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SHAREHOLDER VALUE CREATORS AND SHAREHOLDER  
VALUE DESTROYERS IN EUROPE.  
YEAR 2002

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**SHAREHOLDER VALUE CREATORS AND SHAREHOLDER  
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YEAR 2002**

**Abstract**

2002 was a bad year for the shareholders of the companies in the Euro Stoxx 50: the shareholder value destruction of the companies in the Euro Stoxx 50 was 958,968 million euros. In 2002 only ENI created value (3,374 million euros). The remaining 49 companies destroyed value and had negative returns. Alcatel had the lowest shareholder return in 2002 (-77.9%).

Shareholder value destruction in the 3-year period 2000-2002 was 1.9 trillion euros. The market value of the 50 companies was 1.42 trillion euros in 2002, 2.24 trillion euros in 2001, and 2.75 trillion euros in 2000.

We also calculate the created shareholder value of the 50 companies during the six-year period 1997-2002. Nokia was the top shareholder value creator and Allianz the top shareholder value destroyer during the six-year period.

We find a very weak relationship between return and size.

A portfolio long in the companies that entered the index and short in the companies that abandoned the index had on average a 10% return in the 16 days prior to the index recomposition and a -6% return in the 12 days after the index recomposition.

In 2002, the Euro Stoxx 50 was much more volatile than the S&P 500 or the Dow Jones.

**JEL Classification:** G12, G31, M21

# SHAREHOLDER VALUE CREATORS AND SHAREHOLDER VALUE DESTROYERS IN EUROPE. YEAR 2002

## Introduction

In this paper, we quantify shareholder value creation for the 50 companies included in the Euro Stoxx 50 in December 2002. We provide the created shareholder value for 2002, and also for the periods 1996-2002, 1997-2002, 1998-2002, 1999-2002, and 2000-2002. The only company that created value in 2002 was ENI (3,374 million euros). The top shareholder value destroyers in 2002 were Nokia (-78,081 million euros), Vivendi Universal (-55,332 million euros), and Allianz (-52,141 million euros). The percentage of value creators was 2%, 2%, 4%, 8%, 17% and 43% for 2002, 2001, 2000, 1999, 1998 and 1997.

In section 1 we define created shareholder value. Section 2 has the ranking of created shareholder value for the 50 companies in 2002 and in the 6-year period 1996-2002. Section 3 has the ranking of shareholder return for the 50 companies in 2002 and in other periods finishing in 2002. Section 4 splits the shareholder value creation by the country to which the 50 companies belong. Section 5 shows the relation between Shareholder Return and size. Section 6 is an analysis of the companies that entered and abandoned the Euro Stoxx 50 since 1997. Section 7 compares the Euro Stoxx 50 with other European and US indexes in terms of volatility and correlation.

**Appendix 1** contains the evolution of the market value of the companies in the Euro Stoxx 50 in December 2002. **Appendix 2** contains the evolution of the Euro Stoxx 50 index from 1997 to 2003.

## 1. Definition of created shareholder value

We define created shareholder value following Fernández (2002, chapter 1). To obtain the created shareholder value, we must first define the increase of equity market value, the shareholder value added, the shareholder return, and the required return to equity.

The equity market value of a listed company is the company's market value, that is, each share's price multiplied by the number of shares. The increase of equity market value in one year is the equity market value at the end of that year less the equity market value at the end of the previous year.

Shareholder value added is the term used for the difference between the wealth held by the shareholders at the end of a given year and the wealth they held the previous year.

The shareholder value added is calculated as follows:

$$\begin{aligned}
 & \text{Shareholder value added} = \\
 & \text{Increase of equity market value} \\
 & + \text{Dividends paid during the year} \\
 & \quad - \text{Outlays for capital increases} \\
 + & \text{Other payments to shareholders (discounts on par value, share buy-backs....)} \\
 & \quad - \text{Conversion of convertible debentures}
 \end{aligned}$$

The shareholder return is the shareholder value added in one year, divided by the equity market value at the beginning of the year.

$$\text{Shareholder return} = \text{Shareholder value added} / \text{Equity market value}$$

The required return to equity is the sum of the interest rate of long-term Treasury bonds plus a quantity that is usually called the company's risk premium and which depends on its risk.

$$\text{Required return to equity} = \text{return of long-term treasury bonds} + \text{risk premium}$$

A company creates value for its shareholders when the shareholder return exceeds the share cost (the required return to equity). In other words, a company creates value in one year when it outperforms expectations.

The *created shareholder value* is quantified as follows:

$$\text{Created shareholder value} = \text{Equity market value} \times (\text{Shareholder return} - K_e)$$

As we already saw that the shareholder return is equal to the shareholder value added divided by the equity market value, the created value can also be calculated as follows:

$$\text{Created shareholder value} = \text{Shareholder value added} - (\text{Equity market value} \times K_e)$$

Consequently, the value created is the shareholder value added above expectations, which are reflected in the required return to equity.

Table 1 shows in simplified form the relationship between three variables, which are sometimes confused: increase of equity market value, shareholder value added, and created shareholder value.

Table 2 contains the comparison between the Euro Stoxx 50 return and the returns of the main indexes of the main European countries: AEX (Holland), CAC 40 (France), IBEX 35 (Spain), Mibtel 30 (Italy), Xetra-Dax (Germany), FTSE 100 (UK), S&P 500 (USA) and Dow Jones (USA).

**Table 1. Increase of equity market value, shareholder value added, and created shareholder value**

<i>Increase of equity market value</i>	Equity market value <sub>t</sub> – Equity market value <sub>t-1</sub>
<i>Shareholder value added</i>	↓ Increase of equity market value – payments from shareholders + dividends + repurchases – conversions.
<i>Created shareholder value</i>	↓ Shareholder value added – (Equity market value x K <sub>e</sub> )

**Table 2. Comparison between the returns of the Euro Stoxx 50 and the returns of AEX, CAC 40, IBEX 35, Mibtel 30, Xetra-Dax, FTSE 100, S&P 500 and Dow Jones (returns include dividends).**

	<b>Euro Stoxx 50</b>	<b>AEX</b>	<b>CAC 40</b>	<b>IBEX 35</b>	<b>Mibtel 30</b>	<b>Xetra-Dax</b>	<b>FTSE 100</b>	<b>S&amp;P 500</b>	<b>Dow Jones</b>
	<b>Return</b>	<b>Return</b>	<b>Return</b>	<b>Return</b>	<b>Return</b>	<b>Return</b>	<b>Return</b>	<b>Return</b>	<b>Return</b>
94	-5%	0%	-15%	-10%	5%	-5%	-7%	1%	5%
95	18%	20%	2%	25%	-5%	10%	26%	38%	37%
96	26%	38%	26%	48%	14%	30%	17%	23%	29%
97	40%	45%	32%	46%	61%	49%	29%	33%	25%
98	35%	26%	33%	43%	43%	20%	17%	29%	18%
99	48%	27%	53%	21%	24%	41%	21%	21%	27%
2000	-2%	-1%	0%	-17%	6%	-7%	-8%	-9%	-5%
2001	-19%	-19%	-21%	-8%	-24%	-19%	-14%	-12%	-5%
2002	-36%	-33%	-33%	-26%	-22%	-43%	-22%	-22%	-15%
94-2002	102%	109%	57%	136%	98%	50%	54%	122%	166%
99-2002	-25%	-31%	-18%	-22%	-32%	-39%	-26%	-42%	-26%

## 2. Shareholder value creators and Shareholder value destroyers in the Euro Stoxx 50

Table 3 shows the top ten value creators and value destroyers during the period December 1996-December 2002, and in the year 2002.

