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# FACTS & FINDINGS



## **The Costs of Terror: The Economic Consequences of Global Terrorism**

by Adam Klein (ext.)

**Terrorism undoubtedly poses a grave threat to the security of open societies. Conventional wisdom holds that terrorists also hold the power to inflict grave harm upon modern economies. Many cite the significant economic consequences of the September 11 attacks as evidence of our economic vulnerability. What were the actual economic consequences of September 11, the largest terror attack in history? Are modern economies in fact highly vulnerable to terrorist disruption? What future risks do different types of terrorist attacks pose for Western economies?**

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## **INHALT**

**3** | 1. TERROR AS AN ECONOMIC WEAPON

**3** | 2. CASE STUDY: THE 9/11 ATTACKS

**5** | 3. FUTURE SCENARIOS AND LEVEL OF ECONOMIC THREAT

**6** | 4. IMPLICATIONS FOR FUTURE RISK

**7** | THE AUTHOR



## 1. TERROR AS AN ECONOMIC WEAPON

In addition to the casualties and physical destruction directly caused by their attacks, terrorists seek to inflict wider psychological, social, political, and economic damage upon the societies they target.

Terrorists can hope to harm economies in various indirect ways. These include:

- Reducing consumers' and firms' expectations for the future
- Forcing governments and the private sector to invest in security measures, which reduce efficiency in vulnerable industries (such as transportation and trade) and redirect investment away from more productive economic uses
- Altering behavior by inducing economic actors (consumers, investors, businesses) to avoid areas of perceived risk (either sectors, such as aviation or tourism, or geographic areas affected by terrorism)
- Triggering wider geopolitical conflict, which may cause further economic disruptions

This paper examines the actual macroeconomic and industry-specific consequences of the 9/11 attacks in the United States and assesses the economic threat posed by various future scenarios. The September 11 attacks are the best window into the economic consequences of terror, and potential future risks, for two reasons. First, a 9/11-type "one-shot" catastrophic strike is likely to occur in the future, as al Qaeda and groups inspired by its vision continue to harbor the ambition to perpetrate catastrophic attacks. Second, such an attack is also capable of imposing significant economic costs, which lesser attacks do not, despite their cost in lives, psychological trauma, and political impact.

Though a sustained campaign of smaller-scale attacks like that mounted by Palestinian groups against Israel could have significant macroeconomic impact, such a campaign is a virtual impossibility within the United States or Western Europe – Islamist networks in Western countries can generally expect swift detection by law enforcement once they have surfaced to mount their first attack. While attacks on the scale of those in London and Madrid are certain to recur in the future, the economic consequences of those bombings were negligible (though significant consequences were initially feared). Conversely, the September 11 attacks had significant macroeconomic impact and drastically altered the outlook for certain industries.

## 2. CASE STUDY: THE 9/11 ATTACKS

### 2.1 Macroeconomic impacts

#### SHORT-TERM

The direct loss of physical capital in the September 11 attacks was \$15.5 billion (only ½ of the losses from the 1994 Los Angeles Northridge earthquake). However, the attacks had an immediate macroeconomic impact. The US Consumer Confidence Index declined from 114 in August 2001 to 97.6 in September and 85.5 in October. Unemployment increased 0.6% from September to October, including the loss of 60,000 jobs in travel-related industries. The climate of uncertainty led many businesses to forestall hiring and new capital investments in favor of stockpiling cash. Nervous investors unsure of the economic implications of the attacks also kept capital on the sidelines.

There was also a presumed negative short-term impact on productivity. The attacks imposed new security-related costs of doing business on the airline, insurance, banking, and travel sectors. Furthermore, a wider range of companies moved to back up and secure their information systems and data storage, unproductive expenditures which did not add to output or improve product quality. However, according to an estimate for the Federal Reserve Bank of New York, the overall negative impact on productivity was relatively low, with an estimated decline of less than 1%.

#### LONG-TERM

The actual macroeconomic impact of 9/11 is difficult to separate from larger macroeconomic trends: the already underway recession in the United States and the subsequent strong revival of the US and global economies. Certainly there was significant lost growth, in the US economy and the world economy (with the US as the world's largest importer), as a result of 9/11. The attacks deepened the existing US recession and severely affected certain sectors. To what extent subsequent economic developments are attributable to effects of 9/11, the general world downturn after the Asian financial crisis and the bursting of the US stock market bubble, or other global instability after 9/11, is impossible to determine.

Increased post-9/11 defense outlays have contributed to the worsening of the US fiscal situation. However, this is more attributable to the costs of the Iraq War than defense against terrorism or offensive operations against al Qaeda. The 2006 US homeland security budget (\$30.2 billion) was less than 1/10th of the armed services budget, even when not taking into account tens of billions in further "supplemental" spending to fund military operations in (primarily)



Iraq and Afghanistan, "military construction" of bases and other facilities, or spending on care for veterans. The economic recovery package passed by Congress in response to 9/11 was also relatively small in comparison to the size of the overall federal budget.

