Terrorism, Corporate Performance and Business Strategies: Presence, Impact, and Future

Inaugural Dissertation

for obtaining the academic degree of

Doctor rerum oeconomicarum (Dr. rer. oec.)

Faculty of Management and Economics

Schumpeter School of Business and Economics

University of Wuppertal

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The PhD thesis can be quoted as follows:

urn:nbn:de:hbz:468-20210120-100033-9
[http://nbn-resolving.de/urn/resolver.pl?urn=urn%3Anbn%3Ade%3Ahbz%3A468-20210120-100033-9]

DOI: 10.25926/ad5x-p077
[https://doi.org/10.25926/ad5x-p077]

Thanks for sponsoring[1] my Dissertation[2]:

[1] I am highly indebted to Higher Education Commission (HEC), Pakistan for funding my doctoral studies. Chair of Industrial Organization and Innovation (Prof. Dr. Werner Bönte), Jackstädt Center of Entrepreneurship and Innovation Research, Center for Graduate Studies (CGS), and Schumpeter School of Business and Economics at Bergische Universität Wuppertal has graciously supported my doctoral research, conferences, and research travels,

[2] Doctoral dissertation is printed with the support of the German Academic Exchange Service (DAAD).

DEDICATION

By the Grace of Allah, I dedicate this dissertation to my father, Muhammad Saeed Malik; my mother, Zamurd Saeed Malik; sisters, Hina & Sadia; and my elder brother, Adil Saeed Malik.

I stand in solidarity with all victims and survivors of terrorism.

ACKNOWLEDGMENT

I am greatly thankful to my supervisor Werner Bönte for accepting me as a doctoral student on a phone call. Since my first interaction with Prof. Bönte, he always amazed me with his generosity, patience and kindness. He is bighearted from day one and still providing me all opportunities to establish myself in the field. During my doctoral journey, his guidance and invaluable suggestions enlightened me to understand "the *significant scientific contribution*". I am also grateful to Prof. Procher for her trust and a strong believe in my abilities. Her clarity of thoughts and inspirational statement "*Faisal... you can do it…*" always motivated me to go extra mile. She discovered a hidden talent in me i.e., *my networking skills*. I still remember the way she appreciated me for my first conference. Without her care and vision, it would have been difficult to achieve excellence. No matter how much I achieve, I always dedicate my success to my professors. Thanks for always showing me hope when I was lost and distracted.

Moreover, I am intellectually indebted to Christian Rupietta for always sharing honest thoughts on my research and introducing me to innovative quantitative methodological technique fsQCA. His suggestions have always added value to my research. I highly regard him for my career development (for Swiss Chocolates too). I would like to show my greatest appreciation to Prof. Dr. Rocki-Lee DeWitt (my co-author). Since my presentation at AOM (2019) in Boston, she has always broadened my understanding to strategy and core of the business. Her meticulous comments on my research expanded the scope of my research. She made an incredible impact by sharing her vast knowledge. I must thank Diemo Urbig for his dynamic personality. His presence at JZ was a blessing for me, his networking skills and the art of asking questions was matchless. I remembered his precious words to stay focused on research methods skills and life in general.

I thank Prof. Dr. Uzair Ahson for supervising my Master-Thesis and always sharing inspirational thoughts. I truly respect and honor my teachers Qais Aslam, Almas Hyder, Rafiq Jaffar, Imtiaz Khalid, and Bashir Naeem for discovering my potential and transforming me as a person. I must appreciate Naseer Almas for stirring up my big dreams. Thanks Dr. Ghulam Hussain for always coaching me about life. I must mention my dear friend Dr. Sajid Ali for absolute support. Thanks to Mrs. Timmermann for taking great care of my health. Thanks for being part of this journey: Abdullah, Ahmad, Ali, Anna, Anton, Anwar, Asad, Asif, Atif, Axel, Bilal, Birim, Behailu, Christian, Claudia, Desiree, Dmitry, Franziska, Hamid, Iiris, Imad, Irmak, Jan, Jana, Jens, Julia, Khurram, Klaudia, Katherina, Leo, Lu, Marco, Markus, Nader, Nana, Nasir, Nazia, Niyaz, Oliver, Omer, Osama, Philip, Rudy, Saad, Sabeeh, Sandro, Sarah, Shamas, Shahbaz, Shahzad, Shazaib, Sofia, Susan, Tobias, Vannesa, Victoria, Waleed, and Waseem.

My intellectual debt is to the faculty of the Schumpeter School of Business and Economics for the development of dissertation. Thanks Prof. Christine Volkmann Director Jackstädt Center for encouragement in the beginning of my doctoral journey. I must thank Prof. Pigorsh for teaching econometrics and application of methods in Master-course and doctoral seminar. I heartily acknowledge Prof. Betzer, Prof. Crasellt, Prof. Jürges, Prof. Jüßen, Prof. Rupietta, Prof. Schneider, Prof. Temme, and Prof. Witt for valuable feedback on my research. Thanks Matthias Schulz and Philip Steinberg for sharing great memories. I must acknowledge Mrs. Haselhof for administrative support and great conversations. Thanks Mrs. Wüster, for always considering me the part of the family. Unfortunately, she is no more, but her thoughts will stay. I am thankful to Mrs. Bieck, Mr. Bartsch, Prof. Dr. Braukmann, Mr. Hanebeck, Mrs. Heide, Mrs. Jansen, Mr. Kluge, Mrs. Leclaire, Mrs. Lindhorst, and Mrs. Stenzel for always extending their help in administrative matters at Bergische Universität Wuppertal.

Outside the Schumpeter School, my dissertation is presented at various flagship conferences in the field. I want to thank David Audretch for encouraging my research idea at various conferences. My special thanks for Simon Parker for offering a course on STATA using a Panel Data in Siegen, his teaching philosophy inspired me. I am extremely thankful to Michael Hitt for offering a detailed discussion on my research. I also thank Mike Peng, Yadong Luo, Sheila Puffer, David Ahlstrom, Seung-Hyun Lee, and John Meiz for their valuable feedback at Global Strategy and Emerging Market Conference (GSEM) 2019 at University of Texas, Dallas, USA. This dissertation has also benefitted from the valuable and insightful discussion about my research projects with Jeane Boddewyn, Alvaro Cuervo-Cazurra, Michael Czinkota, Li Dai, Lorraine Eden, Walid Hejazi, Gary Knight, Dan Li, Shige Makino, Ram Mudambi, and Saeed Samiee at the Academy of International Business 2019, Copenhagen, Denmark.

A special thanks to Prof. Dr. Robert Greenbaum and Prof. Dr. Gary Lafree for sharing thoughts on my research. Later on, Prof. LaFree invited for a presentation at START (Global Terrorism Database) University of Maryland, USA. Terrorism research experts helped me to refine my research. I felt honored when Prof. Czinkota offered to visit McDonough School of Business at Georgetown University, Washington, USA. His persona is larger than life, he has always been a great support to introduce me to other leading scholars and encouraging me to carry on research on the topic of terrorism and international business. His scientific work is a great source of an inspiration for my future research prospect. Special thanks to Mr. & Mrs. Boddewyn for inviting me to New York for a diner and sharing great thoughts on my research. I must thank International Management (IM) Division, Academy of Management for accepting my research for Doctoral Student Consortium and Professional Development Workshop. It provided me an opportunity to spend a day with the leading scholars in the field of IM and Strategy.

I am highly thankful to Prof. Jay Barney for discussing my project and hinting future research possibilities. Academy of Management 2019 in Boston provided me a presentation opportunity to talk about my research with the leading scholars Ilya Cuypers, Rocki-Lee DeWitt, Jesper Edman, Kendall Roth, William Newburry, and Srilata (Sri) Zaheer. I am deeply grateful to Peter Liesch for offering support for future research project. I must thank Sarianna Lundan, Rebecca (Becky) Reuber, Elizabeth Rose, Paul Vaaler, and Alan Verbeke for the feedback on my research at European International Business Academy 2019, Leeds, UK. I am thankful to Rebecca Piekkari, Emmanuella Playkoyianaki, and Catherine Welch for offering a workshop on Qualitative Case Study Research in International Business. I must acknowledge your valuable comments on my research. I want to thank Ajai Gaur, Walid Hejazi, Gary Knight, Martina Musteen, and Carol Reade for valuable feedback and honoring my research with the Student Paper Award at Academy of International Business 2020, US-West Chapter, San Diego, USA.

I would like to express my deepest gratitude to Higher Education Commission (HEC), Pakistan, the German Academic Exchange Service (DAAD), Jackstädt Center for Entrepreneurship (JCE), Center for Graduate Studies (CGS), and Zentralen Forschungfördertopfes (ZEFFT) for funding my doctoral studies in Germany. Research competitiveness can only be achieved by knowledge sharing among the scientific community. Capacity buildings and scientific research networks are contingent to sufficient financial resources. Fortunately, I could get hold of flagship conferences because of Prof. Bönte's generous funds for my research. Also, I am obliged to the Center for Graduate Studies, University of Wuppertal, and the "Eberhard Robke-Stiftung" for providing additional funds to establish international research connections through showcasing of research at international conferences. Hence, it yields me great research collaboration with Prof. Rocki-Lee DeWitt.

This dissertation was not possible without the emotional support from my family. I thank my parents for their continuous support, also within single projects of this dissertation, and for outlining the beauty of learning to me. I thank my father, Muhammad Saeed Malik who has shown me the meaning of honesty, integrity and unbending principles. Thanks for always teaching me the path of uprightness. I must mention my mother, Zamurd Saeed Malik who taught me the meaning of life. Because of her, I never needed a friend. Her love and care has always captivated me. I always felt amazing to discuss everything about everything. Without her love and patience, I would have not have been able to follow my passion: "*Without you, everything is nothing, and with you, nothing can be everything.*"

I am deeply thankful to my brother Adil Saeed Malik who always stood by me in every thick and thin. I missed you throughout these years. I may not be able to pay back all the efforts and responsibilities you did to ensure my absence. You support has ensured my doctoral journey. I am thankful to you for every single day. Thanks to my sisters Hina and Sadia for always being a reason of happiness in my life. Thanks for being strength in my life. They are the real happiness for me. A special thanks to Momina and Maria for always bringing smile on my face. Because of their innocence, I always remained energetic and fresh to look at the bright side of life. I must thank my grandparents Mr. & Mrs. Malik Dost Muhammad and Mr. & Mrs. Malik Atta Muhammad for endless love. Last but not the least, I want to thank to all my well wishers who have an impressive impact on who I am, but I am not going to mention all here. Thanks to my secret lovers and admirers for encouraging me and believing in me.

Faisal Saeed Malik,

Wuppertal, 17 September 2020

PREFACE

This dissertation consists of five chapters which investigate different facets of terrorism on firms. I have extensively benefitted from the insightful discussions with my professors. In Chapter 2, I have built on a data from survey conducted at international trade fairs. Chapter 2 of this dissertation is completed as a single authored. Research reported in Chapter 3 is a joint work with my supervisors, Prof. Dr. Werner Bönte and Prof. Dr. Vivien Procher. Chapter 4 is a collaborative research project with Prof. Dr. Rocki-Lee DeWitt from Grossman School of Business, University of Vermont, USA. In all Chapters of the dissertation, I have major contributions in all aspects of the research process, including theory development, design of the empirical approach, analyses, discussion, and the writing process.

An earlier version of Chapter 2 has received a student paper award at the Academy of International Business (AIB) 2020 US-West Chapter 2020 in San Diego, USA. Moreover, Chapter 2 has been accepted and presented at the following scientific conferences and seminars: Global Strategy and Emerging Market (GSEM) 2019 in Dallas, USA; AIB 2019 in Copenhagen, Denmark; the Academy of Management (AOM) 2019 in Boston, USA; European International Business Academy (EIBA) 2019 in Leeds, UK; AIB 2020 Annual Conference (Online). Chapter 3 has been presented at Annual Entrepreneurship Workshop (2015) in Indiana, USA; Brown Bag Seminar of Schumpeter School of Business and Economics (2017); Kiel International Workshop (2017); and Schumpeter Society Workshop (2019). Chapter 3 also received critical insights from Martina Musteen and Carol Reade. Chapter 4 is presented and received well at National Consortium for the Study of Terrorism and Research on Terrorism (START) 2019, Maryland, USA. Chapter 4 is presented to Robert Greenbaum, Walid Hejazi, and Gary LaFree for feedback.

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1. INTRODUCTION

1.1. Motivation

"Private-sector preparedness is not a luxury; it is a cost of doing business in the post-9/11 world. It is ignored at a tremendous potential cost in lives, money and national security."
(The 9 11 Commission Report, 2004, Page 398)

Terrorism has become increasingly prevalent. Data evidences variation in its occurrence by geography and time. Guidance provided to firms to address terrorism, both its threat and direct experience, offers a comprehensive set of activities. Yet to date, the variety of ways in which firms might address terrorism and the extent to which the potential impact of terrorism varies as a function of contextual and/or firm attributes is underexplored. The overarching objective of this dissertation is to examine the relationship between terrorism, firms' characteristics, and firms' behaviors. I analyze the implications of terrorism on businesses and strategic response of firms to safeguard business activities.

Terrorism can be understood both as an event and the repeated occurrence of these particular types of events. As an event, it is noteworthy for its unpredictable and sudden nature; it is a "shock". Terrorism shock has a potential to "cause fatalities, injuries, property damage, infrastructure damage, and agricultural loss, damage to the environment, interruption of business, or other types of harm or loss" (IMF, 2018). Businesses are the soft targets of terrorist groups (Frey, 2009) and, in certain instance, terrorist events are purposely designed to seriously damage business activities. As a repeated occurrence, while the sudden nature of terrorism does not change, the expectation of terrorism events increases, giving greater impetus to institutional and business modifications to reduce its impact.

Terrorism has been a global problem since the beginning of the 21st century (Institute for Economics and Peace, 2019). Quite a number of countries and regions have experienced terrorism. For some, terrorism is a significant threat to peace but, for others, it is a negligible issue. Terrorism as a threat to peace has important economic consequences for countries and businesses within those countries. According to the report of Business and Peace (2018), foreign direct investment inflows are more than two times higher in countries with higher levels of peace than in less peaceful countries. However, within countries affected by terrorism, foreign direct investment may persist, albeit at lower levels. Within a country, not all locations experience terrorism in the same way. Business leaders encounter different level of uncertainty in various regions and devise different anti-terrorism strategies based on their experience of terrorist incidents. Policies adopted by businesses to respond to terrorist attacks effect market resilience (Brück & Wickström, 2004). The density of uncertainty in different regions asks for a customized policy to mitigate the damage of terrorism.

Since the beginning of the 21st century, terrorism has received global attention among the business community (Institute of Economics and Peace, 2018). Terrorism presents an external challenge to regional economic activities and the business environment (Suder & Czinkota, 2005). Emerging economies like Pakistan faced a dramatic increase in terrorist attacks over the past years (Czinkota, 2002; Knight & Czinkota, 2008). Terrorism has negative effects especially when emerging economies seek to engage in the global economy (Tingbani et al., 2019). Thus, terrorism is an important context to study the impact on capital markets, and other private firms from different sectors. The pattern of terrorism and economic and business effects validate Pakistan as a suitable single-country context for the study of terrorism's effects on business

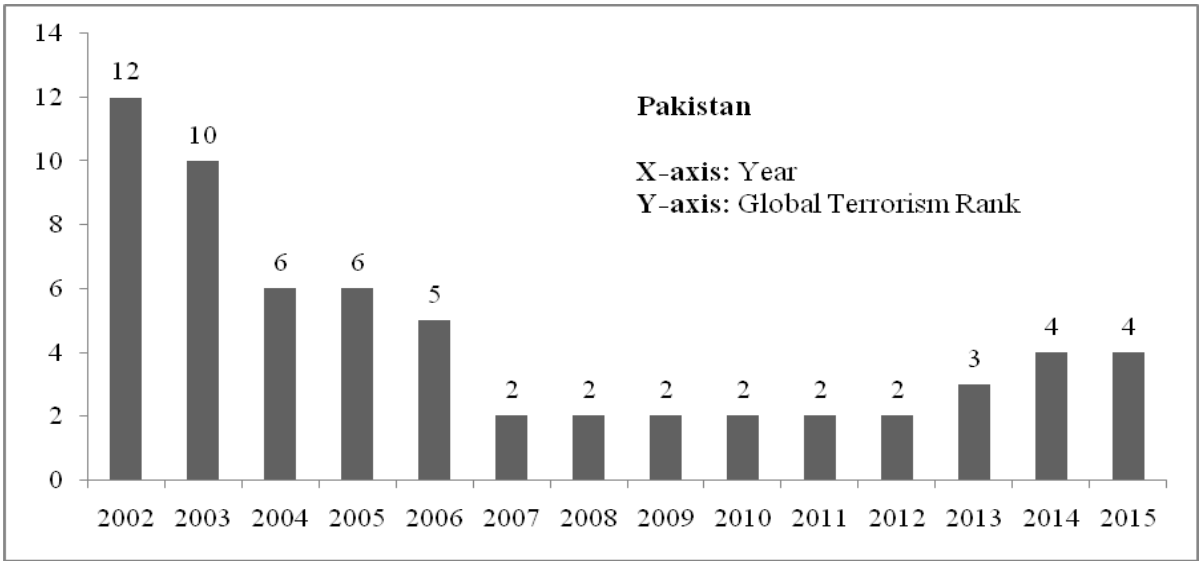
activity (Knight and Czinkota, 2008). The high-level literature review offers insight into the field of research and the potential contributions of the dissertation.

Previous literature has mostly focused on macroeconomic analysis of terrorism on economy at a cross-country (Abadie & Gardezeabel, 2008; Eggers & Gassebener, 2015; Sandler & Enders, 2008; Tingbani et al., 2019), but a very little research has focused on firm-specific terrorism impact on business activities in a single-country (Greenbaum, LaFree, & Dugan, 2007). Therefore, this dissertation focuses on how terrorism affects firms' operations in Pakistan, one of the top 5 ranked terrorism-afflicted countries since the beginning of 21st century. Iraq, Afghanistan, Syria, and Nigeria are amongst the other countries of note (Institute of Economics and Peace, 2019, see Figure 1.1a & Figure 1.1b). More specifically, since 9/11, the instability in Afghanistan and the influx of Afghan refugees resulted in a sudden spike in the frequency and scale of terrorist attacks in Pakistan (Ministry of Foreign Affairs, 2017). According to the Global Terrorism Report (2019), an increase in terrorism in Pakistan resulted in a reduction in per capita GDP (Gross Domestic Product) growth in Pakistan. Moreover, the results of this dissertation research can bid policy implications for ensuring a safe business environment in other terrorism-ridden countries.

Spatial and temporal coincidence of established firms and terrorist attacks and their mutual interaction within Pakistan makes it a more interesting and relevant test case to study the relationship of terrorism and firms' behavior. It takes into account the reliable publicly traded and internationally active firms. Manufacturing sector firms' international outreach enhanced industrial sector's contribution to the GDP of Pakistan by 20.88% (Ministry of Finance, 2017). Exports of Pakistan are 8.97% of GDP (World Bank, 2019). Economic development of the

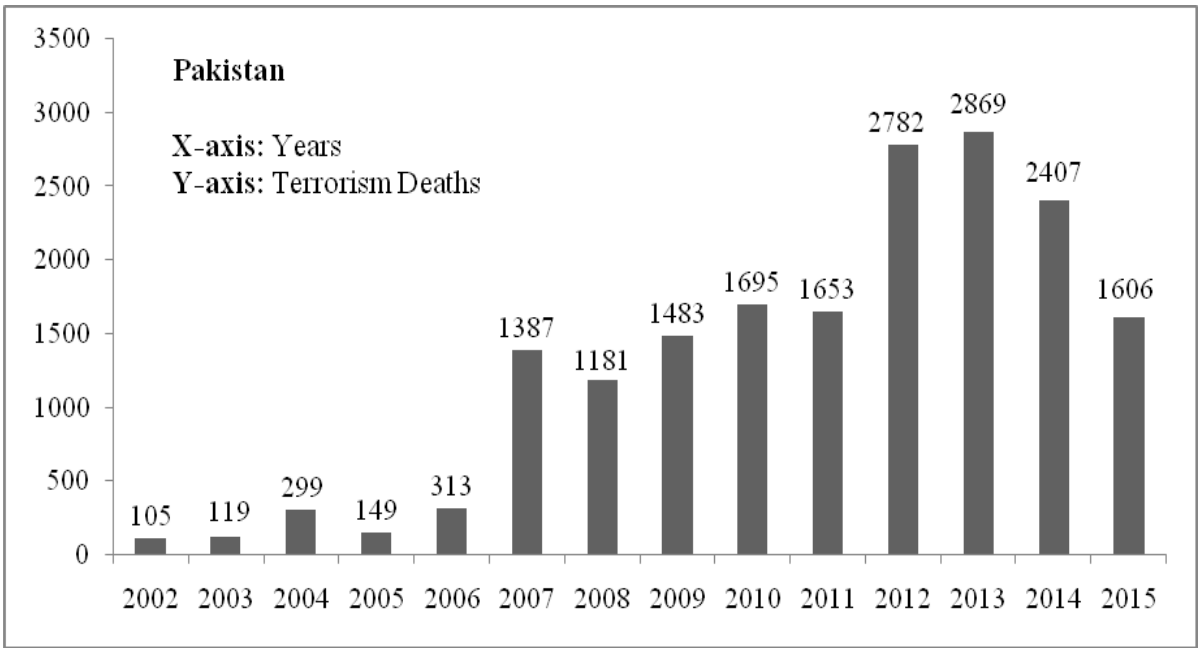
country is ensured through a healthy volume of exports activities of the firms. Pakistan exports are reaching far-off international markers and generating revenue of $23.631 B, the United States ($3.802B), China ($1.818B), the United Kingdom ($1.729B), Afghanistan ($1.348B), and Germany ($1.310B) share the major portion (World Integrated Trade Solution, 2018). Different industrial sectors are contributing to the total exports of Pakistan: textiles and clothing $13.569B, vegetable $3.456B, food products $1.223B, hides and skins $957M, animal $743M, minerals $532M, metals $483M, chemicals $367, and other sectors $2.301B (World Integrated Trade Solution, 2018). Additionally, there is substantial within-Pakistan variation in terrorism (Institute of Economics and Peace, 2018), and the location of particular industrial sectors (Pakistan Bureau of Statistics, 2013). These three attributes – incidence of terrorism, established business infrastructure, and within country variation in terrorism and business hotspots – offer a rich context for the study of firm behavior in the context of the experience of terrorism.

Figure 1.1a: Global terrorism rank of Pakistan 2002-2015



Source: START GTD, IEP Calculations (2019)

Figure 1.1b: Terrorism deaths in Pakistan 2002-2015



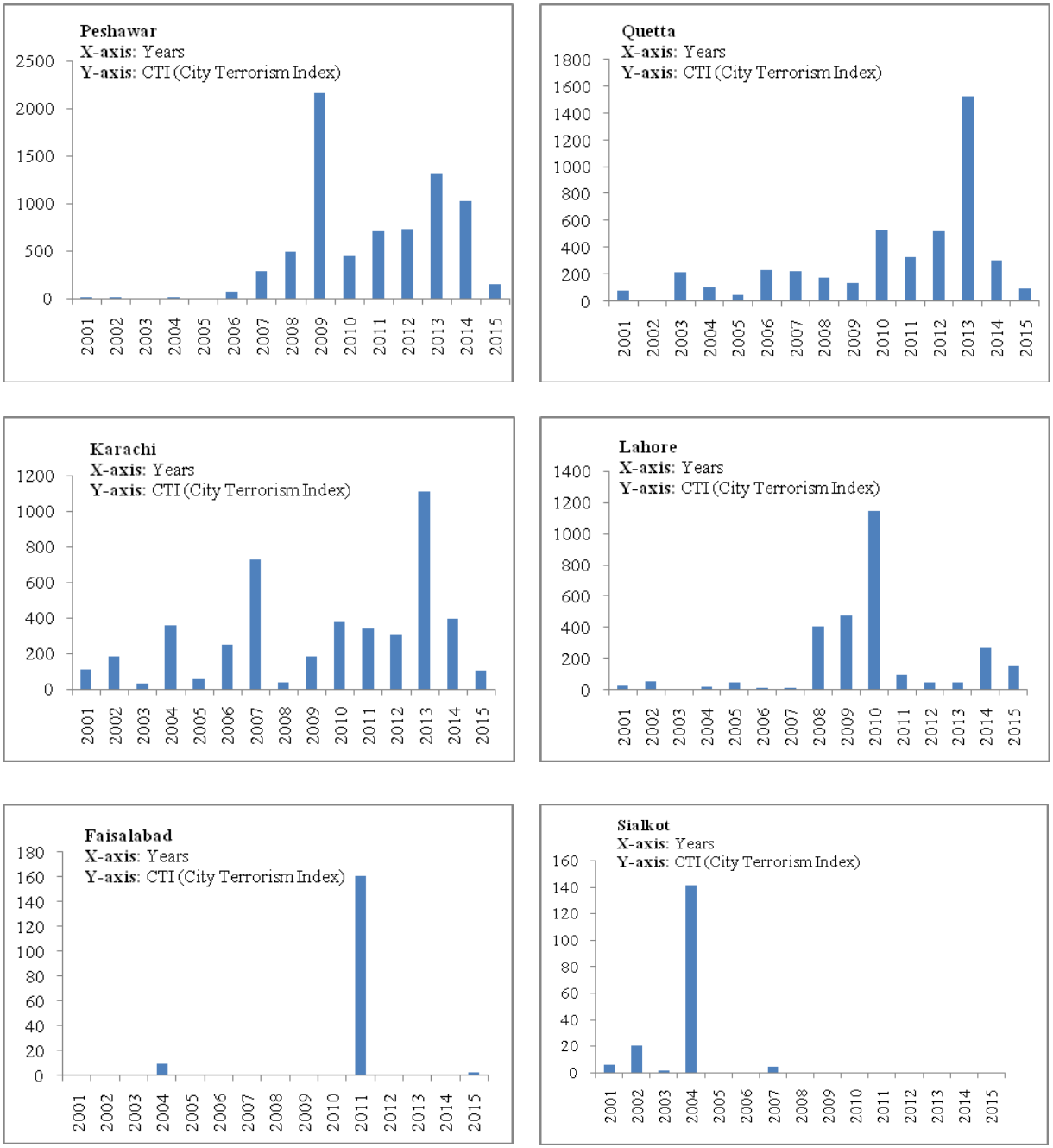
Source: Global Terrorism Database (2019)

It is prudent for business leaders to be concerned with the effects of terrorism. Previous studies show that terrorism negatively affects business performance and survival (Alexander & Alexander, 2002; Larobina & Pate, 2009). There is a wide array of ways in which terrorism can affect business performance. Oh and Oetzel (2017) argue that violent conflicts not only cause social unrest but also add to the cost of doing business, suggesting that demand and supply alike are affected. External environment threat may create difficult situations for the firms. Moreover, terrorism can destroy infrastructure and consequently disrupt the businesses (Enders & Sandler, 2006). Internal capability of the firms and external challenges constitute the business environment in a specific location. For example, Suder and Czinkota (2005) point to decision-making challenges as terrorism increases the level of uncertainty regarding decline in consumer demand, disruption in supplies of goods, government policies and law modifications,

macroeconomic phenomena, and shift in foreign relations of the countries. Terrorism shock is sudden and complicated to be assessed beforehand in a region. As a result, terrorism potentially increases the cost of supply chain (Gupta et al., 2004; Jain & Grosse, 2009; Spich & Grosse, 2005). All firms might not receive unanticipated risk of terrorism in a similar way. Some firms may experience difficulty in managing the business operations. For example, firms may incur additional expenses on employees' wages, insurance, and timely supply of goods to the customers due to terrorism (Wernick, 2006). Terrorism potentially affects various business dimensions; evaluating and addressing those dimensions may be a tough call for the firms.

Awareness of the numerous ways in which terrorism could affect a business is essential. General conclusions about what businesses in Pakistan *should do* given the incidence of terrorism could be problematic as geopolitical terrorism data shows that there is a variation of terrorist incidents in Pakistan over time and space (SATP, 2018, see Figure 1.2). Within Pakistan, terrorism in one city may or may not affect the routine activities of another city the same way (see Figure 1.2). From Figure 1.2, it can be observed that there are different levels of terrorist incidents. Lahore and Karachi have relatively lower numbers of terrorist incidents than Peshawar and Quetta, but more business activities of firms. Sialkot and Faisalabad have rarely suffered from terrorism, whereas firms in these cities are relatively fewer than Lahore and Karachi but have a stronger focus on export market. In a global economy, just as it is important to consider country-level differences in incidence of terrorism, it may be as, if not more important to consider city-level differences in incidence of terrorism. Similarly, Knight and Czinkota (2008) highlighted the relevance of Pakistan in the context of explaining the significance of international trade for a terrorism-ridden country that employs over half of its industrial workforce in textiles and apparel manufacturing sector.

Figure 1.2: Terrorism in various cities of Pakistan (City Terrorism Index[3])



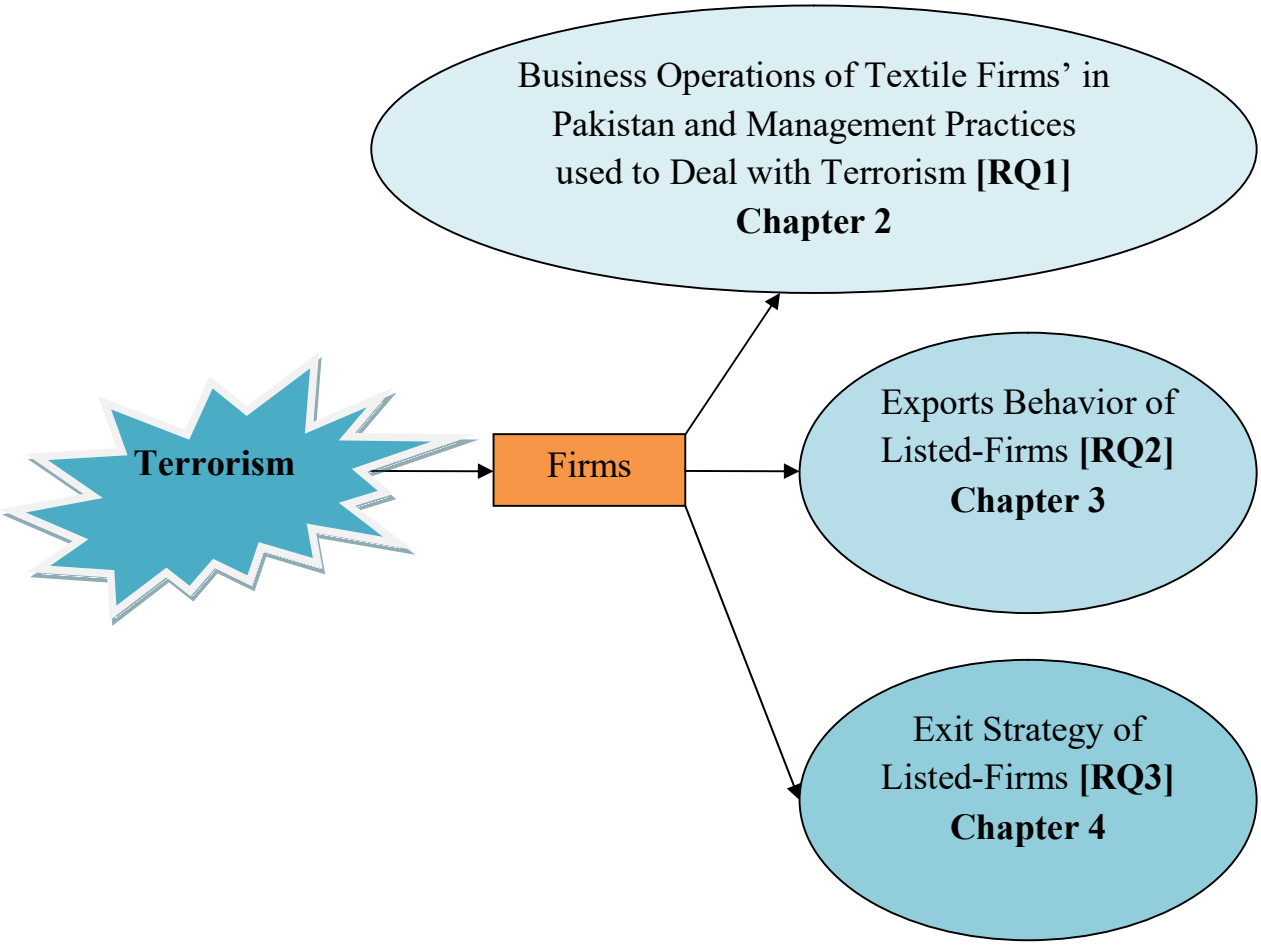
Source: South Asian Terrorism Portal (2019)

[3] City Terrorism Index (CTI) for each city is based on the number of terrorist incidents, the number of fatalities, and the number of injuries constructed in style of the Global Terrorism Index that computed each country's terrorism ranking (Institute for Economics and Peace, 2018).

1.2. Major Research gaps and organization of the dissertation

Study of the manner in which a variety of firms adopt resilience strategies to address terrorism could offer more precision regarding the alignment between terrorism management practices, business context and business attributes. As shown in Figure 1.3, this dissertation addresses three particular aspects of the relationship between incidence of terrorism, business context and business management practices. A brief presentation of the research questions related to each aspect supported by the most relevant literature is presented here. More in-depth treatment of the relevant literature and research methods are found in the chapters that follow.

Figure 1.3: Organization of the dissertation



Research Question 1 [RQ1]

What is the impact of terrorism on business operations of textile firms in Pakistan and what management practices do they use to deal with terrorism?

Terrorism can be a more significant threat to firms that have a high contribution to employment and trade volume of the country (Knight & Czinkota, 2008). Not only are internationally engaged firms a more attractive target to those who would seek to disrupt the economy (Czinkota & Ronkanen, 2009), their preparedness contributes to the resilience of the economy. These firms are more likely to incorporate management practices in line with their exposure to terrorist attacks and the availability of resources to safeguard their business activities.

Generally, firms in emerging markets are prone to find complexities in their business environment. Specifically, internationally engaged firms of the emerging market face more challenges due to terrorism (Tingbani et al., 2019). Earlier, Suder & Czinkota (2005) conceptually framed vulnerabilities in value chain activities of the firms that ask for strategic responses. There are very few conceptual and empirical studies that explain the effect of terrorism on firms' business operations (Czinkota, Knight, & Liesch, 2004; Czinkota et al., 2005, 2010; Suder & Czinkota, 2005; Zeneli et al., 2018). Furthermore, previous research has provided conceptual explanations to cope with the issue of terrorism (Czinkota et al., 2010; Frey, 2009).

Existing literature does not provide empirical evidence to establish the relation of terrorism and internationally engaged firms' business activities. Thus, there is need to conduct an empirical study on textile sector of Pakistan due to its iconic economic role in employment and

contributions to the international trade (Czinkota, 2002; Knight & Czinkota, 2008). Historically, textiles have contributed almost 60% of Pakistan's total country exports (Textile Industry Division, 2018). This study has a potential to unleash the impact of terrorism on the business dimensions of the firms such as: supply, supply chain, production, human resource, cost factor, and demand. Consequently, firms create a protective layer of management practices to enhance the resilience of the firms' business operations under uncertain business environment.

Research Question 2 [RQ2]

How does terrorism affect the export behaviors of the firms?

Firms are very sensitive to external environment uncertainty. Terrorism-driven uncertainty may create a challenging environment for trade between countries. For example, an increase in the number and intensity of terrorist attacks can adversely affect international trade. In a global perspective, Nitsch and Schumacher (2004) investigated bilateral trade flows between more than 200 countries and found that, as the number of terrorist attacks doubles, bilateral trade decreases by about four percent. Furthermore, they explained that the reduction in trade volume is caused by raise in transaction cost due to anti-terrorism security measures. Egger and Gassebner (2015) employed a structural model of trade and provided evidence that international terrorism displays effects on bilateral and multilateral trade only in the medium run (after 1.5 years of the terrorist attack), while the pure short-run effect appears very small, if not negligible. Moreover, Mirza and Verdier (2014) conducted quantitative research and found that the counterterrorism security measures (cross-border scrutiny) resulted in negative impact on US imports. Hence, terrorism has short and long-run negative impact on global trade.

International business literature suggests that there is dearth of study that establishes an empirical relation of terrorism and export performance of firms at city-level. Frequent terrorist incidents in a particular country can seriously damage the ability of firms for the cross-border trade due to additional cost, furthermore, change in border security regulations hitch the mobility of international travelers and international trade (Frey, 2009). Previous literature accounts for the macroeconomic explanations that shed light on the negative impact of terrorism on international trade (Egger & Gassebner, 2015; Nitsch & Schumacher, 2004), while our knowledge about microeconomic link of firms' exports activities in the context of terrorism-ridden country is still limited. This study builds upon earlier studies of terrorism and trade (Mirza & Verdier, 2014; Nitsch & Schumacher, 2004) but seeks to offer greater precision regarding influence of local terrorism incidences on export behavior of the firms. This is the first study – to the best knowledge of authors - that focuses on disaggregated data of terrorism at a city-level and listed firms' export behavior by analyzing firm-specific micro data.

Research Question 3 [RQ3]

What is the relationship between terrorism, competitive positioning, liability of location, and the exit of publicly-traded Pakistani firms?

Terrorism amplifies the risk for business stability and, as a result, reduces the revenue and profitability of the firms (Hendrick & Singhal, 2005a, 2005b). Some firms manage to absorb the pressure of terrorism, while others demonstrate deterioration over time and, consequently, businesses fail. From a global standpoint, Tingbani et al. (2019) conducted a quantitative study with a sample of 174 countries and found that terrorism has a significant positive impact on

business failure in developing and fragile countries but not in developed countries. In a particular country, Greenbaum et al. (2007) conducted a study using a panel data of Italian provinces between 1985 and 1997. Their findings suggest that terrorist incidents in provinces significantly reduce the growth of employment, the number of existing businesses, the birth of new businesses, and attraction for investment. Hence, terrorism is an external jolt that potentially dislodges well-established businesses.

This current study is an effort to provide empirical evidence to disentangle the strategic relevance of each exit route from the stock market. The literature of exit strategy is explained in various routes (Balcaen et al., 2012). The most prominent exit strategies are business death (bankruptcy) (Balcaen et al., 2011; Coad, 2014); mergers and acquisitions (Cefis & Marsili, 2011); and buyback of shares (Lei & Zhang, 2016). The exit strategies are also explained in the context of firms' survival (Coad et al., 2013; Coad & Guenther, 2013; Yang & Aldrich, 2012) and as a part of the overall strategy (Cefis & Marsili, 2012) of the firms. Lei and Zhang (2016) proposed that firms conduct leveraged buybacks to optimize their capital structures. Previous studies explain mergers and acquisitions in two contexts as friendly mergers between two firms (Hackbarth & Morellec, 2008) and hostile takeovers (Lukas & Welling, 2012). The court-driven exit is the most unfavorable exit when firms go bankrupt due to insufficient resources to repay all creditors (Schary, 1991). This chapter drills down into specific city firms, comparison of sectors, export orientation, and size of the firms' combinations to segregate which type of exit appears to have been most negatively affected in the context of terrorism.