**Table 3. Top ten value creators and value destroyers during the period Dec 1996-Dec 2002 and in the year 2002 (million euros).**

<b>Top Shareholder value creators. Shareholder value created in € million</b>			
		1996-2002	2002
1	NOKIA	37,054	3,374
2	ENI	21,312	-1,970
3	L'OREAL	17,717	-2,331
4	TOTAL SA	14,784	-4,788
5	TELECOM ITAL.MOBL.	13,406	-4,853
6	SANOFI-SYNTHELABO	13,355	-4,882
7	TELECOM ITALIA	12,516	-5,054
8	SOCIETE GENERALE	11,477	-5,235
9	UNILEVER CERTS.	11,075	-5,380
10	DANONE	8,311	-5,702

<b>Top shareholder value destroyers. Shareholder value created in € million</b>			
		1996-2002	2002
1	ALLIAN	-32,698	-78,081
2	BAYER	-20,497	-55,332
3	ALCATEL	-16,211	-52,141
4	VIVENDI UNIVERSAL	-13,580	-37,986
5	E ON	-12,885	-37,512
6	LVM	-12,427	-36,552
7	CARREFOUR	-10,173	-36,138
8	ENDESA	-9,703	-34,815
9	ING GROEP CERTS.	-8,420	-34,671
10	BAYER.HYPO U VBK.	-8,312	-28,859

The only shareholder value creator in 2002 was ENI (3,374 million euros). The top shareholder value destroyers in 2002 were Nokia (-78,081 million euros), Vivendi Universal (-55,332 million euros), and Allianz (-52,141 million euros). During the six-year period 1996-2002 Nokia was the top shareholder value creator and Allianz was the top shareholder value destroyer.

Tables 4 and 5 show the created shareholder value of the companies in the Euro Stoxx 50 during the six-year period 1997-2002 (1). Nokia was the top shareholder value creator (37,054 million euros) and Allianz was the top shareholder value destroyer (-32,698 million euros). In 2002 only one of the companies created value (ENI), and the remaining 49 companies destroyed value. The percentage of value creators was 2%, 2%, 4%, 8%, 17% and 43% for 2002, 2001, 2000, 1999, 1998 and 1997.

**Table 4. Shareholder value creation for the companies in the Euro Stoxx 50 in December 2002**

Company	1997-2002		1998-2002		1999-2002		2000-2002		2001-2002		2002	
	€ million	rank	€ million	rank	€ million	rank	€ million	rank	€ million	rank	€ million	rank
NOKIA	37,054	1	32,268	1	-12,245	22	-205,017	48	-196,645	50	-78,081	50
ENI	21,312	2	10,773	3	9,977	1	13,233	1	2,941	1	3,374	1
L'OREAL	17,717	3	13,880	2	-7,418	15	-19,174	23	-22,733	23	-9,605	17
TOTAL SA	14,784	4	3,501	6	9,545	2	-10,763	12	-27,005	27	-21,716	35
TELECOM ITAL.MOBL.	13,406	5	-7,541	23	-23,304	36	-61,057	39	-42,432	36	-16,038	24
SANOFI-SYNTHELABO	13,355	6	10,606	4	6,837	3	7,843	2	-14,691	15	-21,694	34
TELECOM ITALIA	12,516	7	-2,874	14	-9,710	17	-52,292	37	-31,991	31	-14,167	23
SOCIETE GENERALE	11,477	8	6,074	5	5,628	4	-6,346	6	-8,527	6	-4,882	6
UNILEVER CERTS.	11,075	9	-7,682	24	-17,899	30	-3,329	5	-9,565	9	-6,209	12
DANONE	8,311	10	3,078	7	-3,696	12	-1,471	3	-7,708	5	-2,331	3
BNP PARIBAS	8,101	11	2,296	8	-3,408	11	-17,043	20	-13,618	14	-13,313	21
UNICREDITO ITALIANO	6,382	12	-306	10	-13,497	25	-10,770	13	-12,690	12	-4,853	5
BBV ARGENTARIA	4,928	13	-10,036	28	-17,586	29	-17,889	21	-28,805	29	-18,233	28
AVENTIS	4,266	14	-2,075	13	-1,871	6	-15,028	17	-43,432	37	-25,999	37
PHILIPS ELTN.KON	4,242	15	-7,527	22	-6,127	13	-38,245	31	-39,855	35	-26,300	39
SIEMENS (XET)	2,182	16	-10,738	29	-8,142	16	-61,643	41	-62,240	42	-36,138	44
SANTANDER CTL.HISPANO	1,244	17	-8,066	25	-10,778	18	-27,242	27	-29,553	30	-16,179	25
TELEFONICA	1,231	18	-8,320	26	-24,705	37	-74,048	45	-50,111	38	-34,815	43
AIR LIQUIDE	1,187	19	-183	9	-2,425	8	-2,793	4	-2,816	2	-1,970	2
LAFARGE	1,034	20	-457	11	-2,972	9	-6,987	7	-2,844	3	-5,054	7
SAN PAOLO IMI	-453	21	-4,839	17	-19,267	33	-14,863	16	-19,335	18	-9,298	16
GENERALI	-1,094	22	-9,390	27	-27,978	38	-21,445	25	-36,197	33	-17,175	27
FORTIS (AMS)	-1,287	23	-4,379	16	-11,470	20	-12,833	14	-12,853	13	-18,491	29
SUEZ	-1,295	24	-6,928	21	-20,890	35	-21,364	24	-27,035	28	-19,609	30
REPSOL YPF	-2,097	25	-5,300	18	-6,734	14	-18,674	22	-8,612	7	-6,158	11
ABN AMRO HOLDING	-3,636	26	-13,631	34	-10,955	19	-22,328	26	-18,178	17	-5,380	9
BASF (XET)	-3,806	27	-3,776	15	-2,242	7	-15,760	19	-11,007	11	-4,788	4
SAINT GOBAIN	-4,075	28	-5,630	19	-3,268	10	-9,857	9	-6,472	4	-5,702	10
VOLKSWAGEN (XET)	-4,135	29	-10,752	30	-17,418	28	-10,723	11	-8,975	8	-6,604	13
AX	-4,710	30	-16,498	35	-39,828	43	-43,304	35	-52,756	39	-21,185	32
DEUTSCHE BANK (XET)	-5,807	31	-26,821	43	-11,822	21	-39,122	33	-37,737	34	-26,092	38
AHOLD KON.	-6,122	32	-11,184	31	-18,021	31	-15,158	18	-20,957	19	-20,728	31
MUNCH.RUCK. (XET)	-6,502	33	-24,593	42	-29,705	41	-37,383	30	-58,685	41	-37,986	47
AEGON	-6,867	34	-19,906	38	-69,090	46	-65,152	43	-52,854	40	-28,859	41
RWE (XET)	-7,567	35	-13,540	33	-16,471	26	-10,003	10	-15,157	16	-10,367	18
ROYAL DUTCH PTL.	-7,753	36	-51,417	47	-19,400	34	-63,804	42	-65,573	43	-37,512	46
BAYER.HYPO U VBK. (XET)	-8,312	37	-20,879	39	-29,002	40	-27,749	29	-21,655	21	-11,222	19
ING GROEP CERTS.	-8,420	38	-22,323	40	-36,829	42	-42,948	34	-66,139	44	-28,768	40
ENDESA	-9,703	39	-11,548	32	-17,000	27	-13,208	15	-9,622	10	-7,735	14

(1) Only 46 companies (out of the 50) traded as of December 21, 1996.