Despite these significant impacts, the degree to which some predicted economic consequences did not materialize is noteworthy. These include:

- The demise of city centers as a preferred business location (and a resulting crash of office space prices and real estate values in these centers). On the contrary, real estate prices in New York and London are at all-time highs.
- A move away from globalized supply chains because of increased security and screening costs. In fact, companies have deepened their dependence on just-in-time supply chains with global sourcing. Over time security-related transaction costs on trade should be further reduced by more efficient screening methods and innovations in business processes and technology.
- A crash in global air travel and tourism. After a steep initial decline, air travel and tourism have again reached the level of the pre-9/11 air travel boom.

The clear conclusion is that, despite lost growth and severe consequences for certain sectors, the 9/11 attacks did not structurally damage the US or global economies. This is evidenced by the dramatic recovery of world financial markets since 2001.

## **2.2 Sector-specific impacts**

Certain sectors were especially affected, positively or negatively, by the 9/11 attacks.

### **AIRLINES**

The attacks resulted in a sudden and deep decline in demand for commercial air travel, with immediate and severe consequences for airlines. Predictably, passenger traffic fell sharply on domestic and transatlantic routes, with US airlines scheduling 3000 fewer flights per day than before the attacks.

The attacks were a crushing blow to many airlines, especially the US "legacy carriers" (two of which, United and American, had already lost employees and aircraft in the hijackings). After strong growth the year before, the industry lost \$7.7 billion in 2001, despite \$4 billion in federal subsidies. Three of the largest US airlines, United, US Airways and Delta, have declared bankruptcy since 9/11 (although other factors, including increased fuel prices and high fixed labor costs, also contributed to their financial difficulties).

The world airline industry was similarly affected. After earning \$10.7 billion in profits in 2000, world airlines lost \$11.8 billion in 2001. The world airline industry first returned to profitability in 2004.

### **INSURANCE**

The attacks resulted in estimated total insured losses of \$35.6 billion, the largest of any terrorist incident in history. Many large insurance and reinsurance firms faced hundreds of millions of dollars in claims from the attacks. Ironically, the post-attack environment was also a time of opportunity for the industry. More perceived risk meant higher demand for insurance and fewer players in the market, resulting in higher prices.

Another consequence of the 9/11 attacks for the insurance industry, in Europe as well as the US, was the birth of government-subsidized terrorism insurance. Insurance premiums rose sharply after the attacks, and most companies no longer included terrorism in their standard commercial coverage. Post-attack prices for separate terrorism insurance were extremely high. In 2002 the US Congress passed the Terrorism Risk Insurance Act, which provides government reinsurance for large-scale terrorism incidents. In Germany, the federal government and the major German insurance firms created EXTREMUS-Versicherungs AG to provide coverage for terrorism-related damages and business interruption. EXTREMUS has been in operation since 2002 and insures the Germany-based holdings of 1100 companies.

### **HOMELAND SECURITY**

The 9/11 attacks spawned the explosive growth of a new industry, homeland security. Products sold by the industry include aviation and border security technologies; surveillance equipment; chemical, biological, and radiological detection and protection systems; seaport, industrial and facilities security solutions; consulting and intelligence services; threat modeling and risk-analysis software and services; and basic military and security hardware (boats, vehicles, firearms, etc.).

The American government is the biggest buyer in this market – US government spending in this area doubled after the attacks, from \$20 billion in 2000 to \$40 billion in 2003. In 2006, worldwide spending on defensive anti-terror protection was approximately \$59 billion, six times the 2000 level. Even without another major attack in the West, worldwide homeland security spending is expected to triple by 2015 – further major attacks could increase that estimate dramatically.



## DEFENSE

The most effective military tools against terrorism (e.g. Special Operations forces, better human intelligence, unmanned aerial vehicles) are relatively inexpensive. However, inflation-adjusted US defense spending has risen 7,4% per year since 9/11, and exceeds \$720 billion in President Bush's 2008 budget.

The Iraq War – not the military response to 9/11 – accounts for the vast majority of this increase in spending. Three years of military operations in Iraq have cost \$380 billion, with ongoing costs of \$6.4 billion per month. In comparison, since September 2001 the US military has spent \$97 billion for the war in Afghanistan and other worldwide operations against al Qaeda, with ongoing costs of \$1.3 billion per month.

The US defense industry has benefited from this rise in spending. The SPADE Defense Index, a stock index listing the top publicly-traded companies in the defense industry, has outperformed the S&P 500 for seven consecutive years, and has gained 113% since 2000.