Chapter 4 of this dissertation seeks to offer greater measurement precision regarding the incidence of terrorism. There is a considerable research gap to address the city-level and firm-

level explanation of relationship between terrorist attacks and business failure. Using city-level measure of terrorist incidents would allow capturing the immense variation across cities and overtime in a single country (Öcal & Yildirim, 2010). Chapter 4 theoretically develop the concept "liabilities of location" to align theory applicable to the study of a population of publicly-traded firms and to link classic population ecology arguments (McKelvey & Aldrich, 1983; Stinchcombe, 1965) with classic competitive positioning (Hambrick & Fredrickson, 2005) and economic cluster arguments found in the strategy literature (Porter, 1980, 1985, 1990). Thus, the context of Pakistan fulfills the purpose of single country analysis by empirically investigating the relationship of terrorism in the city and exit routes of the firms from the stock market in Pakistan. This study addresses the calls of Greenbaum et al. (2007) and Tingbani et al. (2019) by considering the city-level, firm-level, and sector-level analyses to augment our knowledge on terrorism effect on firms exit within a country context.

This dissertation uses a mix of primary and secondary data analyses such as panel data, survey, and interviews. This comprehensive, multi-source data approaches allow us to dig deeper to unleash the underlying mechanisms through which terrorism affects businesses. This dissertation focuses on terrorism and firms' behavior and addresses three independent studies based on research questions identified above from research and knowledge gaps. The more thorough and complete literature review can be found in each chapter of the dissertation.

1.3. Contribution and Overview of the Dissertation

This dissertation contributes to the existing literature in several important aspects in three major chapters. These self-containing chapters deal with different topics of terrorism and firms in

the context of Pakistan's business environment (see Table 1.1). Chapter 2 highlights the impact of terrorism on business operations, and management practices of firms to deal with terrorism. Chapter 3 analyzes the relationship between city-level terrorism and the export behavior of firms in Pakistan. Chapter 4 aims to explain how terrorism affects the exit strategy of listed-firms at the stock market. Chapter 5 is a summary of all chapters, highlights implications and provides future research directions.

Table 1.1: Overview of chapters and contributions of the dissertation

	Chapter 2	**Chapter 3**	**Chapter 4**
Title	**Exploring the effects of terrorism on business operations of firms and firms' responses**	**Terror in the city: effects of terrorism on firm exports**	**Terrorism, competitive positioning and liability of location: exit of publicly-traded Pakistani f firms**
Co-author(s)	N/A	Prof. Dr. Werner Bönte, Prof. Dr. Vivien Procher	Prof. Dr. Rocki-Lee DeWitt
Data source	Primary data	Secondary data	Secondary data
Data period	2018	2005-2015	2000-2015
Types of firms	Publicly listed and non-listed	Publicly listed	Publicly listed
Methodology	Primary data collection through firm survey, quantitative empirical analyses (comparison of means using t-statistics)	Quantitative empirical analyses (Fixed-effects panel models)	Quantitative empirical analyses (Cox regression panel models) Exploration of disproportionate occurrence using Chi-square analysis
Contributions	Extends studies of Czinkota et al. (2010); and Zeneli et al. (2018) by taking into account the firm sizes and market orientation (local and foreign), and location of the firms to explain the relationship between terrorism and business activities and management practices of firms to protect businesses.	Extends studies of Egger and Gassebner (2015); and Nitch and Schumacher (2004) that focus on terrorism and trade at a country-level, but our study goes one step further and contributes to the literature through a city-specific and firm-specific relationship of terrorism and export behaviors.	Extends studies of Greenbaum et al. (2007); and Tingbani et al (2019) through answering the call of incorporating firm-specific variables (Greenbaum et al., 2007); and conducting a single country sector-specific analysis of terrorism and business failures.

Chapter 2: Exploring the Effect of Terrorism on Business Operations and Firms Responses

Chapter 2 is based on an empirical paper titled "Exploring the Effects of Terrorism on Business Operations of Firms and Firms' Responses", a single-authored paper and was given a student paper award at the Academy of International Business, 2020 Conference West-Chapter in San Diego, California, USA.[4]

Business leaders and policymakers alike attend to how terrorism may affect businesses. This is especially the case when businesses are geographically clustered, require physical facilities, are interdependent, play an important economic role in a region and country, and rely upon face to face interaction to initiate and consummate transactions. The extent to which businesses represent different combinations of these attributes is likely to inform differences in how they perceive terrorism might affect their business and the management practices they undertake to address the anticipated situations. This study is in response to the call of Knight and Czinkota (2008) to address the unpredictability of timing but the disruptive nature of a terroristic act that directly affects businesses.

This first empirical study is based on a survey using both closed- and open-end questions to explore the effect of the threat of terrorism on business operation; and firms' management practices to safeguard the business activities against terrorism in Pakistan. This study goes beyond prior research of Czinkota et al. (2010), Frey (2009), and Knight and Czinkota (2008)

[4] An earlier version of this chapter was presented at Global Strategy and Emerging Markets (2019) in Dallas, USA; Academy of International Business (2019) in the Paper Development Workshop of Journal of International Business Policy and Global Strategy Journal in Copenhagen, Denmark; Academy of Management (2019) in Boston, USA; European International Business Academy (2019) in Leeds, UK; Academy of International Business US-West Chapter (2020) in San Diego, USA; and Academy of International Business (2020) in Miami, USA (Online Conference). The author is thankful to all the professors who helped in improving the quality of this scientific work.

that propose the ways in which terrorism might affect firms to obtain managers perception. Unique primary data is collected through a firms-level survey that captures how terrorism affects business dimensions such as supply, production, business costs, supply-chain, demand, employees, local and foreign customers of firms of different sizes (small, medium, and large), market orientation (local and/or foreign), and geographic regions. Furthermore, it disentangles the viewpoint of various firms about the effect or threats of terrorism on business operations and preparation against terrorism through management practices.

The results of Chapter 2 provide an overview of the effect of terrorism on business operations and firms' management practices to deal with terrorism from the standpoint of various types of firms based on export intensity, firm size, and location. Non-exporting firms suffer delays in supplies. Thus, they deal with terrorism by adopting management practices to identify vulnerabilities in their value chain and critical operations movement less terrorism-prone regions. On the other hand, exporting firms' customers decline demand and avoid visiting Pakistan. In order to deal with the issue of terrorism, exporting firms apply management practices of safety arrangements to foreign customers. They rely on multi-location suppliers rather than a single location, and prepare for rapid repair and replacement in case of terrorism. They provide payment of extra insurance and wages and rules of succession for every leading position.

This chapter offers implications to address how other difficult situations, outside terrorism, may impact the businesses. For example, the current situation of COVID-19[5] has also disrupted

[5] Terrorism and COVID-19 are both unpredictable in nature, but high risk threats for the firms. The hidden characteristic of both risks distinguish them from other types of risks. Terrorism and COVID-19 have provoked fear and mistrust among people. COVID-19 outbreak is affecting supply chains and disrupting manufacturing business worldwide, it is a big threat for the survival of the firms that depend on supplies from the foreign market (see Haren & Simchi-Levi, 2020). COVID-19 is causing the shortage of raw material in global supply chains (see Ivanov, 2020).

the business environment globally. These management practices can be generalized to other difficult business situations to address the problems of the firms operating in the face of such difficulties. This chapter helps in identifying relevant managerial, and policy implications through providing a blueprint of firms' business activities in the context of terrorism. Future research can use panel data to validate the mechanism explained in this chapter. The arguments of this chapter can be strengthened by using panel data to empirically analyze the effect of terrorism on the firms at a city-level in a specific country context.

Chapter 3: Terror in the City: Regional Effects of Terrorism on Firms Exports

The impact of terrorism on the behavior of the export of the firms' Chapter 3 is based on a paper titled “Terror in the City: Effects of Terrorism on Firm Exports” co-authored with Prof. Dr. Werner Bönte, and Prof. Dr. Vivien Procher. This paper is ready to be submitted for publication in Oxford Economic Papers.[6]

This empirical study is based on secondary data obtained from different data sources, like the South Asia Terrorism Portal (SATP) and reports of firms listed at the Pakistan Stock Exchange. Chapter 3 explores the relationship between firms’ exports and terrorist activities in Pakistan. Going beyond the nation-wide influence of terrorism, in our empirical investigation, we take the geographical distribution of firms and terrorist attacks into account to analyze the regional impact of terrorism on the firm’s export performance. This is the first study that takes into consideration the disaggregated city-level data of terrorism and export behavior of the firms.

[6] An earlier version of this paper is presented in various doctoral seminars, Indiana University-Wuppertal University Workshop, Schumpeter Society Workshop, and Brown Bag Seminar at the Schumpeter School of Business and Economics. The authors are grateful for valuable feedback and helpful suggestions. Thanks to Prof. Dr. Gary Knight, Prof. Dr. Martina Musteen, and Prof. Dr. Carol Reade for their feedback on this study.

While previous empirical research investigating the impact of terrorism on international trade (Nitsch & Schumacher, 2004; Egger & Gassebner, 2015) focused on macroeconomic relationships, our knowledge about the microeconomic link between terrorism and firms' export behavior is limited.

This empirical approach allows us to identify the potential effects of regional terrorism on firm exports. In doing so, we make use of a unique dataset that combines panel data of 482 firms listed at the Pakistan Stock Exchange with data on terrorist attacks in Pakistani cities in the period from 1999 to 2014. Computing a City Terrorism Index (CTI), we find considerable variation in the level of terrorist attacks between cities as well as within cities over time.

The results of the panel regressions point to a negative and statistically significant relationship between firm exports and the level of terrorist attacks in cities where firms are located. Moreover, terrorist attacks in other cities have a distinct and separable effect on firm exports pointing to interregional spillovers of terrorism. This type of spillover, however, diminishes with geographical distance. Future research might use a combination of qualitative and quantitative responses from the firms to explain the firm-specific insights for a closer analysis of terrorism on export performance of the firms.

Chapter 4: Terrorism, Competitive Positioning and Liability of Location: Exit of Publicly-Traded Pakistani Firms

Chapter 4 is based on a paper titled "Terrorism, Competitive Positioning and Liability of Location: Exit of Publicly-Traded Pakistani Firms," co-authored with Prof. Dr. Rocki-Lee

DeWitt, Grossman School of Management, University of Vermont, USA. This paper is currently under process for submission to the Academy of Management Journal.[7]

Chapter 4 examines the impact of terrorist activities on the survival of firms. Using the Cox regression model and the open-source database on terrorism from the South Asian Terrorism Portal and Global Terrorism Database, we contribute to the literature on terrorism's economic effects by examining the relationship between geographic-based patterns of terrorism and the exit of firms from the Pakistan stock market between 2004 and 2015. This chapter is in response to the call of Tingbani et al. (2019) to conduct a research study based on sectors to analyze the effect of terrorism on business failures. We extend the logic of liabilities of age and size to liabilities of location derived from the choice of geography, industry, and buyer markets and used this concept in the fine-grained study of the stock market exit of firms.

We begin with survival analyses of the relationship between the geographic effects, measured as proximity and severity of terrorism events at a country and city-level, and three exit pathways from the stock market of 499 publicly-traded firms. As hypothesized, bankruptcy is more likely when terrorism is proximate and more severe. Acquisitions and buyback of shares occur more during periods of low terrorism but the relationship is statistically insignificant. The inclusion of geographic spillover effects does not enhance the explanation of bankruptcy. We then examine disproportionate occurrence related to our broader notion of locational liability and find that industry and age matters. Our findings suggest that terrorism operates both as a natural hazard as firms from multiple industries are affected and as a technological discontinuity because

[7] An earlier version of this paper is presented at the Study of Terrorism and Research on Terrorism (START), University of Maryland, USA (2019). The authors are thankful to Prof. Dr. Jeane J. Boddewyn, Prof. Dr. Michael Czinkota, Prof. Dr. Robert Greenbaum, Prof. Dr. Walid Hejazi, Prof. Dr. Gary Knight, Prof. Dr. Gary LaFree, and Prof. Dr. Peter Liesch, for their valuable comments and advice to improve the quality of this scientific work.

textile firms are disproportionately affected. Future research might employ a mixed-method analysis to explain the mechanisms of business failure.

Chapter 5: Conclusion

Finally, Chapter 5 concludes this dissertation with an overall summary of the dissertations' theoretical and empirical findings. The final chapter of this dissertation highlights the three major aspects: firm-specific characteristics, location-specific terrorism effect on firms (operations, exports, and exit), and the significance of firms' rigorous terrorism management practices. Chapter 5 provides an integrative model for the firms to explain the relationship of terrorism and firms' behavior in a particular country context. The implications are highlighted based on the empirical findings of the Chapter 2, Chapter 3, and Chapter 4 for scholars and managers. The limitations and implications for future research are also presented.

Overall, this dissertation is an attempt to fill the research gap to understand the underlying mechanisms through which terrorism affect the business operations, and how firms cope with the issue of terrorism (Czinkota et al., 2005, 2010; Frey, 2009; Harvey, 1993; Zeneli et al., 2018). A more detailed study in the context of Pakistan might provide interesting insights because terrorism is constantly occurring in Pakistan. Firms may change their management practices to address the potentially more enduring nature of terrorism. There is variation among different cities within a country in the occurrence of terrorist incidents. Addressing selected aspects within the outlined research gaps might not only contribute to academics but also help managers to understand underlying processes and help them to manage those better.

2. EXPLORING THE EFFECTS OF TERRORISM ON BUSINESS OPERATIONS AND FIRMS' RESPONSES

2.1. Introduction

This chapter examines how terrorism in a country influences the business operations of firms and the preparation of firms to avoid or at least to alleviate the effects of terrorism. Business activities are on the radar of terrorist attacks that negatively influence global businesses in emerging markets (Tingbani et al., 2019). Similarly, Knight and Czinkota (2008) highlighted the relevance of Pakistan in the context of explaining the significance of international trade for a terrorism-ridden country that employs over half of its industrial workforce in textiles and apparel manufacturing sector.

Firms are differently affected by terrorism and may respond differently. Developing a better understanding of how terrorism affects firms' business operations might provide managers and policymakers with relevant management practices in response to terrorism. In this study, we surveyed textile firms from Pakistan with respect to the threat of terrorism and management practices they use to deal with terrorism. We use close-ended questions as well as open-ended questions that allow firms to talk about their experiences in relation to international business and terrorism.

Pakistan is an emerging country that is among the five most terrorism-affected countries in the world (National Consortium for the Study of Terrorism and Responses to Terrorism, 2017). The textile sector is an iconic manufacturing sector that contributes more than 50 percent to the export in Pakistan (Trade Development Authority of Pakistan, 2018). The experience of textile

firms dealing in the international market may help to better understand the dynamics of terrorism and firms' responses.

This study is an effort to address Zeneli et al. (2018) call to conduct a study on how terrorism affects firms and the responses of firms to safeguard against terrorism. We have designed a comprehensive questionnaire that includes relevant questions to analyze the relation of terrorism and business operations in a terrorism-affected country to contribute significantly to the ongoing discussion. The issue of terrorism is discussed in the firm-specific studies to explain a negative impact on the business dimensions: supply chain, supply, demand, customers, employees, and cost factors. In our study, we have combined all the business dimensions in relation to terrorism. A literature review of Czinkota, Knight, and Liesch (2004); Czinkota et al. (2005, 2010); Frey (2009); Harvey (1993); Knight and Czinkota (2008); Sheffi (2001, 2005); Suder (2004, 2006); Wernick (2006); and Wernick and von Glinow (2012) guided to draft a comprehensive survey and interviews to explore terrorism and business activities of firms; and the role of management practices to deal with terrorism.

The effect of terrorism on firms depends on the firms' sizes, geographic locations, and local or foreign orientations as well as the management practices they employ to avoid damage of terrorism on business operations. Most of the previous research dealing with terrorism and firms' relationship explained the effect conceptually. Therefore, this study responds to Zeneli et al. (2018) call for a study based on more internationally engaged and large-scale firms. Similarly, the study of Czinkota et al. (2005, 2010) conceptually provides insights into the impact of terrorism on firms' business operations and anti-terrorism measures to safeguard firms. This study aims to contribute to the literature by addressing these noted gaps. *First*, this survey study

is a combination of unique data extracted from the firms operating in a terrorism-ridden country through a self-administered questionnaire based on open- and close-ended questions. Our research study is investigating about terrorism and firms anti-terrorism strategies to protect their businesses. Thus, we employ surveys as an appropriate method to probe issues and understand their strategic solutions (Slater & Atuahene-Gima, 2004). *Second,* this study measures the effect of terrorism on Pakistan textile sector firms that are dealing at export and non-export markets. It also provides insights of firms' anti-terrorism management practices to stay competitive in domestic and export market. There is a possibility that an export and non-export market may perceive and behave differently to the problem of terrorism. To the best of our knowledge, this is the first study that disentangles the effect of terrorism on firms dealing with domestic and export markets. *Third,* we have accounted for the firms of small, medium and large sizes to understand the mechanism through which firms are affected by terrorism and what are their responses to terrorism. This study contributes to the literature by distinguishing between sizes of the firms to explain the relationship of terrorism and business activities. *Fourth,* the heterogeneity among geographic regions in terms of terrorism intensity allows an empirical examination of whether firms in different regions are differently affected by terrorism. We contribute to the understanding of how firms respond to this heterogeneity.

2.2. Conceptual background

Terrorism creates unique problems for managers. On the one hand, managers know that terrorism will occur and affects the business. Conversely, they do not have prior knowledge of when and where exactly terrorist attacks will occur. This decision-making context is simultaneously uncertain and risky. Prior literature provides detail about uncertainty but not with

respect to terrorism. Terrorism is a type of discontinuous risk that is episodic in nature and difficult to predict (Oetzel & Oh, 2013).

According to a PricewaterhouseCoopers (PwC) survey, 41 percent of 1293 CEOs of global firms are "extremely concerned" about terrorism (PwC, 2018). Terrorism has changed the priorities of spending of the firms. Firms are spending more money on their security and alternative supply solutions in the face of terrorism. Furthermore, Oetzel and Breslauer (2015) elaborate the causes how violence affects businesses through disruption in supply chain, increase in security costs, risk of human life loss, higher insurance costs, decline in productivity, and their employees on a day-to-day basis.

Terrorism may affect the business operations of firms in different regions within a country. Some of the firms are comparatively more affected by terrorism than others. Some firms' managers' devise strategies to counter the uncertainty factor of terrorism. Cuervo-Cazurra, Ciravegna, Melgarejo, and Lopez (2018) call for future studies trying to understand the relationship between internationalization and performance needs to go deeper and beyond a focus on company conditions and incorporate the effects of the country context where the firms are based on the relationships analyzed, using empirical evidence from new geographies and different variables to measure context uncertainty. Holburn and Zelner (2010) empirically argue that managers learn useful skills for dealing with the risks and uncertainty to operate in other politically risky countries. Similarly, firms based in terrorism-prone regions may learn how to manage terrorism uncertainty. Some firms might not manage to react in anticipation of future terrorist events, while others employ different management practices to deal with terrorism. For example, Oh and Oetzel (2017) argue that when firm survival and profitability are threatened,

some firms will develop innovative management strategies to surmount the challenge they face while others will die out.

The adaptability of firms to a risky and challenging environment helps in overcoming the problem and gaining a competitive advantage (Cuervo-Cazurra et al., 2018; Jiménez et al., 2014; Oh & Oetzel, 2017). Dai, Eden, and Beamish (2017) provide empirical evidence that those firms which are exposed to adversity, they devise certain strategies to effectively cope with sudden environmental changes. From a standpoint of resilience against uncertain environment, Sirmon, Hitt, Arregle, and Campbell (2010) suggest that capability strengths and capability weaknesses affect competitive advantage, exploring how the environment and firm-specific factors influence their change over time increases their knowledge related to the durability of competitive advantage.

In their qualitative study, Gao, Zuzul, Jones, and Khanna (2017) argue that environmental uncertainty is a type of transaction uncertainty that is different from behavioral uncertainty when both parties to a transaction acted according to their agreements. They note that frequent environmental shocks (including regulatory and political shocks, expropriation, coup, chaos, and wars) still posed a threat. Gao et al. (2017) further explain that because of these shocks, firms faced the risk that their operations - or the operation of their partners, suppliers, and buyers - would cease to exist or become severely disrupted.

Terrorism may affect the business operations of firms directly and indirectly. For instance, a direct effect of terrorism may be a bomb blast on firms to target employees, firms' building, machinery, and transport vehicles. The indirect effect of terrorism on firms can be a decline in demand by local and foreign customers; increase in transaction cost; interruption in supply chain;

and reputation of the firms (Czinkota et al., 2004; Knight & Czinkota, 2008; Gao et al., 2017; Jain & Grosse, 2009; Suder, Chailan, & Suder, 2008). The impact of terrorism varies from one part of the country to another, where the firms are located and terrorist incidents occur. Similarly, this asks for a different level of preparedness from the firms to dilute the impact of terrorism on overall business performance.

2.2.1. Potential effects of terrorism on business dimensions

Firms' business operations are consisting of various dimensions. These various business dimensions are demand, supply, supply chain, human resources, cost of business, and production. Terrorism may affect business dimensions differently (see Figure 2.1). Generally, businesses are sensitive to costs (Hitt, 2011). Specifically, firms dealing in international business are more susceptible to transaction costs. Supply chain interruption leads to an increase in the cost of doing business (Spich & Grosse, 2005; Jain & Grosse, 2009). The risk reduces the revenue and profitability of the firms (Hendrick & Singhal, 2005a, 2005b). Also, Suder and Czinkota (2005) have identified vulnerabilities in value chain activities that ask for firms' strategic responses. Firms spend additional money on employees' wages, insurance, and timely supply of goods to the customers (Wernick, 2006). Similarly, Oh and Oetzel (2017) argue that violent conflicts also impose added costs of doing business in a country, e.g. higher insurance premiums, security costs, and finding alternative suppliers, etc.

Firms in terrorism-ridden regions are fragile. Harvey (1993) conducted a study of corporate programs for managing terrorist threats and spending of firms beyond normal security. The basic objective of Harvey's study was to determine to what degree firms were prepared for terrorist

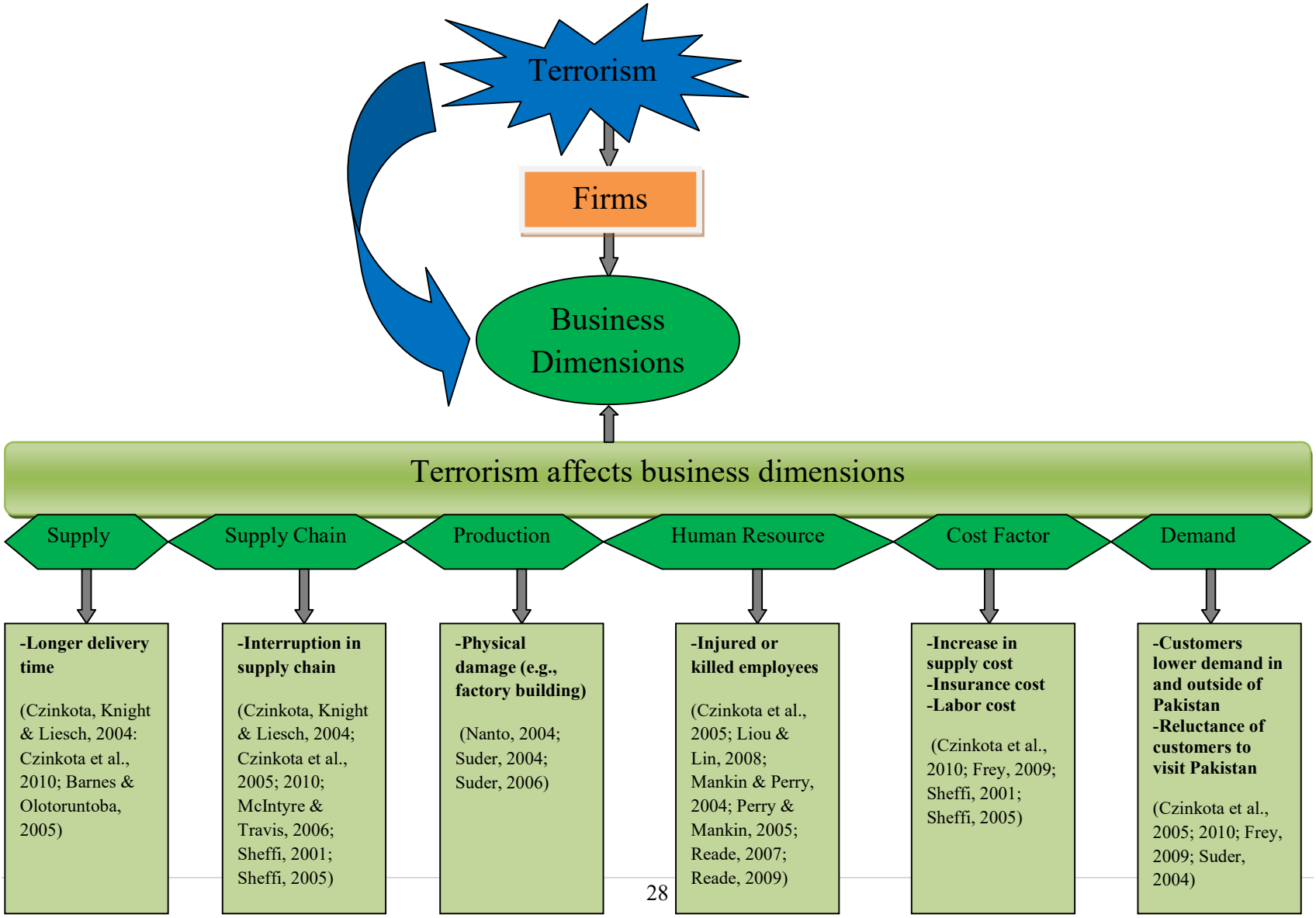
attacks. Similarly, Knight and Czinkota (2008) asked firms in a survey-based study about the effects or threats of terrorism on firms. They focused on the responses of the international firms to the effect and threats of terrorism, the background on the relationship of terrorism and international business. They empirically explained about the relationship of resources of firms and reaction against terrorism.

Terrorist attacks affect firms' business operations directly and indirectly. Overall terrorism induces a shortage of supplies to customers by disturbing important business operations (Council on Foreign Relations, 2002). Moreover, the supply of goods is interrupted by detailed security checks on every entry and exit point of the cities (Knight & Czinkota, 2008). Consequently, firms may incur additional expenses to counter unpredictable supply chain shifts (Knight & Czinkota, 2008). Sometimes strikes and agitations may prolong the delivery time of transportation of goods (Knight & Czinkota, 2008).

Terrorist attacks in a geographic region can cause physical damages to buildings and plants of the firm. Also, uncertainty driven by terrorism can lower the demand of customers from local and foreign markets (Czinkota et al., 2005). Customers may avoid visiting firms in problematic regions. Additionally, firms situated in a frequent terrorist attacks region demand a strong security plan.

Likewise, uncertain events may also cost the life of employees or permanent injuries when terrorist attacks happen in the immediate vicinity of firms. It can also reduce the availability of skilled workers. Eventually, terrorism may increase the labor and insurance cost for businesses (Knight & Czinkota, 2008).

Figure 2.1: Relation of terrorism and business dimensions of the firms



2.2.2. Management practices to deal with terrorism

The thick layer of management practices reduces the effect of terrorism on the business dimensions of the firms (see Figure 2.2). Terrorist attacks are beyond the control of firms, they are unpredictable and exogenous, but management practices are internal mechanisms that help firms to survive in the adverse external environment. Managerial perception and responses regarding terrorism appear to differ within and across firms (Gillingham, 2006). They depend on factors such as the accuracy and completeness of information, previous experience of terrorist events, and whether or not these threats were prioritized over other uncertainties (Sullivan-Taylor & Wilson, 2009).

Figure 2.3 details the management practices of firms to safeguard the business dimensions of the firms. Czinkota et al. (2010) conceptually explain that terrorism affects the different dimensions of business. We have identified key management practices in relation to terrorism which are used by the firms to minimize the negative effect of terrorism. There is a need for management to counter the effect of terrorism. That is why appropriate management practices to deal with the threat of terrorism are vital for firms, enabling the firm to react appropriately in an uncertain situation. These management practices are applied at a different point in time for different firms to reduce the impact of terrorism on the business dimensions. Firms are concerned about terrorism, particularly those dealing in international businesses that are vulnerable to terrorist attacks. In the international market, firms have a high pressure of curtailing the cost of doing business in a cut-throat competitive environment. Management practices help firms to deploy the flexibility mechanisms to protect business dimensions against the negative effect of terrorism (see Figure 2.2).

Figure 2.2: Relationship between firms' business dimensions, management practices, and terrorism

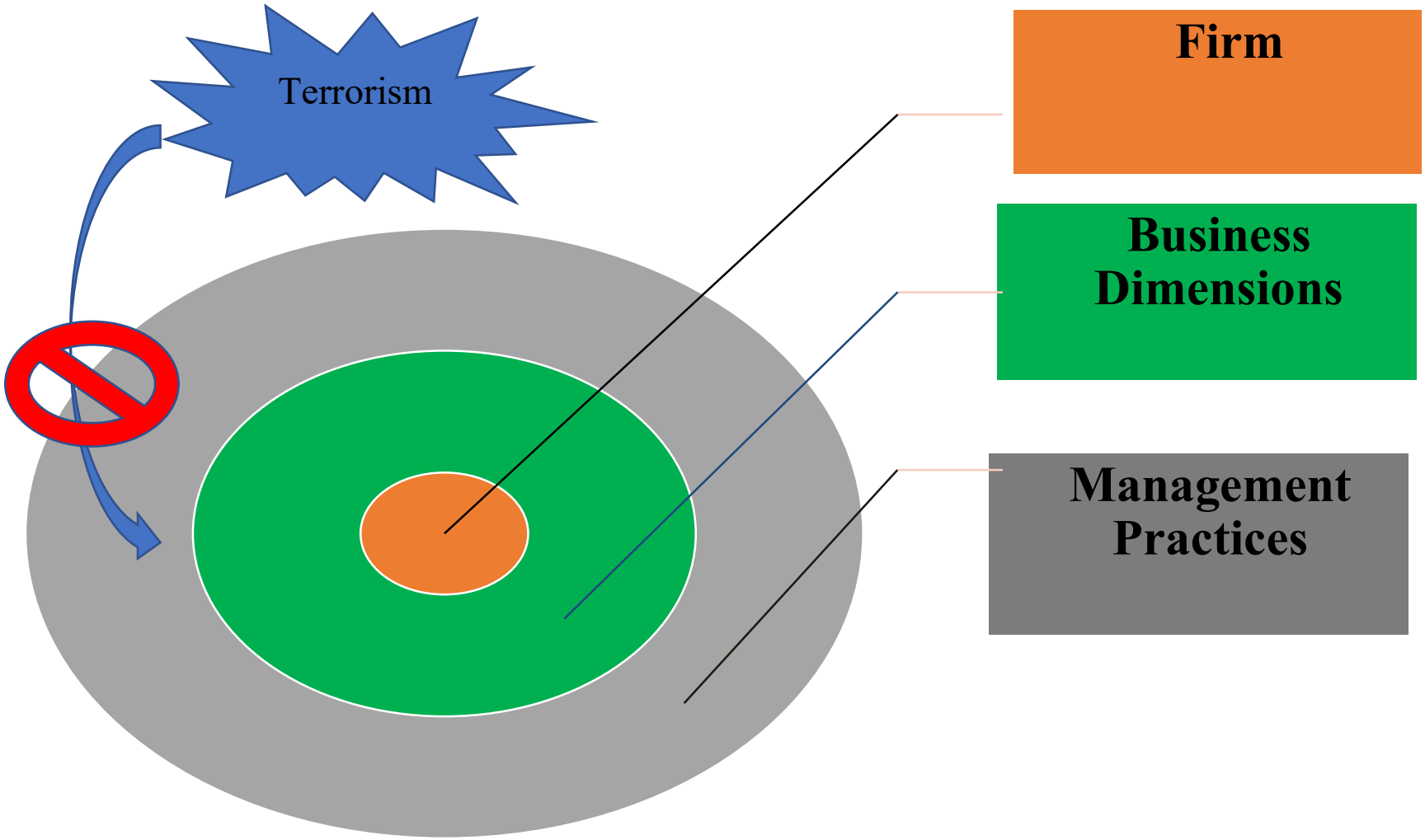
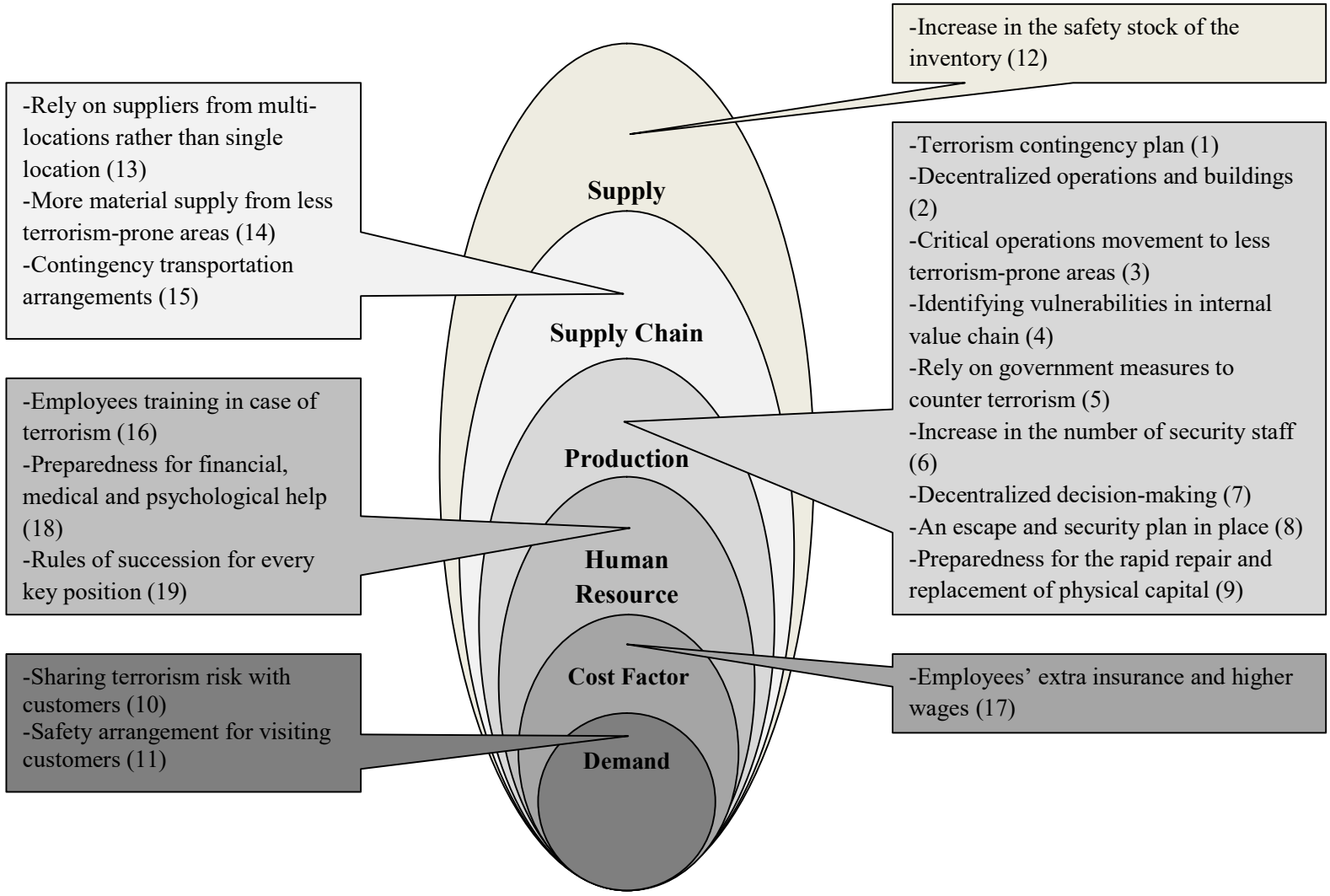


Figure 2.3: Firms management practices to safeguard business dimensions[8]



[8] Item numbers are used in parentheses (see Table 2.3)

Figure 2.3 explains the layers of management practices to protect business dimensions against terrorism. Management practices focused on “demand” protections consider sharing terrorism risk and anti-terrorism measures with customers, and safety arrangement of customers (Knight & Czinkota, 2008; Suder, 2006). Literature has discussed the “cost factor” in the context of offering employees extra insurance and higher wages (Frey, 2009; Wernick, 2006). Firms integral business dimension, “human resource”, is protected by employing management practices such as employee training in case of terrorism (Harvey, 1993), preparedness for financial, medical and psychological help for employees (Frey, 2009), and rules of succession for every leading position (Czinkota et al., 2010; Frey, 2009).

The ‘production” business dimension is safeguarded by the management practices that include: terrorism contingency plan (Harvey, 1993; Knight & Czinkota, 2008; Wernick & von Glinow, 2012); decentralized operations and buildings (Frey, 2009; Sheffi, 2001, 2005; Suder, 2004, 2006); critical operations movement to less terrorism prone areas; identification of vulnerabilities in internal value chain (Frey, 2009; Suder, 2006); reliance on government measures to counter terrorism (Czinkota et al., 2010); decentralized decision making (Knight & Czinkota, 2008); an escape and security plan in place, and preparedness for the rapid repair and replacement of physical capital (Frey, 2009). The “supply chain” dimension is managed by devising strategies of relying on suppliers from multi-locations rather than a single location (Knight & Czinkota, 2008; Suder, 2006); more material supply from less terrorism-prone areas (Suder, 2006); and contingency transportation arrangement of supplies (Suder, 2006). Last but not the least business dimension “supply” is protected through increase in the safety stock of inventory (Knight & Czinkota, 2008; Suder, 2006).

2.3. Method

2.3.1. Research setting and design

Three criteria were set for the sample of this study. *First*, we focused on textile sector firms that were dealing in the international market as an importer and/or exporter. *Second*, interviews were conducted with those firms that manufacture products in Pakistan. *Third*, data were collected from firms that were exhibiting at international trade fairs to ensure the engagement of firms in the foreign market. The textile sector in Pakistan is a significant contributor to employment and exports (Knight & Czinkota, 2008). Privately owned, Pakistan's textile sector contributes 46 percent to the manufacturing sector of Pakistan that adds 8.8 percent to GDP (Asian Development Bank, 2008). The textile sector stands first with a considerable share of 61 percent of total exports of Pakistan in the fiscal year 2016-17 (Ministry of Finance, 2018). So, the significance of the textile sector to the export business and heterogeneity of terrorism in different cities of Pakistan makes this survey relevant to study the impact of terrorism on the business operations of firms engaged in international business (Czinkota, 2002).

2.3.2. Questionnaire development

We build on previous studies that have analyzed management practices. Most of the studies have proposed conceptual and theoratical arguments for management practices but they have not measured them empirically. Similarly, firms devise a sound internal strategy to cope with the challenge of terrorism. Previous studies from Czinkota et al. (2004); Czinkota, Knight, Liesch, and Steen (2005; 2010); Frey (2009), Harvey (1993); Knight and Czinkota (2008); Sheffi (2001, 2005); Suder (2004; 2006); Wernick (2006); and Wervick and Von Glinow (2012) have guided to include relevant questions in our survey to empirically explore

the the relationship between firms' business operations and terrorism and the business strategies of firms to deal with the the threat of terrorism.