Company	1997-2002		1998-2002		1999-2002		2000-2002		2001-2002		2002	
	€ million	rank	€ million	rank	€ million	rank	€ million	rank	€ million	rank	€ million	rank
ENDESA	-9,703	39	-11,548	32	-17,000	27	-13,208	15	-9,622	10	-7,735	14
CARREFOUR	-10,173	40	-5,877	20	-12,514	24	-48,092	36	-23,534	25	-13,913	22
LVM	-12,427	41	-566	12	-1,522	5	-39,104	32	-22,382	22	-5,235	8
E ON (XET)	-12,885	42	-22,444	41	-12,271	23	-9,093	8	-25,495	26	-17,128	26
VIVENDI UNIVERSAL	-13,580	43	-19,198	36	-40,680	44	-58,533	38	-71,873	45	-55,332	49
ALCATEL	-16,211	44	-29,899	45	-28,773	39	-61,183	40	-88,623	47	-21,321	33
BAYER (XET)	-20,497	45	-19,828	37	-19,086	32	-27,573	28	-31,992	32	-12,842	20
DEUTSCHE TELEKOM (XET)	-31,698	46	-29,578	44	-65,879	45	-231,023	49	-74,525	46	-34,671	42
ALLIANZ (XET)	-32,698	47	-61,205	48	-83,514	48	-81,958	46	-92,154	48	-52,141	48
DAIMLERCHRYSLER (XET)					-91,267	49	-70,032	44	-22,829	24	-23,481	36
ENEL									-21,237	20	-8,490	15
FRANCE TELECOM			-37,060	46	-79,429	47	-159,737	47	-107,675	49	-36,552	45
<b>Sum</b>	<b>-48,007</b>		<b>-492,318</b>		<b>-976,120</b>		<b>-1,902,068</b>		<b>-1,776,437</b>		<b>-958,968</b>	

**Table 5. Created shareholder value (CSV) in the 6-year period 1997-2002 of the companies in the Euro Stoxx 50 as of December 2002 (million euros).**

Company	1997-2002			
	CSV		Return	
		rank	%	rank
NOKIA	37,054	1	471.5%	1
ENI	21,312	2	126.1%	11
L'OREAL	17,717	3	155.6%	9
TOTAL SA	14,784	4	148.2%	10
TELECOM ITAL.MOBL.	13,406	5	167.0%	6
SANOFI-SYNTHELABO	13,355	6	212.5%	4
TELECOM ITALIA	12,516	7	162.9%	7
SOCIETE GENERALE	11,477	8	224.2%	3
UNILEVER CERTS.	11,075	9	108.5%	15
DANONE	8,311	10	162.7%	8
BNP PARIBAS	8,101	11	202.2%	5
UNICREDITO ITALIANO	6,382	12	401.6%	2
BBV ARGENTARIA	4,928	13	116.6%	13
AVENTIS	4,266	14	110.0%	14
PHILIPS ELTN.KON	4,242	15	118.6%	12
SIEMENS (XET)	2,182	16	78.3%	18
SANTANDER CTL.HISPANO	1,244	17	80.5%	17
TELEFONICA	1,231	18	72.0%	19
AIR LIQUIDE	1,187	19	64.2%	20
LAFARGE	1,034	20	87.5%	16
SAN PAOLO IMI	-453	21	55.1%	21
GENERALI	-1,094	22	48.2%	23
FORTIS (AMS)	-1,287	23	38.0%	27
SUEZ	-1,295	24	32.4%	30
REPSOL YPF	-2,097	25	41.3%	25
ABN AMRO HOLDING	-3,636	26	51.4%	22
BASF (XET)	-3,806	27	40.9%	26
SAINT GOBAIN	-4,075	28	21.6%	31
VOLKSWAGEN (XET)	-4,135	29	19.2%	34
AXA	-4,710	30	20.0%	33
DEUTSCHE BANK (XET)	-5,807	31	35.4%	28
AHOLD KON.	-6,122	32	-17.5%	42
MUNCH.RUCK. (XET)	-6,502	33	21.6%	32
AEGON	-6,867	34	11.8%	35
RWE (XET)	-7,567	35	-14.5%	40
ROYAL DUTCH PTL.	-7,753	36	44.0%	24
BAYER.HYPO U VBK. (XET)	-8,312	37	-46.4%	46
ING GROEP CERTS.	-8,420	38	33.7%	29
ENDESA	-9,703	39	-7.3%	39
CARREFOUR	-10,173	40	6.4%	37
LVMH	-12,427	41	10.4%	36
E ON (XET)	-12,885	42	-3.8%	38
VIVENDI UNIVERSAL	-13,580	43	-45.1%	45
ALCATEL	-16,211	44	-63.6%	47
BAYER (XET)	-20,497	45	-24.5%	43
DEUTSCHE TELEKOM (XET)	-31,498	46	-15.4%	41
ALLIANZ (XET)	-32,698	47	-33.6%	44
FRANCE TELECOM			Started trading in 20-10-97	
ENEL			Started trading in 02-09-99	
DAIMLERCHRYSLER (XET)			Started trading in 13-03-97	
<b>Sum</b>	<b>-47,807</b>	<b>Average</b>	<b>75.1%</b>	

### 3. Shareholder return

Table 6 shows the shareholder return in 2002 of the 50 companies. It can be seen that ENI (12.8%) was the most profitable company and that Alcatel (-77.9%) was the least profitable company in 2002. One company had positive return and 49 companies had negative return.

**Table 6. Shareholder return in 2002 of the 50 companies in the Euro Stoxx 50**

Company	2002 Return	Country
ENI	12.8%	Italy
DANONE	-4.4%	France
AIR LIQUIDE	-7.5%	France
SOCIETE GENERALE	-7.9%	France
UNILEVER CERTS.	-9.0%	Holland
L'OREAL	-9.4%	France
ABN AMRO HOLDING	-9.6%	Holland
BASF (XET)	-10.8%	Germany
TOTAL SA	-12.3%	France
LVM	-12.4%	France
UNICREDITO ITALIANO	-13.1%	Italy
ENEL	-16.6%	Italy
TELECOM ITALIA	-19.2%	Italy
BNP PARIBAS	-20.2%	France
TELECOM ITAL.MOBL.	-21.5%	Italy
REPSOL YPF	-22.2%	Spain
ROYAL DUTCH PTL.	-23.8%	Holland
CARREFOUR	-26.1%	France
SANTANDER CTL.HISPANO	-28.2%	Spain
LAFARGE	-29.3%	France
SANOFI-SYNTHELABO	-29.4%	France
SAINT GOBAIN	-31.5%	France
E ON (XET)	-32.0%	Germany
VOLKSWAGEN (XET)	-32.0%	Germany
BBV ARGENTARIA	-32.4%	Spain
ENDESA	-34.2%	Spain
AVENTIS	-34.3%	France
DEUTSCHE TELEKOM (XET)	-34.4%	Germany
GENERALI	-36.5%	Italy
DAIMLERCHRYSLER (XET)	-37.5%	Germany
RWE (XET)	-39.8%	Germany
FORTIS (AMS)	-40.7%	Belgium
BAYER (XET)	-40.8%	Germany
TELEFONICA	-41.0%	Spain
ING GROEP CERTS.	-41.5%	Holland
AX	-43.5%	France
DEUTSCHE BANK (XET)	-43.5%	Germany
SIEMENS (XET)	-44.5%	Germany
SAN PAOLO IMI	-45.8%	Italy
NOKIA	-47.1%	Finland
PHILIPS ELTN.KON	-49.5%	Holland
SUEZ	-49.7%	France
BAYER.HYPO U VBK. (XET)	-54.0%	Germany
AEGON	-57.8%	Holland
FRANCE TELECOM	-59.8%	France
AHOLD KON.	-61.7%	Holland
MUNCH.RUCK. (XET)	-62.4%	Germany

