

The Hidden Costs of Ubiquity: Globalisation and Terrorism

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The Hidden Costs of Ubiquity: Globalisation and Terrorism

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Abstract

Terrorism is not a natural hazard outside the range of corporate decision-making. Simple micro-economic analysis shows how globalisation changed the supply of terrorist attacks and the costs for tolerating terrorist hazard. Approaches developed in organizational strategy help to single out three strategic decisions directly affecting the vulnerability of firms in a globalised world: exposure, geographical spread, and organisational form. The analysis suggests that the gains from ubiquity, leanness in production, and long-term commitment need to be adjusted for the terrorist hazard involved.

1. Introduction

Terrorism affects firms: their physical assets, the lives of their employees, their knowledge base and their reputation. Terrorism did not start with the attack on the World Trade Centre in New York 2001, neither is terrorism limited to spectacular acts (Schelling, 1991). There is a banal version of terrorism with a long historical record for attacking special social groups, government organisations, public utilities, and, indeed, firms (Table 1).

Table 1 Terrorism after WWII

Period	Example	Context	Legitimation	Targets	Appeal to general public
1945-1968¹	Indochina, India, Pakistan, Indonesia, Malaysia, Philippines, Algeria	Attempt to rebuild the pre-WWII colonial empires	“Theory-based”; Marxism, Nationalism	Building of guerrilla strongholds from which to expand control over territories; destruction of colonial political and economic infrastructure	Appealing to “universal” values; using media for mobilising sympathy for a <i>just cause</i> ; media divided in sympathizers and opponents
1968- 1972²	Indochina, Bolivia, Palestine Africa	Nation-building; Correction of colonial legacy; civil war based terrorism	Self-determination; Neo-Marxism	Control over territories; destruction of political and economic infrastructure of incumbent regimes	See above
1972-mid 80s³	France, Austria (Vienna, OPEC) Italy, Germany (Munich, Olympics), Palestine, USA (Hearst)	Wider economic integration; Oil Crisis; radicalisation of segments of the civic rights movement	End of classical theory-based terrorism; diffused anti-capitalism critique	Destruction of <i>capitalist institutions</i> : multinationals, cartels, attacks and kidnapping as a means to re-finance terrorist activities, extortion	End of seeking universal sympathy; use of media for making the cause or the terrorist group “known”
Mid-80s-2000	(1) Egypt, Middle-East; Iran, Iraq, UK (S. Rushdie), Taliban	Re-newed religious fundamentalism	Fight against the heretics	Destruction of places of worshipping and economic infrastructure of the heretics	Media used for mobilising the support of the believers; media used for making group activities known
	(2) UK (radical animal rights activists Japan (subway)	Pseudo-religious groups	See above	See above	See above
	(3) Latin-America, Africa; after 1989: Central/East Europe Central Asia	Weakening of economic border controls; collapse socialism, weak states	No legitimation offered; commercialisation of terrorism “Banditry”	Destruction of physical assets and human capital of international firms and competing producers/traders	Using the media for logistic purposes and getting attention
2000 -	Taliban, Columbia, Thai/Philippine connection	Globalisation	Merging of (1) and (2); diffuse justifications	Destruction of economic resources without acknowledging the background of owners	See above

¹ With the war in Algeria ends the first period of decolonisation

² The end of this period is defined by the death of Che Guevara and the beginning of the war in Vietnam as a war North- against South-Vietnam

³ The end of this period is defined by the hostage taking in the embassy of Iran in London by “fundamentalists” indicating a new religious fundamentalism and the end of the belief that social and economic reforms will find a broad worldwide consensus.

Yet, to the best of our knowledge there is no literature that pays attention to the fact that *protecting a firm's resource base against terrorism is as crucial a management task as increasing its asset's value*. Leading management journals have produced only a handful of articles on terrorism¹. This suggests that terrorism is seen as a political problem whose analysis is left to highly specialised journals such as *Terrorism and Political Violence*, *Defence Economics*, *Journal of Conflict Resolution*, or *Terrorism*. Only recently has terrorism attracted the attention of political economists (Frey and Luechinger, 2003)² or journals such as the Harvard Business Review. While this literature focuses on certain features of terrorism, as for example Selten's model of Kidnapping (Selten, 1988), or studies of terrorism and tourism (Pizam and Smith, 2000; Drakos and Kutan, 2001), terrorism and trade (Walkenhorst and Dihel, 2002; Ender and Sanders, 2000; Nitsch and Schumacher, 2002), or terrorism and growth (Abadie and Gardeazabal, 2003), research on how firms can meet the challenge terrorism poses is rarely addressed (an exception is Harvey, 1992).

