectively. However, when SSA, South Asia and MENA are compared, the figures are approximately 43, 572 and 312, respectively. For the percentiles, 25% of the countries in the sample have recorded more than 5 terrorist incidents. Based on the data, we see that this is significantly higher for SSA, South Asia and MENA.

The correlation coefficients are in Tables 4A and 4B. The coefficients of the independent variable do not suggest any problems of multicollinearity in our study. In contrast to expectations, terrorism has a weak association with our measure of business failure both in the global and fragile country samples. The control variables suggested a moderate association with our measure of business failure, although, since correlation is not causality, the magnitude of these coefficients will have limited implications in our regression analysis.

4. Empirical approach

4.1. The baseline specification and method

The data covered the period between 2009 and 2015. The period was constrained due to data availability. Data on the proxy for business failure (insolvency framework) prior to 2009 are not available. Hence, our study only covered the period post-2009. The analysis was estimated using the fixed-effects technique because this was the most preferred by the Hausman test⁴ as against the random-effects technique. The estimated technique employed in this study has advantages. First, the fixed-effects can help eliminate the risk of biased estimates because of heterogeneity across countries. Second, the fixed-effects can allow for constant slope coefficients but with different intercepts for individual countries. Third, the cross-section and the time dimensions of the data add more explanatory power to the estimation by allowing for higher degrees of freedom (Baltagi, 2013; Gujarati, 2004). The fixed-effects model can be estimated as follows,

$$y_{it} = \alpha_i + \beta X_{it} + \mu_i + v_{it}, \quad (1)$$

where y_{it} is business failure in country i at time t . X is a matrix of independent and control variables, and β are the coefficients to be estimated. μ_i and v_{it} represent the disturbance term — country-specific effects and random errors distributed. An expanded version of Eq. (1) is expressed as

⁴ Hausman is a general test for the specification of an econometric model that is applied to test for the appropriateness between the random and fixed-effects models (Nerlove, 2005).

$$\begin{aligned} \text{Business failure}_{it} = & \alpha_i + \beta * \text{Terrorism}_{it} + \beta * \text{GDP growth}_{it} + \beta * \text{Savings}_{it} + \beta * \\ & \text{Inflation}_{it} + \beta * \text{Lending rate}_{it} + \beta * \text{Credit to private investors}_{it} + \mu_i + v_{it} \end{aligned} \quad (2)$$

The model was first estimated for the entire sample. This was followed by disaggregating the sample into developed, developing, and fragile terror-prone countries. Finally, regional (SSA, South Asia and MENA) dummies were interacted with terrorism 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 due to countries in these regions being the most terror-prone in the top-ranked category of the fragile states index (Okafor & Piesse, 2017). Additionally, according to the sample data, these countries contribute a significant share of terrorist incidents.

Regarding other specification tests, a Breusch-Pagan/Cook-Weisberg Test for heteroskedasticity indicated no presence of heteroskedasticity and, therefore, robust standard errors were not used to relax the assumptions that the errors were both independent and identically distributed. The period of the panel data is short; hence, a unit root test and co-integration are not suitable. These tests are best suited for time-series studies. The GMM estimates across the estimations were not consistent due to the inefficiency of estimates and the instruments (Baltagi, 2013). Therefore, the fixed-effects test assumes the most consistent results, and our results and discussions are based on its estimates.

4.2. Empirical evidence

The main results of the relationship between terrorism and country-level global business failure are shown in Table 5. The results of all of the countries in our sample in Table 5 (Model 1) show that the model explains 45.37% of the variation in business failure. The results, which show a positive and significant relationship between terrorism and business failure, mean that hypothesis H_1 of the study is supported, and is consistent with the arguments and on-going evidence of the impact of terrorism on business failure. The result suggests that high terrorist 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.