During the survey design, the researcher visited Pakistan in both September-October 2015 and March-April 2016 to incorporate insights from experts, engaging with businessmen, government officials, and key officials of the Chamber of Commerce and Industry. In the light of feedback from the business community and government officials, the survey was customized suitable for the business environment of Pakistan. The following sections present the different parts for the survey, starting with how firms evaluate the threat of terrorism, then the effects of terrorism on business operations, and last but not the least the management practices of the firms to deal with terrorism.

Threats of terrorism

Firms' preparedness for terrorism (see table 2.1) is inquired with their experience in the past, present, and future (Knight & Czinkota, 2008). The study of Knight and Czinkota (2008) has used similar questions with a five-point Likert scale. For this study, a seven-point Likert scale is employed throughout.

Table 2.1: Effects and threats of terrorism

Item	Effects and threats of terrorism in Pakistan	Source of items
1.	My firm was affected by terrorism in the past.	Adapted from Knight and Czinkota (2008)
2.	My firm is concerned about the effects or threats of terrorism.	Knight and Czinkota (2008)
3.	I expect that my firm will be negatively affected by terrorism within the next 5 years.	Adapted from Knight and Czinkota (2008)

The effects of terrorism on business operations

The effects of terrorism on the firm's business operations are explained through 10 items (Table 2.2). Table 2.2 captures the following business dimensions: item 1 is related to "production"; items 2 to 4 are related to "demand"; items 5 and 6 are related to "supply chain"; item 7 is related to "supply"; item 8 is related to "human resource"; and items 9 and 10 are related to "cost factor" business dimensions of the firms. The items of the questionnaire capture the following effects of terrorism on business dimensions of the firms (see Table 2.2). Items 1 to 4 were developed for this study because there were conceptual arguments in the literature but no clear study that was capturing those items. Items 5 to 10 were taken from the study of Knight and Czinkota (2008), which used similar items in their study.

Table 2.2: Effects of terrorism on business operations

Item	Effects of terrorism on your business operations in Pakistan	Source of items
1.	Physical damages (e.g. firm buildings) (Production)	Developed for this study
2.	Lower demand by customers from Pakistan (Demand)	Developed for this study
3.	Lower demand by customers from abroad (Demand)	Developed for this study
4.	Customers are reluctant to come to Pakistan to visit my firm (Demand)	Developed for this study
5.	Unpredictable supply chain shifts and interruptions (Supply chain)	Knight and Czinkota (2008)
6.	Supply chain direct costs have gone up (Supply chain)	Knight and Czinkota (2008)
7.	Longer delivery times (Supply)	Knight and Czinkota (2008)
8.	Injured or killed employees (Human Resource)	Developed for this study
9.	Higher labor costs (Cost factor)	Developed for this study
10.	Higher insurance costs (Cost factor)	Knight and Czinkota (2008)

Management practices to deal with terrorism

Firms adopt management practices to protect business dimensions to deal with the issue of terrorism. We have constructed management practices digging deeper into the literature to unleash the mechanisms that firms use to safeguard their business operations. Management practices are discussed with their relevance to the business dimensions of the firms using 19 items (see Table 2.3). Items 2, 3, 4, 7, 9, 17, 18, and 19 originate from the conceptual study of Frey (2009) that focused on how businesses cope with terrorism. Similarly, items 1, 6, 8, and 12 are taken from the study of Knight and Czinkota (2008) to capture the management practices of the firms to protect business dimensions namely "human resource", "production" and "supply chain". Items 10 and 11 are developed for this study to capture the management practices of firms to safeguards "demand".

Items 2, 4, 12, 13, 14, and 15 originate from the theoretical arguments of Suder (2004, 2006) to capture management practices to deal with terrorism for smooth "production", and "supply chain" of the firms. Items 1 and 16 are taken from the empirical study of Harvey (1993) for a corporate program for managing terrorist threats. Items 5 and 19 are derived from the conceptual study of Czinkota et al. (2010). These 19 items capture the following management practices to protect business dimensions of the firms: items 1 to 9 are included for "production"; items 10 and 11 are included for "demand"; item 12 is included for "supply"; items 13 to 15 are included for "supply chain"; items 16, 18 and 19 are included for "human resource"; and item 17 is included for "cost factor". These 19 items of management practices are asked to be ranked on a seven-point Likert-scale.

Table 2.3: Management practices items

Item	Management practices to deal with terrorism	Source of items
1.	My firm has a formalized program designed to reduce the probability of terrorist attacks and to deal with the terrorist if an attack occurs (i.e. terrorism contingency plan).	Harvey (1993); Knight and Czinkota (2008); Wernick and von Glinow (2012)
2.	My firm has decentralized business operations and buildings to ensure business continuity in the event of a terrorist attack.	Frey (2009); Sheffi (2001, 2005); Suder (2004, 2006)
3.	My firm moves critical operations or branching out into less terrorism-prone areas.	Frey (2009)
4.	My firm identifies vulnerabilities across the firm's internal value chain	Frey (2009); Suder (2006)
5.	My firm relies on government measures to counter-terrorism.	Czinkota et al. (2010)
6.	My firm increased the number of security staff.	Knight and Czinkota (2008)
7.	My firm's decision-making is decentralized rather than centralized.	Frey (2009)
8.	My firm has an escape and security plan in place.	Knight and Czinkota (2008)
9.	My firm is prepared for the rapid repair and replacement of damaged physical assets after a terrorist attack.	Frey (2009)
10.	My firm discusses the risk of terrorism and anti-terrorism measures with customers.	Developed for this study
11.	My firm offers to provide safe travel arrangements for visiting customers.	Developed for this study
12.	My firm has increased safety stocks of inventory.	Knight and Czinkota (2008); Suder (2006)
13.	My firm relies on alternative suppliers in different locations rather than on a single source supplier	Suder (2006)
14.	My firm has increased the amount of material sourced from less terrorism-prone areas.	Suder (2006)
15.	My firm has broadened its shipping arrangements with alternative modes of transportation (contingency transportation arrangements).	Suder (2006)
16.	My firm provides training to employees on how to behave in case of a terrorist event.	Harvey (1993)
17.	My firm offers extra insurance and higher wages for employees.	Frey (2009)
18.	My firm is prepared to provide financial, medical and psychological help in case of terrorist attacks.	Frey (2009)
19.	My firm has rules of succession for every leading position.	Czinkota et al., (2010); Frey (2009)

Background Characteristics

This survey allows for the classification of firms on the basis of size, market orientation, export share, and location. A section of the questionnaire includes a range of questions about characteristics of the firm, such as business experience, firm group[9], main industry, main products, subsidiaries inside and outside the country, number of employees and sales[10], export sales and percentage of export sales to total sales, number of years exporting abroad[11], exports and import markets, the most important export and export markets, customers in Germany, obstacles to doing business.

2.3.3. Data collection

Data were collected at trade fairs in Pakistan and Germany to contact firms dealing in international business. These surveys were conducted at Heimtextil (Frankfurt), Textile Asia (Karachi) and FIBO (Cologne). The first trade fair was Heimtextil 2018 which is the biggest textile trade fair in Germany (Messe Frankfurt, 2020). Pakistan is among the top ten exhibitors (almost 200 firms) in this trade fair. Senior managers of 76 firms that deal in the international market as an exporter and/ or importer were interviewed. There was a majority of firms that were active exporters (80 percent export-oriented firms). Heimtextil includes a majority of exporters and potential exporters that are seeking customers for future cross-border business transactions at an international trade fair. In the second trade fair, data were collected from 96 firms exhibited at the Textile Asia 2018. The inclusion of Textile Asia 2018 helped in controlling the bias of international trade fair outside Pakistan which has high percentage of export-oriented firms. Consequently, 86 firms were interviewed at Textile Asia

[9] CIS, 2012
[10] CIS, 2012, number of years adapted
[11] Ernst and Young Survey of Jackstädt Centre for Entrepreneurship and Innovation Processes, 2016, adapted (asking here for how many years instead of export experience)

and 80 percent of the interviewed firms were non-exporting importers. Besides trade fairs, interviews were conducted with 10 firms that promised to share information outside Textile Asia due to time constraints.

In the third trade fair, FIBO 2018 in Cologne, Germany, data were collected from 32 firms dealing in textile and sports goods industries. At FIBO 2018, only Sialkot firms were exhibiting because this city is famous for sports textiles manufacturers and exporter in Pakistan. In total, data were collected from 204 firms operating in geographic regions of Pakistan: Faisalabad, Karachi, Lahore, Multan, Rawalpindi, and Sialkot; different firms' sizes: small, medium, and large; and firms' exports intensity: exporting, and non/exporting. Most of the respondents were senior managers (C.E.O., Directors, General and Senior Managers) and they were well aware of firms' current business situation and equipped with responses to capacity-related questions. Firms usually prefer to send very knowledgeable and capable managers to international trade fairs. Survey items and interviews were asked face-to-face in the English language. In some situations, respondents switched to Urdu while explaining the mechanism of terrorism and international business relationship. Due to firms' presence at the international trade fair, English language was not a barrier to extract information. Before the interview, compliance with the confidentiality of respondents was ensured. It helped in maximizing the numbers of respondents.

2.3.4. Sample

The survey covered 204 manufacturing firms employed between 5 and 15000 employees situated in 6 different cities in Pakistan (see Table 2.4a & 2.4b). Faisalabad, Karachi, Lahore, Multan, Rawalpindi and Sialkot are the main industrial hotspots in Pakistan and contribute almost 90 percent of total economic activities in Pakistan. The sample size of 204 firms is in

line with the average number of firms 175 observations used in survey-based studies according to the publication in Strategic Management Journal (Phelan et al., 2002) .

Table 2.4a: Profile of firms

Location	Heimtextil	Textile Asia	FIBO	Non-Trade Fair	Overall
Karachi	41	70	0	1	112
Faisalabad	27	3	0	2	32
Sialkot	0	0	32	0	32
Lahore	5	13	0	7	25
Multan	2	0	0	0	2
Rawalpindi	1	0	0	0	1
Grand Total	76	86	32	10	204

Table 2.4b: Firms profiling based on location, size, and export-intensity

Location	Size	Export	Non-export	Others	Overall
Karachi	Small	2	29	4	35
	Medium	8	22	9	39
	Large	16	7	15	38
Faisalabad	Small	1	0	2	3
	Medium	6	1	5	12
	Large	14	1	2	17
Sialkot	Small	15	0	0	15
	Medium	15	0	0	15
	Large	2	0	0	2
Lahore	Small	0	7	2	9
	Medium	1	5	1	7
	Large	2	1	6	9
Multan	Small	0	0	0	0
	Medium	2	0	0	2
	Large	0	0	0	0
Rawalpindi	Small	0	0	0	0
	Medium	0	0	0	0
	Large	0	0	1	1
Grand Total		84	73	47	204

Firms are categorized on the basis of size, export orientation, and location (see Table 2.4b). In this chapter, we have used the same definition of firms' size in the context of

Pakistan as mentioned in the prudential regulation of the State Bank of Pakistan (2017). Almost 33 percent of firms have annual sales turnover above Pakistani Rs 800 million (classified as being large firms), around 37 percent of firms have annual sales turnover between Rs 150 million and Rs 800 million (medium-sized firms), and nearly 30 percent of firms have annual sales turnover upper limit up to Rs 150 million (small firms). Firms export intensity is defined as exporting if export sales are 100 percent of total sales, non-exporting if export sales are 0 percent of total sales, and others if export sales are more than 0 percent and less than 100 percent of total sales (see Table 2.4b).

2.4. Results

Terrorism is a threat for the business environment. Firms working in a hostile environment have challenges to execute their business activities. Firms belonging to different export-intensity have responded with regard to their own experience with terrorism in the past, their concerns and their expectations are reported in Table 2.5. Descriptive statistics and comparison of means are analyzed using STATA version 14.

Table 2.5: Export and non-export firms and effects or threats of terrorism

		Comparison of means		
Effects or threat of terrorism on firms	**Overall**	**Exporting**	**$DIFF_{ENE}$**	**Non-Exporting**
Concerned about the effects or threats of terrorism	2.64	3.18	**0.96*** **	2.22
Terrorism affected firms in the past	4.06	4.87	**1.4*** **	3.47
Terrorism will affect the firm in the future	4.09	4.37	**0.49***	3.88

Notes: Overall firms = 204, Exporting firms = 84, Non-Exporting firms = 73
*p-value <0.1, ** p-value <0.05, *** p-value <0.01
Mean value closes to 1 means strongly agree and close to 7 strongly disagree to the statement
$DIFF_{ENE}$ means the difference of means between exporting firms and non-exporting firms

As can be seen from Table 2.5, non-exporting firms are more concerned about the effects or threats of the terrorism in comparison to exporting firms. In Table 2.5, we can observe that there is a statistically significant difference between export and non-export firms in concerns

about terrorism effects or threats. Similarly, non-exporting firms are significantly different from exporting firms while responding to the question about terrorism affecting the firm in the past. Moreover, non-exporting firms are statistically different than exporting firms and expressed that terrorism will affect them in the future.

Table 2.6: Different size of firms and effects or threats of terrorism

	Comparison of means						
Effects or threat of terrorism on firms	**Overall**	**Small**	**$DIFF_{SM}$**	**Medium**	**$DIFF_{ML}$**	**Large**	**$DIFF_{LS}$**
Concerned about the effects or threats of terrorism	2.64	2.69	0.21	2.48	-0.3	2.78	0.09
Terrorism affected firms in the past	4.06	4.08	0.49	3.59	**-0.98*****	4.57	0.49
Terrorism will affect the firm in the future	4.09	3.98	-0.02	4	-0.3	4.3	0.32

Notes: Overall firms = 204, Small firms = 62, Medium firms = 75, Large firms = 67
*p-value <0.1, ** p-value <0.05, *** p-value <0.01
Mean value closes to 1 means strongly agree and close to 7 strongly disagree to the statement
$DIFF_{SM}$ means the difference of means between small firms and medium firms
$DIFF_{ML}$ means the difference of means between medium firms and small firms
$DIFF_{SM}$ means the difference of means between large firms and small firms

The size of the firms also reflects the ability and resources of firms to counter the effect of terrorism. Medium and large firms were differently affected by terrorism in the past. In Table 2.6 column 5, large firms are least affected by terrorism in comparison to medium firms. Terrorism has a statistically different impact on both firms, medium and large.

Table 2.7: Firms located in different cities and effects or threats of terrorism

	Comparison of means									
Threat of terrorism	**Overall**	**Khi**	**Fsd**	**$DIFF_{FS}$**	**Skt**	**$DIFF_{LS}$**	**Lhr**	**$DIFF_{FL}$**	**Mtn**	**Rwp**
Concerned about the effects or threats of terrorism	2.64	2.26	2.59	**-1.69*****	4.28	**-1.76*****	2.52	0.07	1.00	1.00
Terrorism affected firms in the past	4.06	3.68	4.22	**-1.09***	5.31	**-1.27****	4.04	0.18	2.50	5.00
Terrorism will affect the firm in the future	4.09	3.88	3.75	**-1.16****	4.91	-0.39	4.52	-0.77	3.00	4.00

Notes: Khi = Karachi, Fsd = Faisalabad, Skt = Sialkot, Lhr = Lahore, Mtn = Multan, Rwp = Rawalpindi
Overall firms = 204, Khi = 112, Fsd = 32, Skt = 32, Lhr = 25, Mtn = 2, Rwp = 1
*p-value <0.1, ** p-value <0.05, *** p-value <0.0
$DIFF_{FS}$ means the difference of means between firms in Faisalabad and Sialkot
$DIFF_{LS}$ means the difference of means between firms in Lahore and Sialkot
$DIFF_{FL}$ means the difference of means between firms in Faisalabad and Lahore

Firms located in terrorism-ridden regions are likely to be more affected by terrorism than firms located in other regions. This comparison gives a true picture of the intensity of terrorism in Pakistan. Karachi is the most terror-ridden region among other cities in this sample. Firms in Karachi are more concerned about the issue of terrorism. Sialkot is a peaceful city in Pakistan and firms in Sialkot are not that much concerned about the threat of terrorism (see Table 2.7). On the other hand, Faisalabad is also a peaceful region in Pakistan but firms in this city are more concerned about the effects and threats of terrorism. Firms in Faisalabad have to send their goods to dry port in Lahore and for exporting in Karachi seaport. In Table 2.7, firms in Faisalabad are more concerned about terrorism in comparison to firms in Sialkot. The difference between two cities is statistically significant. Similarly, there is a significant difference between Sialkot and Faisalabad firms about terrorism effects in the past and their concern about future terrorism effects on their business. Firms in Lahore and Sialkot are also significantly different from each other because firms in Lahore are more concerned about the effects and threats of terrorism and they were more strongly affected in the past in comparison to Sialkot firms.

Table 2.8: Effect of terrorism on business operations of Export and non-exporting firms

		Comparison of means		
Terrorism impact on business operations	**Overall**	**Exporting**	**$DIFF_{ENE}$**	**Non-Exporting**
Reluctance of foreign customers to visit Pakistan	2.73	2.35	**-1.16*****	3.51
Higher insurance costs	2.75	2.88	0.03	2.85
Supply chain direct costs have gone up	2.99	2.87	-0.34	3.21
Longer delivery times	3.13	3.42	**0.58****	2.84
Unpredictable supply chain interruptions	3.37	3.49	0.01	3.48
Lower demand by customers from abroad	3.43	3.26	**-0.67****	3.93
Lower demand by customers in Pakistan	3.86	4.27	**0.83*****	3.44
Higher labor costs	4.19	4.37	0.1	4.27
Physical damages (e.g., firm buildings)	5.66	6.31	**1.06*****	5.25
Injured or killed employees	6.15	6.57	**0.75*****	5.82

Notes: Overall firms = 204, Exporting firms = 84, Non-Exporting firms = 73
*p-value <0.1, ** p-value <0.05, *** p-value <0.01
$DIFF_{ENE}$ means the difference of means between exporting firms and non-exporting firms

In order to gain additional insights into the effects of terrorism on business activities, firms reported in more detail how their business dimensions were affected. In the total sample, the average score is lowest for the "demand" dimension suggesting that the refusal of foreign customers to visit firms in Pakistan is the most relevant threat, whereas the highest score is for injured people suggesting that firms do not tend to be directly affected in this way. This is a big challenge for export-oriented firms. Results in Table 2.8 suggest that export-oriented firms are statistically different from non-exporting firms and that they face lower demand from foreign customers. It limits the opportunity for firms to showcase their capacity to produce quality products. Ultimately, this additional cost is settled in the price of the products. It makes export-oriented firms less elastic about the price in the international market. Non-export firms are statistically different from exporting firms and they have other issues, for example, in the presence of terrorism non-export firms face longer delivery times; lower demand from the local market; physical damages; and injured or killed employees.

Table 2.9: Different size of firms and effect of terrorism on business operations

	Comparison of means						
Terrorism impact on business operations	**Overall**	**Small**	**$DIFF_{SM}$**	**Medium**	**$DIFF_{ML}$**	**Large**	**$DIFF_{LS}$**
Reluctance of foreign customers to visit Pakistan	2.73	3.16	**0.76****	2.4	-0.3	2.7	-0.46
Higher insurance costs	2.75	2.87	0.32	2.55	-0.33	2.88	0.01
Supply chain direct costs have gone up	2.99	3.31	**0.62****	2.69	-0.32	3.01	-0.3
Longer delivery times	3.13	3.16	0.4	2.76	**-0.76****	3.52	0.36
Unpredictable supply chain interruptions	3.37	3.68	**0.81*****	2.87	**-0.79*****	3.66	-0.02
Lower demand by customers from abroad	3.43	3.68	**0.61***	3.07	-0.53	3.6	-0.08
Lower demand by customers in Pakistan	3.86	3.9	0.45	3.45	**-0.82****	4.27	0.37
Higher labor costs	4.19	4.23	0.24	3.99	-0.4	4.39	0.16
Physical damages (e.g., firm buildings)	5.66	5.5	-0.3	5.8	0.16	5.64	0.14
Injured or killed employees	6.15	6.06	-0.18	6.24	0.12	6.12	0.06

Notes: Overall firms = 204, Small firms = 62, Medium firms = 75, Large firms = 67
*p-value <0.1, ** p-value <0.05, *** p-value <0.01
$DIFF_{SM}$ means the difference of means between small firms and medium firms
$DIFF_{ML}$ means the difference of means between medium firms and small firms
$DIFF_{SM}$ means the difference of means between large firms and small firms

There is a statistically significant difference between small and medium firms. As we can infer from Table 2.9, medium firms are suffering more from terrorism in comparison to small firms because foreign customers are reluctant to visit Pakistan. Supply chain direct costs have increased due to unpredictable supply chain interruption and because of lower demand from abroad. Terrorism has a stronger impact on medium firms in comparison to large firms because they suffer longer delivery time, unpredictable supply chain and lower demand of customers in Pakistan.

Table 2.10: Firms located in different cities and effect of terrorism on business operations

				Comparison of means						
Terrorism impact on business operations	**Overall**	**Khi**	**Fsd**	**$DIFF_{FS}$**	**Skt**	**$DIFF_{LS}$**	**Lhr**	**$DIFF_{FL}$**	**Mtn**	**Rwp**
Reluctance of foreign customers to visit Pakistan	2.73	2.87	2.28	-0.31	2.59	0.49	3.08	-0.80	1.00	1.00
Higher insurance costs	2.75	2.59	3.19	0.47	2.72	0.36	3.08	0.11	2.00	2.00
Supply chain direct costs have gone up	2.99	3.04	2.91	0.22	2.69	0.67	3.36	-0.45	2.00	2.00
Longer delivery times	3.13	3.02	3.28	0.16	3.13	0.40	3.52	-0.24	2.50	3.00
Unpredictable supply chain shifts and interruptions	3.37	3.21	3.81	0.38	3.44	0.16	3.60	0.21	2.00	2.00
Lower demand by customers from abroad	3.43	3.64	2.84	0.03	2.81	**1.15****	3.96	**-1.12****	3.50	4.00
Lower demand by customers in Pakistan	3.86	3.63	3.53	-0.69	4.22	0.58	4.80	**-1.27****	5.00	3.00
Higher labor costs	4.19	4.19	4.50	**0.78***	3.72	0.68	4.40	0.10	4.50	4.00
Physical damages (e.g., firm buildings)	5.66	5.35	6.00	-0.38	6.38	**-0.78****	5.60	0.40	6.50	6.00
Injured or killed employees	6.15	5.96	6.19	-0.44	6.63	-0.35	6.28	-0.09	7.00	6.00

Notes: Khi = Karachi, Fsd = Faisalabad, Skt = Sialkot, Lhr = Lahore, Mtn = Multan, Rwp = Rawalpindi
Overall firms = 204, Kar = 112, Fsd = 32, Skt = 32, Lhr = 25, Mtn = 2, Rwp = 1
*p-value <0.1, ** p-value <0.05, *** p-value <0.0
$DIFF_{FS}$ means the difference of means between firms in Faisalabad and Sialkot
$DIFF_{LS}$ means the difference of means between firms in Lahore and Sialkot
$DIFF_{FL}$ means the difference of means between firms in Faisalabad and Lahore

There is a statistically significant difference between firms in Sialkot and Faisalabad, as firms in Sialkot pay more to the labor in comparison to firms in Faisalabad (see Table 2.10). Due to terrorism threats, firms in Sialkot are facing a decline in demand from abroad in comparison to firms in Lahore. There is a statistically significant difference in the impact of terrorism on the physical damages between Lahore and Sialkot firms. In Table 2.10, there is a

significant difference between firms in Lahore and Faisalabad as firms in Faisalabad are facing lower demand from customers abroad and in Pakistan.

Table 2.11: Export and non-export firms' management practices to deal with terrorism

		Comparison of means		
Management practices to deal with terrorism	**Overall**	**Exporting**	**$DIFF_{ENE}$**	**Non-Exporting**
Safety arrangement for visiting customers	2.36	1.96	**-1.04*** **	3.00
Preparedness for financial, medical, and psychological help	2.72	2.49	**-0.63*** **	3.12
Increase in safety stocks of inventory	2.73	2.77	-0.05	2.82
Rely on suppliers from multi-locations rather than a single location	2.74	2.3	**-0.99*** **	3.29
Rules of succession for every leading position	2.79	2.49	**-0.83*** **	3.32
An escape and security plan in place	2.8	2.69	-0.34	3.03
Preparedness for the rapid repair and replacement of physical capital	2.8	2.55	**-0.67*** **	3.22
Increase in the number of security staff	2.86	3.01	0.15	2.86
Contingency transportation arrangements	3.02	3.12	0.15	2.97
Identifying vulnerabilities in internal value chain	3.14	3.52	**0.96*** **	2.56
More material supply from less terrorism-prone areas	3.16	3.12	-0.04	3.16
Rely on government measure to counter-terrorism	3.38	3.36	-0.17	3.53
Terrorism contingency plan	3.39	3.48	-0.11	3.59
Critical operations movement to less terrorism-prone areas	3.64	3.99	**0.67** **	3.32
Decentralized operations and buildings	3.68	3.82	-0.03	3.85
Decentralized decision-making	3.88	4.23	0.53	3.7
Employees training in case of terrorism	3.88	3.77	-0.30	4.07
Sharing terrorism risk and anti-terrorism measures with customers	4.3	4.44	0.43	4.01
Employees extra insurance and higher wages	4.42	3.96	**-1.09*** **	5.05

Notes: Overall firms = 204, Exporting firms = 84, Non-Exporting firms = 73
*p-value <0.1, ** p-value <0.05, *** p-value <0.01
$DIFF_{ENE}$ means the difference of means between exporting firms and non-exporting firms

There is a statistically significant difference between export and non-export firms on the basis of management practices adopted by them. Export-oriented firms are more concerned with the safety arrangement of the visiting customers (see Table 2.11), spend money on financial, medical and psychological help of employees in case of terrorist attacks, and get supplies from multiple source suppliers to deal with the terrorism-driven interruption. In order to avoid skilled staff shortage, export-oriented firms follow the rule of succession for every

leading position. They readily prepared for the rapid repair and replacement of physical capital and pay higher wages and extra insurance to retain their employees and customers. Non-exporting firms identify vulnerabilities in their value chain activity and move critical business operations to less terrorism-prone regions to avoid disruption in their business activities due to terrorism.

Table 2.12: Different size of firms and management practices to deal with terrorism

			Comparison of means				
Management practices to deal with terrorism	**Overall**	**Small**	**$DIFF_{SM}$**	**Medium**	**$DIFF_{ML}$**	**Large**	**$DIFF_{LS}$**
Safety arrangement for visiting customers	2.36	3.21	**1.16*****	2.05	0.12	1.93	**-1.28*****
Preparedness for financial, medical, and psychological help	2.72	3.11	**0.47***	2.64	0.21	2.43	**-0.68*****
Increase in safety stocks of inventory	2.73	3.19	**0.56****	2.63	0.21	2.42	**-0.77*****
Rely on suppliers from multi-locations rather than single location	2.74	3.44	**0.64****	2.8	**0.79*****	2.01	**-1.43*****
Rules of succession for every leading position	2.79	4	**1.68*****	2.32	0.13	2.19	**-1.81*****
An escape and security plan in place	2.8	3.76	**1.32*****	2.44	0.11	2.33	**-1.43*****
Preparedness for the rapid repair and replacement of physical capital	2.8	3.69	**1.06*****	2.63	**0.45***	2.18	**-1.51*****
Increase in the number of security staff	2.86	3.35	**0.59****	2.76	0.24	2.52	**-0.83*****
Contingency transportation arrangements	3.02	3.27	**0.6****	2.67	**-0.51***	3.18	-0.09
Identifying vulnerabilities in internal value chain	3.14	3.16	0.17	2.99	-0.31	3.3	0.14
More material supply from less terrorism-prone areas	3.16	3.34	0.14	3.2	0.26	2.94	-0.4
Rely on government measure to counter terrorism	3.38	2.73	**-0.74****	3.47	-0.43	3.9	**1.17*****
Terrorism contingency plan	3.39	4.34	**1.27*****	3.07	0.19	2.88	**-1.46*****
Critical operations movement to less terrorism-prone areas	3.64	3.89	0.37	3.52	-0.02	3.54	-0.35
Decentralized operations and buildings	3.68	4.32	**0.84****	3.48	0.18	3.3	**-1.02*****
Decentralized decision-making	3.88	4.47	**1.03*****	3.44	-0.38	3.82	**-0.65***
Employees training in case of terrorism	3.88	4.55	**0.9****	3.65	0.13	3.52	**-1.03*****
Sharing terrorism risk and anti-terrorism measures with customers	4.3	4.61	0.53	4.08	-0.17	4.25	-0.36
Employees extra insurance and higher wages	4.42	5.15	**1.08*****	4.07	-0.06	4.13	**-1.02*****

Notes: Overall firms = 204, Small firms = 62, Medium firms = 75, Large firms = 67
*p-value <0.1, ** p-value <0.05, *** p-value <0.01
$DIFF_{SM}$ means the difference of means between small firms and medium firms
$DIFF_{ML}$ means the difference of means between medium firms and small firms
$DIFF_{SM}$ means the difference of means between large firms and small firms

Medium firms and large firms are statistically significantly different from small firms because they develop a protection core for their business dimensions against terrorism (see

Table 2.12, column 4 & 8). Medium firms and large firms employ different management practices from small firms to enhance the resilience amid terrorism, such as: 1) Arranging safe traveling of customers to visit Pakistan, 2) Preparing for financial, medical, and psychological help, 3) Increasing safety stocks of inventory, 4) Relying on suppliers from multi-locations rather than single location, 5) Adopting rules of succession for every leading position, 6) Providing an escape and security plan in place in case of terrorist incidents, 7) Preparing for the rapid repair and replacement of physical capital, 8) Increase in the number of security staff, 9) Contingency transportation arrangements (only medium firms), 10) Terrorism contingency plan, 11) Decentralized operations and buildings, 12) Decentralized decision-making, 13) Employees training in case of terrorism and 14) Offering employees with extra wages and insurance.

Due to the scarcity of resources, small firms rely on government anti-terrorism policies and regulations to safeguard their business operations. Small firms are statistically different from medium firms and large firms because of their dependency on the measures of the government to create a safe business environment. Large firms have more resources to enhance their resilience against terrorism through employing management practices against terrorism. Large firms are significantly different from medium firms because large firms rely on suppliers from multi-locations rather than single location; they are better prepared for the rapid repair and replacement of physical capital (see Table 2.12, column 6).

Medium firms are statistically different and better in using contingency transportations plan to mitigate the risk of terrorist incidents while transporting supplies to the customers in comparison to large firms.

Table 2.13: Firms location and management practices to deal with terrorism

				Comparison of means						
Management practices to deal with terrorism	**Overall**	**Khi**	**Fsd**	**$DIFF_{FS}$**	**Skt**	**$DIFF_{LS}$**	**Lhr**	**$DIFF_{FL}$**	**Mtn**	**Rwp**
Safety arrangement for visiting customers	2.36	2.47	2.09	0.13	1.97	**0.75***	2.72	-0.63	3.00	1.00
Preparedness for financial, medical, and psychological help	2.72	2.67	2.66	0.19	2.47	**0.85****	3.32	-0.66	3.00	2.00
Increase in safety stocks of inventory	2.73	2.71	3.22	**0.97****	2.25	0.51	2.76	0.46	3.50	2.00
Rely on suppliers from multi-locations rather than single location	2.74	2.78	2.41	-0.03	2.44	**0.96****	3.40	**-0.99****	3.00	1.00
Rules of succession for every leading position	2.79	2.82	2.41	-0.28	2.69	0.55	3.24	**-0.83***	3.50	2.00
An escape and security plan in place	2.80	2.78	2.38	-0.50	2.88	0.61	3.48	**-1.11****	2.50	1.00
Preparedness for the rapid repair and replacement of physical capital	2.80	2.95	2.34	-0.41	2.75	0.21	2.96	-0.62	2.00	1.00
Increase in the number of security staff	2.86	2.76	2.75	-0.19	2.94	0.46	3.40	-0.65	3.50	1.00
Contingency transportation arrangements	3.02	3.20	3.66	**1.91*****	1.75	**1.29*****	3.04	0.62	2.50	4.00
Identifying vulnerabilities in internal value chain	3.14	3.08	3.41	0.56	2.84	0.52	3.36	0.05	5.00	2.00
More material supply from less terrorism-prone areas	3.16	3.00	3.34	0.66	2.69	**1.51*****	4.20	**-0.86***	3.50	3.00
Rely on government measure to counter terrorism	3.38	3.48	2.69	**-1.19****	3.88	-0.52	3.36	-0.67	1.00	4.00
Terrorism contingency plan	3.39	3.30	3.13	**-0.84***	3.97	-0.33	3.64	-0.52	1.50	1.00
Critical operations movement to less terrorism-prone areas	3.64	3.55	3.84	0.34	3.50	0.38	3.88	-0.04	5.00	2.00
Decentralized operations and buildings	3.68	3.64	3.56	-0.25	3.81	0.15	3.96	-0.40	2.50	2.00
Decentralized decision-making	3.88	3.75	4.22	0.28	3.94	-0.02	3.92	0.30	3.00	6.00
Employees training in case of terrorism	3.88	3.91	3.50	-0.25	3.75	0.65	4.40	**-0.90***	4.00	4.00
Sharing terrorism risk and anti-terrorism measures with customers	4.30	4.20	4.25	0.16	4.09	0.91	5.00	-0.75	5.50	4.00
Employees extra insurance and higher wages	4.42	4.65	4.31	0.59	3.72	0.72	4.44	-0.13	4.00	4.00

Notes: Khi = Karachi, Fsd = Faisalabad, Skt = Sialkot, Lhr = Lahore, Mtn = Multan, Rwp = Rawalpindi
Overall firms = 204, Khi = 112, Fsd = 32, Skt = 32, Lhr = 25, Mtn = 2, Rwp = 1
*p-value <0.1, ** p-value <0.05, *** p-value <0.01
$DIFF_{FS}$ means the difference of means between firms in Faisalabad and Sialkot
$DIFF_{LS}$ means the difference of means between firms in Lahore and Sialkot
$DIFF_{FL}$ means the difference of means between firms in Faisalabad and Lahore

Sialkot is an exporting and a relatively peaceful city of Pakistan. Firms in Sialkot are innovative in comparison to firms in Lahore as they provide safety arrangements for foreign visitors, preparedness for financial, medical and psychological help, rely on supplier from multi-locations rather than single location, adopt a contingency transportation plan, and garner more material supply from less terrorism-prone areas (see Table 2.13, column 7).

Business community in Sialkot has a different approach to look at the issue of terrorism. Firms in Sialkot employ management practices that are statistically and significantly different from firms in Faisalabad because they focus more on safety stock and contingent transportation plan (see Table 2.13, column 5). On the other hand, firms in Faisalabad are statistically different from Sialkot firms (see Table 2.13, column 5) because they rely on government measure to counter terrorism; these firms have formalized a program designed to reduce the probability of terrorist attacks and to deal with the terrorist if an attack occurs (i.e. terrorism contingency plan).

Firms in Faisalabad have statistically significant different management practices than firms in Lahore, as firms in Faisalabad rely on suppliers from multi-locations. They have rules of succession for every leading position, an escape and security plan at place, more material supplies from less terrorism-prone areas, and employees' trainings in case of terrorism (see Table 2.13, column 9).

2.5. Discussion

The results of this study give insights that terrorism affects the business dimensions of firms export intensity, sizes, and locations; and firms adopt management practices to deal with terrorism.

Firms' export-intensity

In general, terrorism has affected the business dimensions of exporting and non-exporting firms. The risk of exporting firms is higher due to complex and beyond control trustworthiness and reliability in the eye of foreign customers (Zeneli et al., 2018). For example, due to high frequency of terrorist attacks in Pakistan, foreign customers are reluctant to visit Pakistan. The uncertainty associated with terrorist attack affects firms through rising

insurance premium (Czinkota et al., 2005), disruption in international value chain (Czinkota et al., 2004), and loss in revenues (Oetzel & Oh, 2013). Non-exporting firms are suffering more due to longer delivery times of the material for production (Czinkota et al., 2005, 2010). Sialkot and Faisalabad have mostly export-oriented firms, however, not directly attacked by terrorists in recent years. Karachi is a city that has a representation of export and non-export firms. The analysis of firms located in Karachi helped in understanding the mechanisms through which firms are affected due to terrorism.

Our empirical results (see Table 2.5) suggest that non-export firms are more concerned about terrorism and affected more due to terrorism in Karachi. Firms dealing with customers in the local market are suffering delays in supplies (Czinkota et al., 2005). A non-exporting firm "A" has shared:

> "Both (terrorism in and outside the city) will be affected, but Karachi is more sensitive to any uncertain activity. It has different dynamics for business operations to customers' psychology in local and international market. Our labor will be at their home or safe place in case of terrorism in Karachi…" [Interview conducted on March 27, 2018]

Non-exporting firms deal with customers in various geographic locations in Pakistan. They identify vulnerabilities in the internal value chain and prefer to move critical operations to less terrorism-prone regions (Frey, 2009).

Terrorism has declined the demand from exporting firms from the foreign customers (Czinkota. 2002; Czinkota et al., 2010). Due to safety concerns, foreign customers get reluctant to visit Pakistan. The perception in the mind of foreign customers disturbs business ties (Czinkota, 2002). An export-oriented firm "B" has stated:

> "Its effect is almost the same because we are located in Faisalabad. Where the terrorists activity is, you can say, 1 percent of total, but factor is, we have to pay the cost when customers are not travelling. Before that customers most frequently

> come to visit our factories different in Faisalabad area. But now, you can say it can be reduced like 99 percent customers are not willing to come to Pakistan… " [Interview conducted on January 10, 2018]

Exporting firms apply management practices to deal with the negative effect of terrorism on business operations to retain foreign customers. Exporting firms provide safety arrangements to foreign customers and rely on multi-location suppliers rather than a single location. They are prepared for rapid repair and replacement in case of terrorism, pay extra insurance and wages (Liou & Lin, 2008), and have adopted rules of succession of every leading position (Frey, 2009).

Firms exposed to risk develop certain management practices for the continuation of the business activities. Firms based in uncertain environments benefit from internationalization because they have gone through an organizational learning process that equipped them with the tools to manage unpredictable market and regulatory changes (Cuervo-Cazurra et al., 2019; Cuervo-Cazurra & Genc, 2008; Holburn & Zellner, 2010).