To claim that ideologies such as religious fundamentalism are the driving force behind the present wave of terrorism misses the point (Laqueur, 1977). Acts of terrorism can be found in all (conventional) wars, wars of independence, and civil wars and will be legitimised by any ideology. What has changed however in the recent past is the worldwide attention terrorism can attract, the worldwide operation of terrorists, and the worldwide exposure of firms to such a threat (Enders and Sanders, 2000; Enders and Sanders, 1996). In short, it can be claimed that globalisation has changed the rules of the game for both terrorists and firms.

The following attempts to fill the gap in the literature by first, offering a simple model on terrorism as seen from the firms' perspective, and second, by showing how globalisation affects the scale and effectivity of terrorist attacks, as well as companies ability to cope with terrorists hazard. It will be shown that firms need to analyse terrorist hazard in a globalised world, and what deterrence strategies are available that allow preventing or limiting such a terrorist hazard.

Terrorism in general terms refers to the intentional destruction of resources, in particular physical assets, and knowledge assets, i.e. the lives and knowledge of one individual or one group of people. In the eighties already attacks against business or other private interests added up to three quarters of all "anti-US-American" terrorists attacks (Kovsky, 1990). The prime target is not usually a person, in which case one would talk about a political murder, or a state, in which case one would talk about a civil war, but organization such as for example firms. The overall effect of terrorism is the reduction of the total capital stock of a society. Another consequence is the loss in worldwide trade. Thus for example based on data from 200 countries over the period 1960 – 1993 one study showed that "a doubling in the number of terrorist incidents (a rise by 100 percent) is associated with a decrease in bilateral trade by about 6 per cent" (Nitsch and Schumacher, 2002: 5) even if adjusted for alternative causes of violence such as political instability or military conflict.

Terrorism though widespread is not found in all countries, neither is terrorism a stable feature in the business world. Not all firms face the same risk in form of being singled out as targets for terrorist attacks, and not all firms occupy the highest position in the ranking of "worthwhile" targets all the time. For this reason alone terrorism must not be

“accepted” as a form of natural hazard to which firms cannot but passively react. As will be shown in what follows, there is a subtle but crucial interaction between management strategies and a terrorist groups’ decision what, whom, how, and how often to attack. Only by analysing the interaction between firms operating in international markets and the *rationale* of terrorist groups, strategic variables can be singled out that help the management to systematically respond, if not anticipate terrorist hazard.

Globalisation affects both terrorism and peaceful trade. This is so because technical innovation and the expansion of markets know no morality. There is no discrimination between “good” and “bad” products, “good” and “bad” production techniques, or “good” and “bad” forms of investment. Subsequently, the benefits globalisation offers are not limited to private production and trade. Instead the production, trade and information sharing within and amongst terrorist groups has also profited from the IT-revolution, trade liberalisation and the changes in the international market for news. As will be shown in what follows there is, however, an asymmetric effect of globalisation. While terrorists benefited from globalisation in form of higher effectivity, i.e. damage per attack, firms face higher risks and rapidly increasing deterrence costs. Only the systematic analysis of the interaction between firm’s international investment (strategies) and terrorist activities allows clarifying the vulnerability of a firm, and assessing the trade-offs between usual (competition driven) and deterrence strategies.

The paper proceeds as follows. It starts with the introduction of a simple model introducing the interaction between terrorist destruction and firms protection of assets (sec.2). It will be shown that there is a “market” for terrorism where the supply of terrorism determined by number of attacks and effectivity per attack meets not “demand”

in its conventional sense but *toleration* of an insecure environment, defined by the firms willingness to invest or maintain operations in locations with a high risk of terrorist hazard. To which extent globalisation changed the behaviour of both terrorists as suppliers and tolerating firms will be analysed in sec. 3. The paper ends with a discussion of the trade-offs between strategies that allow exploiting the chances offered by globalisation and the need to cope with terrorist hazard.

2. The interaction between terrorism and firms

2.1 The supply of terrorism

Using the market analogy it can be assumed that terrorist groups produce a specific good, terrorist activities whose frequency depends on the “risk adjusted” expected effectivity. Terrorist attacks do not aim at maximum damage measured by total value of resources (and lives) destroyed. Instead we observe two factors playing a crucial role for identifying targets for attack, *disruption* of economic life of a country or an organisation of a firm, and attention by a worldwide audience a terrorist group can expect. In the case of an economy the direct damage is not limited to the replacement costs of the destroyed assets but includes the costs in form of “production and exchange foregone” for the time the normal economic life of a country comes to a standstill. It is for this reason that infrastructure such as railway tracks or airports, but also oil pipelines are high on the list of attractive targets. The total damage however, needs to include also changes in production and consumption patterns, more regulation leading to higher transaction costs in trade, and higher costs for security.

Likewise, terrorist attacks, or sabotage in firms do not aim necessarily on maximum damage. To destroy the production site of one crucial component in a value chain of a company promises higher damage in terms of disrupting the production process. To harm oil companies one does not need to destroy, mostly heavily protected, oilfields, to attack pipelines is enough³. As in the case of a country the damage is not limited to the material costs (for a stretch of pipeline) but includes the loss in production, the need to build up inventories of all firms relying on the input, higher insurance and more safety devices.