Table 7 shows the historical shareholder return of the companies. In the six-year period 1997-2002, 37 companies had positive shareholder return. In the three-year period 2000-2002, only 7 companies had positive shareholder return. In the two-year period 2001-2002, only 1 company (ENI) had positive shareholder return.

**Table 7. Shareholder Return for the companies in the Euro Stoxx 50 in 1996-2002 and other selected periods**

Company	1997-2002		1998-2002		1999-2002		2000-2002		2001-2002		2002	
	%	rank	%	rank	%	rank	%	rank	%	rank	%	rank
NOKIA	472%	1	289%	1	20%	10	-65%	43	-67%	43	-47%	40
UNICREDITO ITALIANO	402%	2	50%	10	-17%	26	-15%	12	-28%	14	-13%	11
SOCIETE GENERALE	224%	3	113%	3	89%	1	9%	6	-9%	3	-8%	4
SANOFI-SYNTHELABO	213%	4	136%	2	72%	3	46%	2	-16%	8	-29%	21
BNP PARIBAS	202%	5	83%	5	25%	6	-7%	9	-11%	6	-20%	14
TELECOM ITAL.MOBL.	167%	6	24%	17	-18%	27	-54%	37	-41%	26	-22%	15
TELECOM ITALIA	163%	7	46%	11	15%	13	-41%	25	-32%	18	-19%	13
DANONE	163%	8	72%	6	13%	14	16%	3	-17%	9	-4%	2
L'OREAL	156%	9	110%	4	22%	9	-7%	8	-19%	10	-9%	6
TOTAL SA	148%	10	55%	9	75%	2	12%	5	-9%	4	-12%	9
ENI	126%	11	71%	7	55%	4	54%	1	20%	1	13%	1
PHILIPS ELTN.KON	119%	12	23%	18	18%	11	-49%	32	-56%	36	-49%	41
BBV ARGENTARIA	117%	13	1%	25	-26%	29	-31%	18	-40%	25	-32%	25
AVENTIS	110%	14	34%	14	24%	8	-7%	10	-43%	28	-34%	27
UNILEVER CERTS.	109%	15	25%	16	-4%	21	15%	4	-9%	5	-9%	5
LAFARGE	88%	16	42%	12	1%	19	-31%	17	-13%	7	-29%	20
SANTANDER CTL.HISPANO	80%	17	-4%	27	-16%	23	-37%	22	-39%	24	-28%	19
SIEMENS (XET)	78%	18	19%	19	16%	12	-50%	33	-55%	35	-45%	38
TELEFONICA	72%	19	17%	20	-24%	28	-63%	42	-48%	30	-41%	34
AIR LIQUIDE	64%	20	38%	13	11%	15	2%	7	-6%	2	-8%	3
SAN PAOLO IMI	55%	21	-15%	32	-51%	39	-48%	30	-61%	39	-46%	39
ABN AMRO HOLDING	51%	22	5%	23	2%	18	-28%	15	-29%	16	-10%	7
GENERALI	48%	23	-3%	26	-43%	33	-39%	24	-53%	33	-36%	29
ROYAL DUTCH PTL.	44%	24	-5%	28	10%	16	-25%	14	-32%	17	-24%	17
REPSOL YPF	41%	25	6%	22	-11%	22	-42%	27	-23%	12	-22%	16
BASF (XET)	41%	26	28%	15	24%	7	-23%	13	-20%	11	-11%	8
FORTIS (AMS)	38%	27	-8%	31	-48%	38	-49%	31	-49%	31	-41%	32
DEUTSCHE BANK (XET)	35%	28	-24%	36	-3%	20	-45%	29	-49%	32	-44%	37
ING GROEP CERTS.	34%	29	-5%	29	-31%	30	-41%	26	-59%	37	-42%	35
SUEZ	32%	30	-7%	30	-47%	37	-43%	28	-55%	34	-50%	42
SAINT GOBAIN	22%	31	1%	24	7%	17	-33%	20	-28%	13	-32%	22
MUNCH.RUCK. (XET)	22%	32	-32%	40	-44%	34	-55%	38	-70%	44	-62%	47
AX	20%	33	-17%	33	-53%	41	-59%	41	-65%	42	-43%	36
VOLKSWAGEN (XET)	19%	34	-25%	37	-45%	35	-33%	21	-34%	20	-32%	24
AEGON	12%	35	-33%	41	-74%	46	-72%	44	-70%	45	-58%	44
LVM	10%	36	56%	8	37%	5	-54%	36	-42%	27	-12%	10
CARREFOUR	6%	37	13%	21	-17%	24	-52%	34	-35%	22	-26%	18
E ON (XET)	-4%	38	-31%	39	-17%	25	-15%	11	-37%	23	-32%	23
ENDESA	-7%	39	-22%	35	-45%	36	-38%	23	-34%	21	-34%	26
RWE (XET)	-14%	40	-43%	43	-42%	32	-31%	19	-46%	29	-40%	31
DEUTSCHE TELEKOM (XET)	-15%	41	-20%	34	-52%	40	-81%	48	-59%	38	-34%	28
AHOLD KON.	-17%	42	-45%	44	-58%	42	-56%	39	-63%	41	-62%	46
BAYER (XET)	-24%	43	-30%	38	-35%	31	-52%	35	-61%	40	-41%	33
ALLIANZ (XET)	-34%	44	-60%	46	-71%	44	-72%	45	-77%	48	-66%	48
VIVENDI UNIVERSAL	-45%	45	-59%	45	-76%	48	-81%	47	-76%	47	-74%	49
BAYER.HYPO U VBK. (XET)	-46%	46	-72%	47	-75%	47	-76%	46	-73%	46	-54%	43
ALCATEL	-64%	47	-81%	48	-79%	49	-90%	50	-93%	50	-78%	50
DAIMLERCHRYSLER (XET)					-60%	43	-57%	40	-29%	15	-38%	30
ENEL							-31%	16	-32%	19	-17%	12
FRANCE TELECOM			-41%	42	-72%	45	-86%	49	-80%	49	-60%	45
<b>Average</b>	<b>75%</b>		<b>14%</b>		<b>-15%</b>		<b>-36%</b>		<b>-41%</b>		<b>-33%</b>	
<b>Weighted average</b>	<b>42%</b>		<b>2%</b>		<b>-25%</b>		<b>-49%</b>		<b>-48%</b>		<b>-36%</b>	