## PETROLEUM

World oil prices spiked directly after the attacks, as traders feared a US military strike in the Middle East. Prices subsequently fell sharply, as traders instead feared negative macroeconomic impacts resulting from the attacks. Production cuts by OPEC and non-OPEC nations (i.e. Russia) returned prices to the \$25/barrel range by March 2002. Subsequent geopolitical events, including a December 2002 strike at the Venezuelan state oil company, the Iraq War and the resulting temporary removal of Iraqi production from the world market, terrorism in Saudi Arabia, instability in Nigeria, the 2006 war between Israel and Hezbollah, and tensions over Iran's nuclear program all contributed to the rise in prices between 2003 and the summer of 2006, when prices reached nearly \$80/barrel.

## TOURISM

There was a predictable decline in tourism following the attacks. Tourism employment was especially hard hit. For example, employment in US hotels fell 3% (58,000 workers) in October-November 2001. The sector has since recovered along with the US and world economy.

## 3. FUTURE SCENARIOS AND LEVEL OF ECONOMIC THREAT

Citizens and policymakers in Western Europe and the United States must expect terrorist attacks to remain a fact of life

for the foreseeable future. The global Islamist terror movement, despite the damage inflicted by international counterterrorism efforts after 9/11, remains capable and determined. In fact, a number of factors suggest that a fearsome "second generation," less centralized al Qaeda may be emerging. The Iraq War has become the leading element for jihadi recruiting, and has already allowed terrorists to perfect new techniques that can then be deployed elsewhere (for example, improvised explosive devices, professional-quality propaganda videos depicting successful attacks, etc.). The original core of al Qaeda, led by Osama bin Laden and Ayman al Zawahiri, has once again found a safe haven from which to rebuild its network and plan attacks, in the tribal areas of Pakistan. The development of terrorist recruiting, training, and propaganda on the Internet gives cells of independent "terrorist entrepreneurs" access to the knowledge and experience of more experienced groups all over the world.

Future attacks could range from isolated bombings perpetrated by relative amateurs to catastrophic WMD attacks planned and executed by experienced al Qaeda operatives. The various possible scenarios vary in likelihood and potential economic consequences—political leaders must weigh both factors when assessing the vulnerability of our economies to the terrorist threat.

### ***3.1. Isolated, conventional, non-catastrophic attacks on infrastructure and civilian "soft targets."***

Examples of such attacks include the London and Madrid bombings and the failed train bombings in North-Rhine Westphalia. These plots are difficult to detect and stop, and relatively easy to prepare and execute. Securing all vulnerable "soft targets" and infrastructure would be impossible. Furthermore, such attacks are within the capabilities of relatively unsophisticated groups of "terrorist entrepreneurs" with only minimal outside guidance and expertise. Therefore, periodic attacks on this scale will be a fact of life for the foreseeable future.

While such attacks cause great mayhem and fear, and can have significant political impact, their economic impact is limited. There are two notable potential exceptions. A serious incident in the aviation sector – for example, a successful surface-to-air missile attack on a commercial jetliner – could deeply reduce customer confidence in post-9/11 security improvements and badly harm the industry. Alternatively, even a moderately successful attack on a key node in the global petroleum delivery infrastructure (e.g. the Saudi export terminal at Ras Tanura) could, at least temporarily, sharply increase the price of oil.



### ***3.2. 9/11-style catastrophic non-WMD attack with major psychological impact.***

Other examples include the foiled 2000 "Millennium Plot" against Los Angeles Airport, the 1995 "Bojinka" plot to simultaneously explode 12 US airliners over the Pacific, the 2006 plot to bomb up to 12 flights from London to the United States using liquid explosives, and the 1993 attempt to destroy the World Trade Center with a massive underground truck bomb.

Although spectacular large-scale attacks are difficult to carry out, requiring expertise, detailed planning and sufficient financial resources, they remain central in the imagination of al Qaeda and al Qaeda-inspired groups. The 9/11 attacks reflected bin Laden's conviction that the US could be brought down with a Hiroshima-type shock of catastrophic proportions. The symbolic value of such attacks is also an important goal of terrorist planners.

The potential economic impact of such attacks is great. The massive psychological shock of 9/11 resulted in reduced economic growth and drastically changed business conditions in certain sectors. Nevertheless, even such a massive attack did not succeed in inflicting long-term structural economic damage.

### ***3.3. Ongoing low-intensity terror campaign.***

Studies have shown that in Israel, long-term, low-intensity terrorism has resulted in significant depression of economic growth. In such an environment consumers become more pessimistic, businesses invest less, and governments spend heavily on security measures and defense.