The disruption of economic processes is not the only aim of terrorist attacks. As table 1 shows to attract the attention of the world press is another factor that defines the attractiveness of targets. The spectacularity of an attack ensures world wide press coverage which in turn makes the group internationally known and offers the feeling of *aggrandisement* or revenge most terrorist leaders seem to be motivated by. The literature speaks about high impact incidents (Wilkinson, 2000) whenever the target are persons such as religious leaders or buildings, for example the Tamil library in Sri Lanka or Angkor Wat in Cambodia, that are regarded as unique. Another target are persons and buildings that symbolize a certain ideology, life style or centre of power of a state, a religious organization or a firm. The murder of major politicians, such as Kennedy in the U.S., Palme in Sweden, Rabin in Israel, Moro in Italy fall in this category, as does the attack on the WTC in New York and the attack on the Indian parliament in 2001. A bomb thrown into the local branch of the Deutsche Bank in Germany killing several people barely attracts the attention the murder of the CEO of the same bank (Alfred Herrhausen) got. In all these cases the predictable reaction was the awareness of vulnerability, if not the wish to retaliate. This reaction, in turn, will lead to increased spending for arms and safety equipment, a redirection of trade, less mobility and the re-establishment of national

borders, ultimately harming world trade (Frey, 1988).

In short, terrorist attacks cause an economic damage at a country level and in worldwide trade, and an operational damage at the level of a firm, the latter of which is at the core of what follows. Though very hard to measure the following data exclusively concentrating on the effect of the Sept. 11th, show the dimension of the problem (Joint Economic Committee, 2002): It is estimated that the increased expenses for *homeland security* and the accompanying new regulations led to an increase in transaction costs for US-export and import that add up to 1 to 3 per cent of the value of these traded goods (Hobijn, 2002). Another study shows that in the US firms increased their inventories by 10 per cent, and pay 20 per cent more in commercial insurance after September 11th (UBS Warburg, 2001). Higher costs for protecting assets translate into a reduction in productivity, a 1.12 per cent decline in labour productivity, and a 0.63 per cent decline in total factor productivity which in absolute terms adds up to seventy billion US-\$ after Sept 11th (Hobijn, 2002).

In general terms an economic analysis claims that with increasing net damage (damage plus attention minus costs) the frequency of attacks increases not unlike the product markets where increasing product prices set positive incentives to increase production (see Figure 1). What is claimed here however is that globalisation, understood as the IT-revolution and internationalisation in world trade, lead to higher net gains per attack which results in a shift to the left of the supply curve for terrorism. Before this development will be discussed the determinants of a firm's willingness to tolerate terrorist hazard need to be introduced.

2.2. The toleration of terrorist attacks

There is of course no positive demand for terrorism by private industry, or any other organisation. The demand function (see Figure 1) is rather the derivative of the calculation to end operation and investment or remain in one location despite terrorists hazard. Firms do not immediately leave or avoid a special location when they learn about terrorism. Managers know or assume that not all firms will be attacked at the same time and that different firms or sectors face different degrees of vulnerability. Not all firms or industries are singled out as a target. Terrorist hazard is not “equally distributed” across countries or sectors. The demand curve therefore is better described as the *toleration function* of firms (or other organisations) with respect to terrorist hazard. It is claimed here that the hazard concentrates on firms and industries that can be described by three specific features:.

1. *Exposure generates vulnerability.* Exposure reflects first size, reputation, dominance, or strategic importance of firms and/or their products. The better known a company or its products the higher is the risk to get singled out as a target. Exposure reflects second the symbolic value of firms and industries when for example they are regarded as successors of the (old) colonial power (ING in Indonesia), the representative of a lifestyle (Mac Donalds), unbridled capitalism (pharmaceutical industry with its genetic products and animal testing), or too close a partner of a rejected political regime (De Beers in Apartheid South Africa). To aim at *obscurity* would be a remedy; to hide behind relatively unknown (brand) names, or to keep a low profile by using local joint venture

partners is another way to escape high exposure, yet works to the detriment of international marketing.