Firms' size

The size of the firms determines the number of resources that are available to deploy in case of an emergency. In our sample, medium-sized firms are mostly engaged in export business. Similarly, foreign customers are sensitive to the issue of terrorism (Czinkota et al., 2010). In our analysis, it is evident that medium-sized firms are more at terrorism-driven risk. These results suggest that medium-sized firms' customers are reluctant to visit Pakistan because foreign customers have more options to avoid a terrorism-ridden city or country. Thus, medium-sized firms are more concerned about the effect and threats of terrorism. Firm "C" has stated:

> "Economy is hitting too much, because international customer, overseas customers are not coming due to attack. Because we are living so on daily basis,

> we see and we live in same culture. But the people who are coming from outside, not same culture, they see these issue; they feel afraid…" [Interview conducted on January 10, 2018]

Small firms are less concerned about terrorism. Firstly, there are limited resources to counter-terrorism and, secondly, small firms are mostly dealing in the local market that makes them less concerned about foreign customers because they have nothing to lose. Firm "D" has shared:

> "Terrorism is not a problem for local market. It does affect our foreign business partners. But it is also not that serious, we deal in imports from China, so they are only concerned with money they get from us. If we were exporters then it could have affect our businesses more dangerously. In local business we get familiarized with such uncertainties and find solutions accordingly. Outside Karachi terrorism doesn't affect our business at all…" [Interview conducted on March 27, 2018]

However, large firms have abundant resources that can be deployed to avoid inconvenience in business operations due to terrorism (Greenbaum, LaFree, & Dugan, 2007). A respondent from a large firm "E" summed up the impact of terrorism on business operations:

> " I would say, in our case, it affects our customers more because our customers are more concerned with all the things are going bad in Pakistan, with the price will dramatically go up and shipment would not come on time…" [Interview conducted on January 9, 2018]

Furthermore, large firms face the problem of foreign customers' reluctance to visit them in Pakistan. Large firms manage the issue of foreign customers by meeting them at a trade fair or arranging a meeting in third place.

The confidence and trust of customers is the most important factor for the export of supplies to a foreign destination (Zeneli et al., 2018). Firms in emerging markets might adapt in response to the threats and shocks to survive (Gao et al., 2017). A favorable reputation can

ensure adaptations which are seen as a signal of behavioral drift that dissuaded future transactions. Moreover, medium and large firms pay more attention to ensure safety arrangements for visiting customers.

Small firms are less likely to survive external shocks due to "liability of smallness" (Aldrich, 1999). Small firms are not equipped with sufficient resources to offer extra facilities to their customers. They are mostly battling for their survival. The owner of a small firm "F" shared experience about doing business in a terrorism-ridden city:

> "Obviously, attack in Karachi gives a serious blow to my business. Other city attack is less severe for my business operations…" [Interview conducted on March 27, 2018]

Terrorism damages medium-sized firms severely because their high percentage of revenue depends on foreign sales. They have to comply with the demand of importers. Sometimes they are bound to pay extra insurance for the supply of goods (Knight & Czinkota, 2008; McIntyre & Travis, 2006; Wernick, 2006). Terrorism interrupts the supply chain and alternative mode of supply (Czinkota et al., 2005, 2010) also adds the cost of doing business for medium-sized firms. Large firms manage interruptions in the supply chain through safety stocks (Czinkota et al., 2005; Knight & Czinkota, 2008; Sheffi, 2001, 2005; Suder, 2006).

Furthermore, large firms usually operate in more than one location, so they rely on multi-locations suppliers rather than a single location (Wernick, 2006; Suder, 2006). Firms also face a challenge of longer delivery time (Czinkota et al., 2005). Therefore, medium-sized firms' devise a contingent transportation plan (Barnes & Oloruntoba, 2005; McIntyre & Travis, 2006; Suder, 2006). In our results, terrorism has affected medium-sized firms' businesses more because uncertainty in the global supply chain leads to a decline in demand from foreign

customers (Czinkota et al., 2004; Czinkota, Knight, Liesch, & Steen, 2005, 2010; McIntyre & Travis, 2006; Suder & Czinkota, 2005).

Firms' location

Environmental scanning is a key step in the planning process for firms to identify vulnerabilities in firms' value chain (Zeneli, Czinkota, & Knight, 2018). The level of uncertainty in a terrorist-ridden city can be different for firms from a non-terrorist incident city. Similarly, the effect of terrorism on the business dimensions of those respective cities is different. This implies that the management practices of firms to counter the threat will also vary accordingly. The results of our analysis also explain that the effect of terrorism is more severe on the firms located in Karachi in comparison to firms based in Sialkot. The last two-decade terrorism data show only 1 terrorist attack in Sialkot whereas Karachi suffered constantly due to terrorist attacks.

The uncertain business climate has affected the visit of foreign customers to suppliers in Pakistan. Firms located in Faisalabad have suffered from foreign customers' reluctance to visit their factory. Additionally, a firm "G" from Faisalabad explained:

> "Faisalabad is the most peaceful city of Pakistan. We had no terrorism in past two decades. We are mostly dealing with local suppliers and market. Our customer base is also within region. We are least bothered by the terrorism in other cities. It sometimes affects our supplies from foreign market. But it is not that problematic. If there is terrorism in our city, then the consequences would have been more serious. " [Interview conducted on March 27, 2018]

Terrorism-driven fear has forced firms to spend money on the insurance of goods (Czinkota, Knight, & Liesch, 2004). Karachi is the backbone of Pakistan business activities; firms operating in Karachi are paying more insurance for sustainable business operations. A Karachi based firm "H" stated:

> "Karachi is the economic hub of Pakistan. Terrorism in Karachi is not only a problem to our economy, but it has a direct effect on our business as well. We have been affected and disturbed by terrorism in Karachi and Pakistan. We face supply chain and cost problem due to terrorism. This is a big concern for our business. We have to pay more to our employees. We have now alternative supply chain strategy to make our business less risky in case of terrorism in our city. We are providing special offers and facilities to our customers to retain them. We are very open with our customers to make things more transparent for our survival…" [Interview conducted on March 28, 2018]

Terrorism has also increased the supply chain cost of firms. In peaceful conditions, firms can use conventional supply chain processes using road-cargo or rail-cargo. Due to terrorism, firms in a peaceful city reduce dependency on other problematic cities[12] and devise innovative global supply chain, for example, firms in Sialkot established an airport with the support of private sector firms. Thus, business community in Sialkot has initiated the air-cargo services to ensure the supply of goods to foreign customers. A Sialkot based firm "I" explained:

> "Sialkot business community is very proactive…own airport for the convenience of the foreign customer…" [Interview conducted on April 12, 2018]

In a terrorism-ridden city, firms face disruptions in day-to-day business activities. For example, transportation of goods is disturbed amid terrorism for several days (Wernick, 2006; Suder, 2006). In order to maintain the goodwill and trust in the eye of foreign customers (Gao et al., 2017; Zeneli et al., 2018), firms opt for speedy supply options that are relatively costlier for the firms. Air-cargo increases the supply chain costs for the firms (Czinkota, Knight, Liesch, & Steen, 2010). A firm "J" based in Karachi mentioned:

> "and suppose you have a shipment to go out, it will not leave that day, if it doesn't leave that day, your shipment can be add… which means *30, 40 lakh ka jhatka air freight aik ganty mai lg gaya* (translation: 30 to 40 lacs loss in one hour due to air freight immediately)…" [Interview conducted on January 12, 2018]

[12] The more internationally diversified the supply chain, and the longer, the more variables are at play that raise the uncertainty and risk level, primarily though reducing the amount of control and visibility and increasing the number of partner... [Suder, 2006, p. 135]

Terrorist incidents in the city are not only causing shutdowns and strikes that delay the timely delivery of goods but also threaten the performance of the firms (Czinkota, Knight, Liesch, & Steen, 2005, 2010). International customers are more sensitive to the peace conditions of a country from where they have a business partner or supplier. Even a small incident of a terrorist attack is socially amplified by the media (Kasperson et al., 1988). A Sialkot based firm "K" mentioned:

> "Terroristic attacks in Karachi or any other city of Pakistan, no difference in the mind of foreign buyers. They feel it same because media create a big hype to such incidents…" [Interview conducted on April 14, 2018]

In comparison to other cities in Pakistan, Sialkot firms incorporate terrorism effects on employees in their business strategy (Czinkota et al., 2005) by taking care of their employees and paying extra costs to their labor to avoid any interruptions in production (Frey, 2009; Suder, 2006). This allows firms in Sialkot to retain skilled workers for their business operations. Firm "L" has shared:

> "Same city terrorism has a serious effect because availability of labor is important…movement of labor… production activity shall be disturbed… delivery on time… sour customer relations shall threaten business to fail…" [Interview conducted on April 14, 2018]

Management practices to safeguard business operations allow firms to gain a good reputation in the eye of customers. This notion was succinctly summed up by a firm "M" based in Sialkot:

> "Terrorism has changed our business environment. If there is terrorism in our country, the perception of our country would go negative in international market. They will be reluctant to do business with us. Our foreign customers have already switched from us to some other suppliers…." [Interview conducted on April 13, 2018]

The reputation of a firm is an intangible asset that helps firms to survive the effect of terrorism (Gao et al., 2017). Firms adopt different business strategies to attract and retain customers. Timely delivery of supplies and safety arrangement for the customers help in restoring confidence (Czinkota et al., 2005; Zeneli et al., 2018). In Pakistan, the Sialkot business community has taken innovative steps to facilitate foreign customers. They have ensured the presence of foreign customers at their doorsteps through the initiative of a private airport. This service has enabled foreign customers to safely visit customers in Sialkot even if there are terrorist incidents in other cities of Pakistan. As quoted earlier by a firm "I" based in Sialkot, business community in Sialkot is very proactive and it has established an airport for safe arrival of their foreign customers at their doorstep directly.

More recently, Sialkot has also founded an airline as well for more frequent flights from its customers' countries. Firms in Sialkot are prepared to help their employees financially, medically and psychologically. Also, these firms have increased safety stock to fulfill their commitments to the customers without any delays. Gao et al. (2017) proposed a reputation-based view of long-run survival that, emerging market firms might benefit from a reputation not only for producing quality products but also for withstanding environmental shocks.

The risk of supply chain interruptions is mitigated by relying on several suppliers rather than sticking to one supplier (Wernick, 2006; Suder, 2006). Firms avoid supply chain issues by looking for contingent transportation arrangements and multi-suppliers (McIntyre & Travis, 2006; Suder, 2006). A firm "N" situated in Karachi shared experience of alternative supply chain strategy:

> "Terrorism is negative for our business activities and economy. We have special plan to cope the issue of terrorism. Although it is disturbed our supply chain process, but we use alternative supply chain options to make our business foolproof. Economy of Pakistan will take long time to recover from the negative

> shadow of terrorism. It is not easy to turn things around overnight. It is easy to destroy business environment, but it is a big task to recover from economic disaster." [Interview conducted on March 28, 2018]

Also, firms evade human capital crisis through multiple practices such as adopting rules of succession for every leading position, anti-terrorism training of employees, and financial, physical, and psychological help of employees in case of terrorism (Frey, 2009). This allows firms business continuity even in severe business conditions. Decentralized firms are able to operate the business because in the case of terrorism firms can work in a safer location (Frey, 2009; Sheffi, 2001, 2005; Suder, 2006). Empirical findings of this chapter explain that terrorism intensity is variable among different cities. Similarly, business operations of firms are affected differently, thus, firms employ different business strategies to safeguard business dimensions against terrorism.

2.6. Conclusions

This research aimed to gather and report the first comprehensive survey and interview data of Pakistani firms dealing with the challenge of terrorism. This research provided evidence on firms' size and level of interest to prepare against terrorism. This study also gave an overview of how the variation of terrorism in various geographic regions influences firms' business strategies to protect business operations. Additionally, it explains that the preferences and expectations of firms focused on local or /and foreign markets are different. Management practices of the firms are a self-defense mechanism against terrorism. The pattern of management practices applied to protect the core of the business varies from firm to firm depending upon the size, export intensity and geographic location of the firms. Management practices of firms against terrorism enable firms to develop a safety cushion for the business

dimensions under uncertain business environment. Firms operating in difficult situations can learn from the experience of firms developing a resilience core in the context of terrorism.

This chapter calls for future research that there should be a mixed-method study to dig deeper and understand the underlying reasons that weaken the listed firms in the context of terrorism. The results of Chapter 2 show that the impact of terrorism varies from firm to firm, as management practices of the firms define resilience against terrorism differently based on their exposure to threat, available resources and intent to respond. In the next chapters of this dissertation, the relationship of terrorism with publicly traded firms is investigated using a longitudinal data to explore the intensity of terrorist incidents in different cities of Pakistan and the impact of city-level terrorism on the listed firms export performance (Chapter 3), and survival strategy (Chapter 4).

3. TERROR IN THE CITY: EFFECTS OF TERROISM ON FIRMS EXPORTS

3.1. Introduction

Terrorism is a worldwide phenomenon, with major acts since the early 1970s and a significant proliferation of terrorist attacks since the beginning of the 21st century (Institute for Economics and Peace, 2018). While the direct effects of terrorism are evidenced by numerous victims and their suffering, it also has indirect economic effects that might be intended or unintended by terrorist perpetrators (Sandler & Enders, 2008). Empirical studies provide empirical evidence of the macroeconomic effects of terrorist attacks, like terror-induced negative growth effects (Enders & Sandler, 1996; Abadie & Gardeazabal, 2003; Tavares, 2004; Chen & Siems, 2004).

Macroeconomic research suggests that international trade could be a channel through which terrorism affects economic growth. An increase in the number and intensity of terrorist attacks can adversely affect international trade. Investigating bilateral trade flows between more than 200 countries, Nitsch and Schumacher (2004) find that bilateral trade decreases by about four percent if the number of terrorist incidents doubles. The results reported by Mirza and Verdier (2014) point to negative effects of terrorism on US imports, which are mainly the result of counterterrorism security measures. Examining the time dimension of the effects of terrorist attacks, Egger and Gassebner (2015) find that terrorism displays effects on international trade in the medium run (1.5 years after an incident), whereas the short-run impact seems to be negligible. Employing a sectoral disaggregated approach, Bandyopadhyay, Sandler, and Younas (2018) report that while terrorism reduces trade in manufactured goods, it has almost no influence on the trade of primary products.

While existing research on the link between terrorism and international trade provides valuable insights, our knowledge about the microeconomic link between terrorist attacks and firms' exporting is still limited. In order to improve the identification of the relationship between terrorism and exports, this study aims to close this research gap by investigating the link between exports and terrorism at a highly disaggregated level, namely at the firm-level and city-level. Our disaggregated approach complements this research in two ways. First, this papers answers calls to consider the spatial dimension of terrorism and corresponding dynamics over time (LaFree, 2010). In particular, our disaggregated approach allows us to empirically investigate whether firm exports are affected by terrorist attacks in cities where firms are located and whether terrorist attacks in other cities affect exports via interregional spillovers. Terrorist attacks are not uniformly distributed within a country, they can vary immensely across regions and over time (Öcal & Yildirim, 2010). Thus, macroeconomic studies, based on aggregate terrorism data at the country level, tend to mask the regional variation in the level of terrorist attacks, which limits our understanding of how firm exports are affected by terrorism.

Second, going beyond the macroeconomic relationship between terrorism and international trade, this is – to the best of the authors' knowledge – the first study using firm-level panel data to empirically examine the effects that terrorism has on firm exports. Our empirical strategy allows us to control for a substantial part of unobserved heterogeneity that may affect the results of empirical studies based on country-level data. We apply a panel data estimation with firm-specific and year-specific fixed effects to eliminate variation due to unobserved time-invariant factors (stable firm and city characteristics) as well as unobserved year-specific factors (systematic factors that affect all firms and cities in a given year) that may confound the relationship between the firm export ratio and terrorism. Hence, our results

are less affected by problems of aggregation and omitted variables that would otherwise result in biased parameter estimates.

Our empirical analysis focuses on Pakistan, which, since 2002, is consistently ranked as one of the top five countries impacted by terrorism on the Global Terrorism Index (Institute for Economics and Peace, 2018). Since the economic effects of terrorist attacks are nonlinear and substantially bigger for terrorism-ridden economies (Mirza and Verdier, 2008), we argue that exports activities of firms located in those economies are likely to be severely affected by terrorism. Instead of conducting a cross-country analysis, therefore we employ a single country approach, which also implies that all firms in our sample tend to face the same institutional environment, e.g. trade regulations and legal environment. At the same time, we account for regional differences in the location of firms and terrorist incidents.

Our empirical analysis is based on a unique panel dataset containing the financial information of the State Bank of Pakistan for301 firms listed at the Pakistan Stock Exchange (PSX) from 1999 through 2014. Accounting for the regional dimension of terrorism, we assembled detailed terrorism data from the South Asian Terrorism Portal (SATP) for various regions (cities) of Pakistan over fifteen years. Based on the number of terrorist incidents, the number of fatalities, and the number of injuries we constructed a City Terrorism Index (CTI) for each city in the style of the Global Terrorism Index (Institute for Economics and Peace, 2018). Moreover, we also account for the impact of terrorism outside the city where a firm is located by constructing a distance-weighted indicator for terrorism outside a city assuming that firm exports tend to be more strongly disrupted by terrorist attacks that occurs geographically close by than by terrorism in more distant regions. Our empirical panel estimations show that there is negative and statistically significant relationship between a firm's export ratio and the level of terrorism in the cities where the firms are located. The

effects are most pronounced in the medium term, decaying slowly over time. Although we also find support for some interregional spillover effects of terrorism on exporting, firms export ratios are most affected by terrorist incidents that take place in the same city.

The rest of the paper is organized as follows: In the following section, we discuss the relationship between terrorist attacks, firm exports, and related regional dimensions. Section 3 describes our sample and the measurement of variables. The variation of the level of terrorist attacks in Pakistani cities is illustrated in Section 4. The econometric specification and estimation results are presented in Section 5. Section 6 contains the discussion of our results and conclusions.

3.2. Terrorism, Firm Exports, and Interregional Spillovers

Terrorism can be defined as "the threatened or actual use of illegal force and violence by a non-state actor to attain a political, economic, religious, or social goal through fear, coercion, or intimidation" (Institute for Economics and Peace, 2018, p.6).[13] Single terrorist attacks are fairly random and unpredictable, thereby creating, apart from physical destruction and human harm, a broader atmosphere of fear. Terrorism not only hurts private citizens and governments but also the business activities of firms – even if this is not necessarily the main intention of terrorists. On the one hand, terrorism may directly impair local business activities by destroying public infrastructure, thereby disrupting organizational and production processes. On the other, it may detract firms' international business activities through a decrease in customer demand, a reduction in foreign direct investment (FDI), as well as additional cost of doing international business due to delays and disturbances in international supply chains,

[13] According to "The Routledge Handbook of Terrorism Research," there are more than 250 academic, governmental, and intergovernmental definitions of terrorism (Schmid, 2011, see Chapter 2 on "The definition of terrorism"). Most definitions emphasize key elements like violence, fear, threats, and the disruption of public or private order.

including changes in governmental regulations and policies (Czinkota, Knight, Liesch, & Steen, 2010; Suder, 2004). In the annual Global CEO survey by PwC in 2006, terrorism and geopolitical disturbance were already judged to be a key risk for business growth by half of all interviewed CEOs. By 2015, geopolitical disturbance, mainly driven by regional conflicts and terrorist attacks, was the second most important concern for MNEs with 74% of interviewed CEOs mentioning it (PwC, 2007, 2016). Specifically, CEOs from the Middle East and Asia Pacific often regard the risk of terrorism and geopolitical disturbance to be the major business obstacle. Although terrorism is far from a new phenomenon, studies of its consequences were rare prior to the September 11, 2001 attacks in the US (Czinkota et al., 2010).

In this study, we focus on the impact of terrorism on firm export. Overall, firms' internationalization activities may be inhibited by terrorism in at least five ways. First, terrorism can be conceptualized as an increase in trading costs, like a hidden tax or tariff on trade where transportation costs associated with bilateral trade increase in sync with greater terrorism in trading countries (Egger & Gassebner, 2015; Lenain et al., 2002; Nitsch & Schumacher, 2004; Mirza & Verdier, 2008; Walkenhorst & Dihel, 2006). Second, terrorism increases uncertainty, creating an atmosphere of anxiety and distrust for business partners. Consequently, firms might be unwilling to engage in business contacts with agents operating in unsafe and risky business environments. Business plans become more unreliable, if not obsolete, while travel to terrorism prone countries becomes more dangerous and expensive (e.g., higher insurance premiums). Terrorism may deter foreign business contacts as foreigners are not only less familiar with local risk, they more readily opt for alternative business opportunities and locations than local firms (cf. Greenbaum, Dugan & LaFree, 2007; Becker & Rubinstein, 2004). There is additional pressure on firms to convince their business

partners and customers about their capabilities to absorb terrorism shocks. Although there may be alternative solutions to communicate with foreign market customers, the lack of face-to-face interaction can diminish the probability of future business deals. Third, exporting to another country may be associated with fixed costs (Helpman et al., 2008) that are affected by terrorism. Specifically, the goods and supply chain might be affected by delays and temporary disruptions due to longer inspections and stricter safety regulations (Walkenhorst & Dihel, 2006), which increases the costs of exporting (Lenain et al., 2002). Fourth, trade is indirectly affected through counter-terrorism measures put in place by the government to reduce the likelihood of future terrorist attacks, also raising the cost of doing business. Fifth, Melitz (2003) shows that more productive firms enter the export market, while less productive firms continue to produce only for the domestic market. It can be argued that firm productivity is adversely affected by terrorism, thereby influencing firm exports (Bandyopadhyay et al., 2018). A firms' trade related costs and productivity levels may not just be affected by the level of terrorism in the country where a firm is located but also by the levels of terrorism in the destination countries to which a firm exports or wants to export. In this study, we focus on the former, analyzing how terrorism at home influences domestic firms' exports.

There are numerous papers, often using gravity models, investigating the impact of terrorism on trade at the macroeconomic level. One of the first studies is Nitsch and Schumacher (2004), which examines trade flow between more than 200 countries between 1960 and 1993. They find that a doubling of terrorist attacks decreases bilateral trade by 4%. Using panel data from 177 countries covering 1968 to 1999, Blomberg and Hess (2006) find that bilateral trade falls by 5-6% if a pair of countries experiences at least one terrorist event within a year. They report this to be equivalent to a tariff of 0.65-1.46%. Comparing these figures with the worldwide applied average tariff rate of 4.65% in 1999 and 2.88% in 2015

(World Bank, 2017) suggests that countries with large amounts of terrorism experience a substantial reduction in trade flows. Moreover, trade studies separating imports from exports provide some evidence that terrorism affects imports more than exports, especially in the US and OECD (Egger & Gassebner, 2015; Bandyopadhyay et al., 2018). Egger and Gassebner (2015) employ monthly data on bilateral trade and terrorist attacks for 30 OECD countries between 1970 and 2008 in order to examine the short-run effects of terrorism on international trade. Their results suggest that the short-run impact of international terror on trade is almost negligible and that, if at all, terrorism negatively affects international trade only in the medium run (more than one and a half years after an incident). While Bandyopadhyay et al. (2018) also report small effects of terrorism on trade for OECD countries between 1995 and 2012, they also show that terrorism has a much larger effect on trade in developing countries, especially in manufacturing sectors. They find that a doubling of terrorism cuts exports in manufactured goods by 5.9%.

Overall, industrialized countries seem much less affected by terrorism (and its consequences) than developing countries (Bandyopadhyay & Younas, 2011; Sandler & Enders, 2008; Çetin, Keser, & Ay, 2019). Sandler and Enders (2008) argue that industrialized countries have more diverse and larger economic sectors, thus allowing them to faster and more efficiently reallocate resources to other sectors of the economy following terrorist events. In contrast, many developing countries still depend on a small number of sectors for their economic growth. Therefore, a major terrorist attack is a severe threat for their economic growth. Moreover, in industrialized countries, the institutions engaging in stabilizing fiscal and monetary policies are better equipped to do so, while developing countries often lack institutions that can efficiently absorb and ameliorate the economic shocks of terrorism.

In sum, the macroeconomic studies evaluating the relationship between terrorism and bilateral trade either find negative or statistically insignificant effects; the effects diminish over time such that terrorism affects trade mostly in the short to medium run (Nitsch & Schumacher, 2004; Mirza & Verdier, 2008; Egger & Gassebner, 2015). An explanation for inconclusive results is given by Egger and Gassebner (2015; p.60) who conclude, "the average terror event is relatively small and, for countries and country-pairs, infrequent. Certainly, that does not mean that terror does not matter. It says, though, that trade might be the wrong domain to look for big effects." The negative effects of terrorism on trade might be more severe at the micro-level as compared to the macro-level where effects might be blurred due to the aggregation.

We argue that this conclusion is particularly justified when focusing, for instance, on OECD countries where terrorism does not play a major role for the economy and when focusing on the analysis of macroeconomic relationships. Various developing countries suffer from frequent and severe terrorist attacks that, in turn, inhibit trade inclusion. Hence, the negative effects of terrorism on trade tend to be more pronounced for terrorism-prone countries. However, even within a terrorism-prone country, not all regions and cities are equally affected. Firms located in cities and regions with a few terrorist attacks might be less affected by terrorism than firms located in terrorist hotspots. In fact, there is tremendous spatial dispersion of terrorism, which might affect firms' business operations and exporting to varying degrees. Nitsch and Schumacher (2004, p. 424 ff.) argue, "In fact, it is possible that terrorism has almost no measurable effect on trade since the overwhelming majority of terrorist actions are operations with only local implications". While such differences cannot be considered at the country-level, at the firm level, it can be examined whether terrorism in the region where a firm is located affects its trade activities. The closer, geographically, a

terrorism incident is to a firm's location, the more likely operations are impaired. Thus, a firm-level analysis can provide better insights on the underlying dynamics of trade. In particular, it can be expected that terrorist attacks within a geographical proximity, e.g. the city where a firm is located, affect firm exports negatively.

However, it is not just near-by terrorism that may affect firm performance, like firm exports, but also terrorism further away. There are several studies analyzing neighborhood and spillover effects of terrorism on trade and economic growth. De Sousa et al. (2009) examine how US imports between 1993 and 2002 are affected by terrorism in countries exporting to the US as well as in countries neighboring the exporting countries. They show that both terrorist incidents in the exporting and neighboring countries reduce US imports. While a terrorist attack in an exporting country directly decreases imports by around 1%, it still decreases US imports indirectly by 0.5% when the terrorist attack takes place in a country that is a neighbor of the exporting country. In a subsequent work, De Sousa et al. (2010) broaden their neighborhood definition to account for cultural proximity between trading partners. They confirm their previous results for spillovers and find that US imports decrease more strongly, the closer a third country, in terms of distance and culture, is to an exporting country. Similarly, Murdoch and Sandler (2004) examine the spatial and inter-temporal relationship between civil wars on economic growth at home and in neighboring countries between 1961 and 1995 for 84 countries. They find that a civil war at home reduces economic growth by 85% in the short-run and 31% in the long-run. In addition, a civil war in a neighboring country lowers growth by 24% (30%) of the host-country effect in the short-run (long-run). Thus, the economic consequences of a civil war at home might be equivalent to three or four civil wars in countries at close proximity. These studies point to cross-country

spillover effects of terrorism and, therefore, it might be expected that interregional spillover effects exist between regions of a country.

Indeed, there is empirical evidence that terrorism has regional effects within countries. Considering the uneven regional dispersion of terrorist attacks in Turkey between 1987 and 2001, Öcal and Yildirim (2010) use geographically weighted regressions and demonstrate that regional effects of terrorism on economic growth are more pronounced in provinces with a higher concentration of terrorist incidents. Terrorist attacks might even lead to regional and city-level spillovers in specific industries like tourism. Drakos and Kutan (2003) show significant cross-country spillover effects of terrorism on the own and competitors' market shares in the tourism industry in Greece, Israel, and Turkey between 1991 and 2000. For Italy, Greenbaum and Hultquist (2006) analyze the implications of terrorist attacks on the tourism industry at a more disaggregated level, namely the city level. Terrorism within a city decreases tourist activities, but only within the current and first year after the incident, supporting previous findings that the terrorist impact on economic activities quickly decays over time (Yechiam et al. 2005, Greenbaum et al., 2007). Moreover, while the city effect in Greenbaum and Hultquist (2006) is negative, the regional/provincial effect can be positive, which might suggest cross-regional substitution effects as tourists, especially from foreign destinations, are more likely and quicker to change their behavior by choosing safer locations (cf. Neumayer, 2004).Against this background, a relevant question is whether terrorism at the local level and its interregional spillovers only affect tourism, or whether firm exports are also affected.

These studies suggest there is macroeconomic evidence for negative effects of terrorism on trade due to terrorist activities in trading partners' countries and due to cross-country spillovers of terrorism. However, evidence for the local effects of terrorism on export

activities is missing. More generally, spatial variations of terrorism within a country, and its economic consequences, are rarely analyzed. Therefore, Greenbaum and Hultquist (2006, p. 128) claim that, "Future research should use the disaggregated nature of city-level data further to more carefully examine the spatial relationships among cities and to better understand the implications of a terrorist attack on the regional economy." Empirical analyses at the city-level are meaningful because medium to large cities are the preferred targets for terrorist attacks because the number of people harmed and fear induced are maximized. Similarly, firms choose to locate in these same cities due to agglomeration economies and labor pooling (Harrigan & Martin, 2002). Hence, firms are directly and indirectly impaired by terrorism in cities and, in this study, we examine whether the export performance of firms is affected by terrorism in cities where firms are located and by the interregional spillovers of terrorism.

In order to shed light on the link between terrorism and firm exports, we employ firm-level data and city-level indicators for terrorism at the city-level and potential interregional spillovers of terrorism. Moreover, the panel structure of our data also allows us to examine the time dimension of the effects of terrorism on exports. Specifically, we expect that terrorist attacks in a city where a firm is located will negatively affect firm export ratios. We do not have, however, clear expectations with regard to the time pattern of the effects of terrorist attacks of firm export ratio since the results of existing research are inconsistent.

3.3. Data

3.3.1. Data Sources and Sample

Our empirical analysis is based on two data sources. Firm information is obtained from the "Balance Sheet Analysis" of the State Bank of Pakistan (SBP), comprising data of firms listed on the Pakistan Stock Exchange (formerly Karachi Stock Exchange). The State Bank of

Pakistan dataset covers all non-financial sector firms from all industry sectors and is considered to be the most reliable data source for listed firms in Pakistan. The dataset provides information about firms' export sales and other financial variables. The balance sheet analysis is released annually and we compiled firm-level information for an unbalanced panel of up to 482 non-financial firms listed on the Pakistani Stock Exchange (PSX) between 1999 and 2014.[14]

Data on terrorism in Pakistan between 1999 and 2014 are collected from the South Asian Terrorism Portal (SATP), which is maintained by the Institute of Conflict Management in India. The SATP comprises very detailed information about terrorist activities in South Asian countries, providing one of the most comprehensive and reliable data sources about terrorist attacks in Pakistan. Event information stems mostly from print and electronic media reports about terrorist incidents. SATP contains information about suicide attacks and bomb blasts, accounting for about 60% of all terrorist activities (cf. Gaibulloev & Sandler, 2019). More detailed information on each event is provided in text form. Since the SATP database contains detailed information about the location of terrorist attacks, we are able to assign terrorist attacks to 105 cities in Pakistan. Moreover, we also extracted all relevant information regarding the number of incidents, the number of deceased, and the number of injuries, all of which are used to construct a terrorism index for each city and year (see next section). The SATP data for Pakistan is used in research on the determinants for terrorism (Ismail & Amjad, 2014), the link between economic growth and terrorism (Shahbaz et al., 2013), as well as the impact of terrorism on FDI flows (Haider & Anwar, 2014).

[14] The final sample is based on five data reports by the SBP, namely report 1 (1999-2005), report 2 (2003-2008), report 3 (2006-2011), report 4 (2007-2012), and report 5 (2009-2014). Given that the format and structure of the SBP reports has changed over time, we harmonized and crosschecked the financial data by referring to firms' websites and annual reports.

3.3.2. Measurement of variables

One of the most common indicators for firm's export performance is the *export intensity*, our dependent variable, which is measured by the ratio of export sales to total sales (e.g., Roper & Love, 2002).

Our key independent variables are a *City Terrorism Index* (*CTI*) and an *Interregional Terrorism Index* (*IRTI*), which measure the severity of terrorism on the city and regional level. In fact, most papers assessing the impact of terrorism on trade often measure terrorism as binary variable taking the value of 1 if at least one terror attack was recorded between two trading partners and 0 otherwise (Nitsch & Schumacher, 2004; Blomberg & Hess, 2006). Alternatively, some authors count the number of terror attacks (Nitsch & Schumacher, 2004). These approaches, however, do not allow for accounting for the severity of terrorism as expressed, for example, by the number of incidents, casualties, and injured. Our paper offers a methodological advantage with respect to the measurement of terrorism. Hence, to better account for the severity of those incidents, we also consider the number of fatalities and the number of injuries. Even though all three indicators could be included separately in our regression analysis, the interpretation of the estimation results might be problematic as the three indicators are strongly correlated. For instance, the correlation between the number of injuries and the number of fatalities is 0.91. Hence, instead of including the three measures separately, we follow the approach employed by the Institute for Economics and Peace (IEP), which computes the Global Terrorism Index (GTI). This index is an indicator for the level of terrorism at the country-level. We adapted the computation of the GTI (see Institute for

Economics and Peace, 2018, p. 83) to compute a *City Terrorism Index* (*CTI*) for each city *j* in each year *t*:[15]

$$CTI_{jt} = 1 * incidents_{jt} + 3 * fatalities_{jt} + 0.5 * injuries_{jt} \qquad (3.1)$$

Our theoretical considerations let us expect that firm export performance may also be affected by terrorist attacks outside the city where it is located; e.g. by terrorism in neighboring regions or in more distant regions. In order to examine such *inter*regional effects of terrorist attacks, we constructed an Interregional Terrorism Index (*IRTI*) that measures the level of terrorist attacks in other regions. We identify 105 locations in Pakistan and measure the respective level of terrorist incidents. We argue that the impact of terrorism diminishes with increasing distance. In order to create weights reflecting the diminishing impact of terrorism, we measured the pair-wise distances between cities where firms are located and all other (104) locations using the great circle distance (geographic city centers).[16] We apply the Haversine formula, which is commonly used to calculate the distance between two points on the Earth's surface based on the longitude and latitude coordinates. The (pair-wise) weights (α_{jl}) are the inverse of the corresponding kilometer aerial distances (*D*) between a city *j* and a location *l: $\alpha_{jl} = 1/D_{jl}$*. The Interregional Terrorism Index (*IRTI*) for a city *j* in year *t, for number of cities N* is given by:

$$IRTI_{jt} = \sum_{l \neq j}^{N} CTI_{lt}\alpha_{jl} \qquad (3.2)$$

[15] According to IEP, the weighting was determined in consultation with the GPI Expert Panel. Note that our measure of CTI does not account for the total property damage from terrorist incidents in a given year. We do not incorporate such damages because the SATP database does not allow for constructing a reliable indicator.

[16] In the literature on international business, the great-circle distance between geographic centers of countries is used to measure the geographic distance (Berry, Guillén, & Zhou, 2010; Boeh & Beamish, 2012; Dai, Eden, & Beamish, 2013; Zaheer, Schomaker, & Nachum, 2012).

The measure capturing the level terrorism in the city where a firm is located as well as the interregional spillovers of terrorism is the Total Terrorism Index *TTI,* which is computed as the sum of the *CTI* and the *IRTI* for each city*j* and for each year *t*.

$$TTI_{jt} = CTI_{jt} + IRTI_{jt} \qquad (3.3)$$

At the firm level, we also include several control variables. Specifically, firm size is identified as a relevant determinant of export performance (Chetty & Hamilton, 1993; Sousa et al., 2008). In our panel data analysis, the average size of a firm is already taken into account by firm-specific fixed effects. However, in order to control for change in firm size over time, we include two additional variables that are used in the literature as indicators for firm size, namely *total sales* and *total assets* of a firm (both in logs). Financial risks may affect firms' abilities to engage in export activities (Egger & Kesina, 2013; Greenaway et al., 2007). In order to control for financial risks, we include a firm's *financial leverage* as an indicator for financial risk, measured as the ratio of total liabilities to total assets. These control variables are lagged by one year to reduce potential endogeneity problems.

Descriptive statistics and the correlation matrix for the data used in our regression analyses are provided in Tables 3.1 and 3.2, respectively. As can be seen in Table 3.2, the two control variables, total assets and sales, are highly correlated. Moreover, the pair-wise correlation between export ratio and *IRTI* is negative and statistically significant, whereas the correlations between export ratio and the other two terrorism indices, namely *TTI* and *CTI,* are statistically insignificant. Note, however, that these correlations are based on the total variation in our panel data (variation between and within firms), whereas our regression analyses are based solely on the within variation. Moreover, in our empirical analyses, we take into account that the export ratio may be affected by terrorist attacks with a longer time lag.

Table 3.1: Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max
Export ratio	19.325	28.591	0	100
TTI	287.625	316.478	2.106	2227.432
CTI	275.330	316.025	0	2164.5
IRTI	12.296	12.945	1.706	94.072
LS (ln Total sales)	14.584	1.682	5.624	19.334
LA (ln Total assets)	14.526	1.550	8.536	19.410
FL (ln Financial leverage)	0.6739	0.4529	0.0139	9.1334

Note: The number of firms is 301 and the number of observations is 2450. All explanatory variables are lagged by one year.