In order to test for hypothesis H_{1a} , we disaggregate the analysis into developed, developing and fragile terror-prone countries. Evidence of the results of the fixed effect regressions is presented in Model 2, 3 and 4 of Table 5 for developed, developing and fragile terror-prone countries, respectively. The results in Table 5, Model 2, show that although terrorism and business failure are positively related, the relationship is not significant. Hypothesis H_{1a} is therefore not confirmed. Consistent with our expectations, the results in Models 3 and 4 of Table 5 show that terrorism is positive and significantly related to business failure in

Table 3A

Descriptive statistics.

This table presents the summary statistics of the variables employed in the analysis. GDP, Savings, and Credit to Private Investors are in US\$ billions.

	All countries						Developed countries'	Developing countries'
	Mean	25th percentile	75th percentile	Std. Dev.	Min.	Max.	Mean	Mean
Dependent variable								
Insolvency (business failure)	43.682	28.640	54.720	22.558	4.600	97.530	69.201	34.779
Independent variable								
Terrorism	53.024	0.000	5.000	248.636	0.000	3925.000	7.975	70.563
Control variables								
GDP	410.000	9.200	219.000	1520.000	0.598	6200.000	1130.000	191.000
Savings	119.000	-1.970	4260.000	444.000	-15.700	5350.000	238.000	84.000
Inflation	4.995	-4.480	53.229	7.081	-8.283	109.681	1.629	5.876
Lending rate (%)	11.306	0.500	60.000	7.361	0.500	65.418	6.335	12.489
Credit to Private Investors	514.000	0.079	28,900.000	2680.000	0.036	34,100.000	1700.000	179.000

Table 3B

Descriptive statistics.

This table presents the summary statistics of the variables employed in the analysis for the fragile countries. GDP, Savings, and Credit to Private Investors are in US\$ billions.

	Total						SSA	South Asia	MENA
	Mean	25th percentile	75th percentile	Std. Dev.	Min.	Max.	Mean	Mean	Mean
Dependent variable									
Insolvency (business failure)	33.461	25.580	42.350	14.612	3.460	75.240	28.859	35.687	34.114
Independent variable									
Terrorism	217.578	0.000	2214.000	488.108	0.000	3925.000	43.190	571.500	311.971
Control variables									
GDP	180.000	15.300	212.000	335.000	1.700	1860.000	45.570	377.660	197.017
Savings	49.500	-3.970	599.000	111.000	-5.260	636.000	8.540	108.000	52.600
Inflation	7.382	-2.248	39.266	8.226	-8.283	50.151	8.055	7.178	8.441
Lending rate (%)	12.751	5.679	28.447	7.117	5.526	65.418	15.511	11.790	11.315
Credit to Private Investors	86.100	0.178	948.000	191.000	0.077	1090.000	7.190	177.000	102.000

Sources: GTD (2017); WDI (2017). Summary statistics for SSA, South Asia and MENA countries are those of highly terror-prone and failed states.

developing and fragile countries. This means that hypotheses H_{1b} and H_{1c} are confirmed. The fact that there is a significant and positive relationship between terrorism and business failure in developing and fragile countries, but not in developed countries, means that high terrorist activities are more likely to contribute to high business failure among businesses operating in developing and fragile terror-prone countries, which supports hypothesis H_2 .

To gain further insights into the effect of terrorism on global business failure, we explored the marginal effects of terrorism in our sample of fragile countries, which we subdivided into SSA, South Asia and MENA countries. The results in Table 6 show that an increase in terrorist incidents by 100 will increase the chances of business failure by 0.7% and 1% points for SSA and South Asian countries, respectively. Surprisingly, the marginal effects of MENA countries were insignificant. Nevertheless, the larger marginal effect of South Asia was expected considering that the region contributes, overall, to a considerable share of terrorism.

Table 4A

Correlation matrix (global sample).