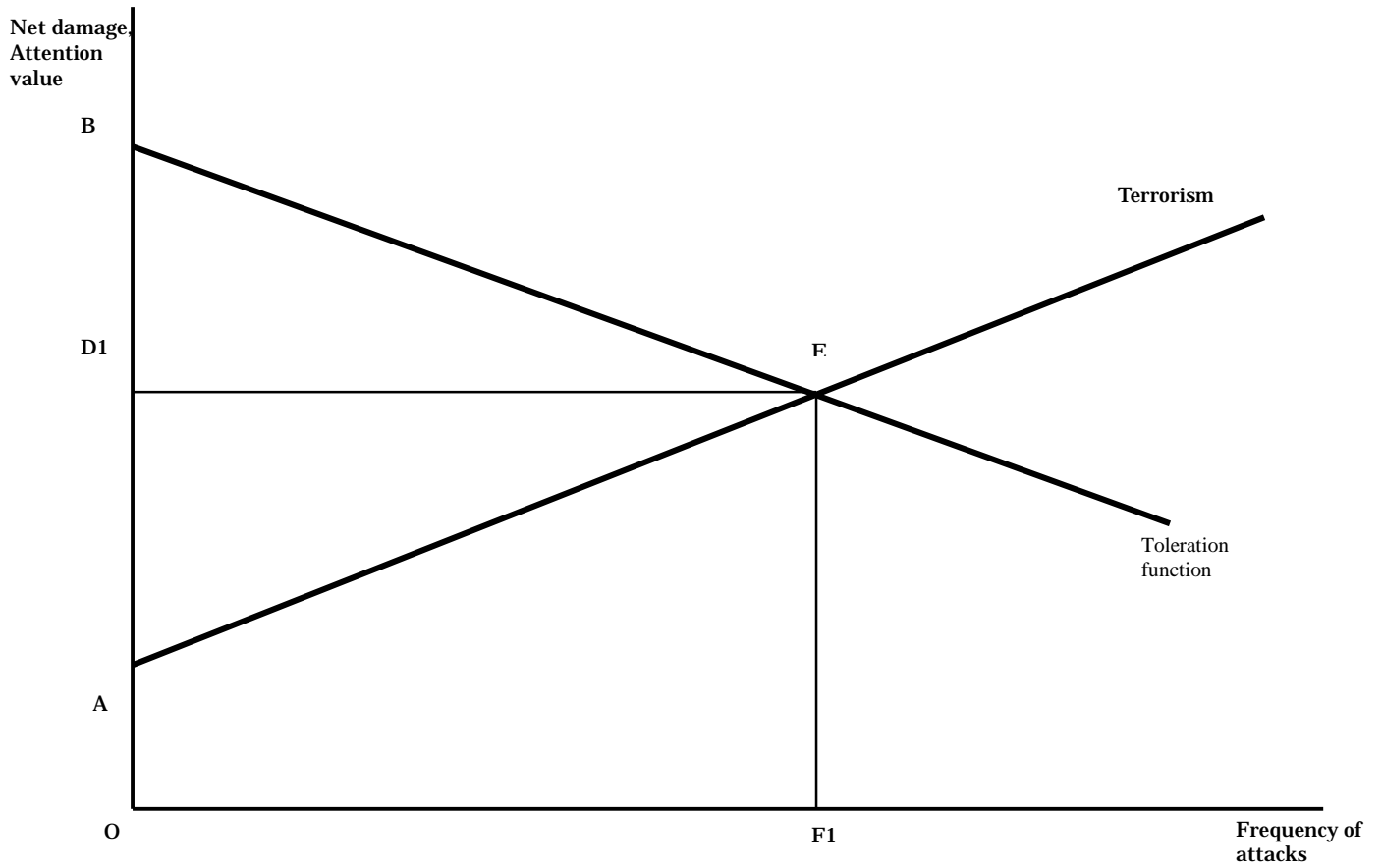
2. *Geographical spread of firms generates vulnerability.* In the globalised world terrorists do no longer have to travel to firm's home base, attacking a subsidiary is enough. For attacking a much frowned upon market such as the financial or oil market one does no longer have to travel to New York or London, or to attack the OPEC headquarter in Vienna. Diversification, increasing foreign direct investment and the internationalisation of production and supply chains brings potential targets closer to the home base of terrorist groups where they enjoy a strategic advantage. To aim at *safe havens* or to keep strategic options would be a remedy. To relocate production and areas of operation to regions with a low general level of terrorist hazard is one way to keep the risk at bay, yet implies that factor cost and competitive advantages can no longer be exploited. Another way is to switch production into other, safer lines of business causing underinvestment in high risk but otherwise profitable sectors. Pharmaceutical research in gene technology is an illustrative case.

3. *The choice of organisational form generates vulnerability.* Lean governance structures ask for a design of value chains or networks operated by specialists in control of specific processes where for efficiency reasons a lean configuration reduces organisational and HR-overlap. In such an organisational design the interruption of production of even small suppliers can cause a life threatening breakdown in lean manufacturing as recent studies have shown (Nishiguchi and Beaudet, 1998) This study also points to the remedy in form of organisational

slack. To duplicate production processes, departments, or knowledge is a way to keep potential damage at bay, yet implies to forego scope and scale economies.