Table 3.2: Correlation Matrix

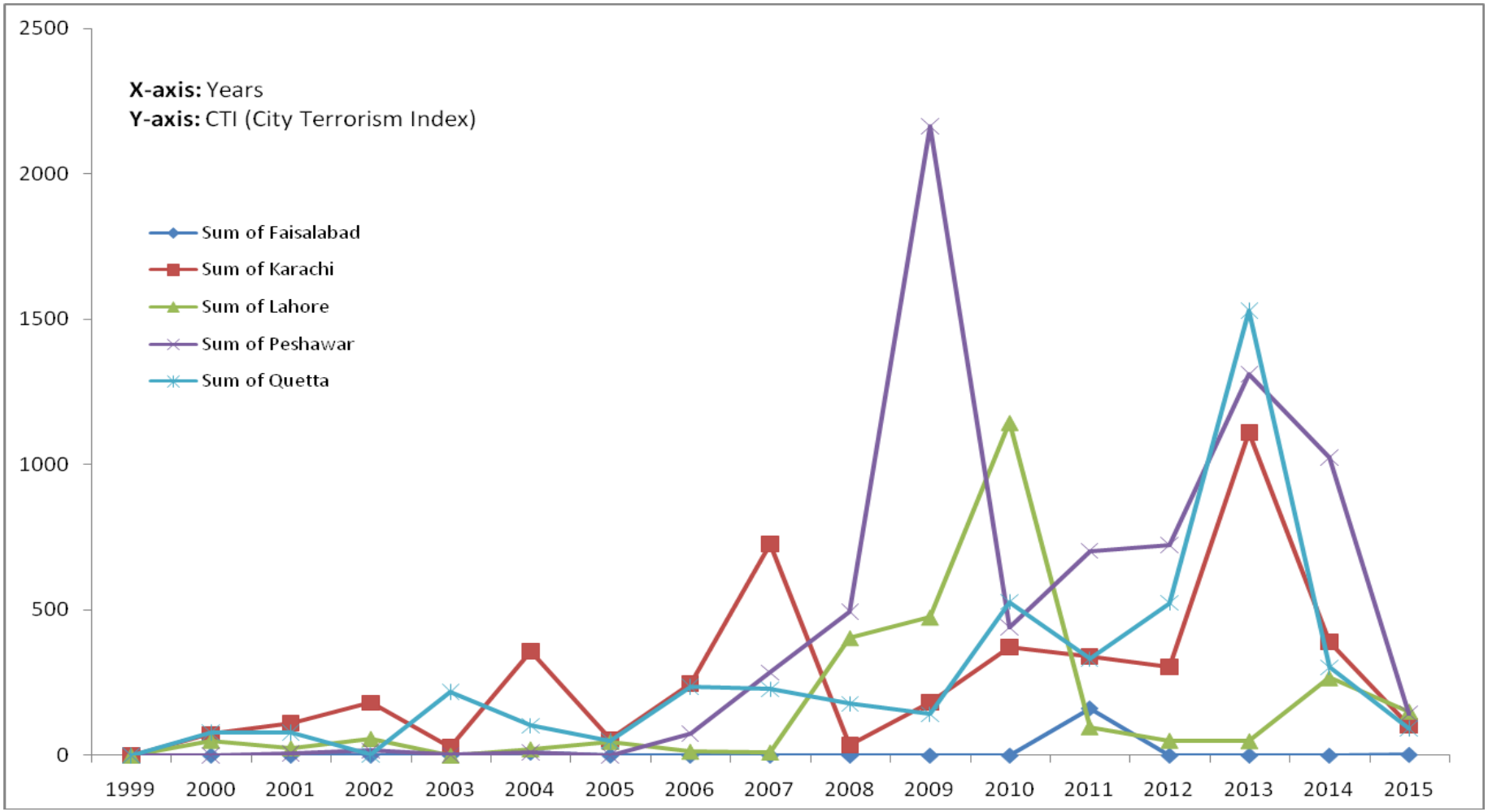
Variable	1	2	3	4	5	6	7
1. Export Ratio	1						
2. TTI	0.0271	1					
3. CTI	0.0303	0.9992*	1				
4. IRTI	-0.0803*	0.0640*	0.0250	1			
5. LS (ln Total Sales)	0.1046*	0.1038*	0.1029*	0.0268	1		
6. LA (ln Total Assets)	0.1004*	0.0820*	0.0802*	0.0508*	0.8973*	1	
7. FL (ln Financial Leverage)	-0.0226	0.0142	0.0149	-0.0174	-0.2000*	-0.1739*	1

Note: The number of firms is 301 and the number of observations is 2450. All explanatory variables are lagged by one year.* Correlation is statistically significant at $p < 0.05$

3.3.3. Variation of terrorism in Pakistan across cities and time

While 93 countries recorded one or more casualties from terrorist attacks in 2014, 79 percent of the people killed in terrorist attacks were in only six countries (rank 1 to 6): Iraq, Afghanistan, Nigeria, Pakistan, Syria, and India (Institute for Economics and Peace, 2015). Pakistan ranks 4th out of 162 countries on the Global Terrorism Index, with a score of 9.07 out of 10 for 2014 (Institute for Economics and Peace, 2015). Moreover, Pakistan has suffered from terrorism over an extended period, featuring 13 times in the list of top ten countries most affected by terrorism between 2000 and 2014. However, the intensity of terrorist attacks varies remarkably between cities (regions) in Pakistan and over time, as depicted in Figure 1 for the City Terrorism Index (CTI) in five provincial capital cities. On one hand, there are cities where the intensity of terrorism is high e.g., Peshawar, Karachi, and Quetta. On the other hand, there are cities where the intensity of terrorism is low e.g., Faisalabad. While terrorism has generally increased since 2006, it is noteworthy that not all cities are affected in the same manner. The CTI peaks differ not only in their intensity (e.g., 1112 for Karachi and 2165 for Peshawar) but also across time (e.g., for Karachi in 2013 and for Peshawar in 2009).

Figure 3.1: Terrorism in cities across Pakistan (CTI index)

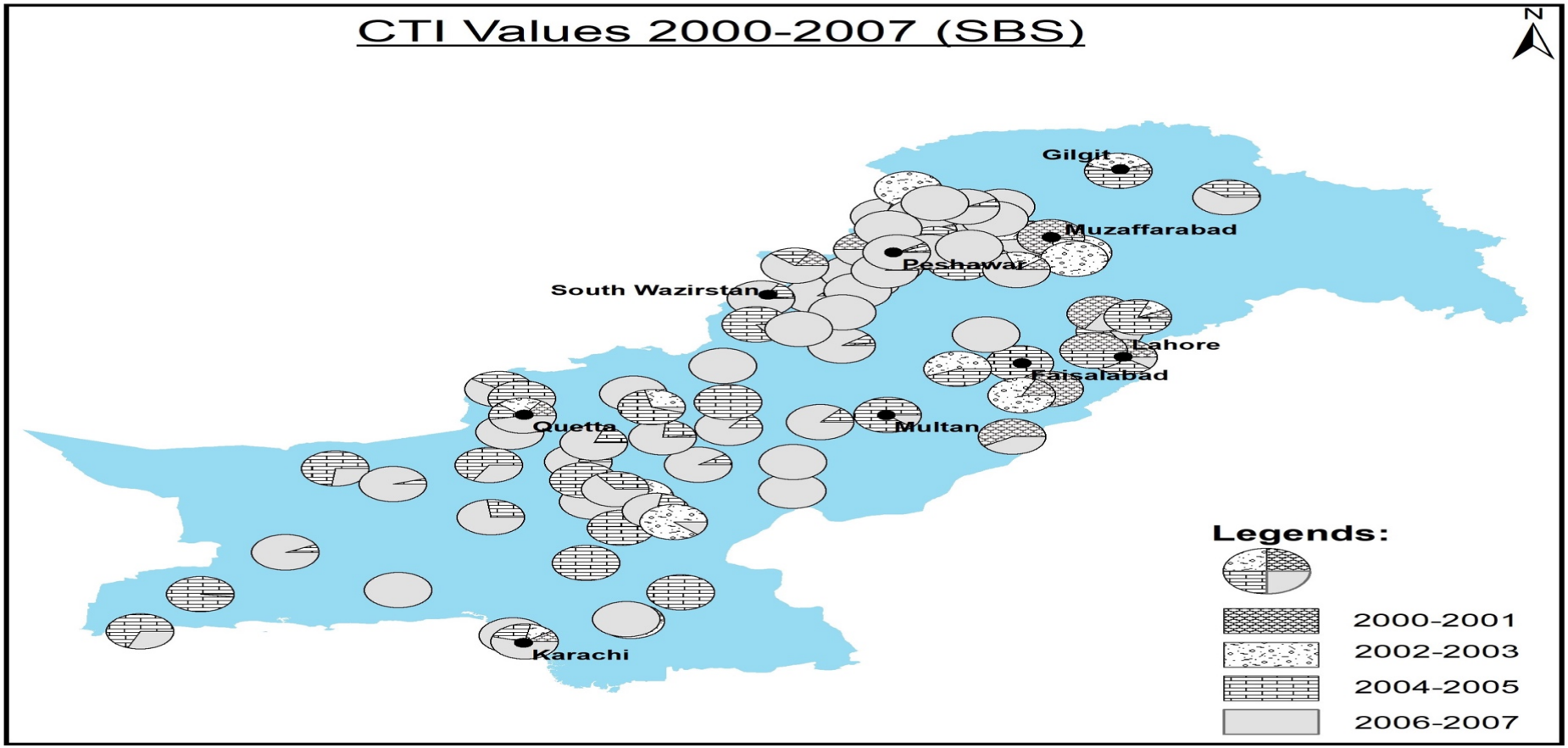


Source: South Asian Terrorism Portal (2018)

Figure 3.2 depicts the terrorism intensity for all target cities between 2000 and 2007. Each pie chart represents one city and includes the CTI intensity for up to four two-year periods. Pie charts with a single shaded pattern imply that terrorist attacks only occurred within one specific two-year time period. Pie charts with multiple patterns imply that terrorism occurred in more than just two years. The larger the relative CTI value within a time period, the larger is the shaded area within each pie. For 2000-2001, only very few cities are affected by terrorist attacks. Subsequently, more and more cities are targeted, especially in the north-west frontier provinces of Baluchistan and Khyber PakhtunKhwa (KPK), which share a common border with Afghanistan.

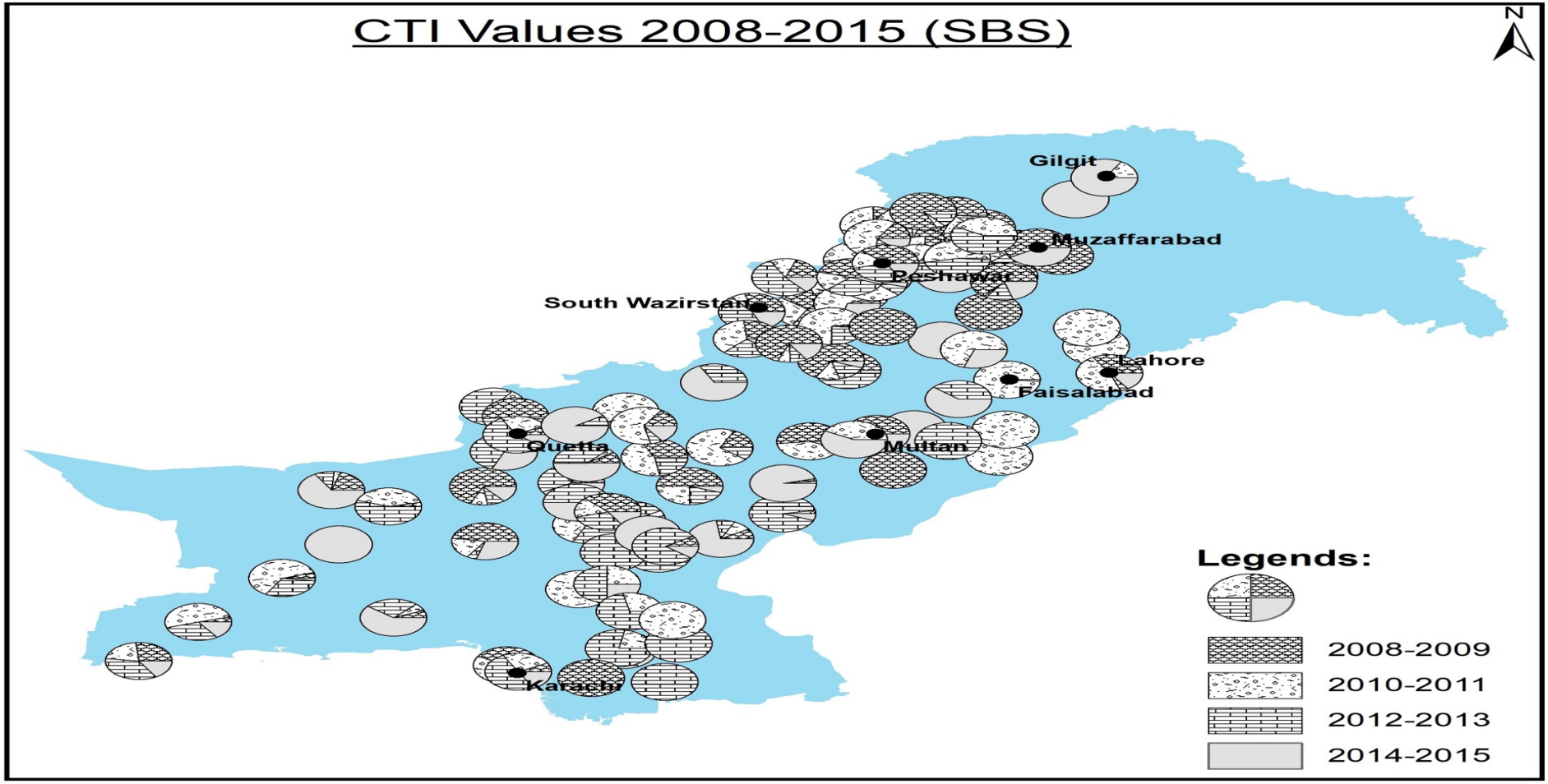
Analogously, Figure 3.3 shows the terrorism intensity for cities affected by terrorism between 2008 and 2015. There is a rapid expansion of terrorism across the entire country, with a shift of terrorist activities from Baluchistan and KPK to new cities in the eastern provinces of Punjab and Sind. Overall, the descriptive findings show that terrorist incidents and intensities can vary remarkably between cities (regions) and across time, supporting the notion that terrorist incidents in Pakistan are rather unpredictable and random. Consequently, cross-county and country studies, which look at the country as a whole, mask any sub-national variation, thereby not accounting for the heterogeneity in terrorism across cities and time. Hence, in our empirical analysis, we focus on the geographical and inter-temporal dispersion of terrorism in Pakistan.

Figure 3.2: City Terrorism Index (*CTI*) in Pakistani cities for the 2000 to 2007 period



Notes: Each circle represents the CTI intensity for a given city or region in the case of FATA, Gilgit-Baltistan, and Azad Kashmir. Patterns within the pie show the accumulated value of CTI for two years (e.g., 2000-2001). Dot in the circle represent the geographic location of the labeled city (provincial capital) in the map of Pakistan.

Figure 3.3: City Terrorism Index (*CTI*) in Pakistani cities for the 2008 to 2015 period



Notes: Each circle represents the CTI intensity for a given city or region in the case of FATA, Gilgit-Baltistan, and Azad Kashmir. Patterns within the pie show the accumulated value of CTI for two years (e.g., 2008-2009). Dot in the circle represent the geographic location of the labeled city (provincial capital) in the map of Pakistan.

3.4. Econometric specification and results

3.4.1. Econometric specification

Our panel data allow us to control for unobserved heterogeneity in different ways. We account for firm-specific fixed effects, controlling for all unobserved variables that do not change over time. Such unobserved variables could be, for instance, a firm's management quality or the institutional environment of the region (city) where the firm is located. Moreover, we control for unobserved time-specific fixed effects such that we control for all variables that affect all firms in a respective year in the same way, e.g. business cycle effects. Our estimation model is given by,

$$ER_{ijt} = \beta_1 + \sum_{\tau=1}^{T} \propto_{\tau} TTI_{jt-\tau} + \beta_2 FL_{it-1} + \beta_3 LA_{it-1} + \beta_4 LS_{it-1} + \gamma_i + \gamma_t + \in_{it} \quad (3.4)$$

where ER_{ijt} is the export ratio of firm *i (percentage of export sales in total sales)* located in city *j* in year *t*, γ_i is a firm-specific fixed effect, γ_t is a time-specific fixed effect, and $\in_{it}$ is an error term. The independent variables of interest are the lagged values of the Total Terrorism Index (*TTI*) where the maximum lag is 5 (T=5). Moreover, we include three control variables, namely the logarithm of financial leverage (*FL*), the logarithm of sales (*LS*), and the logarithm of total assets (*LA*). Furthermore, all explanatory variables are lagged one year for two reasons: First, terrorist attacks occurring at the end of a year, for instance, cannot affect export ratios in preceding months (also known as time aggregation bias) and by using lagged values we can rule out such cases (Egger & Gassebner, 2015). Second, lagged values reduce potential endogeneity problems. Finally, we take into account that the error terms of firms that are located in the same city may not be independent and, therefore, we make use of cluster-robust standard errors, i.e. robust errors are clustered at the city-level.

3.4.2. Regression results

The estimation results for the panel of 301 listed firms are reported in Table 3.3. All estimations include firm-specific fixed effects, time-specific fixed effects, and control variables. Cluster- robust standard errors that are adjusted for intra-cluster correlation within cities are reported in parentheses. Since the firms in our sample are located in only 21 different cities and "few" clusters may lead to a downward-biased estimate of the cluster-robust variance matrix (Cameron and Miller, 2015), we provide the confidence intervals of coefficients, as generated by the wild cluster bootstrap method proposed by Cameron et al. (2008). These confidence intervals are reported in brackets.[17]

Columns (1), (2), and (3) report the results of regressions where lagged values of the Total Terrorism Index (*TTI*), City Terrorism Index (*CTI*), and Interregional Terrorism Index (*IRTI*) are separately included as explanatory variables. Moreover, firm-specific control variables are included in all three regressions. The estimated coefficient of the logarithm of sales is positive and statistically significant at a five or ten percent level, thus indicating that higher sales in the preceding year lead to a higher export ratio in the current year. The estimated coefficient of the leverage ratio is negative and statistically significant at the one percent level indicating that financial risks tend to reduce firms' export performance. The estimated coefficients of the annual growth rate of sales and the logarithm of total assets of a company are statistically insignificant.

In column (1), the sign of the estimated coefficients of the lagged values of *TTI* is always negative and statistically significant at the five or one percent significance level for lag 2 to lag 5, while it is not statistically different from zero at conventional levels for lag 1. The 95

[17]In order to compute the confidence intervals, we employed "cgmwildboot.ado" for Stata and fixed the number of replications to 4,000 for all regressions. The confidence interval reports the 5th and 95th percentiles of the coefficients from the bootstrap iterations and is based on the empirical distribution of coefficients.

percent confidence interval for each of these coefficients, as generated by wild cluster bootstrap method, confirms this finding. Hence, our estimation results suggest that terrorist attacks that occurred inside and outside a city during the past five years have a negative impact on firm export ratios. Next, we include the *CTI* and *IRTI* separately into our regressions in order to check whether firms' export ratios are mainly affected by terrorist attacks within the city where a firm is located or by terrorist attacks in other regions of Pakistan. Column (2) reports the results of a regression where only the lagged values of *CTI* are included. The pattern coefficient estimates are very similar to those for the *TTI* variable. This result implies that terrorism in a city negatively affects the export performance of firms in the same city.

In contrast, column (3) shows that the estimated coefficients of the lagged values of *IRTI* are negative, but only statistically significant at the five percent level for lag four. The estimated coefficients of the other lagged values of IRTI are statistically insignificant at conventional levels of significance. This suggests that the negative effects of terrorism on firms' export ratios might be more severe if terrorist attacks take place in the same city. Hence, our results are in line with Nitsch and Schumacher (2004), who argue that terrorism has mostly a local impact.

Moreover, columns (1) and (2) show that the estimated coefficients of the first lag are very small and statistically insignificant, whereas the sizes of the estimated coefficients are similar for lags 2 to 5, suggesting that the marginal effect of terrorism on firm export ratio seems to be quite stable over a period of four years. Instead of including all lagged values of *TTI* separately, we assume that the marginal effects of four years are identical and compute the *sum of TTI* (*STTI*) for a four-year period: $STTI_{jt} = \sum_{\tau=2}^{T} TTI_{jt-\tau}$ with *T=5.* In a similar way we also compute unweighted sums for *CTI* (*SCTI*) and *IRTI* (*SRITI*).

Table 3.3: The Relationship between Export Ratio and Terrorism

	(1)	(2)	(3)
Variables	**TTI**	**CTI**	**IRTI**
LAG 1	-0.000384 (0.001487)	-0.000266 (0.001042)	-0.0350484 (0.02488)
	[-0.002267, 0.007563]	[-0.0021741, 0.0016395]	[-0.080843, 0.012699]
LAG 2	-0.00216** (0.001000)	-0.002069* (0.001025)	-0.037034 (0.028666)
	[-0.003955, -0.000317]	[-0.003889, -0.000171]	[-0.088902, 0.016711]
LAG 3	-0.00239*** (0.000457)	-0.002382*** (0.000478)	0.015589 (0.035821)
	[-0.0032518,-0.001516]	[-0.003300, -0.001477]	[-0.044095, 0.075154]
LAG 4	-0.00273*** (0.000935)	-0.002643** (0.000979)	-0.058556** (0.022971)
	[-0.004461, -0.000965]	[-0.004451, -0.000811]	[-0.102088, -0.015361]
LAG 5	-0.00251*** (0.000897)	-0.00236** (0.000861)	-0.034522* (0.016837)
	[-0.004163, -0.000871]	[-0.0039144, -0.000804]	[-0.064473, 0.003856]
Sales (LS)	3.221** (0.935593)	3.201*** (0.939409)	3.210*** (0.928214)
	[1.451655, 4.946726]	[1.429953, 4.947002]	[1.48438, 4.91671]
Leverage (FL)	-3.700*** (1.162125)	-3.683*** (1.15418)	-3.968*** (1.33597)
	[-5.812023, -1.572509]	[-5.782655, -1.570508]	[-6.38667, -1.563549]
Total Assets (LA)	0.550 (1.880484)	0.554 (1.879525)	0.497 (1.868194)
	[-3.758028, 2.677444]	[-3.760867, 2.670566]	[3.665236, 2.682253]
R-squared (within)	0.0666	0.0662	0.0652

Notes: Regressions are based on a sample of 301 firms and 2450 observations. The dependent variable is firm export ratio and all firm-specific explanatory variables are lagged one year. Cluster robust standard errors that are clustered at the city level are reported in parentheses and corresponding significance levels are: *** p<0.01, ** p<0.05, * p<0.1.The 95% confidence interval reported in brackets was generated with wild cluster bootstrap method (Cameron et al., 2008).

Table 3.4: The Relationship between Export Ratio and Terrorism

Variables	(1)	(2)	(3)	(4)
STTI	**-0.002399*****(0.000541)			
	[-0.003394, -0.00138]			
SCTI		**-0.002341***** (0.000568)		**-0.002087*****(0.000702)
		[-0.003395, -0.001256]		[-0.003403, -0.000745]
SIRTI			**-0.031897****(0.014164)	**-0.026159***(0.012570)
			[-0.057438, -0.006074]	[-0.049194, -.002553]
Control Variables	YES	YES	YES	YES
Firm-specific fixed effects	YES	YES	YES	YES
Year-specific fixed effects	YES	YES	YES	YES
R-squared (within)	0.0665	0.0662	0.0645	0.0682

Notes: Regressions are based on a sample of 301 firms and 2450 observations. The dependent variable is the export ratio. Cluster robust standard errors that are clustered at the city level are reported in parentheses and corresponding significance levels are: *** p<0.01, ** p<0.05, * p<0.1.The 95% confidence interval reported in bracket was generated with wild cluster bootstrap method (Cameron er al, 2008).

Column (1) of Table 4 reports the result of a regression where *STTI* is included as an explanatory variable. The estimated coefficient is negative and statistically significant at the one percent level ($p<0.01$). Again, we also include *SCTI* and *SRITI* separately and the results of these regressions are reported in Columns (2) and (3). The estimated coefficients are negative and statistically significant at the one percent level for *SCTI* ($p<0.01$) and at the five percent level for *SRITI* ($p<0.05$). Finally, we include both *SCTI* and *SRITI* together in order to investigate whether the estimated effects are robust to jointly including both variables. As seen in Column (4), the sizes of both coefficients decrease and the estimated coefficient of *SRITI* is now only statistically significant at the five percent level.

Thus far, we have mainly focused on the statistical significance of the estimated effects of terrorist activities on the firm export ratio. A statistically significant effect does not imply, however, that the effect size of the estimated effects is economically relevant. Therefore, we provide illustrative examples of how–according to our estimation results–a higher level of terrorism affects the export ratio of firms. According to the results presented in Column 4 of Table 3.4, an increase in *SCTI* by one unit leads to, on average, a decrease in the export ratio of 0.002087percentage points. This implies that an increase in SCTI by one standard deviation would result in –ceteris paribus–a decrease in the export ratio of 1.3 percentage points. Given that the average export ratio in our sample is 19 percent, this means that it would decrease by 7 percent. An increase from the minimum value of *SCTI* to the maximum value of *SCTI* in our sample would lead to a decrease in the export ratio of 8.4 percentage points. The value of estimated coefficient of *SIRTI* seems to be comparatively high (-0.026159). However, it must be considered that *IRTI* is calculated as the distance weighted sum of the *CTIs* of 104 regions (cities). Hence, the estimated coefficient of *SIRTI* must be multiplied by the respective distance-

based weight (α); i.e. the effect of a marginal increase in the *CTI* of a city *l* on the export intensity of a firm located in city *j* is: $dEI_{ij}/dCTI_l = -0.026159*\alpha_{jl}$. Consequently, the individual effect of a marginal increase in terrorism in another city might be very small if the distance between the two cities is large but the joint effect of an increase of terrorism in all other cities might be remarkable. For instance, an increase from the minimum value of *SIRTI* to the maximum value of *SIRTI* in our sample would result in –ceteris paribus–a decrease in export intensity by 7.1 percentage points.

Our results indicate that terrorist attacks in close geographical proximity negatively affect the export ratio. This confirms the findings of previous studies showing that terrorism in a region affects firms' business activities and that the effects of terrorism are more pronounced in regions with a higher concentration of terrorist incidents (Greenbaum et al., 2007; Öcal & Yildirim 2010). We also provide some empirical evidence for interregional spillovers of terrorism similar to those reported in studies about the tourism sector (Drakos & Kutan, 2003; Enders et al. 1992; Greenbaum & Hultquist, 2006). Our results suggest that the interregional spillover effects of terrorism on firm export ratio are negative, implying that even the export performance of firms located in less terrorism-ridden cities is negatively affected by terrorist activities in other regions.

As pointed out in Section 2, there is no clear-cut empirical evidence with regard to the time dimension of the effects of terrorist attacks. While empirical studies examining the effects of terrorism on tourist activities suggest that these effects occur in the short-run (Drakos & Kutan, 2003; Greenbaum & Hultquist, 2006; Greenbaum et al., 2007), the effects on trade seem to occur with a time lag. Egger and Gassebner (2015) find that international trade is affected by terrorism approximately 1.5 years later, whereas they did not find evidence for a short-run impact. Our

results also suggest that effects on firm exports occur with a lag of about two years. In our empirical analysis, we use measures of terrorism that are lagged at least one year, implicitly assuming that a firm's export ratio in a given year is *not* influenced by terrorist attacks in the same year. While this procedure may avoid potential endogeneity problems, it also neglects short-run effects of terrorism. In order to check the robustness of our results, we also re-run our regressions with non-lagged measures of terrorism. Although not reported here, the estimated coefficients of current terrorism indices are statistically insignificant, thus providing further evidence that terrorist attacks do not affect firm export ratios in the short-run. Moreover, our results suggest that the effects of terrorism on firm export ratio do not quickly decay over time. We find that terrorist activities influence firm exports, even after five years. We also include longer lags, but results are hardly affected. However, including longer lags leads to a decrease in the number of observations and a change in the observation period; therefore, we present the results for up to five lags.

We believe that our two-way fixed-effects model allows us to eliminate a substantial part of variation that may contain time-invariant and year-specific confounding factors that would lead to biased parameter estimates. Note that including firm-specific fixed effects eliminates the between-firm variation and our parameter estimates are, therefore, based on the within-firm variation over time. Including year-specific fixed effects ensures that our parameter estimates are based on the city-specific variation in the level of terrorism. Hence, we control for all common year-specific factors that may affect firm export ratios as well as terrorist activities. Although year-specific fixed effects are statistically significant, we also conducted regressions without year-specific fixed effects, finding that the estimated coefficient of the terrorism variables tend to

become statistically insignificant, suggesting that it is important to focus on the city-specific variation in the level of terrorism.[18]

While we believe that our empirical approach improves the identification of the relationship between terrorism and exports, some caution must be exercised when interpreting the results of our regressions in a causal way. We cannot account for any change in an unobserved city-specific variable that is correlated with changes in terrorist activities in a city and, at the same time, with the change in export ratios of firms located in that city. However, as can be seen in Figure 1, our measure of terrorism at the city-level (*CTI*) does not follow a clear or systematic pattern: *CTI* may strongly increase in one year followed by sharp decline in the next year. Thus, an unobserved city-specific variable would have to follow the pattern of *CTI* to pose a real problem for our parameter estimations. Furthermore, each terrorist attack is fairly random and unpredictable, implying that terrorist attacks can be considered as exogenous shocks from firms' perspective.

3.5. Discussion and conclusion

Trade and market liberalization policies are allowing firms in emerging economies to more easily discover and exploit foreign market opportunities. Expansion in foreign markets through exporting is an important first step in the internationalization process (Aulakh, Rotate & Teegen, 2000; Johanson & Vahlne, 1977). While the export performance of emerging market firms may be influenced by various firm-specific and environmental factors (Dominguez & Sequeira, 1993; Singh, 2009), terrorism may have become a major obstacle for firms seeking to internationalize.

[18]Terrorism and firm export ratios show a positive time trend; thus, without controlling for common time-specific effects, a positive common time trend may confound the effect of terrorism on firm export ratio.

In the aftermath of 9/11, the number of terrorist attacks has dramatically increased, especially in emerging economies (Institute for Economics and Peace, 2018) yet we know little about how terrorism affects the export performance of firms.

Most existing studies focus on the macroeconomic analysis of terrorism and international trade (e.g., Egger & Gassebner, 2015, Gassebner, Keck, & Teh, 2005, Nitsch & Schumacher, 2004), pointing to negative relationship between terrorism and trade. Going beyond aggregate country-level analyses, we investigate the underlying microeconomic relationship between terrorism and export intensity using firm-level data, also accounting for location-specific and time-specific characteristics of firms and terrorist incidents. In doing so, we improve the identification of the relationship between terrorism and firm export behavior. Concentrating on Pakistan, one of the most terrorism-plagued countries worldwide, we create a unique dataset by merging information of up to 301 firms listed at the Pakistan Stock Exchange with terrorist incidents in 105 cities/regions in Pakistan between 1999 and 2014. Overall, we can confirm that terrorism negatively affects firm export performance. Interestingly, the effect is rather stable in the years following a terrorist attack, indicating that business operations might be impaired by terrorism longer than expected. Moreover, we find strong support for a city level terrorism effect, such that firm exports are affected by terrorist attacks that take place in the same city. We also provide empirical evidence of some within-country interregional spillover effects of terrorism on export ratios.

While we believe that our set-up of analyzing the relationship between terrorism and firm exports considers the spatial as well as inter-temporal dimension, our study is not without limitations. It is a single country study, thus hampering the ability to draw a conclusion for other

terrorism-plagued countries. Just comparing Pakistan, Yemen, and Israel, all suffering severely from terrorist incidents, it is clear they differ tremendously in their political, economic, and social situations. Nevertheless, Pakistan might be an exemplary country from the Middle East, where most countries are affected by the War on Terror following the 9/11 attacks in 2001 and the corresponding surge in terrorism across the region. Another limitation might stem for the fact that we use the firm headquarters as its location. While most manufacturing firms in Pakistan have their main production site at their headquarters, we cannot rule out that firms have more than one location in Pakistan. Admittedly, this is not fully reflected in the regressions. However, this would imply that our estimates for *TTI* are underestimated because terrorist attacks in locations other than the headquarters and where a firm might actually be located, enter the regression via the distance weighted measure *IRTS*. In other words, our findings on the effect of terrorism on firm exports should be even more significant considering all business locations.

Building on these findings, we shortly sketch out two avenues for future research. First, exporting is often only the first step in the internationalization of firms, meaning that FDI and imports might also be affected by terrorism, albeit in a different manner (Abadie & Gardeazabal, 2008; Bandyopadhyay, Sandler & Younas, 2014; Czinkota et al., 2004; 2010, Enders & Sandler, 1996). For example, more foreign direct investments by emerging market firms might reduce the risk of terrorism for business operations and firm performance because of factory locations in less terrorism-prone countries and cities. A larger network of locations reduces the risk that a terrorist attack fully disrupts business operations. Similarly, we only investigate firm exports, even though imports can also be affected, such that the entire supply chain might be strongly disrupted by terrorism (Bandyopadhyay & Sandler, 2014). Given that, on the macroeconomic level, the effect of terrorism is even larger for imports than for exports (Bandyopadhyay et al.,

2018), our estimation results might only constitute a lower bound and conservative measure for the effects of terrorism on the trade activities of firms.

Second, although we find that exports are negatively affected by terrorism, we still know little about the underlying mechanisms; i.e. the ways that terrorism affects firm operations. While the number of killed or injured employees might be low, especially if firms are not direct targets of terrorist attacks, the effects in terms of lower labor morale by employees, more labor turnover, resulting in higher labor cost and higher security measures, might be quite extensive. Likewise, even if physical damages are limited, as enterprise buildings are not destroyed, the supply chain might nonetheless be interrupted, suffering from delays and unpredictable processes due to e.g. longer delivery times and clearance procedures. Moreover, the overall loss of trust from customers might hamper business relations and additional orders. In particular, foreign customers, who are less familiar with the geographical distances and firm locations, might refrain from doing business with firms that operate in terrorism-plagued countries, even if a firm is situated in a comparatively safe region of the country. Finally, additional insights on the effect of terrorism on firm performance might be obtained by analyzing the counterterrorism strategies and plans of firms. So far, the effect of counterterrorism security measures on trade and social welfare is lacking in clarity (Barker, 2003; Gaibulloev & Sandler, 2019; Mirza & Verdier, 2014). Firms might have put in place formalized programs and contingency plans designed to reduce the probability of terrorist attacks and to deal with the terrorist attacks when they occur. In addition, firms could increase safety stocks of inventory and arrange for alternative transportation modes in case of disruptions. Hence, future research might investigate the mechanisms through which firm operations are impaired and evaluate firms' counterterrorism measures in order to better understand how terrorism affects firm's exporting performance.

4. TERRORISM, COMPETITIVE POSITIONING, AND LIABILITY OF LOCATION: EXIT OF PUBLICLY-TRADED PAKISTNI FIRMS

4.1. Introduction

CEO identification of an array of geopolitical disturbances as a key risk (PwC, 2016) has been preceded by academic research on firm conduct in the context of conflict zones (Dai, Eden & Beamish, 2013), war (Dai, Eden & Beamish, 2017), terrorism (Czinkota et al., 2010; Frey, 2009; Greenbaum, Dugan & LaFree, 2007) and disasters (Oh & Oetzel, 2011). Although terrorism research is not new, academic studies of its more proximate geographic influences and firm-level consequences were rare prior to the September 11, 2001 attacks (Czinkota, Knight, Liesch, & Steen, 2010). With the exception of a country-level study of changes in numbers of firms and employment associated with terrorism in Italy prior to 9/11 (Greenbaum, Dugan & LaFree, 2007), most studies focus on changes in the country-composition of MNE portfolios in relation to country-level geopolitical disturbances. For example, Dai, Eden, & Beamish (2013, 2017) considered the impact of country-level geopolitical disturbance and MNE portfolio composition on MNE subsidiary survival as a function of subsidiary presence in conflict zones or war in relation to the geographic concentration and dispersions of other home-country firms. They found that the likelihood of subsidiary survival decreased as the exposure to geographically defined threats increased and the MNE had options in other less risky country positions.

The question of whether, within a particular country, well-established independent firms exit and the manner in which they exit as a function of within-country city-proximity to terrorism and their competitive positioning (geography, industry, size within industry, export) is under-

addressed. Two aspects of this void inform why a more fine-grained, country-specific study of well-established firms is of value. First, broader consideration of the variety of persistence and exit types in relation to the effects of terrorism on resource availability is warranted. Oh and Oetzel (2017) show that not all subsidiaries exit; some MNE subsidiaries persist if they had country-specific experience with continued resource access. They argue that these business units, which we refer to as firms, can sustain legitimacy if they meet contractual and regulatory requirements associated with resource access. These are the firms who might be predisposed to acquire other firms and foster graceful exits. Second, theoretical consideration of location as a connection between within-country variation in terrorism and the competitive positioning of the firm could offer more precise insight to how terrorism functions as a locational liability for established firms. This linkage between location and exit complements study of the relationship between location and business founding (Lomi, 1995). It also permits more refined consideration of how terrorism operates as a liability. If terrorism functions like a natural hazard, it would affect firms uniformly across industries due to proximity to geographic occurrences of terrorism. If it operates as a technological discontinuity, it would affect firms disproportionately as a function of their dependence upon the technology (Tushman & Anderson, 1986). Here, remote occurrences of terrorism could still affect firms based upon their business practices as technology specific to industries and/or methods of competing within an industry can be geographically clustered or geographically dispersed (Porter, 2000; Tushman & Anderson, 1986). In sum, in contrast to Oh and Oetzel (2011), our focus is on the effects of the terrorism events on the conduct of the firm itself as a function of its competitive positioning (geographic location, industry choice, size within industry, export) rather than assumptions about a country's institutional capacity to address terrorism as a type of disaster.

This study focuses on the relationship between terrorism and the types of exit of firms from a particular resource market, the Stock Exchange in Pakistan. In the recent years, Pakistan has been especially vulnerable to terrorist attacks. In a study by the Institute for Peace and Economics (2015), Pakistan ranked 4th out of 162 countries on the Global Terrorism Index and was featured 13 times in the list of Top Ten Countries most affected by terrorism between 2000 and 2014. Prior study provides evidences that for fragile country like Pakistan (Tingbani, Okafor, Tauringana & Zalata, 2019), the extent of terrorism is related to higher insolvency risk[19]. The explanation offered is that fragile countries have weak institutions. If creditors retrieve any money, it will take longer and the amount will be less than owed. Yet, for investors and trading partners, Pakistan represents a tolerable risk because of its global presence in certain industries, especially when doing business with publicly traded firms who must provide audited annual financial reports as a condition of listing. There is evidence that the Karachi stock market is prescient and resilient in the face of terrorism; a stock market effect only occurred in the day preceding and day of the Karachi-located attack (Aslam & Kang, 2015). Furthermore, even with terrorism, Pakistan has: (1) country advantages in particular industries, most notably textiles (Knight & Czinkota, 2008), (2) a reasonably well-established efficient stock exchange that has operated since 1946 (Ali & Sharif, 2019), and, (3) formal mechanisms to address insolvency (Hasanain & Shah, 2012). The struggles and financial difficulties of traded firms are more transparent and priced. Despite some institutional challenges, a functioning market for changes in share ownership and the availability of private sources of financial capital, suggests that, beyond bankruptcy, other more voluntary stock-market exits like being acquired or going private may also occur in the context of terrorism.

[19] Insolvency risk is a terminology for the ability to retrieve monies owed in the event of firm bankruptcy.

Prior studies set the stage for further study of the relationship between the terrorism context and various types of exit. We know that the intensity of terrorist attacks varies remarkably between cities in Pakistan (Global Terrorism Database, 2017). We know that the short-lived Pakistan stock market reactions are a function of the proximity of attacks to the stock market locations and types of attacks (Aslam & Kang, 2015). However, we do not know if firms' proximity and severity of attacks are related to the exit of firms. This leads to our first research question: *What is the relationship between the location and severity of terrorism and the exit of publicly traded firms in Pakistan?* Additionally, while the cross-country comparative study (Tingbani et al., 2019) documents a general influence of terrorism on insolvency, expert informant perceptions were based upon a standard case of a hotel business, with property owned and ownership structure specified. Although the lodging and tourism industry can be a bellwether for terrorism's economic effects especially when terrorism is a repeated occurrence (Pizam & Fleischer, 2002), this study goes further to examine how terrorism affects a wider variety of firms based upon their competitive positioning (geography, industry, size and markets). A recent study of publicly traded Pakistani firms during the period of heightened terrorism focuses on stages of illiquidity but does not directly address variation in terrorism or competitive positioning (Farooq, Qamar & Haque, 2018). We do not know if within this population particular types of publicly traded firms are more affected than others. We specifically study how terrorism and competitive positioning, which we refer to as "location", are related to exit by bankruptcy. Our second research question is: *What is the relationship between publicly-traded firms' characteristics, location, and bankruptcy?*

Our theoretical and empirical approach applies a more detailed analysis of city-level terrorism impact on the exit of firms from the stock market in Pakistan. We are more precise than

the insolvency study of Tingbani and colleagues (2019) and Greenbaum and colleagues (2007) because we isolate actual bankruptcy cases, incorporate city-level measures of the location and severity of terrorism, and consider geographically-tied aspects of competitive positioning. Our terrorism measures include local and spillover effects and their severity as a sequence of events in time, allowing us to consider the relative influence of more or less geographically and time proximate terrorism. This study offers multiple contributions to organizational theory and population ecology. As such, our combination of theoretical consideration of liabilities of location, measurement refinement and thorough analysis offers a comprehensive perspective on terrorism risk that can benefit scholars, practitioners and policy-makers alike.