		1	2	3	4	5	6	7
1	Insolvency (business failure)	1.000						
2	Terrorism	-0.074	1.000					
3	GDP	-0.248	0.014	1.000				
4	Savings	0.463	0.150	-0.066	1.000			
5	Inflation	-0.306	0.042	-0.073	-0.077	1.000		
6	Lending rate (%)	-0.461	0.032	0.064	-0.270	0.338	1.000	
7	Credit to Private Investors	0.654	-0.116	-0.216	0.446	-0.309	-0.449	1.000

Table 4B
Correlation matrix (fragile and terror-prone countries).

		1	2	3	4	5	6	7
1	Insolvency (business failure)	1.000						
2	Terrorism	0.039	1.000					
3	GDP	-0.037	-0.020	1.000				
4	Savings	0.329	0.356	0.011	1.000			
5	Inflation	-0.140	-0.070	-0.269	0.031	1.000		
6	Lending rate (%)	-0.220	-0.009	0.019	-0.231	0.196	1.000	
7	Credit to Private Investors	0.440	-0.090	-0.014	0.350	-0.133	-0.341	1.000

Table 5
Fixed-effects (country and year effects) estimations.
This table presents the regression results of the estimations for the entire sample and sub-samples. *t* statistics are in parentheses. *Significance at the 10% level; **Significance at the 5% level; ***Significance at the 1% level.

Dependent variable	Fixed-effects	Fixed-effects	Fixed-effects	Fixed-effects
	Model 1	Model 2	Model 3	Model 4
	All countries	Developed countries	Developing countries	Fragile countries
Independent variables				
Terrorism	-0.014*** (-6.920)	-0.054 (-1.100)	-0.006** (-2.790)	-0.010*** (-5.020)
Control variables				
GDP	2.590*** (7.260)	4.944*** (25.760)	0.603 (1.710)	4.033*** (6.880)
Savings (\$US, Log)	-0.168*** (-6.760)	-0.479*** (-3.360)	-0.068** (-3.070)	-0.221** (-3.300)
Inflation	-0.101 (-1.580)	0.613 (1.670)	-0.130** (-3.360)	-0.383** (-2.980)
Lending rate (%)	-0.755*** (-9.400)	-0.441 (-0.950)	-0.456 (-8.630)	0.225 (0.850)
Credit to Private Investors (\$US, Log)	0.177*** (6.660)	0.085** (2.550)	0.095*** (17.427)	0.133*** (4.390)
Cons.	-6.456 (0.980)	-122.000** (-3.210)	39.130*** (4.370)	-24.120 (-1.520)
R squared	0.4537	0.2701	0.6350	0.7738
Number of observations	762	225	537	146

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

Table 6
Estimations of the marginal effects.
This table presents the regression results of the marginal effects of the fragile countries. *t* statistics are in parentheses. *Significance at the 10% level; **Significance at the 5% level; ***Significance at the 1% level.

Dependent variable	Fixed-effects	Fixed-effects	Fixed-effects
	SSA countries	South Asian countries	MENA countries
	Marginal effects	Marginal effects	Marginal effects
	Model 7	Model 8	Model 9
Independent variable			
Terrorism	-0.007*** (-5.230)	-0.010** (-2.500)	0.002 (0.290)

The values in the table have been approximated to 3 decimal places.

they use to minimise the disruption caused by terrorism and help businesses to recover (Sandler & Enders, 2008). Arin et al. (2008), for example, find that the response to terror attacks varies across the developed and developing countries in that developed countries (UK, Spain) were less affected than the developing countries. The evidence of differences in the impact of terrorism on developed countries when compared to developing countries and fragile countries can also be explained in terms of the institutional voids that often exist in developing and fragile countries. Developing countries – but particularly fragile countries – are often characterised by a sustained degradation of the preconditions that are relevant for the markets and for effective institutions to exist; which are governance structures, and the rule of law, which in turn may weaken the sustainable macroeconomic frameworks used for managing the insolvency index, and thus, cause an increase in business failure.