All three trade-offs: exposure vs. obscurity, geographical spread vs. strategic options (safe havens), and supply chains vs. organisational slack define the willingness of firms to tolerate terrorist attacks. Thus, we expect sectoral differences. While for example consumer or luxury goods need worldwide exposure, investment goods or business-to-business relationship can afford to be less “tolerant” when it comes to terrorism. While the shape of the toleration function is defined by the firm’s willingness to remain in one place or line of business despite terrorist hazard the effect of globalisation, i.e. expected shift in the toleration function is less clear. In general it can be assumed that firms will tolerate terrorist hazard the smaller the damage caused by each attack (see Figure 1).

Figure 1 The Interaction between terrorism and internationally operating firms



Remarks

The horizontal describes the frequency of attacks.

The vertical describes the net damage adjusted for attention.

OA: describes the net return that would not prompt terrorists into action. Only expected returns higher than A will attract terrorists.

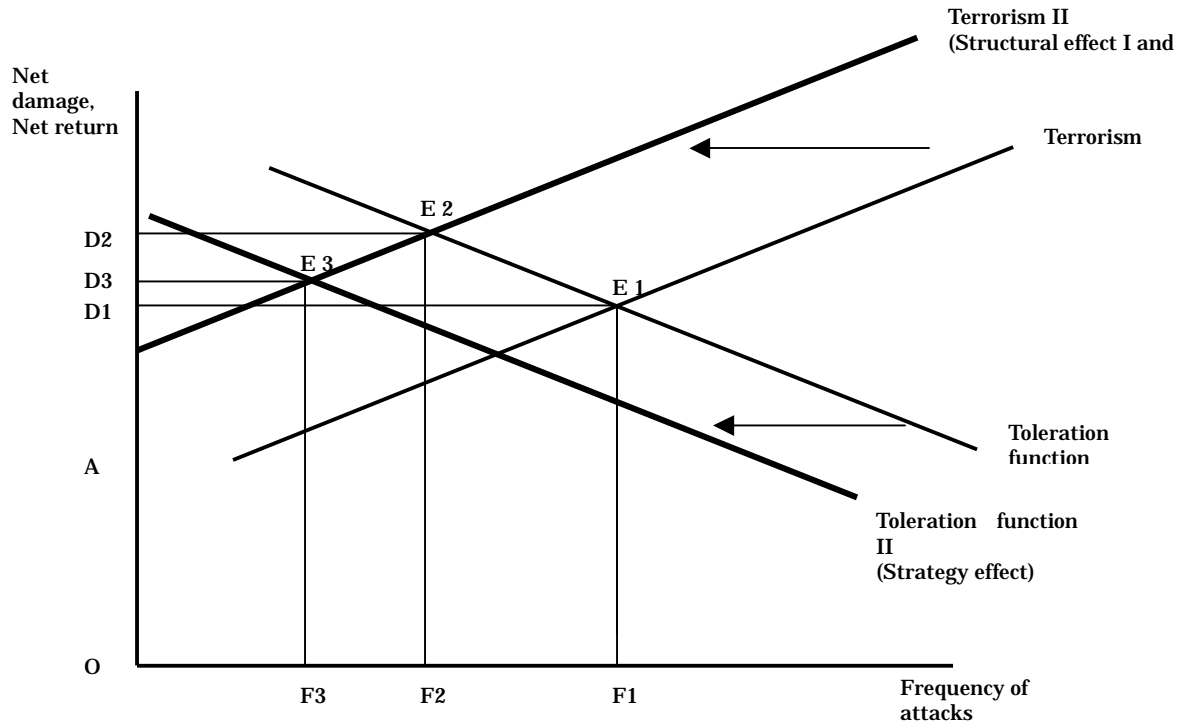
E: describes the number of attacks and the average net industrial damage a state (a country) will adjust to at a given supply and toleration of terrorist attacks.

3. The Influence of globalisation on strategic decisions of firms and terrorist groups

Cost and competition rationale, changing markets, or national/international regulation are only some of the multiple factors that determine the need and potential for firms to compete on a worldwide basis. The strategic management literature on globalisation while supporting our emphasis on ubiquity points to more complex patterns of organizational strategies. The single most crucial recurring topic in the literature is internationalisation of firms, i.e. increase of geographic spread and organizational strategy of multinational corporations (Yip, 2003; Doz, Santos and Williamson, 2002; Govindarajan and Gupta, 2001; Gupta and Govindarajan, 2000; Bartlett and Ghoshal, 2000; Hamel and Prahalad, 1985). The latter is often understood as network type configuration of organizational units where the integration of local affiliates' activities follows overarching strategic purposes. Prahalad and Hamel (1990), Collins and Porras (1994), Bartlett and Ghoshal (2000) for instance emphasize the extent to which multinational corporations integrate multiple foreign direct investments across countries. In a similar vein, Yip (2003) describes the process as three steps; strategies that first develop core business second internationalise and third globally integrate across countries. Gupta and Govindarajan (2000; 1991) emphasize the multiple dimensions of globalisation, such as market presence, supply chain, capital base and mindset, and the ability to integrate across diversity (Govindarajan and Gupta, 2001).