The paper proceeds as follows. First, we develop a model of exit as a function of location as a liability. We apply resource dependence and legitimacy logics commonly used in liabilities of age and size reasoning to locational aspects evident in the literature on competitive positioning and economic clusters. Next, we explain our method including descriptive information about the Pakistan context, data, and details about our unique fine-grained measures of terrorism; city-level measures that allow us to discern between the effects of more direct and combined direct and spillover effect of terrorist attacks. We then present the results of our predictive and exploratory analyses. The discussion that follows suggests that even though firms who previously overcame some aspects of liabilities of young age and small size (Aldrich & Auster, 1986) to become publicly listed, in the context of terrorism, can be in "the right place at the wrong time". For example, a publicly-traded, safe-city firm, geographically distant from terrorism events, encounters challenge in its supply chain process of getting access to raw materials from suppliers located in a terrorism-ridden city. We conclude with a summary of our contributions, limitations of our study, and suggestions for future research.

4.2. Theory and hypothesis

In general, explanations of firm outcomes in a population of firms include both the influence of uncertain environments, especially those with unpredictable changes in demand or disruption of dominant design (Anderson & Tushman, 2001; Suarez & Utterback, 1995), and the influence of firm attributes, specifically, age and size (Aldrich & Auster, 1986; Brüderl & Schüssler, 1990; Stinchcombe, 1965). In particular, studies of exit first address their definition of exit and accordingly, determine whether to include or exclude an assortment of voluntary and less than voluntary transitions (Kalnins, Swaminathan & Mitchell, 2006). In a study that incorporates both types of transition, Ruef and Scott (1998) empirically find that both the managerial and technical forms of legitimacy provide notable improvements in organizational survival chances but that the strength of each effect varies over time depending on the nature of institutional environment. They also explain how external and internal attributes give rise to challenges in accessing and deploying resources including concerns about firm legitimacy (Ruef & Scott, 1998).

In the case of firm attributes associated with involuntary exit, denoted as liabilities of age and size, both young-small firms and older-large firms experience exit risk (Aldrich & Auster, 1986). Young-small firms lack financial and reputational resources and organizational processes. Older-larger firms may have squandered resources and become trapped by excessive bureaucracy or leadership voids (Farooq, Qamar & Haque, 2018; Hambrick & D'Aveni, 1988). Non-exiting firms appear to have the right mix of resources and appropriately inertial processes (D'Aveni, 1989; McKelvey & Aldrich, 1983). Access to resources and well-honed processes can reduce the likelihood of failure and if used strategically, hasten the departure of others (Aldrich & Auster, 1986: 188).

Model

Our model of firm exit (Figure 4.1) develops the concept of liabilities of the location to explain the relationship between a substantive influence, terrorism, the interplay of the geography of terrorism with firm competitive positioning characteristics that include geographic location and types of firm exit. In developing the concept of liabilities of location, we connect the strategy concept of competitive positioning to our more expansive definition of location, a definition that anchors industry and buyer market choices to geographic choice. In general, terrorism gives rise to a liability of location due to geographic proximity that in turn would give rise to exit. But, the extent to which a firm experiences a liability of location also depends upon the way terrorism, geography, and the firm's competitive positioning are connected. This locational connectedness informs our understanding of why exit is warranted and whether more or less voluntary exits occur. We further explain these relationships below.

Exit. The nomenclature and mechanisms of exit pathways are often context-specific and represent a range of involuntary to voluntary moves; e.g., excommunication, defrocking, and apostasy. In the stock market, exits, which are different types of separation from access to the public capital market, are broadly referred to as delisting. Distinctions are made between three types of exit: bankruptcy[20], the least voluntary exit, exit via acquisition or merger with another firm, and exit via complete share buyback (commonly referred to as "taking the firm private",

[20] In Pakistan, bankruptcy or "court-driven liquidation" is usually done when firms violate the regulations of Securities and Exchange Commission of Pakistan (SECP) and Pakistan Stock Exchange (PSX) by non-payment of fee and non-submission of documents. Previous studies have mentioned it as a serious and hostile exit strategy. Court driven liquidation is an "external selection" exit mechanism since it involves juridical procedures that are mostly initiated or stimulated by external parties (Balcaen et al., 2011). The court-driven exit is the most unfavorable exit option for most shareholders. However, sometimes it is inevitable for firms to go bankrupt due to insufficient resources to repay all creditors (Schary 1991).

the most voluntary type of exit (Macey, O'Hara & Pompilio, 2008). More detail about the exit types are explained below.

i. Court-driven liquidation (Bankruptcy)

Firms exit via "court-driven liquidation" when they violate the regulations of SECP and PSX by non-payment of fee and non-submission of documents. This typically occurs as the culmination of failed attempts to address adversity, generate resources, and satisfy creditor obligations (Schary, 1991). The court-driven exit is especially unfavorable for shareholders as their shares no longer have value. While creditors may be able to retrieve some monies owed, their longer-run interest and the interests of others in doing business with what remains of the firm is likely more limited. "Court-driven liquidation" is a publicly visible, hostile exit strategy initiated by external parties (Balcaen et al., 2011) that creates reputational damage.

ii. Mergers and acquisitions

Merger and acquisition is another exit type. The tangible and intangible resources of firms attract interest from other firms who purchase the firm from its existing shareholders. In contrast to court-driven exit, being acquired by or joined with another established firm is a signal of some future viability of the exiting firm's resources, albeit with revised ownership and control (Balcaen et al., 2012). Changes in the share price of established firms make these deals more or less attractive. As a firm experiences difficult circumstances but it retains important resources, share price reduction makes it a more attractive target. An acquisition offers returns to former shareholders and creditors alike; departing shareholders receive cash or shares in the merged firm while creditors usually retain their standing in payment priority. Cefis and Marsili (2011) noted that mergers and acquisitions commonly occur via mergers with or sales to an established

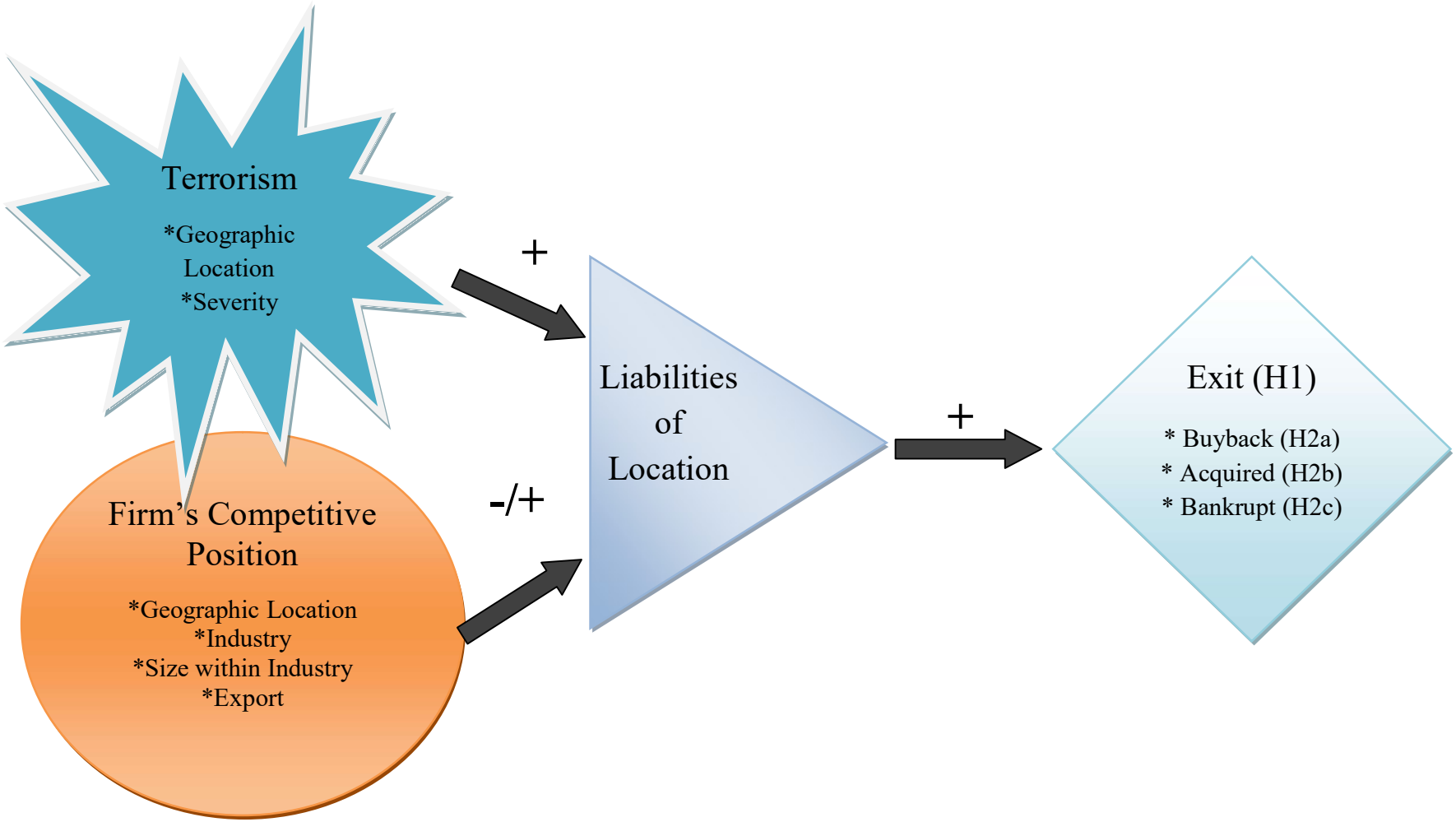
competitor. Cefis and Marsili (2007) found that innovation plays an important role in enhancing the goodwill of the firm and helps in attracting a potential buyer from the market for the merger and acquisition process. For the acquiring firm, the assumption for shareholders, suppliers, employees and customers is that the addition of resources and opportunity to consolidate and rationalize competitive interests enhances viability. Firm exit from the stock market as result of merger or acquisition is less symbolic of failure, for both the departing firm and the remaining firm.

iii. Buyback of shares

In the case of this study, buyback of shares refers to an exit type where existing owners[21] or a private equity firm deliberately buys all publicly available shares and withdraws the firm from public capital markets. It is commonly referred to as "taking the company private". In comparison to partial share buybacks or share repurchase offers where particular shareholders may seek to advantage themselves and disadvantage others (Brockman & Chung, 2001; Cudd et al., 1996; Mitchell & Dharmawan, 2007), taking the company private increases the firm's reliance on private financial capital markets while reducing its obligations to publicly disclose its financial reports. It is thought that being private provides owners with a longer decision-making

[21] This is distinct from partial buybacks where ownership interests are increased but the firm remains publicly traded or from situations where shares are bought back, the firm is considered closely-held and thinly traded. It is also distinct from a hostile takeover (Aggarwal, 2006) where former non-owners or purchase shares of a firm to establish ownership and control.

Figure 4.1: Model of Exit Due to Liabilities of Location



horizon and greater latitude in considering different market approaches that may not be well-regarded by public shareholders (Bonaime & Ryngaert, 2013).

Nonetheless, on average, firms who have successfully navigated the requirements to become publicly traded and who have invested in the systems to support the auditing and dissemination of financial reports are likely to engage in behaviors that best offer them independence of decision-making and more predictable access to financial resources. Thus, they are unlikely to exit from the stock market, even in the context of terrorism.

Terrorism. Terrorism is an especially important external influence because of its unpredictable nature. Defined as "the threatened or actual use of illegal force and violence by a non-state actor to attain a political, economic, religious, or social goal through fear, coercion, or intimidation" (Institute for Economics and Peace, 2018, p.6)[22] the overall objective is to be disruptive. Terroristic events can be initiated by a wide variety of parties with a wide variety of weapons. While a general risk of terrorism can be anticipated from historical occurrences, specific targets and mechanisms are hard to predict. In comparison to natural hazards like earthquakes, the exit of a firm due to the destruction of property from a "direct terrorist hit" is a small probability event and the destruction of multiple properties due to multiple "direct hits" has an even smaller probability.

Terrorism creates an atmosphere of fear, destruction of public infrastructure and the flight or redirection of investment capital to less troubled areas (Abadie & Gardeazabal, 2003). Firms can experience distress due to variety of factors such as: decreases in customer demand, increased

[22] According to "The Routledge Handbook of Terrorism Research," there are more than 250 academic, governmental, and intergovernmental definitions of terrorism (Schmid, 2011, see Chapter 2 on "The definition of terrorism"). Most definitions emphasize key elements like violence, fear, threats, and the disruption of public or private order.

delays in supply chains, loss of investor confidence, and changes to government regulations and policies (Czinkota et al., 2010; Oetzel & Oh, 2014). The more severe and geographically proximate terrorism is, the greater the reticence of suppliers, employees and buyers to transact with the firm resulting in negative pressure on revenues and expenses (Oetzel & Oh, 2014). It follows that:

> ***Hypothesis 1:*** *There will be a positive relationship between the severity and geographic proximity of terrorism and exit.*

Not all firms within a country will experience terrorism in the same way because where specific events occur and the severity of those events differs. As a result, some firms may recognize that conducting business will become more difficult as other cities experience terrorism, but that does not make it impossible for them to do business. They may go private by using a share buyback thus enabling managers to address the uncertainty and invest in a more defensive posture that might not be well-received in the stock exchange (Myers, 1984).

> ***Hypothesis 2a:*** *Less severe and less geographically proximate terrorism will be positively related to exit through share buyback.*

Other firms may find themselves involved in the market for corporate control as they explore potential mergers and/or respond to friendly and unfriendly takeover inquiries. Adverse circumstances, like proximate and severe terrorism, can give rise to a match between anticipated financial distress and opportunity-seeking behaviors (Jones & Hensher; 2007a, 2007b; Leroy et al., 2010, 2015). Would-be acquirers may be especially predisposed if the adverse situation makes for an attractively priced acquisition. Managers of the target firm can capture and return

the current value of the firm to their shareholders while new owners are left to address the more hostile environment (Aggarwal, 2006).

> ***Hypothesis 2b:*** *More severe and more geographically proximate terrorism will be positively related to exit through acquisition.*

As terrorism becomes more prevalent and more severe, the availability of capital to support either type of stock market transaction (share buyback or merger & acquisition) is likely more limited. Private equity and FDI sources may be constrained (Bandyopadhay & Younas, 2014). When there are multiple occurrences of terrorist attacks (Pizam & Fleischer, 2002) that are geographically proximate to the firm and these attacks result in large numbers of death or injury, it is more likely that resource limitations and their associated legitimacy concerns lead to and compound the negative financial effects. It follows that:

> ***Hypothesis 2c:*** *More severe and more geographically proximate terrorism will be positively related to exit through bankruptcy.*

Competitive Position as a Locational Liability. The mix of resources and processes used by a firm in the pursuit of performance is often referred to as a competitive position (Porter, 1980). Geography and the other competitive positioning elements are often co-determined and alignment of these elements is viewed as requisite to success (Hambrick & Fredrickson, 2005; Porter, 1980, 1985). To explicitly draw attention to this connection, we go beyond the common use of location as a reference to geography and refer to competitive positioning as "location". We argue that (1) the combination of firm attributes constitutes a type of firm, (2) certain types of firms may be disproportionately affected by terrorism because there may be a relationship between geographic location, industry, size within an industry, and buyer markets, and, (3)

terrorism, by virtue of geographic location and severity, can result in “location”, in this broader sense, being a liability that is associated with a higher chance of going bankrupt.

To become publicly traded, a form of legitimacy, it is assumed that the firm evidences good “location” choices, has secured resource endowments and established relationships to support the enduring provision of resources. In the case of a stock exchange, where firms compete for investment and investors have portfolio diversification as an objective, official registration documents explain the investment opportunity by reporting annual performance and competitive positioning. The “location” elements emphasized include geographic location, industry, size of the firm within the industry, and buyer markets (export/domestic).

The shift of a location from advantage to liability can result from a number of influences. Terrorism has the potential to disproportionately negatively affect firm types above and beyond geographic location. The choice of industry is one aspect. The literature on economic clusters (Porter, 2000) and national competitive advantage (Porter, 1990) argue that firms will co-locate in a particular geographic location to generate a critical mass of demand for inputs, attract suppliers, and support requests for public investment in infrastructure. Thus, when terrorism affects a geographic location, firms who found it beneficial to co-locate with other firms in the same industry, now bear greater risk of loss because the clustering makes the industry itself affected by terrorism. While not all same-industry firms in the same location may be affected, the loss of a critical mass of firms can negatively affect the remaining firms. The greater the severity and proximity of terrorism, the greater the likelihood that firms will go bankrupt.

Additionally, the choice of buyer market (export/domestic) and geography may be co-determined as the firm geographic location is made proximate to transportation infrastructure to

support the flow of goods and services. These operational and reputational effects may be especially pronounced for firms who rely upon international markets (Mirza & Verdier, 2008; Suder, 2004) as terrorism may not only create a reticence of buyers to travel to do business in Pakistan but also foster counter-terrorism efforts that add complexity for buyers (Mirza & Verdier, 2014). Thus, the greater the severity and proximity of terrorism, the greater the likelihood that revenues will shrink, expenses will rise and financial distress will drive firms into bankruptcy (Oetzel & Oh, 2014).

Finally, a choice between geography, industry and firm size may be co-determined as some firms may choose a more focused position within an industry (Porter, 1980). Although some focused-firms who are uniquely specialized in the world economy may successfully navigate adverse circumstances, these firms are more typically resource-constrained. Their lack of slack limits their ability to weather terrorism's effects and places them at greater risk of bankruptcy. In sum, whether or not geographic targets are selected by terrorists because of the potential for a disproportionate economic effect, it remains that attacks may have this effect (Tushman & Anderson,1986) because good geographically-anchored competitive positioning choices become sources of exposure and risk in the context of terrorism.

> ***Hypothesis 3:*** *There will be a positive relationship between the severity and geographic location of terrorism and the exit of particular types of firms.*

4.3. Methods

Our approach included survival analysis of a panel dataset complemented by an exploration of firm bankruptcy events to determine if competitive positioning elements, alone and in

combination are related to bankruptcy given a small number of bankruptcy observations. Our objective was to ascertain whether locational liabilities matter and whether these liabilities arose from more proximate geographic influences, broader geographic influences that take into consideration spillover effects, and/or a firm's competitive position. Because geography is an important component of competitive position through which other competitive position components are attached we use the term "location".

4.3.1. Data

This study combined city-level Pakistan terrorism data and data on listed firms at the Pakistan Stock Exchange (PSX, formerly Karachi Stock Exchange) to create a panel dataset for the period 1999 through 2015. Terrorism data was obtained from both the Global Terrorism Database (GTD) and the South Asian Terrorism Portal (SATP). Firm data was obtained from the "Balance Sheet Analysis" of the State Bank of Pakistan (SBP), Securities Exchange Commission of Pakistan (SECP), and firms listing status from the PSX. Our sample includes 499 listed firms that had a least one year of financial data. Firms were located in 27 different cities (Table 4.1).

4.3.2. Variables

Exit. Exit was measured as the type of delisting from PSX: share buyback, merger and bankruptcy. We used the annual SECP list of delisted firms. A total of 110 delisting events[23] were observed (Table 4.2). For cities that contained the largest number of publicly traded firms, the highest frequency of bankruptcy occurred in Karachi while the greatest proportion occurred

[23] The momentum of terrorist activities spread all over Pakistan after 2007 Swat operations. This military operation cleaned Swat regions but as a response terrorist groups spread in other peaceful cities of Pakistan and caused unrest situation.

in Lahore. Notably, some cities which had a limited number of publicly traded firms experienced the bankruptcy of large proportions of those firms (Table 4.3).

Table 4.1: Firms by City and Industry

City	1[24]	2	3	4	5	6	7	8	9	10	11	12
Bahawalpur	0	0	0	0	0	0	0	0	0	0	0	1
Chakwal	0	0	0	0	0	0	0	0	0	0	0	4
Faisalabad	0	0	0	0	0	0	0	0	0	1	0	12
Gujranwala	0	0	1	0	0	0	0	0	0	0	0	0
Haripur	0	0	0	1	0	0	0	0	0	1	0	1
Hub	1	0	1	0	0	0	2	0	0	0	0	3
Hyderabad	0	0	0	0	0	0	0	1	0	0	0	2
Islamabad	1	0	4	1	7	4	0	1	2	3	0	3
Karachi	25	7	8	30	9	7	15	19	13	16	9	81
Kasur	0	0	0	2	0	0	0	0	0	0	0	3
Kohat	0	0	0	0	0	0	0	0	1	0	0	3
Lahore	13	0	1	17	9	7	4	8	10	4	1	65
Lakki Marwat	0	0	0	0	0	0	0	0	1	0	0	0
Mardan	0	0	0	3	0	0	0	1	0	0	0	0
Mirpur	0	0	0	0	0	0	0	0	0	0	0	2
Multan	0	0	0	0	0	0	0	0	0	1	0	9
Noshehra	0	0	0	0	0	0	0	0	0	1	0	0
Okara	0	0	0	0	0	0	0	0	0	0	0	1
Peshawar	0	0	0	0	0	0	0	0	1	0	1	4
Quetta	1	0	0	0	0	0	0	0	1	0	0	1
Rawalpindi	2	3	0	1	0	0	0	0	2	1	0	3
Sheikhupura	0	0	0	0	0	0	1	0	0	2	0	1
Shikarpur	0	0	0	0	0	0	0	0	0	0	0	1
Sialkot	0	0	0	0	0	0	0	1	0	0	0	0
Swabi	2	0	0	0	0	0	0	1	0	1	0	1
Thatta	1	0	0	0	0	0	0	0	0	1	0	0
Wah Cantt	1	0	0	0	0	0	0	0	0	0	0	0
Grand Total	47	10	15	55	25	18	22	32	31	32	11	201

Source: Pakistan Stock Exchange (2018)

[24] 1 = Chemical and Pharmaceuticals; 2 = Coke and Refined Petroleum Products; 3 = Electrical Machinery and Apparatus; 4 = Food; 5 = Fuel and Energy; 6 = Information, Communication and Transportation Services; 7 = Motor Vehicles, Trailers, and Auto parts; 8 = Other Manufacturing n.e.s.; 9 = Other Non-Metal Mineral Products; 10 = Other Services Activities;11= Paper, Paperboard; and Products; 12 = Textile.

Table 4.2: Exit of Publically Listed Firms, Pakistan Stock Exchange, 2002-2015

Year	Sample	Buyback	Merger	Bankruptcy	Unknown	Others
2002	499	0	0	0	0	0
2003	498	0	0	0	1	0
2004	491	0	0	0	8	0
2005	479	9	1	0	0	0
2006	473	1	4	1	0	0
2007	468	4	1	0	0	0
2008	460	0	2	0	0	6
2009	455	0	1	0	4	0
2010	443	1	0	2	7	1
2011	439	1	0	3	0	0
2012	406	5	0	28	0	0
2013	399	4	1	2	0	0
2014	394	3	1	0	0	0
2015	389	2	2	1	0	0
Total		30	14	40	19	7

Source: Pakistan Stock Exchange (2018)

Table 4.3: Geographically distribution of Bankruptcy (All Sectors)

City	2005	2006	2010	2011	2012	2013	2014	2015
Hub	0	0	0	1	1	0	0	0
Hyderabad	0	0	0	0	0	1	0	0
Islamabad	0	0	0	0	1	1	0	0
Karachi	0	0	1	1	11	0	2	1
Kasur	0	0	0	0	1	0	0	0
Lahore	1	0	1	0	9	0	0	0
Mirpur	0	0	0	0	2	0	0	0
Quetta	0	1	0	0	0	0	0	0
Sheikhupura	1	0	0	1	0	0	0	0
Swabi	0	0	0	0	1	0	0	0
Thatta	0	0	0	0	1	0	0	0
Other cities[25]	0	0	0	0	0	0	0	0
Grand Total	2	1	2	3	27	2	2	1

Source: Pakistan Stock Exchange (2018)

[25] Other cities include all those cities where firms are located. For example Bahawalpur, Chakwal, Faisalabad, Gujranwala, Haripur, Kohat, Lakki Marwat, Mardan, Multan, Noshehra, Okara, Peshawar, Rawalpindi, Shikarpur, Sialkot, Wah Cantt.

Terrorism. We initially used the two best sources of terrorism data on Pakistan, the GTD and the SATP. GTD resides at the University of Maryland and is maintained by the National Consortium for the Study of Terrorism and Responses to Terrorism (START). GTD data has been widely used in previous scientific articles[26]. In comparison to other worldwide event databases for terrorist attacks,[27] comprehensive information is available for each terrorist event including date and location (city) of the incident, the number of death and injuries. SATP is maintained by the Institute of Conflict Management in India and provides one of the most comprehensive and reliable data sources about terrorist attacks in Pakistan. It includes detailed information obtained from print and electronic media reports about terrorist incidents including suicide attacks and bomb blasts. As existing literature has extensively used the SATP database to conduct terrorism-related studies specific to Pakistan[28] and the recorded incidences across the two databases converge[29], we chose to use data from the SATP database. The numbers of terrorist incidences in the SATP database are slightly fewer than GTD (125 cities versus 115 cities) and provide a more conservative test of the relationship between terrorism and exit.

The first author constructed city-level detailed terrorist incidents, killings, and injuries information from 115 different locations in Pakistan as reported by SATP and 125 locations as reported by GTD. All relevant information regarding the number of incidents, the number of killings, the number of injuries were extracted and used to construct two indices of terrorism, a

[26] See, the relationship between terrorism and e.g. trade (Bandyopadhyay *et al.*, 2018; Egger and Gassebner, 2015), economic costs (Bilgel and Karahasan, 2017) and economic growth (Choi, 2014; Enders *et al.*, 2011; Meierrieks and Gries, 2013).

[27] Another frequently used event database on terrorism incidents is ITERATE (International Terrorism: Attributes of Terrorist Events). ITERATE, however, only includes transnational terrorist incidents and data are not available after 2012.

[28] The link between economic growth and terrorism (Shahbaz *et al.*, 2013), the determinants for terrorism (Ismail and Amjad, 2014), and the impact of terrorism on FDI flows (Haider and Anwar, 2014).

[29] The comparison of the GTD and SATP numbers is available from the first author.

City Terrorism Index (CTI) for each city and year and a Total Terrorism Index (TTI) for each city and year. The CTI is in the style of the Global Terrorism Index (Institute for Economics and Peace, 2018). TTI accounts for the impact of terrorism within the city as well as a distance-weighted indicator for terrorism outside a city to represent the spillover effects of terrorism on neighboring cities.

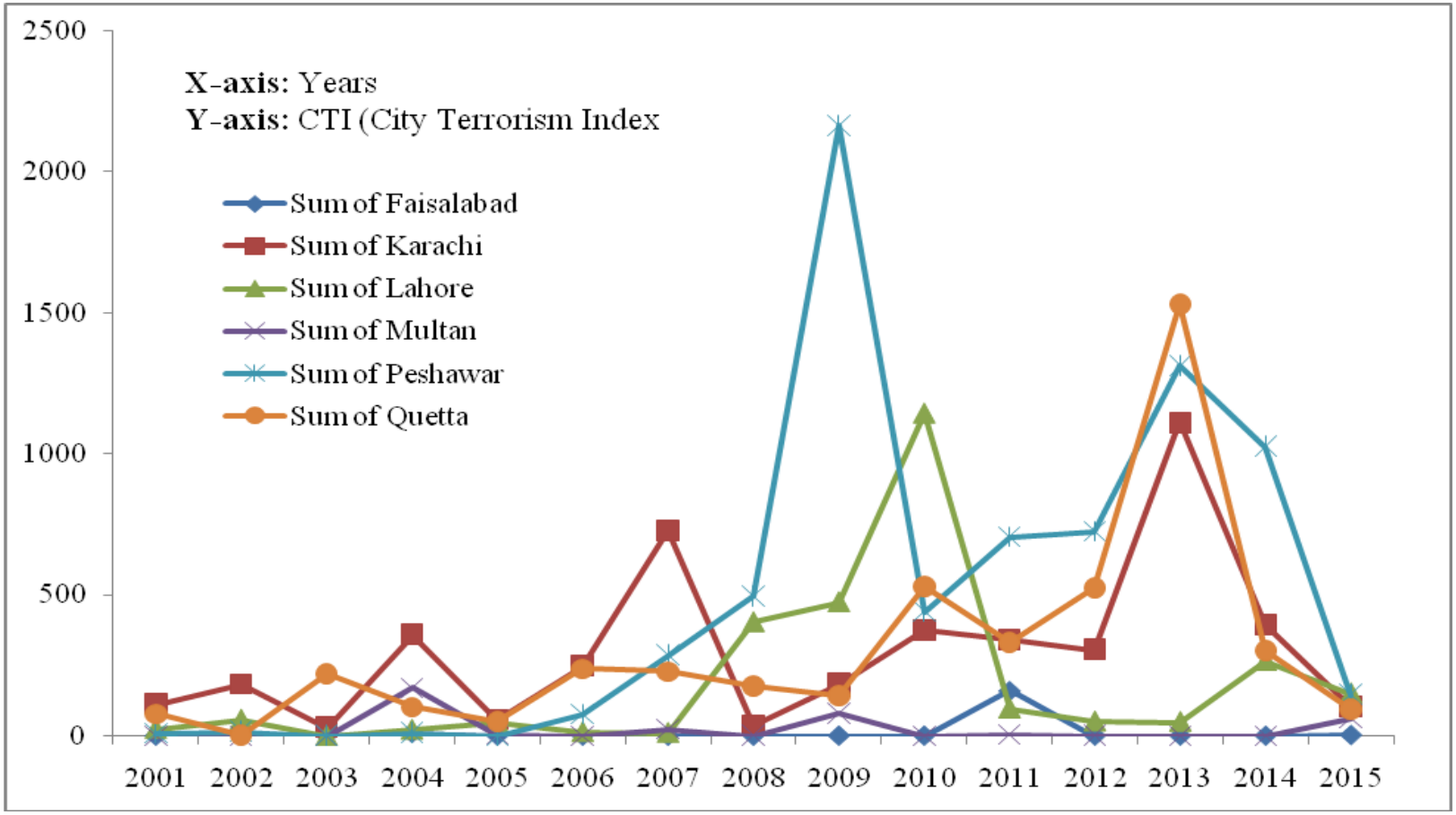
The pattern of terrorism incidence shows a marked increase in terrorism over the period of observation (see Figure 4.2). While terrorism has increased since 2006, it is noteworthy that not all cities are affected in the same manner. The CTI peaks differ not only in their intensity (e.g., 1112 for Karachi and 2165 for Peshawar) but also across time (e.g., for Karachi in 2013 and for Peshawar in 2009). There are cities where the intensity of terrorism is high e.g., Peshawar, Karachi, and Quetta, and cities with low intensity of terrorism are low e.g., Faisalabad.

Our indices combine the severity and proximity of terrorism. To address severity and proximity, we followed the approach employed by the Institute for Economics and Peace (IEP), which computes the Global Terrorism Index (GTI). GTI is an indicator of the level of terrorism at the country-level. By measuring at a city level, we incorporate proximity. Thus, our adaptation of the computation of the GTI (see Institute for Economics and Peace, 2018, p. 83) to compute a *City Terrorism Index* (*CTI*) for each city *j* in each year *t*[30] is as follows:

$$CTI_{jt} = 1 * incidents_{jt} + 3 * fatalities_{jt} + 0.5 * injuries_{jt} \quad (4.1)$$

[30] According to IEP, the weighting was determined in consultation with the GPI Expert Panel. Note that our measure of CTI does not account for the total property damage from terrorist incidents in a given year. We do not incorporate such damages because the SATP database does not allow for constructing a reliable indicator.

Figure 4.2: SATP Terrorism in Selected Cities, 2001-2015



Source: South Asian Terrorism Portal (2018)

Our theoretical model explains that the firm may also be affected by terrorist attacks outside the city where it is located; e.g. by terrorism in neighboring regions or in more distant regions. To examine such spillover or interregional effects of terrorist attacks, we first constructed an Interregional Terrorism Index (*IRTI*) that measures the level of terrorist attacks in other regions. We first identified 105 locations in Pakistan and measured the respective level of terrorist incidents. We assumed that the impact of terrorism diminished with increasing distance. To create weights that reflected the diminishing impact of terrorism, we measured the pair-wise distances between cities where firms are located and all other (104) locations using the great circle distance (geographic city centers)[31]. We applied the Haversine formula, which is commonly used to calculate the distance between two points on the Earth's surface based on the longitude and latitude coordinates. The (pair-wise) weights (α_{jl}) are the inverse of the corresponding kilometer aerial distances (*D*) between a city *j* and a location *l*: $\alpha_{jl} = 1/D_{jl}$.

The Interregional Terrorism Index (*IRTI*) for a city *j* in year *t* is given by:

$$IRTI_{jt} = \sum_{l \neq j}^{N} CTI_{lt} \alpha_{jl} \qquad (4.2)$$

where *N* is the number of all locations. We then created TTI as a combination of the level of terrorism in the city where a firm is located as well as the interregional spillovers of terrorism computed as the sum of the *CTI* and the *IRTI* for each city *j* and for each year *t*.

$$TTI_{jt} = CTI_{jt} + IRTI_{jt} \qquad (4.3)$$

[31] In the literature on international business, the great-circle distance between geographic centers of countries is used to measure the geographic distance (Berry, Guillén, & Zhou, 2010; Boeh & Beamish, 2012; Dai, Eden, & Beamish, 2013; Zaheer, Schomaker, & Nachum, 2012).

"Location". We focused on four aspects of competitive positioning: geographic location, industry, size and exports. As previously mentioned, firm data was obtained from the "Balance Sheet Analysis" of the State Bank of Pakistan (SBP), Securities Exchange Commission of Pakistan (SECP), and firms listing status from the Pakistan Stock Exchange. Geographic location, measured as the city of headquarter location, is the linchpin between terrorism and other firm attributes. Identification of industry was obtained from the official industry reports of the State Bank of Pakistan which lists firm membership in an industry.

Firm size was coded by matching firm revenues, obtained from firm filings with SECP to the Prudential Regulations of SBP. Small firms are those firms that have annual sales of up to 150 Million Pakistani Rupees. Medium firms are those that have annual sales between more than 150 Million and 800 Million Pakistani Rupees. Large firms have greater than 800 Million Pakistani Rupees annual sales. While these revenue breakpoints occur across all manufacturing industries, we assume that because of the unique resource requirements and the role of firm size in each industry, size within the industry is a more important characterization of size in firm type than size alone.

Export was determined from a review of the income statement of each firm. If they reported export sales, we categorized the firm as participating in export. Otherwise, we categorized them as not participating in export. Firm-level financial data on sales is obtained for the period of 1999 to 2015[32] and used to classify firms by firm size according to industry standards.

[32] The final sample is based on eight data reports by the SBP, namely report 1 (1999-2005), report 2 (2003-2008), report 3 (2004-2009), report 4 (2006-2011), report 5 (2007-2012), report 6 (2008-2013), report 7 (2009-2014) and report 8 (2010-2015). Given that the format and structure of the SBP reports changed over time, we harmonized and crosschecked the financial data by referring to, e.g., firms' websites and annual reports.

When firm "location" data is combined with the bankruptcy, it is clear that the textile industry experienced the greatest number of bankruptcies (Table 4.4).

Table 4.4: Bankruptcy by City and Industry

City	1	2	3	4	5	6
Hub	0	0	0	0	0	2
Hyderabad	0	0	0	0	0	1
Islamabad	0	1	0	0	1	0
Karachi	1	0	0	2	2	11
Kasur	0	0	1	0	0	0
Lahore	0	0	0	0	2	9
Mirpur	0	0	0	0	0	2
Quetta	0	0	0	0	0	1
Sheikhupura	0	0	0	0	2	0
Swabi	0	0	0	0	0	1
Thatta	0	0	0	0	1	0
Other cities	0	0	0	0	0	0
Grand Total	1	1	1	2	8	27

Source: Pakistan Stock Exchange (2018)

1 = Chemical and Pharmaceuticals;
2 = Electrical Machinery and Apparatus;
3 = Food;
4 = Information, Communication, and Transport Services;
5 = Other Services Activities;
6 = Textile

Table 4.5 summarizes city, industry, size, export, and age across all bankruptcy cases of listed firms at Pakistan Stock Exchange.

Table 4.5: City, Industry, Size, Export and Age of Bankruptcy Firms

City	Industry	Sales in Thousand Rupees	Size[33]	Exports	Birth	Death Year
Hub	Textile	154900	Medium	No	1979	2011
Hub	Textile	1400	Small	No	1983	2012
Hyderabad	Textile	2684459	Large	Yes	1960	2013
Islamabad	Electrical Machinery and Apparatus	800	Small	No	1989	2012
Islamabad	Other Services Activities	274000	Medium	No	1967	2013
Karachi	Chemicals and Pharmaceuticals	1200	Small	No	1979	2012
Karachi	Information, Comm. and Transport Services	3150700	Large	Yes	1991	2010
Karachi	Information, Comm. and Transport Services	0	Unknown	Don't Know	1992	2012
Karachi	Other Services Activities	47500	Small	No	1947	2012
Karachi	Other Services Activities	0	Unknown	Don't Know	1976	2012
Karachi	Textile	8300	Small	Yes	1949	2012
Karachi	Textile	0	Unknown	Don't Know	1951	2012
Karachi	Textile	0	Unknown	Don't Know	1954	2012
Karachi	Textile	0	Unknown	Don't Know	1962	2012
Karachi	Textile	111226	Small	Yes	1964	2014
Karachi	Textile	2678374	Large	Yes	1966	2014
Karachi	Textile	1300	Small	Yes	1986	2012
Karachi	Textile	174600	Medium	No	1987	2011
Karachi	Textile	51400	Small	No	1987	2012
Karachi	Textile	28200	Small	Yes	1992	2012
Karachi	Textile	43100	Small	No	1993	2015

[33] According to prudential regulations of the State Bank of Pakistan, Small firms are those firms which have annual sales of up to 150 Million Pakistani Rupees, Medium firms are those that have annual sales more than 150 Million and until 800 Million Pakistani Rupees, and large firms have more than 800 Million Pakistani Rupees annual sales.

Kasur	Food	119336	Small	Yes	1986	2012
Lahore	Other Services Activities	104600	Small	No	1974	2005
Lahore	Other Services Activities	21800	Medium	No	1984	2012
Lahore	Textile	0	Unknown	Don't Know	1951	2012
Lahore	Textile	106700	Medium	No	1966	2010
Lahore	Textile	511200	Medium	Yes	1985	2012
Lahore	Textile	349746	Medium	Yes	1986	2012
Lahore	Textile	321600	Medium	No	1987	2012
Lahore	Textile	216700	Medium	No	1987	2012
Lahore	Textile	300600	Medium	Yes	1987	2012
Lahore	Textile	579300	Medium	Yes	1989	2012
Lahore	Textile	450200	Medium	Yes	1991	2012
Mirpur	Textile	83800	Small	Yes	1984	2012
Mirpur	Textile	330800	Medium	No	2004	2012
Quetta	Textile	467600	Medium	Yes	1991	2006
Sheikhupura	Other Services Activities	0	Unknown	Don't Know	1967	2011
Sheikhupura	Other Services Activities	0	Unknown	Don't Know	1968	2005
Swabi	Textile	6800	Small	No	1989	2012
Thatta	Other Services Activities	1000	Small	No	1985	2012

Source: Pakistan Stock Exchange (2018)

4.4. Data Analysis

To test our hypotheses, we use a combination of survival analysis and more exploratory analysis of the frequencies of bankruptcy incidence by aspects of competitive positioning alone and in combination with each other. Because we incorporated 5-year lags as explained below, we examined firms between 1999 and 2015 with firm exit beginning in 2004.