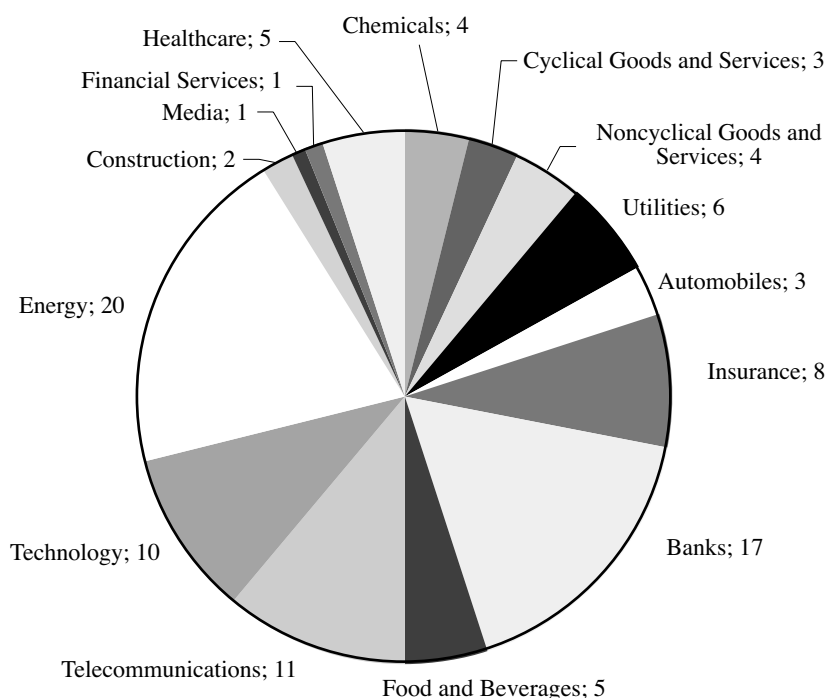
#### 4. Shareholder Value Creation and Shareholder Return by country

Table 8 shows some statistics of the companies in the Euro Stoxx 50 grouped by country. The first two columns show the market capitalization at the end of 2002. French companies account for 33% of total market capitalization. The third column also shows that there are 17 French companies. It may be seen that French and German companies accounted for 59% of the shareholder value destruction in 2002. In the six-year period 1997-2002, German companies were the ones that destroyed most value.

**Table 8. Shareholder Value Creation and Shareholder Return by country of the 50 companies in the Euro Stoxx 50 at the end of 2002**

Countries	Market Capitalization 2002		N° Companies	Return 2002	Return 97-2002	CSV 02		CSV 97-02
	€ million	%				€ million	%	€ million
France	465,205	33%	17	-32%	76%	-285,413	30%	17,761
Germany	283,529	20%	12	-44%	2%	-273,460	29%	-100,027
Netherlands	249,810	18%	8	-35%	51%	-172,248	18%	-18,768
Italy	223,264	16%	7	-16%	248%	-66,647	7%	52,069
Spain	128,981	9%	5	-34%	56%	-83,119	9%	-4,398
Finland	72,476	5%	1	-47%	472%	-78,081	8%	37,054
Total	1,423,263	100%	50			-958,968	100%	-16,309

#### Sector Weighting (%)



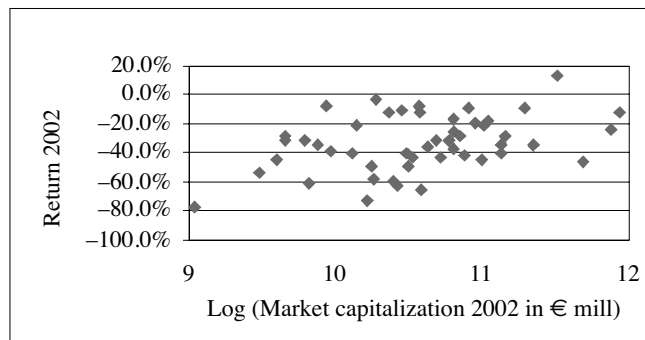
#### 5. Shareholder Return and size

Figure 1 shows the relation between shareholder return and size (measured as the log of market capitalization) in 2002. There is not a close relation. The slope of the regression is 0.126 and the R-squared is 15.98% (that is, the difference in size explained only 15.98% of the return).

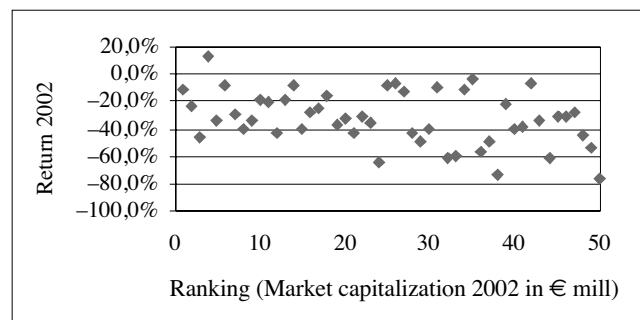
Figure 2 plots the relation between the ranking of shareholder return and the ranking of size. Again, the relation is very weak.

Figure 3 shows the relation of shareholder return in the six-year period 2002 and size (measured as the log of the market capitalization at the beginning of the period, in 1996). Again, no significant relation is found. Difference in size explained only 12.36% of the return.

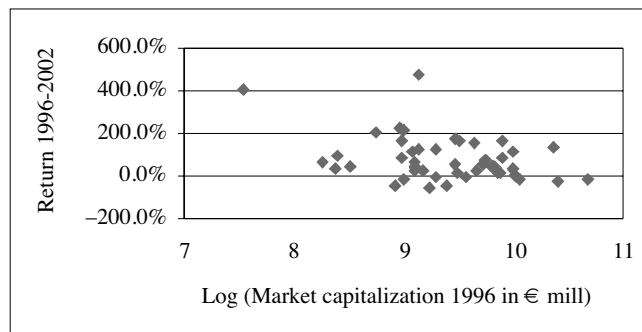
**Figure 1. Relation of shareholder return and size of the companies in the Euro Stoxx 50 in 2002**



**Figure 2. Relation of the rankings of shareholder return and size of the companies in the Euro Stoxx 50 in 2002**



**Figure 3. Relation of shareholder return and size of the companies in the Euro Stoxx 50 in the period 1997-2002**



## 6. Addition and deletion of companies in the Euro Stoxx 50 during the six-year period 1996-2002

Table 9 shows the companies added and removed from the Euro Stoxx 50.

Figure 4 shows the average cumulative return of the companies added to the Euro Stoxx 50 in the 40 days around the addition date (day 0). It may be seen that the average cumulative return in the 20 days before the addition was 6% (12% on top of the return of the Euro Stoxx 50.). It may be seen, also, that the average cumulative return in the 20 days after the addition was -19% less than the return of the Euro Stoxx 50.