In the process of globalisation two effects can be separated: structural effects which firms need to accept as given and strategic effects which allow firms searching for means that mitigate terrorist hazard.

Figure 2 Influence of globalisation on the interaction between attacks and tolerance



Remarks

The horizontal describes the frequency of attacks.
 The vertical describes the net damage adjusted for attention.
 E1: the old equilibrium before globalisation
 D1-D2: describes the increase of net damage due to the structural effect
 E2: the new equilibrium characterized by higher damage at lower frequency IF firms would not respond to terrorist hazard
 D2-D3: describes the mitigating effect if firms implement deterrence strategies
 E3: new equilibrium characterized by less damage and less frequency (compared to E2)

3.1. Structural effect I: Globalisation increases vulnerability of international firms.

International firms are among the largest corporations worldwide, often enough seen as the flagships of industries and advanced technologies (Rugman and Girod, 2003), if they are not regarded as symbols for western domination of the world economy. These qualities alone make international firms attractive targets. Their network-type organization and integrative strategies add to the vulnerability as does the accompanying broadening of geographic spread.

If in addition these integrated networks aim at higher cost efficiency by minimizing slack, the effect on vulnerability is even more pronounced.

In short, it is the systematic response of international firms to the chances globalisation offers which causes the supply function as developed in Figure 1, to shift to the left (from I to II in Figure 2) as the net return of terrorism increases per attack. Subsequently there is a positive incentive for increasing terrorist activities, which becomes even more pronounced when the effect of globalisation on the organization of terrorism is accounted for.

3.2. Structural effect II: Globalisation increases the opaqueness of terrorist activities

The IT-revolution and trade liberalisation did also lead to a re-organisation of and the forming of new alliances between different terrorist groups. It is in particular one specific feature that is crucial here, namely that with IT information costs are low, if not close to nil while the costs for identifying the source of information increased considerably. Thus, to trace back information, money, or “commands” to one location, let alone one person remains a complicated endeavour, as the case of Bin Laden or Saddam Hussein shows. The risk to be arrested and punished does not seem to have increased in the last fifty years, if not longer. On the other hand, IT offers an effective and inexpensive way to co-ordinate terrorist activities across borders. Moreover, IT offers also an instrument for learning about the functioning of firms, governments, markets and their weak points or symbols. For example, it is not self-evident that somebody abhorring Western capitalism will anticipate the symbolic value of the WTC, i.e. meaning Wall Street, while sitting in the hills of Afghanistan. Another example is the shrewdness by which venerable Islamic

charity organizations were hijacked to move large sums of money around the globe (Schneider, 2002). In other words, while the detection risk and sanctioning have remained stable in the last twenty years, the effectivity of terrorist attacks increased considerably due to easier knowledge generation and new technologies for the logistics around terrorist attacks. The logistic success, referring to the percentage of missions completed as planned is as follows: bombings, 87 per cent; hostage missions, 76 per cent; assassinations, 75 per cent (Sanders, Enders and Lapan, 1991).

Global terrorism starting in the mid-eighties (see Table 1) is characterised by new forms of network organization defined by low exposure of individual terrorist groups, high mobility of resources and productive slack (in terms of financial resources and prepared-to-die members). The result is what was called the Al-Qaeda model “(...) facilitating, funding, or encouraging terrorist actions by pre-existing affiliated indigenous groups within the target country” (Smith, 2002: 47) The resulting opaqueness makes it difficult for both law enforcement agencies and multinationals to acknowledge events that signal changes in terrorist hazard, let alone that they were put on the list of future targets (weak signalling). In other words, terrorists can leverage their low exposure, high mobility of personnel (temporal spread), and slack (financial and human resources) to stage surprise attacks without much risk to be found out.

This effect works in the same direction as the globalisation effect on firms described before. It shifts the supply function to the left (from I to II, Figure 2), implying higher net damage and attention per terrorist attack.

Corporations can hardly control the structural effects. Only by rethinking their own strategies to counter terrorism corporations can change the location and slope of the toleration function. Two strategies can be singled out:

Table 2 Stages of globalisation and effectiveness of attacks

	Willingness to tolerate terrorist hazard			
Stages of globalisation				
	Exposure	Leanness	Geographic spread (FDI)	Expected effectiveness of terrorist attack (damage)
Local strategy	low	high	low	Low-medium
International strategy	high	low	high	Medium-high
Integrated strategy	high	high	high	High

3.3. Strategic effect I: Globalisation strategy defines the scope and scale of vulnerable assets

While the analysis above concentrated on a comparative-static view in which firms cannot but adapt to changes on the supply side of terrorist activities or structural change caused by globalisation, in a dynamic view firms can influence both the pay-off matrix for terrorists and the probability to see their own assets attacked. It needs to be acknowledged that the decision to become an international firm implies a decision to broaden the scale and scope of assets vulnerable for terrorist attacks.