We test for the relationship between the likelihood of exit and influences on exit. As a first step, we consider exit more generally as the combination of three delisting paths: share buybacks, being acquired, and bankruptcy. Then, we conduct separate analyses for each distinct exit pathway. We used four different hazard specifications and examined the relative explanatory power of the two different terrorist indices in each model. To address the potential lagged and cumulative effects of terrorism as well as locational differences in the administration of bankruptcy actions[34] we used multi-year measures of terrorism.

As a detailed reporting of our survival analyses would detract from the readability of the paper, more details about our approach can be found in the Appendix. Our analysis of the relationship between geographically-tied aspects of firm "location" and bankruptcy relies on simpler tests of disproportionate influences as the relatively small incidence of bankruptcy does not permit more robust analysis.

[34] The OECD Report (2006) explains the bankruptcy process in Pakistan. According to the report, the High Court administers the bankruptcy and liquidation process of the company according to its jurisdictional location. Pakistan has high courts in each of its provinces, namely: Baluchistan, Khyber Pakhtunkhwa (KPK), Sind and Punjab. Although, high courts in Pakistan are a competent and high standard institution, it has faced criticism of its independence in some cases. Political interference in the appointment process has raised concern over the continuing influence of the executive over the judiciary. The sheer number of cases before the courts and the cumbersome legislative regime render the system ineffective. (See OECD 2006).

4.5. Results

We find support for Hypothesis 1. There is a significant and positive relationship between the proximity and severity of terrorism and firm exit (Table 4.6). Across all model specifications, irrespective of terrorism measure used, the two-year prior terrorism level predicted exit ($p<0.05$). CTI has greater explanatory power than TTI.

We find support for Hypothesis 2c but not Hypothesis 2a or 2b. There is a significant and positive relationship between the proximity and severity of terrorism and exit by a bankruptcy (Table 4.9). We observe using the terrorism variable with a two-year lag, a hazard ratio of .0014 which suggests 0.14 percent more likely to exit via bankruptcy given a unit change in terrorism ($p<0.01$). Again, CTI has greater explanatory power than TTI. The relationships between proximity and severity of terrorism and exit by acquisition and share buyback are indeterminate (Tables 4.7 & 4.8).

Our more exploratory analysis of the relationship between "location" of the firm and bankruptcy evidence partial support for Hypothesis 3 with respect to the relationship between industry, size within the industry, and absence from export markets. As shown previously in Table 4.1 and Table 4.3, textile firms constitute the greatest number of publicly-traded firms and firms exit by bankruptcy. Textile firms are disproportionately more likely to be engaged in export $\chi 2$ (2, N=499) = 55.36, p <.0001 (see Table 4.10a). Specifically, although textile firms are disproportionately medium in size $\chi 2$ (3, N=499) = 19.48, p <.0005 (see Table 4.10b), it is the small textile firms who are disproportionately absent from export and larger textile firms who are disproportionately present in export $\chi 2$ (2, N=195) = 184.49, p <.0001 (see Table 4.10c).

Table 4.6: Location and Severity of Terrorism and Exit from Stock Market

Exit	**Exponential** Model 1 (TTI)	**Exponential** Model 2 (CTI)	**Weibull** Model 3 (TTI)	**Weibull** Model 4 (CTI)	**Gompertz** Model 5 (TTI)	**Gompertz** Model 6 (CTI)	**Cox Hazard** Model 7 (TTI)	**Cox Hazard** Model 8 (CTI)
Terrorism								
Terrorism_Lag$_1$	-0.000389	-0.000390	-0.000418	-0.000417	-0.000409	-0.000409	-0.000401	-0.000400
	(0.000362)	(0.000364)	(0.000364)	(0.000366)	(0.000364)	(0.000366)	(0.000366)	(0.000368)
Terrorism_Lag$_2$	0.000719**	0.000732**	0.000697**	0.000711**	0.000703**	0.000717**	0.000661**	0.000674**
	(0.000285)	(0.000286)	(0.000286)	(0.000287)	(0.000286)	(0.000287)	(0.000293)	(0.000294)
Terrorism_Lag$_3$	-0.000320	-0.000359	-0.000343	-0.000383	-0.000339	-0.000379	-0.000384	-0.000426
	(0.000472)	(0.000482)	(0.000474)	(0.000484)	(0.000474)	(0.000484)	(0.000487)	(0.000497)
Terrorism_Lag$_4$	-0.000225	-0.000241	-0.000258	-0.000275	-0.000253	-0.000269	-0.000272	-0.000293
	(0.000436)	(0.000442)	(0.000439)	(0.000445)	(0.000439)	(0.000445)	(0.000443)	(0.000450)
Terrorism_Lag$_5$	0.000446	0.000429	0.000387	0.000368	0.000400	0.000382	0.000332	0.000310
	(0.000353)	(0.000360)	(0.000358)	(0.000364)	(0.000357)	(0.000364)	(0.000364)	(0.000370)
Constant	-3.960***	-3.949***	-5.252***	-5.252***	-4.224***	-4.217***		
	(0.157)	(0.154)	(0.689)	(0.689)	(0.221)	(0.219)		
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
City Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,340	5,340	5,340	5,340	5,340	5,340	5,340	5,340

Standard errors in parentheses
One-sided p-values are reported when the predicted sign is expected, two-sided p-value otherwise:
* = significant at $p < 0.10$; ** = significant at $p < 0.05$; *** = significant at $p < 0.01$

A number of observations: 5430, Dependent Variable = 1 if the firm is exited from the stock market, 0 otherwise. Hazard ratios positive (negative) is a signal to an increase (decrease) in the likelihood of exit from the stock market. For example, a hazard ratio of 0.0007 suggests that .07 percent is more likely to exit given a unit change in an independent variable.

Table 4.7: Location and Severity of Terrorism and Exit by Share Buyback

Buy Back Exit	**Exponential** Model 1 (TTI)	**Exponential** Model 2 (CTI)	**Weibull** Model 3 (TTI)	**Weibull** Model 4 (CTI)	**Gompertz** Model 5 (TTI)	**Gompertz** Model 6 (CTI)	**Cox Hazard** Model 7 (TTI)	**Cox Hazard** Model 8 (CTI)
Terrorism								
$Terrorism\_Lag_1$	0.000637	0.000637	0.000563	0.000569	0.000608	0.000612	0.000543	0.000553
	(0.000645)	(0.000644)	(0.000661)	(0.000659)	(0.000654)	(0.000653)	(0.000665)	(0.000662)
$Terrorism\_Lag_2$	-0.00141	-0.00138	-0.00155	-0.00152	-0.00148	-0.00145	-0.00154	-0.00152
	(0.000986)	(0.000982)	(0.000995)	(0.000989)	(0.000990)	(0.000984)	(0.00100)	(0.000999)
$Terrorism\_Lag_3$	-0.000536	-0.000547	-0.000689	-0.000695	-0.000628	-0.000635	-0.000653	-0.000663
	(0.000923)	(0.000928)	(0.000950)	(0.000955)	(0.000943)	(0.000948)	(0.000949)	(0.000956)
$Terrorism\_Lag_4$	-0.000610	-0.000626	-0.000766	-0.000779	-0.000698	-0.000707	-0.000602	-0.000629
	(0.000862)	(0.000873)	(0.000881)	(0.000890)	(0.000876)	(0.000885)	(0.000916)	(0.000930)
$Terrorism\_Lag_5$	0.000823	0.000797	0.000660	0.000634	0.000736	0.000712	0.000687	0.000655
	(0.000544)	(0.000551)	(0.000557)	(0.000564)	(0.000555)	(0.000561)	(0.000592)	(0.000598)
Constant	-5.106***	-5.112***	-10.53***	-10.53***	-5.895***	-5.905***		
	(0.288)	(0.281)	(1.541)	(1.539)	(0.394)	(0.391)		
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
City Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,758	5,758	5,758	5,758	5,758	5,758	5,758	5,758

Standard errors in parentheses
One-sided p-values are reported when predicted sign is expected, two-sided p-value otherwise: * = significant at $p < 0.10$; ** = significant at $p < 0.05$; *** = significant at $p < 0.01$

A number of observations: 5758, Dependent Variable = 1 if the firm is a buyback of shares delisted, 0 otherwise. Hazard ratios positive (negative) is a signal to an increase (decrease) in the likelihood of buying back of shares. For example, a hazard ratio of 0.0009 suggests that .09 percent is more likely to go delisted by buyback of shares given a unit change in an independent variable.

Table 4.8: Location and Severity of Terrorism and Exit by M&A

M&A	**Exponential** Model 1 (TTI)	**Exponential** Model 2 (CTI)	**Weibull** Model 3 (TTI)	**Weibull** Model 4 (CTI)	**Gompertz** Model 5 (TTI)	**Gompertz** Model 6 (CTI)	**Cox Hazard** Model 7 (TTI)	**Cox Hazard** Model 8 (CTI)
Terrorism								
$Terrorism\_Lag_1$	-0.000364	-0.000322	-0.000302	-0.000263	-0.000301	-0.000263	-0.000416	-0.000373
	(0.00108)	(0.00107)	(0.00107)	(0.00106)	(0.00107)	(0.00106)	(0.00109)	(0.00108)
$Terrorism\_Lag_2$	0.00143	0.00141	0.00149	0.00147	0.00149	0.00147	0.00137	0.00135
	(0.00100)	(0.000993)	(0.00100)	(0.000997)	(0.00100)	(0.000997)	(0.00103)	(0.00103)
$Terrorism\_Lag_3$	-0.00384	-0.00374	-0.00382	-0.00374	-0.00379	-0.00374	-0.00422	-0.00412
	(0.00267)	(0.00266)	(0.00267)	(0.00267)	(0.00267)	(0.00267)	(0.00269)	(0.00268)
$Terrorism\_Lag_4$	0.000870	0.000865	0.000913	0.000907	0.000914	0.000907	0.000711	0.000707
	(0.000846)	(0.000847)	(0.000838)	(0.000840)	(0.000834)	(0.000840)	(0.000849)	(0.000849)
$Terrorism\_Lag_5$	0.000432	0.000393	0.000565	0.000525	0.000545	0.000525	0.000517	0.000471
	(0.00102)	(0.00104)	(0.00101)	(0.00103)	(0.00101)	(0.00103)	(0.00107)	(0.00109)
Constant	-5.968***	-5.987***	-4.123***	-4.134***	-5.422***	-4.134***		
	(0.429)	(0.420)	(1.209)	(1.209)	(0.602)	(1.209)		
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
City Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,839	5,839	5,839	5,839	5,839	5,839	5,839	5,839

Standard errors in parentheses
One-sided p-values are reported when predicted sign is expected, two-sided p-value otherwise: * = significant at $p < 0.10$; ** = significant at $p < 0.05$; *** = significant at $p < 0.01$

The number of observations: 5839, Dependent Variable = 1 if the firm is merged & acquired, 0 otherwise. Hazard ratios positive (negative) is a signal to an increase (decrease) in the likelihood of M&A. We could not find a significant relationship between the dependent and independent variables.

Table 4.9: Location and Severity of Terrorism and Exit by Bankruptcy

Court Driven Exit	**Exponential** Model 1 (TTI)	**Exponential** Model 2 (CTI)	**Weibull** Model 3 (TTI)	**Weibull** Model 4 (CTI)	**Gompertz** Model 5 (TTI)	**Gompertz** Model 6 (CTI)	**Cox Hazard** Model 7 (TTI)	**Cox Hazard** Model 8 (CTI)
Terrorism								
$Terrorism\_Lag_1$	-0.00110	-0.00109	-0.00113	-0.00113	-0.00111	-0.00110	-0.00116*	-0.00115
	(0.000704)	(0.000711)	(0.000709)	(0.000717)	(0.000706)	(0.000713)	(0.000700)	(0.000705)
$Terrorism\_Lag_2$	0.00150***	0.00153***	0.00148***	0.00150***	0.00150***	0.00152***	0.00144***	0.00146***
	(0.000379)	(0.000385)	(0.000381)	(0.000387)	(0.000380)	(0.000386)	(0.000385)	(0.000390)
$Terrorism\_Lag_3$	1.54e-05	-8.37e-05	1.21e-05	-9.00e-05	1.50e-05	-8.51e-05	-0.000138	-0.000237
	(0.000747)	(0.000784)	(0.000749)	(0.000786)	(0.000748)	(0.000785)	(0.000779)	(0.000812)
$Terrorism\_Lag_4$	-0.000314	-0.000377	-0.000337	-0.000402	-0.000321	-0.000385	-0.000563	-0.000628
	(0.000746)	(0.000772)	(0.000750)	(0.000777)	(0.000747)	(0.000774)	(0.000751)	(0.000774)
$Terrorism\_Lag_5$	0.00116**	0.00113**	0.00112**	0.00109**	0.00115**	0.00112**	0.000851*	0.000820
	(0.000504)	(0.000518)	(0.000511)	(0.000525)	(0.000507)	(0.000521)	(0.000502)	(0.000513)
Constant	-5.388***	-5.347***	-6.486***	-6.471***	-5.469***	-5.435***		
	(0.282)	(0.277)	(1.151)	(1.149)	(0.391)	(0.387)		
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
City Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,783	5,783	5,783	5,783	5,783	5,783	5,783	5,783

Standard errors in parentheses
One-sided p-values are reported when the predicted sign is expected, two-sided p-value otherwise:
* = significant at $p < 0.10$; ** = significant at $p < 0.05$; *** = significant at $p < 0.01$

A number of observations: 5783, Dependent Variable = 1 if the firm is court driven liquidated, 0 otherwise. Hazard ratios positive (negative) is a signal to an increase (decrease) in the likelihood of court-driven liquidation. For example, a hazard ratio of 0.0015 suggests that .15 percent is more likely to go court driven liquidation given a unit change in an independent variable.

Table 4.10a: Textiles Firms in Exports

	Exports	Observed (O)	Expected (E)	|O - E|	$(O - E)^2/E$
Textile Industry	Export	154	123.6613226	30.33867735	7.443195042
	No Export	41	71.6993988	30.6993988	13.14450473
	Unknown	6	5.236472946	0.763527054	0.111329433
All other industries	Export	153	178.4168337	25.41683367	23.73691703
	No Export	137	103.4468938	33.55310621	10.88298445
	Unknown	7	7.55511022	0.55511022	0.040786613
		499			55.36
Chi Square	55.3597173				
P-Value	2.22E-08				

Table 4.10b: Textiles Firms in Sizes

	Sizes	Observed (O)	Expected (E)	|O - E|	$(O - E)^2/E$
Textile Industry	Small	23	23.36272545	0.362725451	0.00563161
	Medium	50	32.62725451	17.37274549	9.250312061
	Large	122	138.5651303	16.56513026	1.980321745
	Unknown	6	6.44488978	0.44488978	0.030710675
All other industries	Small	35	33.4749499	1.5250501	0.069478157
	Medium	31	46.749499	15.749499	5.305869025
	Large	222	198.5410822	23.45891784	2.771823443
	Unknown	10	9.234468938	0.765531062	0.063461993
		499			19.48
Chi Square	19.48				
P-Value	0.00022				

Table 4.10c: Textiles Firms by Size and Exports

	Size and Exports	Observed (O)	Expected (E)	|O - E|	$(O - E)^2/E$
Export	Small	3	18.16410256	15.16410256	12.65958534
	Medium	33	39.48717949	6.487179487	1.065750916
	Large	118	96.34871795	21.65128205	4.865430744
No Export	Small	20	4.835897436	15.16410256	47.55063763
	Medium	17	10.51282051	6.487179487	4.003064415
	Large	4	122.2102564	118.2102564	114.3411783
		195			184.4856474
Chi Square	184.4856474				
P-Value	8.69E-41				

Table 4.10d: Textiles Firms Bankruptcy

	Bankruptcy	Observed (O)	Expected (E)	|O - E|	$(O - E)^2/E$
Textile	Not	174	184.8877756	10.88777555	0.641165464
	Yes	27	16.11222445	10.88777555	7.357373703
All other	Not	285	274.1122244	10.88777555	0.432463954
	Yes	13	23.88777555	10.88777555	4.962523873
		499			13.39352699
Chi Square	13.39353				
P-Value	0.000252				

The incidence of textile firm bankruptcy is disproportionately greater than their presence in the sample $\chi 2$ (1, N=499) = 13.39, p <.0001 (see Table 4.10d). But, the incidence of the bankruptcy of textile firms in high terrorism cities (Lahore and Karachi) is not different from the non-occurrence of bankruptcy by textile firms in these cities $\chi 2$ (1, N=201) = .03, p = .86 (see Table 4.10e). The bankruptcy of textile firms appears to be better explained by other aspects of "location." Textile firms who did not engage in export were disproportionately present in bankruptcy occurrences, accounting for 10 of the 23 bankrupt firms $\chi 2$ (1, N=195) = 7.92, p < .005 (see Table 4.10f). Textile firms who were small were also disproportionately present $\chi 2$ (2, N=195) =36.25, p = .0001 (see Table 4.10g).

Table 4.10e: Textiles Firms Bankruptcy by High Terrorism Cities

	Bankruptcy by High Terrorism Cities	Observed (O)	Expected (E)	|O - E|	$(O - E)^2/E$
High TTI – Lahore and Karachi	Bankrupt Textile Firms	20	19.6119403	0.388059701	0.007678502
	Non-Bankrupt Textile Firms	126	126.3880597	0.388059701	0.001191492
Low TTI – rule out Lahore and Karachi	Bankrupt Textile Firms	7	7.388059701	0.388059701	0.020382934
	Non-Bankrupt Textile Firms	48	47.6119403	0.388059701	0.003162869
		201			0.032415797
Chi Square	0.032416				
P-Value	0.857118				

Table 4.10f: Textiles Firms Bankruptcy by Exports

	Bankruptcy by Exports	Observed (O)	Expected (E)	|O - E|	$(O - E)^2/E$
Export	Bankrupt Textile Firms	13	18.16410256	5.164102564	1.468168064
	Non-Bankrupt Textile Firms	141	135.8358974	5.164102564	0.196324799
No Export	Bankrupt Textile Firms	10	4.835897436	5.164102564	5.514582484
	Non-Bankrupt Textile Firms	31	36.16410256	5.164102564	0.7374151
		195			7.916490446
Chi Square	7.91649				
P-Value	0.004899				

Table 4.10g: Textiles Firms Bankruptcy by Size

	Bankruptcy by Size	Observed (O)	Expected (E)	|O - E|	$(O - E)^2/E$
Small	Bankrupt Textile Firms	9	2.005128205	6.994871795	24.40154764
	Non-Bankrupt Textile Firms	14	20.28717949	-6.287179487	1.948453501
Medium	Bankrupt Textile Firms	6	4.358974359	1.641025641	0.617797888
	Non-Bankrupt Textile Firms	38	44.1025641	-6.102564103	0.844424568
Large	Bankrupt Textile Firms	2	10.63589744	-8.635897436	7.011982296
	Non-Bankrupt Textile Firms	120	107.6102564	12.38974359	1.426497356
		189			36.25070325
Chi Square	36.2507				
P-Value	1.34E-08				

The relatively small incidence of textile bankruptcy relative to the combination of size and export did not permit the use of a Chi-Square Independence Test. As shown in Table 4.11, cases of small textile firm bankruptcy are relatively evenly split across export and non-export positions and occur in cities that have experienced both relatively low levels of terrorism and high levels of terrorism.

Table 4.11: Bankruptcy in Textiles as Function of "Location" -- Geography, Size, Export and Terrorism

City	Year of Bankruptcy	Size[35]	Exports	CTI_1	CTI_2	CTI_3	CTI_4	CTI_5
Hub	2012	Small	No	13	38	15	32.5	149
Swabi	2012	Small	No	87	16	0	0	11
Karachi	2012	Small	No	340	373	184	36	727
Karachi	2015	Small	No	392	1111.5	305	340	373
Mirpur	2012	Small	Yes	0	0	0	0	0
Karachi	2012	Small	Yes	340	373	184	36	727
Karachi	2012	Small	Yes	340	373	184	36	727
Karachi	2012	Small	Yes	340	373	184	36	727
Karachi	2014	Small	Yes	1111.5	305	340	373	184
Lahore	2012	N/A	N/A	98	1144.5	475	404	11
Karachi	2012	N/A	N/A	340	373	184	36	727
Karachi	2012	N/A	N/A	340	373	184	36	727
Karachi	2012	N/A	N/A	340	373	184	36	727
Mirpur	2012	Medium	No	0	0	0	0	0
Hub	2011	Medium	No	38	15	32.5	149	59
Lahore	2012	Medium	No	98	1144.5	475	404	11
Lahore	2012	Medium	No	98	1144.5	475	404	11
Karachi	2011	Medium	No	373	184	36	727	247
Lahore	2010	Medium	No	475	404	11	14	47.5
Quetta	2006	Medium	Yes	50.5	102.5	220	2	78.5
Lahore	2012	Medium	Yes	98	1144.5	475	404	11
Lahore	2012	Medium	Yes	98	1144.5	475	404	11
Lahore	2012	Medium	Yes	98	1144.5	475	404	11
Lahore	2012	Medium	Yes	98	1144.5	475	404	11
Lahore	2012	Medium	Yes	98	1144.5	475	404	11
Hyderabad	2013	Large	Yes	13	3	2	1	0
Karachi	2014	Large	Yes	1111.5	305	340	373	184

Source: Pakistan Stock Exchange (2018)

[35] According to prudential regulations of the State Bank of Pakistan, Small firms are those firms which have annual sales of up to 150 Million Pakistani Rupees, Medium firms are those that have annual sales more than 150 Million and until 800 Million Pakistani Rupees, and large firms have more than 800 Million Pakistani Rupees annual sales.

4.6. Discussion and conclusions

4.6.1. Theoretical contributions

With this study, we offer multiple contributions to organizational theory. First, we go beyond studies that examine the macro-incidence of terrorism and its effects on economic attributes of a country (Greenbaum et al., 2007; Tingbani et al., 2019) to consider terrorism and the manner in which it affects specific types of firms within a population of firms. We incorporate firm-specific variables such as location, size, and exports involvement that Greenbaum et al. (2007) and Tingbani et al. (2019) did not use in their previous studies. We also address the potential issue of overgeneralization through a precise city-level terrorism and firm-specific empirical investigation that may arise in broader studies of the effects of terrorism. Although we recognize that small, private businesses experience significant distress, the large number of large, publicly-traded firms who have persisted and the relatively limited stock market effects previously documented (Aslam & Kang, 2015) suggests a more balanced consideration of terrorism is warranted. Future research of enduring firms and firms who get acquired by other firms or go private through share buybacks would contribute to this more balanced perspective.

Second, we recognize that terrorism creates a difficult environment but rather than focus on the financial effects and their relationship to only one form of firm exit, bankruptcy, we draw attention to the variety of available exit behaviors and the possibility that variety in context and firm attributes explain differences in exit outcomes. Obviously, a firm that is financially-compromised will go bankrupt but we are more concerned with whether certain types of firms are more likely to be so financially-compromised that they are forced into bankruptcy. Studies that combine financial data with firm attribute data, including data on MNE and initiatives designed

to address or mitigate terrorism risk, could potentially provide more insight into how differences in competitive abilities compound or dampen the challenges of terrorism (Zeneli, Czinkota & Knight, 2018).

Third, we begin to develop the concept "liabilities of location" as an extension of the general notion of "liabilities" found in population ecology (McKelvey & Aldrich, 1983; Stinchcombe, 1965). We focus on firms who had successfully overcome liabilities of young age and small size to become publicly traded and consider how other aspects of variation, namely competitive positioning, are related to exit. To apply the geographic occurrence of terrorism, we take liberty to characterize competitive position more broadly as "location" because of the co-determination of geographic choice, industry choice, and export choice. As such, we are coupling the literature on competitive positioning and economic clusters found in the strategy literature (Porter, 1980, 1985, 1990) with population ecology arguments that explain how changes in resource availability negatively affect firms. In particular, the argument is that due to a firm's competitive positioning its geographical attachment to and reliance on particular types of resources increase its vulnerability to the deleterious effects of terrorism. In sum, we begin with a set of firms who could reasonably be considered to have advantages and be in the right place because they are publicly traded, but end up being in the wrong place by virtue of their "location." Our results provide evidence of the importance of considering the choice of industry, firm size and buyer market (export/no export) and combining these "location" influences.

Fourth, we speak to limits on the enduring nature of a position within an environment. We show that disruptions from terrorism that are associated with bankruptcy occur with a broad stroke, as suggested by previous studies of terrorism (Tingbani et al. 2019). We do show that

terrorism, at least in Pakistan, was disruptive for publicly-traded companies in general and for publicly-traded textile firms more specifically. The narrower strikes, in particular on the textile industry, are clearly evident. But even with our fine-grained measures of terrorism, we did not evidence that geographically-situated environmental jolts of terrorism were associated with the bankruptcy of particular types of firms. Modeling terrorism as cumulative effects or modeling contagion effects across stages in value-added processes between industries offer avenues for additional inquiry.

Finally, while we argued that publicly traded companies have already overcome liabilities of small size and young age, there is the possibility that other aspects of liabilities of size and age (Aldrich & Auster, 1986; Stinchombe, 1965) may apply. Small firms still appear to have the liability of small size but without considering their age, we have yet to discern whether it is a liability of age or size that explains their bankruptcy. Additionally, while Porter (1980) addresses the risk of being "stuck in the middle," the occurrence of bankruptcy for medium-sized firms is proportionate to their overall presence. Case studies of firms that have not gone bankrupt would allow us to apply more clearly population ecology logics to both survival and exit alike.

4.6.2. Empirical contributions

We also offer multiple empirical contributions. First, we use a more precise measure of terrorism. Our city-level measures include proximate and more geographically expansive effects that account for the severity of terrorism represented as a combination of the number of incidents, casualties and injuries. We used a weighted distance to firm location city with the terrorism incident city. The closer a firm is to an incident city, the stronger impact a firm receives. We

build upon previous papers that assessed the impact of terrorism on trade and measured terrorism as binary variable e.g., 1 for incident and 0 otherwise (Nitsch & Schumacher, 2004; Blomberg & Hess, 2006). Some authors counted the number of terror attacks (Nitsch & Schumacher, 2004). In capturing city proximity and severity, we obtain a more direct effect of terrorism on each firm.

Second, we use firm characteristics such as size, export sales and location as explanatory rather than control variables. Previous studies either used macroeconomic variable to explain bankruptcy of the firms due to terrorism (Tingbani et al., 2019) or no firm specific variable other than the outcome of exit (Greenbaum et al., 2007). Our study provides a better test of whether terrorism affects all firms in the same way or whether there are firm-unique effects. This disaggregates the impact of terrorism within a country on specific firms. In previous studies, scholars did not incorporate firm-specific variables. They emphasized macro-level variables to establish the link of terrorism with insolvency (Tingbani et al., 2019). Macro-variables are appropriate in cross-country comparisons. In particular, when country differences in insolvency are the focus, variables that capture differences in bankruptcy institutions are important (Tingbani et al., 2019). In studies of firm-level bankruptcy, where available, firm-specific variables that allow the prediction of bankruptcy are appropriate (Altman, 1968; Lau, 1987; Ohlson, 1980; Shumway, 2001; Zmijewski, 1984).

Third, our use of publicly listed firms provides us with more reliable data. Firm-level data was validated with DataStream, Orbis and Thomson Reuters. There was no significant difference in the data sources. Data was also matched with audited annual reports of the listed firms published by the SBP. While we have confidence in the reliability of our firm-specific data, we did not include financial measures or other indicators of value-added processes within the firm.

Additional research using these variables would enhance our ability to isolate and better predict firm-specific influences on exit and survival alike.

Finally, we also took into consideration the importance of analytic methods and our theoretical model. As a nonparametric method, Cox regression is robust to non-normal distribution. The other three methods we used, which rely upon parametric distributions, share the assumption of proportional hazards with the Cox regression model. Our analysis of disproportionate occurrences was more exploratory and relied upon Chi-square analysis. Both analytic steps were reasonable given the data and model. Enhancement of the model to account for the tempo and cumulative effects of terrorism would require the selection of methods appropriate to that model. As we have evidence of non-uniform lagged terrorism effects, it is possible that there are distinct pathways of exit. Case studies of firms could offer more qualitative insights.

4.6.3. Practical contributions

Our study offers two especially important contributions for managers and policymakers, respectively. First, we show that terrorism in prior years can result in a delayed experience of bankruptcy, even as much as 5 years following severe levels of terrorism. It may take a couple of years to show a strong impact on business contracts and market share. While terrorism creates difficult situations for firms and as a result drives firms out of the market, it may create opportunities. Some firms may acquire others or fill voids left by departing firms. Additionally, during terrorist attacks in a particular city, it is not an easy decision for an existing firm to move its location (Barney, 1991). As firms are potentially affected by terrorist attacks in other locations, it may be more prudent to avoid the disruption of relocation.

For policymakers, we provide insight into the potential consequences of terrorism for country advantages in global markets. It is important to pay attention to terrorism-prone regions and take precautionary measures to stabilize economic activity. To obtain a better systematic understanding, there is still a need for a primary study to learn more from the experience of firms operating in terrorism-ridden cities. Qualitative research would permit a more complete study of mechanisms through which terrorism influences the exit and persistence of firms.

5. OVERALL SUMMARY AND CONCLUSION

5.1. Overview

This dissertation was driven by a motivation to conduct research on how terrorism, perhaps the dominant influence on Pakistan's economy since 2001, affects the business activities of firms and offer insight into how firms' leaders are working toward continuing to make their business environment safer and accessible to local and foreign customers alike. Two overarching questions drove a more specific study on different aspects of business conduct: *What is the impact of terrorism on the business activities of firms in Pakistan? What could firms and policy makers learn from the experience of firms in Pakistan with the context of terrorism?* Multi-level analysis of city-level terrorism's effects on the Pakistan economy through its effects on export, and on exit from the stock market was undertaken. Each of the main Chapters provides a thorough grounding in the extant literature, method, findings, and implications for future research, policy and practice.

Chapter 5 provides a summary of each Chapter to offer a more complete, integrated perspective of terrorism's effects, and concludes with implications for future scholarship, policy-making, and business leadership. It begins with an overview of the broad purpose of the dissertation and extends with an overarching picture of terrorism and firms in Pakistan. It identifies the frequency of terrorism in different cities to observe variation along with a synopsis of available firms in various cities, as well as the incidence of terrorism and its effects (Chapter 1). The main studies of this dissertation include: the relationship between terrorism and firms' business operations with a special focus on management practices of the textile industry (Chapter

2); the effect of terrorism on the exports behaviors of the firms (Chapter 3); and terrorism, competitive positioning, and the exit of publicly traded firms in Pakistan (Chapter 4).

5.2. Summary

This dissertation examines the relationship between terrorism and three aspects of its firm-level effects in the context of a broader business environment. Three different samples of firms, using primary data (Chapter 2) and secondary data (Chapters 3 and 4), were studied. Table 5.1 presents a side-by-side summary of each chapter including key findings and implications for research, policy, and practitioners. A preliminary attempt to integrate these findings is offered in Table 5.1.

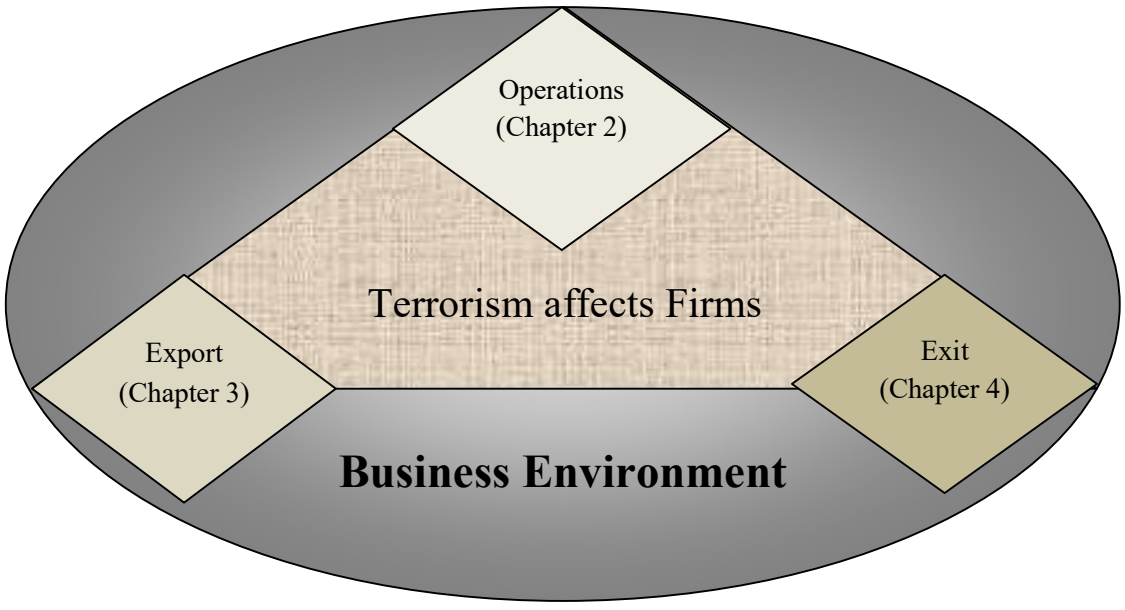
Conceptually, there are three attributes common to the three chapters. First, all chapters focus on city-based measures of terrorism as cities are an important unit of economic analysis (Mudambi et al., 2018). Second, all chapters include firms that are industrially relevant and clustered proximately to important cities. This sample of firms allows us to capture the variation of terrorism in different geographic locations of Pakistan and its impact on businesses which are expected to be enduring contributors to Pakistan's economy; i.e., publicly listed or privately-owned firms in an iconic industry. Finally, participation in export or in export-effects is an important consideration in each chapter. This is consistent with the research on country-level trade consequences of terrorism.

Table 5.1: Summary of dissertation

	Chapter 2	Chapter 3	Chapter 4
Research Questions	***What is the impact of terrorism on business operations of textile firms in Pakistan and what management practices do they use to deal with terrorism?***	***How does terrorism affect the export performance of the firms?***	***What is the relationship between terrorism, competitive positioning, liability of location, and the exit of publicly-traded Pakistani firms?***
Findings	Differences in the impact of terrorism and management practices are related to various combinations of firm attributes (size and location) and market focus. For example, export firms face challenges with both operations and customer relationships, while non-export firms find difficulty in their routine operations.	City-level and some within-country interregional spillover terrorism negatively affect export ratios.	Terrorism, on both city, and total level, is positively related to firm exit from the stock market. Analyses show a significant positive relation of terrorism with court driven, and no relation with other types of exit i.e., buyback of shares or merger and acquisition. The sector-specific analysis points to a more stronger firm exit of textile sectors in comparison to other sectors.
Research Implication	Future studies should incorporate a holistic analysis of the effects of difficult contexts on firms' operations and performance, including both pursuits of new products in the market (exploration), and improvement of existing products (exploitation).	Future studies should combine our present study's current quantitative approach with qualitative data to better understand export outcomes. Semi-structured interviews with managers about their export experiences could identify challenges/ opportunities in the context of export market.	Future studies should include in-depth interviews and case studies to better understand the involuntary and voluntary nature of stock market firms' exit, especially ownership structure factors associated with exit decisions.
Policy Implication	There is an opportunity to provide guidelines for a resilient business model to survive and grow in difficult situations.	There is an opportunity to further develop and administer cross-country supply chain and security clearance infrastructure.	There is an opportunity to improve the regulations and firms' exit administration process.
Practical Implication	Business leaders and managers should customize their anti-terrorism management practices to match their practices and characteristics. For example, a resilient anti-terrorism strategy to develop robust buyer relationships and a reliable global value chain for business continuity.	Business leaders and managers should monitor terrorism at the regional level and devise relevant individual and collaborative strategies to safeguard exports. For example, shared-regional strategies of firms to address decline in foreign sales.	Business leaders and managers should continue to proactively develop succession plans and professional financial control systems that offer the best options for firms to avoid disgraceful exit from the stock market due to terrorism.

The integrative model (see Figure 5.1) describes the interplay of (1) business continuity (exit as per Chapter 4), (2) competitive positioning in general (export as per Chapter 3), and (3) the support and protection of operations particular to competitive positioning within an industry of strategic importance to the country i.e., textile (Chapter 2). Irrespective of each Chapter's focus on particular firm outcomes, the dissertation is bound by a particular external business environment contingency, terrorism, and its relationship to the internal decisions of the firms. While firms may be located in a country context that shares a threat of terrorism, internal aspects of the firm's business environment, i.e., geographic location differences, firm variation in age, size and export efforts, are associated with systemization in the use of planning and deployment of resources.

Figure 5.1: Integrative model



A fine-grained analysis of the relationship between terrorism and different aspects of firms' conduct (e.g., business operations, exports, and exit) could help identify how business leaders can anticipate the business-effects of terrorism and develop practices in the context of terrorism. This dissertation uses Pakistan as a test case for understanding terrorism effects on firms. Relevant and rigorous research questions are addressed to contribute to the field of international business and strategy. Specifically, this dissertation examines the impact of terrorism on business operations of firms and management practices of firms to deal with terrorism, terrorism and firms' export performance, and terrorism-related exit strategies of firms. The findings of this dissertation set a stage for future studies that address the relationship between other organizational characteristics (family ownership, leadership style) and terrorism characteristics (target group, infrastructure loss). The relevance of this topic to academics, policymakers, and managers offers significant opportunity for continued investigation about exogenous shocks.

Chapter 2 evidences that terrorism affects business operations and the relationship with foreign customers, and explains anti-terrorism management practices to retain foreign customers. While Chapter 2 focuses particularly on the textile sector, this sector is especially reliant on exports and is an integral part of economy of Pakistan. Chapter 3 includes firms in industries above and beyond textiles, and involved in exports. As a proportion of firms' revenues erode, it is likely that terrorism may affect the export behavior of the firms. Thus, in broadening the range of considered industries, but focusing on changes in exports, Chapter 3 reinforces the relationship between characteristics of terrorism and export outcome. While Chapter 4 does not directly model the relationship between export effects and firms' exit, the linkage is established how firm specific characteristics such as size, exports, and sector, influence the exit strategy of the firms.

5.2.1. Chapter 2

Chapter 2 focuses on the research question: "What are the impacts of terrorism on business operations of textile firms in Pakistan and what management practices do they use to deal with terrorism?" It explores these mechanisms through textiles sector firms that are affected by terrorism and what management practices are used to avoid the damage of terrorism. Textile firms were selected for this study because well-regarded terrorism scholars pointed out that terrorist attacks can potentially affect the customers' behavior to importing textile products from Pakistan (Czinkota, 2002; Knight & Czinkota, 2008).