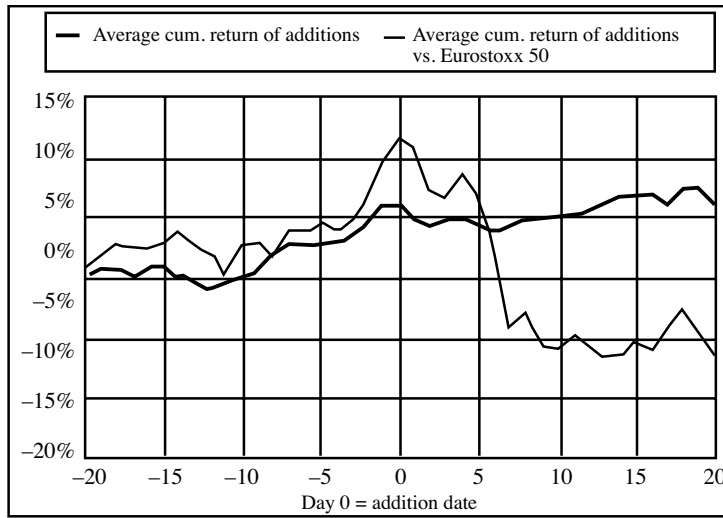
Figure 5 shows the average cumulative return of the companies removed from the Euro Stoxx 50 in the 40 days around the deletion date (day 0). It may be seen that the average cumulative return in the 20 days before the deletion was -3%. It may be seen, also, that the average cumulative return in the 13 days after the deletion was -14% less than the return of the Euro Stoxx 50.

Figure 6 shows the average cumulative return of a portfolio equally weighted long in the companies added, and short in the companies removed from the Euro Stoxx 50 in the 40 days around the addition/deletion date (day 0). It may be seen that the average cumulative return in the 20 days before the addition/deletion date was 10%, and that the average cumulative return in the 20 days after the addition/deletion date was -6%.

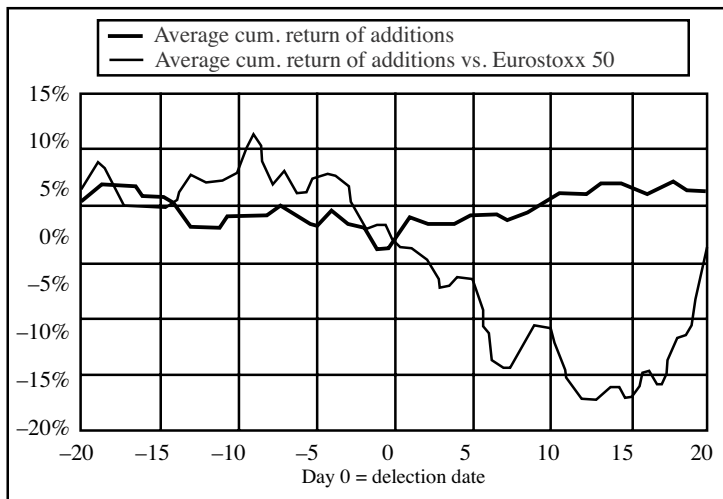
**Table 9. Additions and deletions, companies in the Euro Stoxx 50 since 1997**

Date	Deletions from the Euro Stoxx 50	Additions to the Euro Stoxx 50
22/09/1997	Sanofi	Paribas (Compagnie Financiere de)
22/09/1997	Schering AG	L'Oreal (Ordinary)
22/09/1997	Thyssen AG	PORTUGAL TELECOM S.A.
22/12/1997	Pinault-Printemps-La Redoute	France Telecom
26/10/1998	Credito Italiano	UniCredito
16/06/1999	PETROFINA SA	TOTALFINA
20/09/1999	LUFTHANSA AG -B-	BASF AG
20/09/1999	SCHNEIDER ELECTRIC	BAYERISCHE HYPO-&VEREINSBANK
20/09/1999	ALLIED IRISH BANKS PLC	DRESDNER BANK AG
20/09/1999	FIAT SPA	MUENCHENER RUECKVER AG-REG
20/09/1999	AKZO NOBEL	BANCO SANTANDER CEN
20/09/1999	ELSEVIER	SUEZ LYONNAISE DES EAUX
20/09/1999	PORTUGAL TELECOM SA -R-	SANOFI-SYNTHELABO
01/11/1999	PARIBAS	PINAULT-PRINTEMPS-REDOUTE
01/11/1999	ELF AQUITAINE	BNP
20/12/1999	RHONE-POULENC	AVENTIS
14/02/2000	MANNESMANN AG -R-	CANAL +
20/03/2000	SAINT GOBAIN	ENEL
19/06/2000	VEBA	E.ON
18/09/2000	ELECTRABEL SA	GROUPE DANONE
18/09/2000	METRO AG	SAN PAOLO-IMI
11/12/2000	CANAL +	VOLKSWAGEN AG
23/07/2001	DRESDNER BANK	TI
24/09/2001	KPN	SAINT GOBAIN
23/09/2002	PINAULT PRINTEMPS REDOUTE	LAFARGE

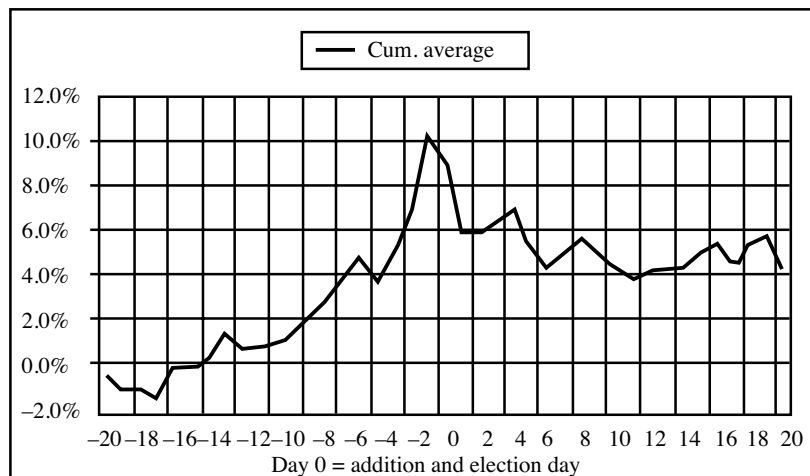
**Figure 4. Average Cumulative Return of additions to the Euro Stoxx 50**



**Figure 5. Average Cumulative Return of deletions from the Euro Stoxx 50**



**Figure 6. Cumulative Average return of a portfolio long in the company added and short in the company deleted from the Euro Stoxx 50**



## 7. Volatility correlation comparison of Euro Stoxx 50 with other indexes

Figure 7 compares the volatilities (annualized standard deviation of the daily returns of the last year) of the Euro Stoxx 50, of the S&P 500 and of the Dow Jones. It may be seen that the Euro Stoxx 50 has been much more volatile than the American Indexes, especially in 1999 and after September 11, 2001.

Figures 8 and 9 compare the volatility (annualized standard deviation of the daily returns of the last year) of the Euro Stoxx 50, with the volatilities of the national indexes of France (CAC 40), Germany (Dax), Spain (Ibex 35), and UK (FTSE 100). The FTSE 100 (there are no UK companies in the Euro Stoxx 50) has been much less volatile than the Euro Stoxx 50.