A *local firm* with highly distinctive strategies offers only low returns for terrorist attacks even if such a firm is highly exposed in domestic markets by its strategic identity, i.e. unique local strategy. In such a case, where the firm serves local customers only, any terrorist threat must necessarily remain limited to a local threat. It is worth mentioning that a strategy to remain small and local does not reduce the risk to nil. As the examples in Northern Ireland, Israel, or Indonesia remind us, many terrorists are motivated by local problems, for which they seek local solutions, even if the money and logistics is provided by a worldwide operation. In other words, low international exposure or geographic spread suggests a low threat of international terrorism, but still one that can be devastating for the individual firm that has subscribed to a policy of lean production (see below).

Internationalisation increases the exposure of a firm and the scale of assets vulnerable to attacks to the extent that it prompts replicating existing best practices by transferring them from the home base to other countries. This process creates country specific implementations of a home base template (Winter and Szulanski, 2001) with the effect of redundancy and unexploited scale economies both of which will be tolerated as long as the market presence in multiple countries compensates for operational slack. The lure of additional business chances, in other words, leads to both high exposure (market presence) and a broad geographical spread in multiple countries. The effect is one of “bringing valuable targets” close to the home base of terrorist groups.

Multinationals on the other hand are defined by a worldwide and integrated strategy that aims at eliminating inefficiencies within the corporate transaction system, and exploiting scale economies across geographical location. The vulnerability of multinationals goes

beyond that of an international firm. The integrated strategy of lean production forestalls a flexible and quick response to the destruction of one operating unit, as this requires free capacity somewhere else. The effect is an organizational form that is exposed to the highest risk due to high exposure, leanness in production, and geographical spread (Table 2).

All in all, while the three levels of globalisation of the firm (local, international, integrated multinational) are linked to the strategic goal, they simultaneously also define the value of assets vulnerable to terrorist hazard. Exposure, organisational form and geographical spread offer further strategic variables by which a firm can mitigate risk.

Table 3 Stages of globalisation and deterrence strategies (obscurity, slack and options)

Stages of globalisation	Deterrence strategies		
	Obscurity	Slack	Options
Local strategy	Reducing local visibility	Free capacity	Local spread; temporary commitment
International strategy	International replaces local visibility	Decentralisation (international duplication)	International spread; temporary commitment
Integrated strategy	Low local visibility and diffuse global visibility	Decentralisation (integrated duplication)	Global spread; portfolio-type temporary commitment

3.4. Strategic effect II: Globalisation strategy increases options for deterrence

As shown before obscurity, slack resources, decentralisation and duplication of operational units are effective means to cope with terrorist hazard. The geographic spread

of multinationals limits the significance of affiliates in a hostile environment, thus offering low returns in form of “spectacularity” of attacks. Similarly, sharing of highly routinised business processes and decision making such as team building, prioritising, and timing routines (Zollo and Winter, 2002; Eisenhardt and Sull, 2001; Eisenhardt and Martin, 2000; Teece, Pisano and Shuen, 1997; Teece and Pisano, 1994; Nelson and Winter, 1982) help to integrate resources and processes across countries. In case local resources would be destroyed quick adjustment and replacement is ensured by the overall routine architecture.

The question remains to which extend approaches from the management literature can be usefully applied for gaining further insights into the trade-offs between exposure *vs.* obscurity, leanness *vs.* risk-mitigating slack, and options on permanent geographic spread *vs.* temporary commitments in safe havens.

The positioning view of strategy (Porter, 1980) emphasizing the uniqueness or value of a positioning and a tightly integrated system of activities (value chain), cannot contribute much beyond pointing to deterrence as measured by foregoing positioning gains.

Requiring exposure, a tight fit between activities, and long-term commitments makes it difficult to deter terrorism as long as exposure aims at a general audience, and lack of overlap of activities forestalls any quick reconfiguration of the value chain. The

resource-based view of the firm (Grant, 1996; Peteraf, 1993; Amit and Schoemaker, 1993; Kogut and Zander, 1992; Barney, 1991; Wernerfelt, 1984) looks more promising in particular since research on knowledge and human capital has shown that communities and social capital are the key source for the knowledge assets in firms (Wenger and Snyder, 2000; Brown and Duguid, 1991). Social networks as platforms for the most