Chapter 2 builds upon the prior research that offered conceptual insight into the direct and indirect effects of terrorism. In the ongoing studies of terrorism, Czinkota, Knight, and Liesch (2004) and Czinkota et al. (2005, 2010) listed the numerous ways in which terrorism can affect business. These include longer delivery time, interruption in supply chain, increase in supply cost, loss of human life, and decline in demand. The literature (Knight & Czinkota, 2008; McIntyre & Travis, 2006; Sheffi, 2001, 2005; Suder, 2004, 2006; Wernick, 2006) recognizes that while terrorism can have a general effect, particular effects may be contingently related to characteristics of the firms, and how can firms cope with the issue of terrorism (Harvey, 1993; Wernick & von Glinow, 2012; Zeneli, Czinkota, & Knight, 2018) and its particular context (Suder & Czinkota, 2005).

This chapter presents an empirical investigation that extends and expands upon prior conceptual studies to enhance the resilience of the firms (Czinkota et al., 2010; Frey, 2009). It explains the development of a questionnaire that included a combination of closed- and open-ended questions designed to obtain managers' perceptions of terrorism effects and firms' efforts

to address terrorism. Given the likely contingent nature of the relationship between perceptions of terrorism and actions taken to address terrorism, the questionnaire also included basic information about firm-specific variables, firms' experience with terrorism preparedness in the past, present, and future as well as the effect of terrorism on the business operations of the firms using 10 items to cover business dimensions: supply, supply chain, production, human resource, cost factor, and demand. This data was supplemented with data on the specific context of city-level terrorist attacks in Pakistan to extract the perception and actions of firms about the proximity of the firm to terrorism. To obtain heterogeneity of experiences, the survey was administered to textile firm managers/owners at international trade fairs with both import- and export-oriented internationally engaged firms, heeding the call of Zeneli et al. (2018) to consider internationally engaged and large firms. Thus, the data obtained permits empirical categorization of firms into sub-groups-small, medium and large firms-to elucidate the mechanisms through which firms are affected by terrorism, and firms' strategic responses against terrorism. Previous studies of Czinkota et al. (2005; 2010) overlooked the logic of different size firms. The heterogeneity and high frequency of terrorist attacks among different cities within the context of Pakistan enable a more detailed response to open-ended questions such as 1) how does terrorism in the same city or any other city affect the business activities of the firms or 2) how does terrorism affect on business and economy in general, and 3) how can a firm fail due to terrorism.

The findings presented in Chapter 2 offer an exploratory picture of the effect of terrorism on business operations and the relationship between firms' management practices to deal with terrorism and characteristics of the firms (export intensity, firm size, and location). Local customers-focused firms suffered delays in supplies. Local firms' management practices to deal with the terrorism identified vulnerabilities in the internal value chain. Critical operations were

moved to less terrorism-prone regions. Export-oriented firms faced a big challenge; foreign customers had negative perceptions of doing business in Pakistan due to terrorism and were reluctant to visit Pakistan. Exporting firms worked to ensure business operation continuity with a strong focus on foreign customers' satisfaction through safety arrangements to foreign customers, reliance on multi-location suppliers rather than a single location, preparation for rapid repair and replacement in case of terrorism, payment of extra insurance and wages, and rules of succession for every leading position.

Firms' export-related behaviors due to terrorism vary according to their size. Small firms are mostly non-exporting and not equipped with sufficient resources to offer extra facilities to their customers. Medium firms are export oriented, so terrorism affects the firms through reluctance of customers to visit Pakistan, paying extra insurance, suffering interruption in the supply chain, and longer delivery times. Medium-sized firms ensure the safety arrangement of the foreign customers; they manage interruptions in the supply chain through safety stocks to avoid shocks and also devise a contingent transportation plan. Large firms also face the problem of foreign customers' reluctance to visit them in Pakistan. Large firms manage the issue of foreign customers by arranging the safety parameters and relying on multi-locations suppliers rather than a single location.

This chapter has important contributions through the broader aspects of terrorism at a city-level. First, cities in addition to Lahore and Karachi are included in this study because they too are affected by terrorism. Second, this permits stronger consideration of the interdependency of firms that serve domestic and foreign markets. A city-level comparison between firms in Sialkot and Faisalabad is illustrative of how a safe or unsafe business environment for a firm is

determined considering the complexity in business operations and leverage in relationship with customers. For example, disruption in business operations and reputation can create more inconvenience for foreign customers because they are not familiar with the culture, laws, and languages in a local setting.

Foreign customers are more sensitive than domestic customers to terrorist incidents in Pakistan. Thus, the impact of terrorism is more severe for firms that are more dependent on the foreign market. Sialkot is strongly focused on foreign customers, a relatively small industrial city in comparison to other metropolitan cities like Lahore, Karachi, and Faisalabad, etc., in Pakistan. Firms in Sialkot attract key personnel by paying more to labor in comparison to firms in Faisalabad. Sialkot firms' reliance on foreign customers shifts the management practices towards the foreign market which is significantly different from firms in Faisalabad. Firms in Sialkot give more importance to safety stock and contingent transportation plan. While comparing Sialkot firms with firms in Lahore, there is a decline in demand from foreign customers. Firms in Sialkot are not only devising safety mechanisms for business operations, but also the arrival of foreign customers. Sialkot firms are more active in comparison to firms in Lahore by providing financial, medical, and psychological help; rely on suppliers from multi-locations rather than a single location; contingency transportation plan; and more material supply from less terrorism-prone areas.

Geographically, the inability of firms in Faisalabad to provide a safe travel arrangement for foreign customers adds more stress for firms in Faisalabad. Consequently, they face a decline in demand from abroad and from Pakistan in comparison to firms in Lahore. Firms in Faisalabad are statistically different from Lahore to cope with the issue of terrorism as they rely more on

suppliers from multi-locations and follow rules of succession for every leading position. They devise an escape and security plan at the place, arrange more material supplies from less terrorism-prone areas, and manage employees training in case of terrorism. Thus, management practices create a safety cushion between the effect of terrorism and the business operations of the firms. Sound business strategies allow firms to gain a good reputation and build confidence in the eye of customers and employees. The variation of terrorist incidents among cities and firms' characteristics determines the reaction of firms against terrorism.

Chapter 2 contributes to the literature by extending the studies of Czinkota et al. (2010) and Zeneli et al. (2018) by considering the empirical analysis of firm-specific impact of terrorism on the business operations and management practices to cope with the issue of terrorism as recommended by Frey (2009) and Harvey (1993). This unique study explores the mechanisms through which terrorism affects export intensity, firms of different sizes, and geographic location. It identifies the context of terrorism on business operations and management practices for various types of firms (Malik, 2019).

Chapter 2 uses cross-section data from a survey and interviews to explain the relationship between terrorism and firms' business operations. Future research may use panel data to observe the impact of terrorism on decision making concerning firms' exports and survival over time. Also, this chapter suggests a mixed-method study to provide a deeper understanding of how the pursuit of new products in the market and improvement of existing products may occur even in the context of terrorism. Chapter 2 offers implications for firms to build a resilience core against terrorism.

5.2.2. Chapter 3

Chapter 3 addresses the research question "How does terrorism affect the export performance of the firms?" This chapter is an effort to fill the research void regarding the firm-level export effects of terrorism across a variety of industries. An unsafe business environment may lead to low economic activity in a terrorism-prone country. Previous macroeconomic studies enlighten us about the negative effect of terrorism on international trade (Mirza & Verdier, 2014; Nitsch & Schumacher, 2004). Terrorism may cause damage to businesses, particularly manufacturing sector firms are more delicate to the external environment. Manufacturing sector firms have a more complex organizational process than service sector that involves supply, supply chain, production, employees, cost, and demand. For example, Bandyopadhay et al. (2018) point to a negative impact of terrorism on manufacturing goods, whereas there is no impact on the trade of primary goods.

While existing literature indicates that at country- and cross-country-level terrorism affects trade, this chapter delves into a microeconomic analysis of city-level terrorism and firm-level export performance. The advantage of the disaggregated study is to respond to calls for the spatial dimension of terrorism and the corresponding dynamics of time (LaFree, 2010). Thus, Chapter 3 empirically investigates the city-level terrorism in the same location of the firms and as well as the weighted distance spillover effect of terrorism in the neighboring cities. Random nature of terrorist incidents within a country would allow conducting a single country analysis to offer implications for the managers in terrorism-ridden country because the geographical dispersion of terrorism events may result in a variation across cities over time (Öcal & Yildirim, 2010). Microeconomic impact of terrorism on export performance of firms at a city level extends the literature that mostly discusses macroeconomic trade-related cross-country studies (Mirza &

Verdier, 2014; Nitsch & Schumacher, 2004). Thus, Chapter 3 digs deeper to explain terrorism and international trade link by constructing ~~a~~ unique firm-level panel data and city-level terrorism data to investigate the relationship between terrorism and exports. Firm-specific and years-specific fixed-effects would control for the unobserved heterogeneity in a panel data estimation that is ignored in cross-country studies. Hence, our disaggregated empirical approach makes our analysis and results more robust and avoids omitted variable bias.

Chapter 3 uses a unique dataset based on the firm-level financial information of 482 listed firms at the Pakistan Stock Exchange (PSX) from 1999 to 2014. Similarly, city-level terrorism data is compiled from the South Asian Terrorism Portal (SATP) for 15 years. City Terrorism Index is constructed by using the number of terrorist incidents, the number of fatalities, and the number of injuries for each city, inspired from the Global Terrorism Index (Institute for Economics and Peace, 2018). A weighted-distance matrix is computed to capture the spillover interregional neighboring effects of terrorism on the exports. The assumption to include a weighted scheme is that the closer the city to a terrorist incident city, the bigger the impact on the exports of the firms and vice versa. Our estimated results point to a statistically negative impact of city-level terrorism on the export behavior of the firms. Moreover, the impact of terrorism in the same city is strong in the medium-term and diminishing over time. Also, terrorism in the neighboring city also has an interregional spillover effect on the export behavior of the firms.

Chapter 3 calls for future research that may provide insights on the effect of terrorism on the business activities of firms and anti-terrorism management practices of well-established listed firms. Some firms might have developed a self-defense system to avoid the harm of terrorism. Further studies may help in understanding the mechanisms through which firms' foreign business

activities are disrupted and help firms in devising a customized global strategy to protect export performance.

5.2.3. Chapter 4

Chapter 4 aims to investigate the question: "What is the relationship between terrorism, competitive positioning, liability of location, and the exit of publicly-traded Pakistani firms?" Previous research hints that terrorism threatens firms' existence. Greenbaum et al. (2007) posited and showed a positive significant relationship between terrorism and firm death in the year following the terrorist attack. Some firms might manage to survive due to their capabilities and/or country conditions. Oh and Oetzel (2017) empirically explain that some firms were able to develop capabilities around managing in unstable markets; furthermore, firms gained a competitive advantage through innovative strategies. Also, firms' strategic responses absorbed violent shocks and reduced devastating negative consequences (Oetzel & Getz, 2012). Tingbani et al. (2019) showed in a cross-country comparative study that the effect of terrorism on business failures differed among developed, developing, and fragile states. While previous studies provided evidence on terrorism and business failure (Greenbaum et al., 2007; Tingbani et al., 2019), the city-level effect of terrorism on firms' exit has yet to be investigated.

Thus, Chapter 4 conducts an empirical study to explain the relationship between city-level terrorism and firms' exit strategies. A more nuanced consideration of location that accounts for within-country variation in terrorism and its interplay with the competitive positioning of the firm sets the stage for an insightful study to capture how terrorism functions as a locational liability; i.e., like a natural hazard, affecting firms more generally, or as a technological discontinuity, having a disproportionate effect on particular types of firms (Dai, Eden, & Beamish, 2017).

Previous studies on exit literature define exit by determining whether to include or exclude an assortment of voluntary and less than voluntary transitions (Kalnins et al., 2006). Thus, the types of firms' exit examined included bankruptcy, M&A, and buyback of shares. Classic organizational theory arguments are developed to support the relationship between firm attributes, terrorism, and exit. For example, previous literature on the uncertain business environments in combination with firm attributes such as age and size result in unpredictable changes in demand or disruption of dominant design (Aldrich & Auster, 1986; Anderson & Tushman, 2001; Stinchcombe, 1965; Suarez & Utterback, 1995). Also, the business environment and firms' internal attributes give rise to challenges in accessing and deploying resources including reputational concerns about firm legitimacy (Ruef & Scott, 1998).

Using the Cox regression model and Chi-square, this chapter examines the impact of terrorism on the 499 listed firms at the Pakistan Stock Exchange (Formerly Karachi Stock Exchange) for the period 1999-2015. Chapter 4 results point to a significant positive impact of city-level terrorism on firms' exit from the stock market. In further results, terrorism has a significant positive relationship with court driven liquidation (Bankruptcy), whereas no significant relationship with the buyback of shares or mergers and acquisitions. To capture the individual characteristics of specific sectors, our empirical analysis points to a more stronger firm exit of textile sectors in comparison to other sectors due to city-level terrorism.

Chapter 4 contributes to the literature by offering the first evidence on the relation of city-level terrorist attacks and the exit decision of emerging market listed firms. Our analysis is more precise than the previous studies of Tingbani et al. (2019) and Greenbaum et al. (2007) as we isolate actual bankruptcy cases, incorporate city-level measures of the location and severity of

terrorism, and consider geographically-tied aspects of competitive positioning. Our terrorism measures include local and spillover effects and their severity as a sequence of events in time, allowing us to consider the relative influence of more or less geographically and timely proximate terrorism.

Chapter 4 theoretically contributes by developing the concept "liabilities of location" as a way to appropriately align theory applicable to the study of a population of publicly-traded firms and to link classic population ecology arguments (McKelvey & Aldrich, 1983; Stinchcombe, 1965) with classic competitive positioning (Hambrick & Fredrickson, 2005) and economic cluster arguments found in the strategy literature (Porter, 1980, 1985, 1990). Our results provide evidence of the importance of considering the choice of industry, firm size, and buyer market (export/no export) and combining terrorism "location" influences. Future studies on survived firms that have not gone bankrupt would allow us to apply more clearly population ecology logics to both survival and exit alike.

5.3. Implications

5.3.1. Limitations and implications for research

This dissertation is amongst the first empirical studies to examine the relationships between terrorism and firms' business choices. In particular, the city-level analysis of terrorism brings new insights into firm-specific effects on business operations. This dissertation extends the existing research by highlighting the strategic significance of firms' management practices to safeguard the core of business operations against terrorism (Czinkota et al., 2005, 2010; Zeneli et al., 2018). Although, the number of management practices based on the literature is discussed in

the dissertation, it does not expand on which management practices or combinations of practices are good for depending on firms' characteristics and competitive positioning. Some insights are provided into the management practices of different size of firms, various geographic location and export intensity. A deeper exploration of these management insights offers an opportunity for future research. The limitations of this dissertation draw attention for future research.

Business managers have ranked terrorism as one of the biggest threats to businesses (PwC, 2018). Unfortunately, it is a more severe problem for emerging economies where terrorism is coupled with other serious issues of the society e.g., unemployment, illiteracy, and poverty. However, terrorism is a complex issue and the informative value of surveys is still limited. To address the limitations of this dissertation, future research might go multiple directions to explain the mechanism through which terrorism puffs business activities of firms, such as drilling down to a more rigorous estimation based on size, ownership, age, market, and sector of firms. Likewise, there is an opportunity to develop a more precise location-specific terrorism measurement considering city-level effects within a country.

Chapter 2 contributes to the literature by disentangling the effects of terrorism on international business for local and international firms, firms of different size, and firms in regions affected by terrorism to different degrees. It builds an argument that firms' strategy against terrorism is dependent on the perception and experience of firms operating in a terrorism-ridden region. The literature would benefit from further study of terrorism-specific firms' management practices to ensure the business continuity. As much of the research has focused on the defensive routines, it would be useful to study the entrepreneurial behavior of firms like the introduction of new products in the market or / and improvement of the existing products and

processes (O'Reilly & Tushman, 2004). Chapter 2 calls for a mixed method study that begins with interviews of leaders to learn more and probe their understanding of the processes that explain the relationship between terrorism and its impact on each department within a firm and the firms overall deterioration. This chapter also calls for future research on firms' sector-specific and city-specific mechanisms to examine the relationship of terrorism and the vertical and geographic interdependencies of their value chain processes and internalization activities. Additionally, our understanding about the relationship between terrorism and international business strategy can be enhanced by comparing buyer-supplier relationships of firms in the context of terrorism, i.e., foreign-foreign, foreign-local, local-foreign, and local-local relationships.

Chapter 3 is contributing to the international business literature by conducting research on a city-level unit of analysis that gives a more refined relationship between terrorism and firms export performance (Mudambi et al., 2018). Future investigation using panel data would enable us to observe variation in terrorism pattern and its impact on firms' export performance over time. Incorporating city data and supply chain structures would allow consideration of both space and time (Mingo et al., 2018). Future research might also focus on a more detailed analysis of how the publicly-traded firms' export activities are hampered and what measures firms take to deal with the issue of terrorism. Qualitative data could be used as a complement to better understand how leaders are experiencing terrorism over time. Interviews with managers might help in understanding the logic of particular anti-terrorism strategies needed to survive in the global market.

Chapter 4 introduces a new theoretical construct, liability of location. This extension of liabilities of age and size (Aldrich & Auster, 1986) could provide a supplemental approach for examining business continuity. Future study can focus on how firms overcome liabilities of location through resilience strategies. In particular, in-depth interviews and case studies to better understand the voluntary nature of stock market firms' exit (share buybacks, mergers & acquisitions) in relation to terrorism effects on future market opportunities would offer a more balanced strategic perspective on terrorism.

In sum, this dissertation sets the stage for continued research on the relationship between terrorism and its effects on business. In particular, it draws attention to a combination of physical and psychological mechanisms that arise within and across businesses. Research should acknowledge that terrorism is a serious concern not only in Pakistan, but also a serious concern for partner firms in foreign destinations.

5.3.2. Implications for Policy

The implications of this dissertation can help policymakers to draw policy recommendations in the context of terrorism and business activities of the firms. This dissertation mainly focuses on the management practices of firms operating in a terrorism-stricken country e.g., Pakistan. These findings offer novel policy recommendations suggested by the firms interviewed to achieve individual and collective objectives of firms in particular and of the economy in general. Firm 'O' has pointed out the impact of government policies on the business:

> "Failure of the firms is due to inconsistent policies of the government and poor management strategies of the companies." [Interview conducted on April 15, 2018]

Terrorism is an external environment challenge for the firms that may not be handled all alone. This work hints the logic of decision making under uncertainty through specific business practices that can determine the severity of the relationship between terrorism in the city and the sensitivity of the firms. Business-environment is to some extent beyond the control of a firm; the intervention of government can address the security-related issues and ensure a robust ecology of businesses. For example, a manager from Firm 'P' has mentioned:

> "Terrorism increases uncertainty for business and big economic decisions. We have faced situations when our customers changed their mind to visit us. It is very embarrassing for us when they tell us about security concerns. We can't improve security situation alone. It is the responsibility of government to ensure peace in the region..." [Interview conducted on March 29, 2018]

The perception of foreign customers may be changed by taking regional security measures to ensure the safety of customers. This dissertation suggests that government can help firms to enhance the outreach of business linkages through smart diplomacy and simplified trade agreements. For example, the alignment of trade and foreign policy might facilitate firms to build credibility and trust for long term business ties. Multilateral and bilateral negotiations by allowing access to relevant information of business personnel through the establishment of institutional mechanisms may ease up the visa process in countries with strict visa policies. Ease of mobility may result in opening the avenues for new business connections.

Furthermore, an open visa policy may help in two aspects: firstly, it may help in attracting foreign business delegates to explore business opportunities; secondly, it can boost the tourism industry that consequently builds a soft image of the country. Based on the answers of firms from the interview, Firm 'Q' corroborates the importance of visa policy:

> "It is difficult to survive in international market. Our government is not sincere with business community. We are paying double price for our booth. Three business people could not get visas. They have no ability to fight for their businessmen. They have no research for these trade fairs." [Interview conducted on April 15, 2018]

Also, the government can provide incentives in the shape of excise and taxation rebates to firms that are consistently maintaining the internationalization process despite being exposed to the risk of terrorism. Concerned authorities may ensure the transparency and set regulations for export-oriented firms to expedite the scrutiny of delivered products. Similarly, for the business operations in a local environment, the infrastructure development of roads and ports to stock products of remotely located firms might somehow solve the challenge of supply chain disruptions. The lesser the dependency of a firm on other cities makes business process easier. For example, a single-source transportation facility, the lower the vulnerability of the internal value chain activities of firms under uncertainty. A public-private partnership and collaborative actions might help in establishing infrastructures such as dry-ports, road access, and innovative cargo service to gain customers' confidence. Firms' ability to supply uninterruptedly in the middle of terrorism to foreign destinations can change the business reputation in the eye of customers. Given the findings that terrorism is a big issue for the international business activities of the firms, policymakers are advised to pay attention to the complexities of the value chain process for small regions where lack of infrastructure creates more trouble for business operations of the firms.

The findings of this dissertation point to a trend of decline in export sales due to terrorist attacks in the city (Chapter 3). It is therefore crucial for the policymakers to improve the ease of doing business, on-arrival visas to foreign investors, and foolproof security facilities. The perception of the customer decides the fate of a firm in a global business environment. A caring

approach of the policymakers can be depicted by offering practical solutions to firms to deal with the threat or effects of terrorism. The matter of terrorism can potentially tarnish the business connections of export-dependent firms.

In a policy framework, terrorism-related policy shifts may change the complexities involved at each stage of business dimensions of a firm operating in a terrorism-plague country. Lack of planning to address terrorism risk might endanger the survival of the firms. To avoid such situations, there is a role of public-private partnerships that may help in drafting policy guidelines to achieve economic objectives. Foreign policy may reflect a business-friendly environment to attract investment from abroad. In a nutshell, a safe business environment and strong institutions in a country can ensure long-lasting business network with domestic and foreign customers. For example, firm 'R' has explained:

> "Terrorism is unhealthy for business activities and economy of Pakistan. It has reduced the demand of customers, and customers are afraid to visit our factory. We have to pay higher wages to our workers to keep our production in flow. We have to spend more on security. Likewise terrorism is not good for economy, because government has to readjust their priorities; they have to cut their development budget on security budget. That's why we lack infrastructure and improvement in our system." [Interview conducted on March 29, 2018]

Ministries and Chamber of Commerce in Pakistan have shown interest in the findings of this dissertation. The independent chapters identify the different relationships between terrorism and firms to give guidelines to policymakers for future policy recommendations.

5.3.3. Implications for Managers

The implications for research can be extended into practical implications for managers. This dissertation opens up an important and relevant topic of seeking competitive advantage in the context of terrorism. Management practices that allow firms to continue to be a reliable commercial partner are especially important. Managers must be aware of the potential repercussion on the business operations and developing international markers amid terrorism. This dissertation informs management decisions in three aspects: firms' unique characteristics, effects of terrorism on firms' operation, exports and exit.

Firms' unique characteristics are a combination of size, location, and customers. This dissertation draws attention to the interplay between the internal environment of firms and external environment challenges. In a business environment, terrorism disrupts business operations (Chapter 2), shrinks export performance (Chapter 3), and fosters the exit of firms (Chapter 4). This dissertation provides awareness to managers about their decision to minimize disruption, sustain exports, and enhance the longevity of firms.

Management practices explained in Chapter 2 give an overview of firms' conduct with specific firms' characteristics. Management practices are like a magnetic field around the core of the firm that repels the negative waves that could disrupt the cohesion of business operations. Managers need to understand which management practices are essential to their business continuity and competitive positioning and focus on the resilience of those practices. Chapter 2 of this dissertation provides rich primary data that shows variation in the strategic responses to address the effects of terrorism on business operations.

The managerial implications of city-level effects are more evident in Chapter 3 and Chapter 4. The dependence of firms on suppliers from terrorism-prone cities increases the uncertainty for their sales in foreign market. Similarly, the complexity of global value chain may create difficulties for firms even when they are located in less terrorism-affected cities. In the absence of customized management practices of firms, terrorism leads to a decline in export ratio. The dependence of a firm on export could result in exit of firms through bankruptcy. The effects or threats of terrorism appeared to depend on the perception and actions taken by managers to safeguard business activities.

The aforementioned managerial implications are directly related to the analyses presented in Chapters 2, 3, and 4. Chapters 3 and 4 utilize secondary panel data that capture trends over time and space, while the interview responses in Chapter 2 corroborate the inferences drawn from analyses in Chapter 3 and Chapter 4. Additional managerial insights, derived from open-ended responses are offered below.

Managers must understand the value of communication through innovative strategies to gain the confidence of foreign customers for retaining existing business orders and setting a stage for establishing new markets. Internationally engaged firms' managers must fight at two frontiers. They first, must create business activities to ensure production of goods at the firm level. Secondly, they need to create a stable global value chain and go the extra mile to achieve competitive advantage through credible business connection with foreign customers.

The implications for managers drawn from this dissertation are categorized into two groups based on the market focus of the firms. Local and foreign market-focused firms have different business environments to deal with. The exposure of terrorism risk and sensitivity of customer

relationships determine the gravity of the counter-terrorism strategy of the firms. Managers aim to survive firm under the uncertainty of terrorism and implementing business-related contextual practices to ensure business continuity. Business managers can devise innovative anti-terrorism practices that may enable businesses to achieve a competitive advantage in the local and foreign markets. Terrorist attacks create bad word-of-mouth; therefore, business practitioners must be aware of the fact that the adversity of terrorism can lead to business decay.

Succinctly, the three major aspects of this dissertation are, namely firm-specific characteristics, location-specific terrorism effect on firms (operations, exports, and exit), and the significance of firms' rigorous terrorism management practices. This dissertation provides empirical evidence of terrorism and firms' behavior in a particular country context. Improving the business environment via thorough security and safety arrangements for local and foreign customers may change the perception. The counter-terrorism business strategy may help firms in restoring the image and gaining the confidence of customers. Unfortunately, terrorism is a dominating hurdle in the economic activities of firms in Pakistan. The economic goals of Pakistan are dependent on the business environment in the economic hotspots. A lack of customer trust may cause business failure for the firms. Thus, management practices may not only make possible the protection of firms but also put back the customer connection.

5.4. Conclusion

This dissertation is an effort to enhance the understanding of firms' management practices to cope with the challenge of terrorism to sustain export performance and survival of the firms. Management practices can increase the immunity of firms to run day-to-day business operations

and stay competitive in the local and foreign markets. This dissertation provides recommendations to address other difficult situations that arise. For example, the current situation of COVID-19 has disrupted the business environment at a regional and global context; the resultant guidelines may assist with this disruption.

Management practices explained in this dissertation can be tailored to other contexts and used to develop safety mechanisms against other difficult business situations. The complexity and variation of terrorist incidents in the context of firms' business operations in Pakistan might recommend certain actions in response to other difficult situations across the globe to maintain the survival, sustainability, and growth in local and foreign markets. By addressing selected themes of terrorism and firms' perspective on resilience strategies, this dissertation motivates the continual scientific discussions with practical solutions in the fields of international business, strategy, and decision making under extreme uncertainty caused by exogenous shocks to generate diverse opportunities for future research.

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APPENDIX A

Survey for Trade Fairs in Germany and Pakistan

(Chapter 2)

1. Survey for Heimtextil 2018

Frankfurt, Germany, January 9-12, 2018

2. Survey for Textile Asia 2018

Karachi, Pakistan, March 27-29, 2018

3. Survey for FIBO Global Fitness 2018

Cologne, Germany, April 12-15, 2018

This survey collects information on your enterprise's business organization, internationalization, and obstacles to business.

The information obtained here will be held in the **strictest confidentiality**. Neither your name nor the name of your business will be used in any document based on this survey.

Thank you very much for your cooperation.

Name of Enterprise: _____

Main industry: _____

Main products: _____

Address: _____

Contact details of respondent (or business card)

Name: _____

Job title: _____

Phone : _____

E-mail: _____

General information about the enterprise

1. What is the **founding year** of your enterprise? | | | | |

2. Is your enterprise part of an **enterprise group**?

Yes ☐ No ☐

If yes, is it a foreign enterprise group? Yes ☐ No ☐

If yes, in which country is the head office of your group located?_____

3. Does your enterprise have **subsidiaries in Pakistan**?

Yes ☐ No ☐

If yes, in which cities and what is the number of subsidiaries per city?

City in Pakistan	No. of subsidiaries
1.	
2.	
3.	

4. Does your enterprise have **subsidiaries outside of Pakistan**?

Yes ☐ No ☐

If yes, in which countries and what is the number of subsidiaries per country?

Country	No. of subsidiaries
1.	
2.	
3.	

5. What was your enterprise's average **number of employees** in 2015 and 2016?

2015

2016

6. What was your enterprise's **total sales** for 2015 and 2016 (in Pakistani Rupee)?

2015

2016

7. What proportion of your enterprise's **total sales is attributable to exports**?

	2015	2016
Share of exports in total sales	_____ %	_____%

8. For how many years have you been exporting abroad?

	1-5 years	6 - 10 years	11 - 15 years	> 15 years
Exporting for	☐	☐	☐	☐

9. If your company exports and imports, what are your **export and import markets**?

	Exporting to		Importing from	
Europe	Yes ☐	No ☐	Yes ☐	No ☐
… Germany	Yes ☐	No ☐	Yes ☐	No ☐
North America (USA & Canada)	Yes ☐	No ☐	Yes ☐	No ☐
South America	Yes ☐	No ☐	Yes ☐	No ☐
Asia	Yes ☐	No ☐	Yes ☐	No ☐
… China	Yes ☐	No ☐	Yes ☐	No ☐
… Afghanistan	Yes ☐	No ☐	Yes ☐	No ☐
… United Arab Emirates	Yes ☐	No ☐	Yes ☐	No ☐
Africa	Yes ☐	No ☐	Yes ☐	No ☐
Australia & New Zealand	Yes ☐	No ☐	Yes ☐	No ☐
Others	Yes ☐	No ☐	Yes ☐	No ☐

10. What is your **most important export market**? _____

11. What is your **most important import market**? _____

12. Who are your **main customers** in Germany?

German enterprise (name)	Address in Germany
1.	
2.	
3.	

Doing business:

Obstacles and management practices

13. To what degree are the following issues an **obstacle to the current operations of your enterprise in Pakistan**?

Obstacle to the current operations of your enterprise in Pakistan	No obstacle	Minor obstacle	Moderate obstacle	Major obstacle	Very severe obstacle
Tax rates	☐	☐	☐	☐	☐
Tax administration	☐	☐	☐	☐	☐
Political instability	☐	☐	☐	☐	☐
Corruption	☐	☐	☐	☐	☐
Terrorism	☐	☐	☐	☐	☐
Crime, theft, disorder	☐	☐	☐	☐	☐
Customs and trade regulations	☐	☐	☐	☐	☐
Transport	☐	☐	☐	☐	☐
Electricity	☐	☐	☐	☐	☐
Telecommunications	☐	☐	☐	☐	☐
Inadequately educated workforce	☐	☐	☐	☐	☐
Courts	☐	☐	☐	☐	☐
Business licensing and permits	☐	☐	☐	☐	☐
Labor regulations	☐	☐	☐	☐	☐
Practices of competitors in the informal sector	☐	☐	☐	☐	☐
Access to land	☐	☐	☐	☐	☐
Access to finance	☐	☐	☐	☐	☐

14. How much money has your enterprise approximately spent on **security and anti-terrorism measures** in 2015 and 2016 (in Pakistani Rupee)?

	< 100000 Rs	100000 Rs – 200000 Rs	200000 Rs – 500000 Rs	500000 Rs – 1000000 Rs	> 1000000 Rs
2015	☐	☐	☐	☐	☐
2016	☐	☐	☐	☐	☐

15. **Effects of terrorism or threats of terrorism in Pakistan for your enterprise**.

Please rate the following statements on a scale from "1" to "7".

"1 – strongly agree"
"2 – agree"
"3 – agree somewhat"
"4 – neither agree nor disagree"
"5 – disagree somewhat"
"6 – disagree"
"7 – strongly disagree"

	Effects and threats of terrorism in Pakistan	
1.	My enterprise was affected by terrorism in the past.	1 2 3 4 5 6 7
2.	My enterprise is concerned about effects or threats of terrorism.	1 2 3 4 5 6 7
3.	I expect that my enterprise will be negatively affected by terrorism within the next 5 years.	1 2 3 4 5 6 7

16. To what extent have the business operations of your enterprise ever been **affected by terrorist activities in Pakistan**?

Please rate the following statements on a scale from "1 – strongly agree" to "7 – strongly disagree".

	Effects of terrorism on your business operations in Pakistan	
1.	Physical damages (e.g. enterprise buildings)	1 2 3 4 5 6 7

	Effects of terrorism on your business operations in Pakistan	
2.	Lower demand by customers from Pakistan	1 2 3 4 5 6 7
3.	Lower demand by customers from abroad	1 2 3 4 5 6 7
4.	Customers are reluctant to come to Pakistan to visit my enterprise	1 2 3 4 5 6 7
5.	Unpredictable supply chain shifts and interruptions	1 2 3 4 5 6 7
6.	Supply chain direct costs have gone up	1 2 3 4 5 6 7
7.	Longer delivery times	1 2 3 4 5 6 7
8.	Injured or killed employees	1 2 3 4 5 6 7
9.	Higher labour costs	1 2 3 4 5 6 7
10.	Higher insurance costs	1 2 3 4 5 6 7

17. How does your enterprise **deal with the effects or threats of terrorism**?

Please rate the following statements on a scale from "1 – strongly agree" to "7 – strongly disagree".

	Management practices to deal with terrorism	
1.	My enterprise has a formalized program designed to reduce the probability of terrorist attacks and to deal with the terrorist if an attack occurs (i.e. terrorism contingency plan).	1 2 3 4 5 6 7
2.	My enterprise has decentralized business operations and buildings to ensure business continuity in the event of a terrorist attack.	1 2 3 4 5 6 7
3.	My enterprise moves critical operations or branching out into less terrorism-prone areas.	1 2 3 4 5 6 7
4.	My enterprise identifies vulnerabilities across the firm's internal value chain.	1 2 3 4 5 6 7
5.	My enterprise relies on government measures to counter terrorism.	1 2 3 4 5 6 7

	Management practices to deal with terrorism	
6.	My enterprise increased the number of security staff.	1 2 3 4 5 6 7
7.	My enterprise's decision-making is decentralized rather than centralized.	1 2 3 4 5 6 7
8.	My enterprise has an escape and security plan in place.	1 2 3 4 5 6 7
9.	My enterprise is prepared for the rapid repair and replacement of damaged physical assets after a terrorist attack.	1 2 3 4 5 6 7
10.	My enterprise discusses the risk of terrorism and anti-terrorism measures with customers.	1 2 3 4 5 6 7
11.	My enterprise offers to provide safe travel arrangements for visiting customers.	1 2 3 4 5 6 7
12.	My enterprise has increased safety stocks of inventory.	1 2 3 4 5 6 7
13.	My enterprise relies on alternative suppliers in different locations rather than on a single source supplier.	1 2 3 4 5 6 7
14.	My enterprise has increased the amount of material sourced from less terrorism-prone areas.	1 2 3 4 5 6 7
15.	My enterprise has broadened its shipping arrangements with alternative modes of transportation (contingency transportation arrangements).	1 2 3 4 5 6 7
16.	My enterprise provides training to employees how to behave in case of a terrorist event.	1 2 3 4 5 6 7
17.	My enterprise offers extra insurance and higher wages for employees.	1 2 3 4 5 6 7
18.	My enterprise is prepared to provide financial, medical and psychological help in case of terrorist attacks.	1 2 3 4 5 6 7
19.	My enterprise has rules of succession for every leading position.	1 2 3 4 5 6 7

18. Does it make a difference for the business operations for your enterprise if terrorist attacks take place in the city where your enterprise is situated compared to terrorist attacks that take place in the same region or in other regions of Pakistan? If yes, could you please describe the differences for your operations?

19. How do you assess terrorism in Pakistan with regard to the business activities of your enterprise and with regard to the economy in general?

20. How can enterprises fail due to terrorism? (Only for Textile Asia 2018 & FIBO 2018 Surveys)

21. In case we have **further queries**, could we contact you again in the future?

Yes ☐ No ☐

Thank you again for your participation!

APPENDIX B

B. Econometric Specification (Chapter 4)

The aim of using survival analysis is to capture the probability of happening of an event. We used four different survival approaches to test our hypotheses. Among the known parametric distributions, only the exponential, the Weibull and the Gompertz model share the assumption of proportional hazards with the Cox regression model (Bender et al., 2005). A distribution whose hazard function slopes upward is said to have positive duration dependence (Greene, 2008). For such distribution, the likelihood of failure at time *t*, conditional upon duration up to time *t*, is increasing in *t*. The opposite case is that of decreasing hazard or negative duration dependence. The question about whether a firm is more or less likely to exit at time *t* given that it has lasted until time *t* can be framed in terms of positive or negative duration dependence. The most common approach is to use the Cox regression model (Shumway, 2001).

Cox's (1972, 1975) model specifies that

$$\lambda(t_i) = \exp(x'_i\beta)\lambda_0(t_i) \qquad \text{(B.1)}$$

The function λ_0 is the "baseline" hazard, which is the individual heterogeneity. In principle, this hazard is a parameter for each observation that must be estimated. Cox's partial likelihood estimator provides a method of estimating β without requiring an estimation of λ_0. The hazard function[36] $h_0(t)$, is defined as follows:

$$h(t) = f(t) / S(t) \qquad \text{(B.2)}$$

[36] Cameron and Trivedi (2005)

where *f(t)* is the probability density function and *S(t)* is the survivor function of the duration of firms to stay. The parametric form of any given model depends on the choice of $h_0(t)$. The hazard function of this distribution, conditional on the regressor, X, is

$$h\,(t;\,X) = \exp(\,X\beta\,)\,\alpha t^{\alpha-1} \qquad \text{(B.3)}$$

$$exp(\,X\beta\,) = exp(\,LAG1\_Total\ Terrorism\ Index * \beta_1 + LAG2\_Total\ Terrorism\ Index * \beta_2 + LAG3\_Total\ Terrorism\ Index * \beta_3 + LAG4\_Total\ Terrorism\ Index * \beta_4 + LAG5\_Total\ Terrorism\ Index * \beta_5 + e) \qquad \text{(B.4)}$$

To illustrate the differences between the Cox model and the other three, we present the hazard functions and survival functions (see Table 4.12). This table shows two parameters, a location parameter (λ) and a scale parameter (*p*). All these are distributions for a nonnegative random variable. As shown in the table, their hazard functions display very different behavior.

Table B.1: Hazard Functions and Survival Functions

Distribution	**Hazard Function, λ (t)**	**Survival Function, S (t)**
Exponential	$h_0(t) = \lambda$	$S_0(t) = \exp(-\lambda t)$
Weibull	$h_0(t) = \lambda p t^{p-1}$	$S_0(t) = \exp(-\lambda t^p)$
Gompertz	$h_0(t) = \exp(\alpha t)$	$S_0(t) = \exp\left(\frac{\lambda}{\alpha}(1 - \exp(\alpha t))\right)$

Source: Greene (2008); Bender et al. (2005)

To test the hypotheses of this study, we estimated each model. The strength of survival analysis techniques includes the ability to handle censored observations. Censored observations arise when the duration of a study is limited. Some firms in the sample appear to never experience any additional financial distress events except bankruptcy. These firms represent censored observations and can arise for several reasons. Survival analysis methods consider these censored observations and thus avoid sampling bias (Shumway, 2001). Cox regression is also a nonparametric method and robust to non-normal distribution.