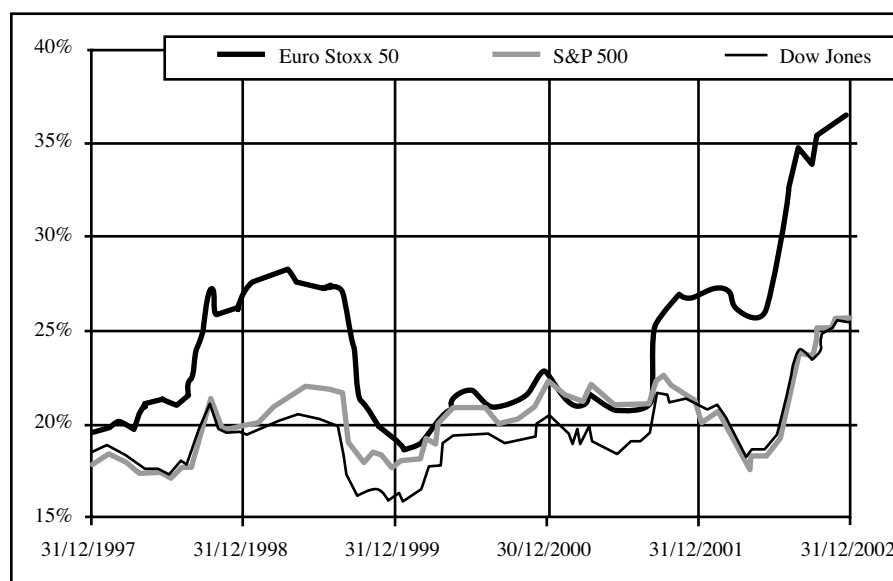
Figures 10, 11, and 12 offer the same comparison as Figures 7, 8 and 9, but the volatility is the annualized standard deviation of the daily returns of the last 20 days (instead of the last year).

Table 10 offers the correlation among the indexes using daily returns of the 6-year period 1997-2002. The correlation of the Euro Stoxx with the continental indexes is higher than 0.84. The correlation of the Euro Stoxx 50 with the FTSE 100 is 0.83. The correlation of the Euro Stoxx 50 with the American indexes is much lower: 0.465 and 0.446.

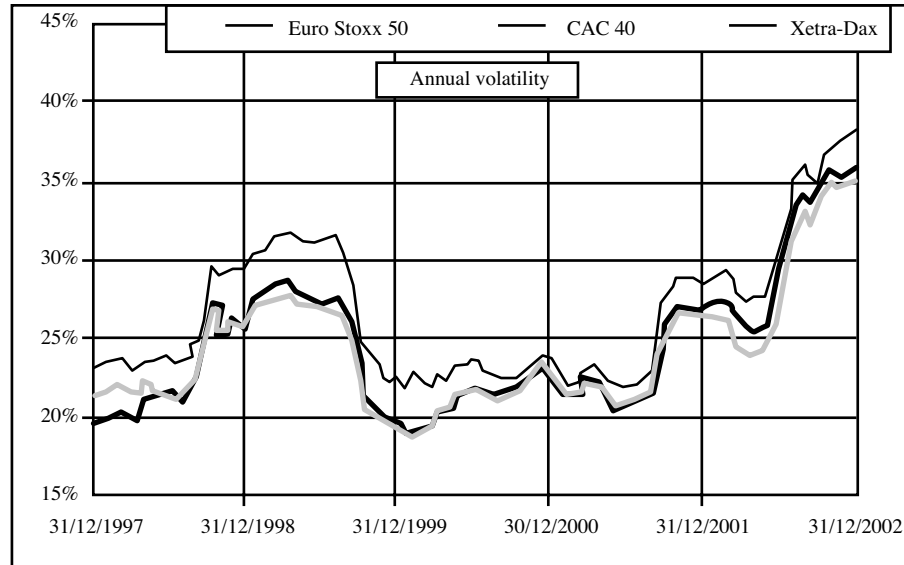
Tables 11 and 12 split the period used for calculating the correlation in two sub-periods. Table 11 shows the correlation of the 3-year sub-period 1997-1999, and Table 12 shows the correlation of the 3-year sub-period 2000-2002. Table 13 is the difference between Tables 11 and 12. It may be seen that the correlation of the Euro Stoxx 50 with all other indexes (except the Dax) was higher in 2000-2002 than in 1997-1999.

Figures 13 to 16 show the evolution of the correlations. Figures 13 and 14 contain the correlations of the daily returns of the last 20 days, while Figures 15 and 16 contain the correlations of the daily returns of the last year.

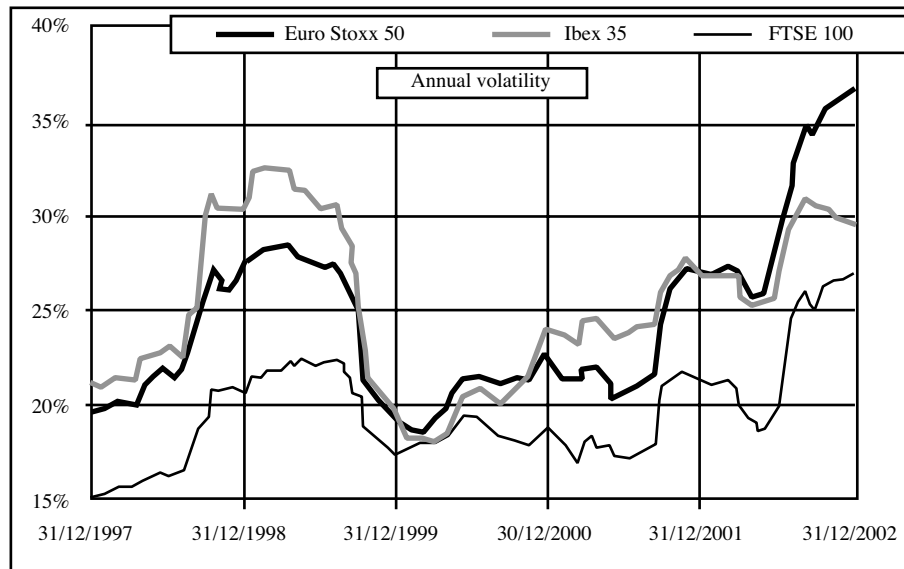
**Figure 7. Volatility of Euro Stoxx 50, S&P 500 and Dow Jones**  
(Annualized rolling standard deviation calculated with daily data of the last year)



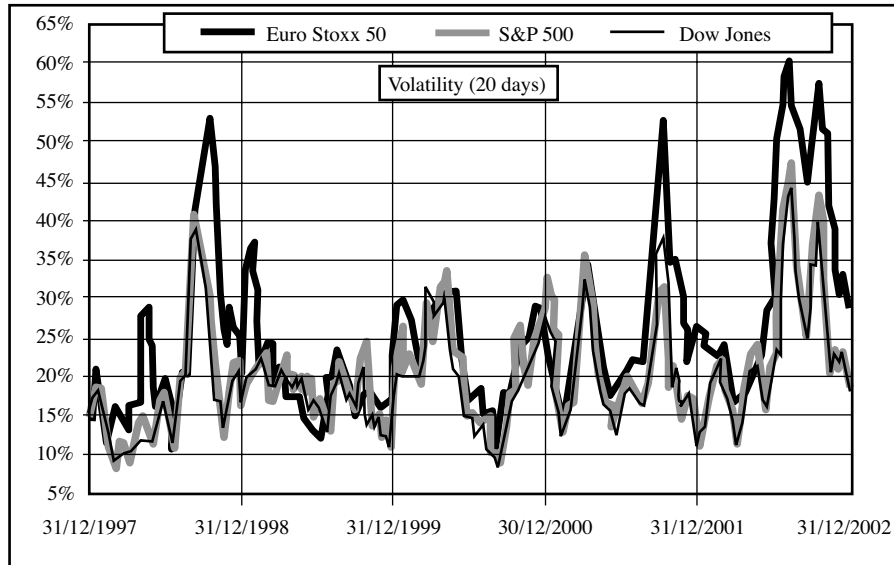
**Figure 8. Volatility of Euro Stoxx 50, CAC 40 and Xetra-Dax**  
 (Annualized rolling standard deviation calculated with daily data of the last year)



