Box 2

STOCK MARKET REACTIONS TO THE TERRORIST ATTACKS IN MADRID ON 11 MARCH 2004

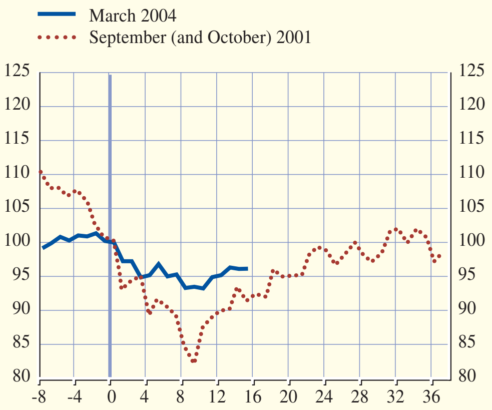
The effects of the terrorist attacks in Madrid on 11 March 2004 on global financial markets were rather muted, with the exception of the stock market reactions. This box looks in more detail at the developments in stock markets in the euro area and the United States in the aftermath of the terrorist attacks on 11 March, and makes some comparisons with the reactions following the 11 September 2001 attacks in the United States.

In the euro area, the Dow Jones EURO STOXX index fell by about 3% on 11 March and continued to fall during the following days before stabilising somewhat. On 31 March 2004 it stood at a level which was around 4% lower than the level on 10 March 2004 (see Chart A). By way of comparison, in 2001 the fall in the Dow Jones EURO STOXX index on the day of the terrorist attacks was larger (around 7%) and the extent of the overall decline before recovering was also greater (around 17%).[1] All in all, between 10 September and end-September 2001 the Dow Jones EURO STOXX fell by around 7%, i.e. by around 3 percentage points more than in March 2004.

1 It should be noted that the stock market in the United States was closed for several days following the 11 September 2001 attacks. When the US market opened again on 17 September 2001, its downward trend had some spillover effects on European stock markets.

Chart A Dow Jones EURO STOXX index

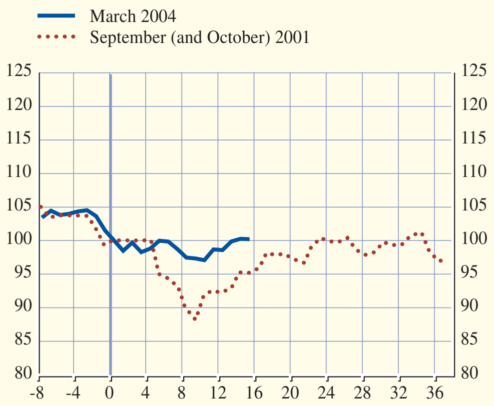
(index: 10 September 2001=100 and 10 March 2004=100; daily data)



Sources: Reuters and ECB calculations.
Note: The horizontal axis shows the number of working days. "0" marks 10 March 2004 and 10 September 2001.

Chart B Standard & Poor's 500 index

(index: 10 September 2001=100 and 10 March 2004=100; daily data)



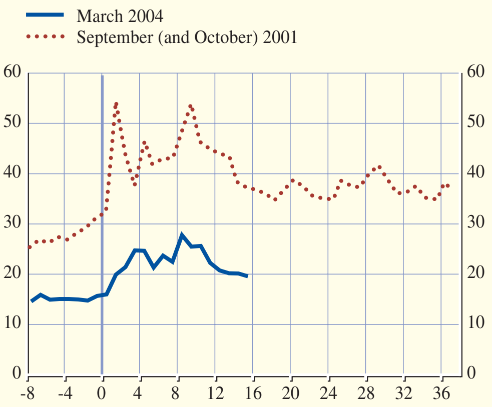
Sources: Reuters and ECB calculations.
Note: The horizontal axis shows the number of working days. "0" marks 10 March 2004 and 10 September 2001.

A difference could also be seen in the stock market reaction in the United States (see Chart B). Following the Madrid terrorist attacks, the US stock market fell by much less than it did in September 2001 and the Standard & Poor's 500 index stood at about the same level on 31 March as on 10 March 2004.

A similarity to the 11 September 2001 attacks was the significant rise in implied stock market volatility in the aftermath of the Madrid terrorist attacks both in the euro area and the US equity markets. This reflected the increase in perceived uncertainty brought about by the Madrid terrorist attacks, which was also seen in the aftermath of the 11 September 2001 events. Despite this increase, the level of implied volatility in stock markets remained much lower than the level recorded in September 2001 (see Charts C and D).