Fortunately, this type of terror campaign from an Islamist group is probably unfeasible at this point in Western Europe or the United States. Such a campaign requires the active support of a large civilian population to conceal and sustain the network over a long period of time. Recent experience demonstrates that once a cell in a Western Europe or the US strikes for the first time, it becomes easy for police to identify and apprehend its members.

### ***3.4. Catastrophic CBRN attack (chemical, biological, radiological, nuclear).***

Several terrorist groups and individuals have already conducted terrorist attacks using chemical or biological agents. The most prominent examples are the 1995 Sarin gas attack on the Tokyo subway and the still unsolved post-9/11 anthrax attacks in the US. However, no group has successfully carried out (or is known to possess the capabilities for) a CBRN attack on a massive scale.

The range of possible CBRN scenarios is extremely wide. For example, terrorists in Iraq have recently used chlorine gas-laden truck bombs to kill dozens of Iraqis – gruesome, but not catastrophic. However, estimates for deaths and injuries from a successful terrorist attack on a chlorine storage facility near New York City range from 50,000 to 12 million. Potential biological terrorism scenarios range from the post-9/11 anthrax attacks in the United States, which killed five people, to the nightmare scenario of a weaponized pandemic agent, which could kill millions. A "dirty bomb" (a conventional explosive device used to scatter radiological contaminants) detonated in a major city might only inflict casualties in the hundreds, but the psychological effects of radiological contamination in a downtown area could be severe. The nightmare scenario, the detonation of a nuclear weapon in a major city, could kill hundreds of thousands in mere seconds and have long-term medical consequences for millions more.

A catastrophic WMD attack would be difficult to execute, but the possibility is very real. Al Qaeda has experimented with chemical and biological agents, and bin Laden's desire and efforts to acquire nuclear material are well documented. Dangerous chemical materials are especially commonplace, and are often stored near or transported through population centers in large quantities. The equipment needed to produce and manipulate biological agents is widely available through scientific and medical channels, and many al Qaeda adherents have medical, technical, and scientific backgrounds. Radiological materials, while difficult for terrorists to handle and weaponize, are widely available in lightly secured medical, educational and industrial settings. Concern about unsecured fissile nuclear material continues, especially in the wake of proliferation through the A.Q. Kahn network. The likelihood of any of these scenarios depends largely on how vigilantly the international community controls access to the most dangerous materials.

The potential economic impact of the most severe WMD terror scenarios could be catastrophic. Any of these scenarios – a chemical cloud, dirty bomb, or crude nuclear explosion in a major city, or a terrorist-initiated pandemic – would be unprecedented. The psychological effect, which is such a powerful determinant of an attack's economic consequences, is impossible to predict.

## **4. IMPLICATIONS FOR FUTURE RISK**

While attacks on the scale of London and Madrid are likely to be a fact of life in Western Europe and the United States in the near future, such incidents inflict minimal economic damage, despite the cost in lives and their political impact. Even the 9/11 attacks – the largest terror attacks in world history, which had a massive political and psychological impact – failed to fundamentally damage the US and global economies.



Terrorists seeking to disrupt our economies have a more difficult task than we generally assume. The conventional wisdom, that they hold the advantage and can easily exploit our openness to cripple our economies, is false.

In fact, modern economies are extremely resilient organisms. Firms in the 21<sup>st</sup> century globalized economy have a wide range of technological, logistical, and sourcing options available to respond to disruptive events and new security requirements. The networked nature of the modern economy means that, although there are an infinite number of vulnerable soft targets for terrorists to strike, there are few centralized nodes where an attack can inflict debilitating damage. This suggests that, contrary to conventional wisdom, terrorists seeking to debilitate the productive engine of Western societies face a virtually insurmountable challenge.

The possible exception is a catastrophic attack using WMD. While the indirect economic effects of such an event are impossible to predict, it is the only potential scenario that might represent a mortal economic threat. Given the potential costs of such an incident, governments should vastly increase the effort and resources dedicated to securing WMD materials "at the source" where they are easiest to control. Such programs are inexpensive, especially relative to the potential costs of allowing these materials to fall into the hands of terrorists. Unfortunately, governments are not currently making a maximum effort to act against this threat. For example, the International Atomic Energy Agency's annual budget for nuclear security assistance and training is only \$15 million, forcing the Agency's highly effective programs in this area to operate well below their potential capacity. In the words of the American 9/11 Commission, which investigated the September 11 attacks, governments "should weigh the value of this investment against the catastrophic cost [...] should such weapons find their way to the terrorists who are so anxious to acquire them."<sup>1</sup>

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1| [http://www.9-11commission.gov/report/911Report\\_Ch12.htm](http://www.9-11commission.gov/report/911Report_Ch12.htm)