On the control variables, GDP was negative and insignificant except for the developing country sample. Findings by Ahmad, Daud, Ahmad Rizal Mazlan, and Marzuki (2009) also show that GDP reduces the corporate failure in their study. An increasing GDP indicates that businesses would, on average, record higher levels of profit, which has a propensity for lowering business failure. With respect to our findings, an increasing GDP would mean that countries are able pursue a regulatory macroeconomic framework that can help mitigate against insolvency issues. Savings was positive and significant in all the models. The positive relationship of this measure of financial development is not expected because financial development improves business survival through better and sustainable frameworks, which are used for managing insolvency. However, there could be several reasons for this. First, there is a possibility that the thresholds of savings in these regions are not at the required levels to allow for an effective reallocation of productive resources and the investment decisions necessary for an effective solvency framework. Second, savings could have been directed to other economic activities besides those of managing insolvency activities. Although, these lines of arguments were not being established in this study, as they were only theoretically used to lend support to the findings. Inflation was positive but only significant in the developing and fragile country samples. Inflation erodes macroeconomic frameworks and adds costs to the effective operations of governments. Lending rate was only positive and significant in the entire sample and developing country estimations. To some extent, this shows that increases in lending rates can lead to business failure. Increasing lending rates can also mean that the cost of capital is higher and debt recovery processes are less effective, leading to the liquidation of businesses. The availability of credit was negative and significant in all the models. The ease of capital access by businesses helps promote corporate investment and enables countries to have frameworks that easily allow businesses to renegotiate their terms of credit, thereby, reducing the costs of financial distress (Djankov, Jindra, & Klapper, 2005). This would mean that the insolvency issues are managed, and hence, there is a reduction in business failure.

5. Conclusions and policy implications

This study presents an empirical investigation of the impact of terrorism on business country-level global business failure with a sample of 174 countries. To determine whether terrorism had different impacts on business failure, we divided the sample into developing, developed and fragile countries. The results of the fixed estimations show that terrorism has a significant negative effect on business failure among the entire sample of 174 countries. However, when the sample is portioned, the results indicate that terrorism has a significant negative impact on business failure in developing and fragile countries but not in developed countries. The marginal effects of the fragile states sample show that an increase in terrorist incidents by 100 will increase the chances of business failure by 1% and 0.7% in the South Asia and SSA regions, respectively. From a policy perspective, it is important to disaggregate the sample and understand the marginal effects of terrorism on business failure.

The results of our study should be interpreted in light of the limitations of the study. For example, due to data availability, our study is limited to a seven-year period. Despite the finding that terrorism is associated with business failure in the full sample, developing and fragile countries, it is possible that there may be other factors that contribute to business failure, especially with respect to fragile countries, where many other variables can contribute to business failure. Finally, the impact of terrorism on business failure might be best captured at a sectorial level because this will allow the capture the characteristics of individual sectors to be modelled; however, due to data unavailability, our study was unable to achieve this. This could be an avenue for future research.

Despite the limitations, our results contribute to the academic literature on terrorism and its impact on business failure and have policy implications. First, we offer new evidence on the relationship between terrorism and business failure using a global and more representative sample. The evidence suggests that, beyond losing life and personal injuries that the victims of terrorist actions suffer and the atmosphere of fear that terrorists seek to create with their premeditated use of brutal violence, terror also has an adverse effect on the survival of businesses. The results also contribute by providing new evidence that terrorism has a different impact in developed countries compared to developing countries and fragile states. In terms of policy implications, our findings suggest that policy makers should be concerned about the economic consequences of terror attacks on business survival no matter how small the attack. We argue that such attacks impact the business environment of countries and lead to business failure. Some channels through which this can occur may include the inability of economies to implement and sustain effective insolvency laws and frameworks, the inability of businesses to have their insolvent resources reallocated, and the unwillingness of entrepreneurs to commit to productive activities.

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