Chart C Implied stock market volatility, Dow Jones EURO STOXX 50 index

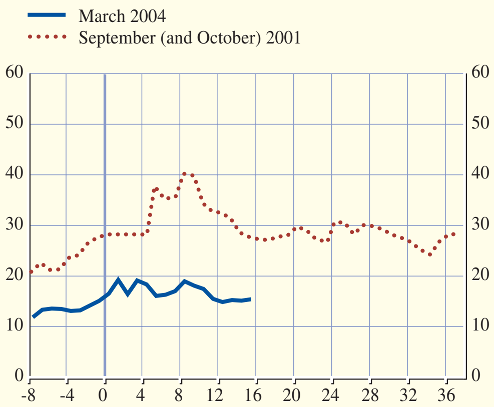
(percentages per annum; daily data)



Sources: Reuters and ECB calculations.
Note: The horizontal axis shows the number of working days. "0" marks 10 March 2004 and 10 September 2001.

Chart D Implied stock market volatility, Standard & Poor's 500 index

(percentages per annum; daily data)



Sources: Reuters and ECB calculations.
Note: The horizontal axis shows the number of working days. "0" marks 10 March 2004 and 10 September 2001.

It is also noticeable that the decline in euro area stock prices after the Madrid terrorist attacks was broadly based across sectors (see table below). This stands in contrast to the developments after 11 September 2001 when there were considerable variations among sectors. The consumer cyclical sector, which includes airlines and hotels, showed a substantially larger decline than the broad index after 11 September 2001 in both the euro area and the United States, possibly reflecting expectations of lower air traffic and less tourism following the attacks. The financial sector, including the insurance sector, was also significantly affected in 2001 as fears about future claims on insurance coverage due to terrorism rose. By contrast, the low divergence of sectoral stock market variations after 11 March 2004 instead suggests that stock price developments reflected mainly a general increase in uncertainty among market participants, i.e. an increase in the market risk premia demanded by investors, but not a particular concern relating to clearly identifiable problems in individual sectors.

There are several possible explanations for the differences in stock market behaviour after 11 September 2001 and 11 March 2004. Some relate to the differences in the form of the terrorist attacks, which in the case of 11 September 2001 caused great concern about the future profitability of the air travel and tourism industries and of the insurance sector. Regarding the latter sector, it should be recalled that following the 11 September 2001 attacks some changes were made to insurance contracts to limit the exposure of insurance companies to the risk of future terrorist attacks. This may partly explain why these companies were not so negatively affected after the terrorist attacks on 11 March 2004. Moreover, while market participants appeared to perceive the 11 September 2001 attacks as a global shock, the rather muted stock market reaction in the United States after 11 March 2004 may indicate that the market regarded the recent attacks as having implications mainly for Europe and not particularly for the United States. Finally, the Madrid terrorist attacks also occurred at a time when the world economy has been growing strongly, while the events of 11 September 2001 occurred during an economic downturn. In this respect, the relatively low level of implied stock market volatility after 11 March 2004 reflects the better general economic environment.

Price changes in the Dow Jones EURO STOXX and in the Dow Jones Industrial Average economic sector indices

(percentage changes; daily data)

	Dow Jones EURO STOXX		Dow Jones Industrial Average	
	From 10 March to end-March 2004	From 10 September to end-September 2001	From 10 March to end-March 2004	From 10 September to end-September 2001
Basic materials	-5.1	-9.4	3.2	-6.8
Consumer cyclical	-3.2	-13.3	1.5	-7.3
Consumer non-cyclical	-4.2	-4.9	-0.6	-3.6
Energy	-3.4	-7.4	-0.4	-9.3
Financial	-4.8	-8.0	0.0	-0.8
Healthcare	-0.7	1.7	-2.0	0.0
Industrial	-2.6	-11.2	2.1	-7.7
Technology	-4.5	-2.0	1.6	-15.2
Telecommunications	-4.0	7.4	0.0	5.8
Utility	-3.1	-1.9	0.9	-8.1
Overall index	**-3.9**	**-6.3**	**0.4**	**-5.3**
Memorandum item:				
standard deviation of sectoral changes	**1.3**	**6.3**	**1.5**	**5.8**

Sources: STOXX and ECB calculations.