valuable, intangible resources suggest slack and options, while exposure remains limited to a dispersed group of professional insiders. Moreover, such an analysis suggests that the building up of social capital in form of a network of experts, such as risk-management specialists in terrorist hazard (as opposed to, for example, financial risk) adds value in form of a knowledge base which allows better protecting all other material and knowledge assets (Teece, 1998). In contrast to the positioning view risk-management is not seen as a cost-factor limiting an otherwise superior strategy but as valuable investment in the knowledge base. This view is supported by the *dynamic capabilities* perspective, i.e. the “integrative approach to understanding the newer sources of competitive advantage” when it is argued that dynamic capabilities are “a firm’s ability to integrate, build and reconfigure internal and external competences to address rapidly changing environments” (Teece, Pisano and Shuen, 1997, 510; 516; Zollo and Winter, 2002; Kogut and Kulatilaka, 2001; Helfat and Raubitschek, 2000; Nonaka, 1994; Leonard-Barton, 1992). It is the following claim that draws attention in the context of terrorism: Globalisation has largely increased the need to develop simple routines in order to appropriate the gains from a temporary advantage by developing organisational and resource configurations via “...the organizational and strategic processes by which managers manipulate resources into new productive assets in the context of changing markets.” (Galunic and Eisenhardt, 2001: 1229). Dynamic capabilities are to be understood as “simple, experiential, unstable processes that rely on quickly created new knowledge and interactive execution” or best practices (Eisenhardt and Martin, 2000: 1106). The capability to acquire competence for quickly adjusting to changing circumstances when competition and new business chances threaten the value of incumbent assets can also usefully employed when the value of assets is threatened by terrorist hazard. Dynamic capabilities understood as “the coupling of people and

technology are a source of option value” to firms require temporal commitments; they enhance a firm’s ability “to exploit current assets and explore future opportunities” (Kogut and Kulatilaka, 2001: 756). Dynamic capabilities, therefore offer a promising conceptual starting point for integrating terrorist hazard into the overall strategy of firms. Firms can achieve this without resorting to exposure or leanness in order to enhance competitiveness, the options to quickly adapt and reconfigure resources is highly effective in deterring terrorism.

4. Conclusion and recommendations

The analysis above offered a simple model in which terrorism was explained by three factors: 1) Exposure causes risk, 2) permanent geographic commitment causes risk, 3) lean production causes risk. Based on this framework we looked at how the development of domestic corporations towards a globally operating multinational enterprise changes the “interaction” with terrorists. Our analysis shows, that globalisation has (structurally) shifted the supply function of terrorist attacks so that the net damage per attack has increased as has the attention spectacular attacks can attain, both suggesting rising terrorism in the future. This trend constitutes the hidden cost of globalisation.

At the moment most corporations seem to accept these costs while trusting national governments and law enforcement agencies to cope with terrorism. In contrast to this *political* view, we provide an explanation that focuses on the interaction between firms and terrorism, pointing to strategic variables by which firms define the scope and scale of

vulnerable targets, as well as possible strategies how to better mitigate the risks involved.

The interactive game can be summarised as follows:

Table 4 The interactive game between firms' and terrorists' strategies

	Strategic decisions firms		
Strategic decision in terrorism			
	<i>Exposure (geographic spread and media)</i>	<i>Organisational forms (lean & slack)</i>	<i>Options and commitments (dynamic capabilities)</i>
<i>Disruption of business operation</i>	High (low) exposure/ High (low) disruption	Leanness (slack)/ High (low) disruption	(No) options / (High) disruption
<i>Symbolic damage leading to high attention</i>	High (low) exposure/ High (low) damage	Leanness (slack)/ High (low) damage	(No) options/ (High) damage
<i>Disruption of an economy</i>	High (low) exposure/ High (low) disruption	Leanness (slack)/ High (low) disruption	(No) options/ (High) disruption

While globalisation defines the value of assets that can be employed at a risk only, exposure, leanness and options define the trade-offs at each level of internationalisation. Less exposure, more slack or temporal commitments are one way to cope with terrorist hazard, yet carrying a price. Decentralisation, duplication of operational units, simple routines which can be shared easily, and portfolio investment that reflects terrorist rather than financial risk seem to be strategies that run counter the bulk of the existing management literature.

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¹ In search for literature on terrorism, we used the Proquest database for all years (1970-2003). We found 455 articles in peer review journals on terrorism (keyword in title). We then selected the 15 most influential peer reviewed, academic journals and found 31 articles that mention terrorism in the body. Eleven articles have the keyword in the abstracts; many react to the attacks on September 11, 2001. Only 3 articles have the keyword in the title. Besides one review about a case and essay collection unspecific to terrorism, two articles actually addressed issues similar to those mentioned here. Ryans and Shanklin (1980) do however expand on the relationship between globalisation and terrorism. Harvey (1992) presents the first empirical data on corporate antiterrorist programs of US multinational corporations. He finds that only 42 % of the 178 Fortune 500 multinationals participating in a survey had formal programs addressing the threat of terrorism.

² Frey and Luechinger (2003) provide an extended overview of the economic literature on terrorism.

³ Thus for example only in 2001 there were 178 bombings against multinational oil pipelines in Colombia alone (Nitsch and Schumacher, 2002).

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