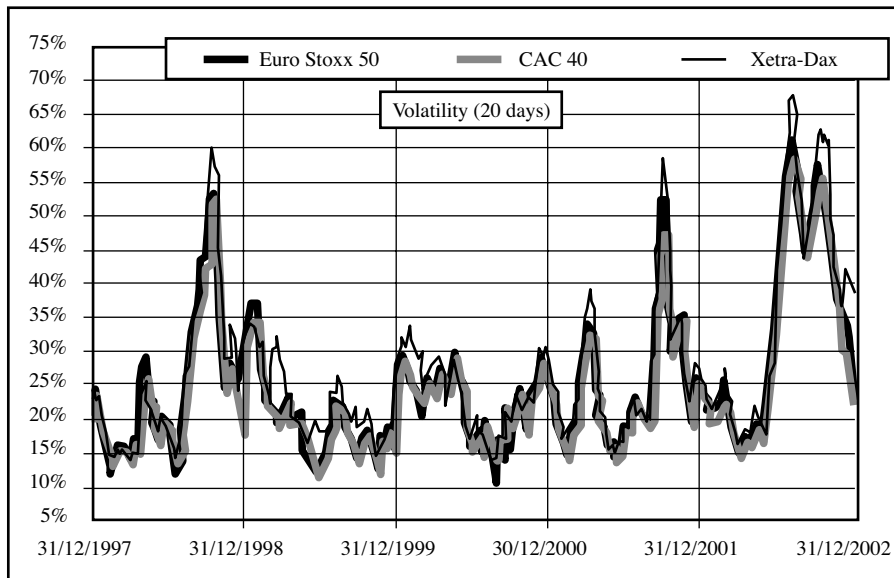
**Figure 9. Volatility of Euro Stoxx 50, Ibex 35 and FTSE 100**  
 (Annualized rolling standard deviation calculated with daily data of the last year)



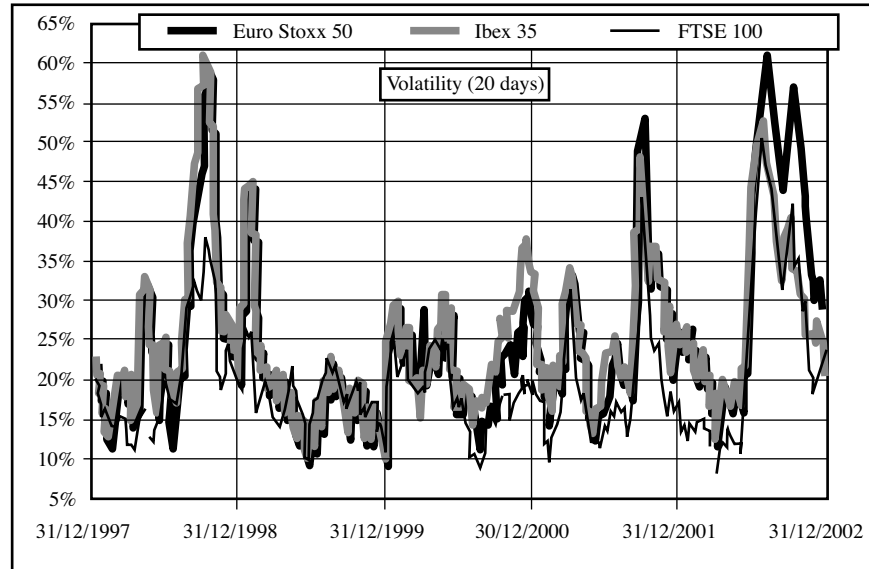
**Figure 10. Volatility of Euro Stoxx 50, S&P 500 and Dow Jones**  
 (Annualized rolling standard deviation calculated with daily data of the last 20 days)



**Figure 11. Volatility of Euro Stoxx 50, CAC 40 and Xetra-Dax**  
 (Annualized rolling standard deviation calculated with daily data of the last 20 days)



**Figure 12. Volatility of Euro Stoxx 50, Ibex 35 and FTSE 100 (20 days)**  
**(Annualized rolling standard deviation calculated with daily data of the last 20 days)**



**Table 10. Correlation of the Euro Stoxx 50 with other main world indexes.**  
**Correlation calculated with daily data in the period Jan 1997-Dec 2002**

	Euro Stoxx 50	AEX	CAC 40	Ibex 35	Mibtel 30	Xetra-Dax	FTSE 100	S&P 500	Dow Jones
Euro Stoxx 50	1.000	0.911	0.941	0.849	0.845	0.902	0.830	0.465	0.446
AEX	0.911	1.000	0.840	0.750	0.751	0.792	0.796	0.413	0.407
CAC 40	0.941	0.840	1.000	0.806	0.807	0.837	0.805	0.451	0.434
Ibex 35	0.849	0.750	0.806	1.000	0.778	0.756	0.706	0.404	0.393
Mibtel 30	0.845	0.751	0.807	0.778	1.000	0.770	0.716	0.390	0.380
Xetra-Dax	0.902	0.792	0.837	0.756	0.770	1.000	0.748	0.517	0.499
FTSE 100	0.830	0.796	0.805	0.706	0.716	0.748	1.000	0.423	0.411
S&P 500	0.465	0.413	0.451	0.404	0.390	0.517	0.423	1.000	0.939
Dow Jones	0.446	0.407	0.434	0.393	0.380	0.499	0.411	0.939	1.000

**Table 11. Correlation of the Euro Stoxx 50 with other main world indexes.**  
**Correlation calculated with daily data in the period Jan 1997-Dec 1999**

	Euro Stoxx 50	AEX	CAC 40	Ibex 35	Mibtel 30	Xetra-Dax	FTSE 100	S&P 500	Dow Jones
Euro Stoxx 50	1.000	0.886	0.899	0.820	0.818	0.905	0.790	0.406	0.420
AEX	0.886	1.000	0.757	0.705	0.685	0.792	0.745	0.371	0.387
CAC 40	0.899	0.757	1.000	0.750	0.753	0.829	0.736	0.417	0.429
Ibex 35	0.820	0.705	0.750	1.000	0.738	0.758	0.656	0.392	0.405
Mibtel 30	0.818	0.685	0.753	0.738	1.000	0.731	0.656	0.325	0.341
Xetra-Dax	0.905	0.792	0.829	0.758	0.731	1.000	0.745	0.426	0.443
FTSE 100	0.790	0.745	0.736	0.656	0.656	0.745	1.000	0.392	0.410
S&P 500	0.406	0.371	0.417	0.392	0.325	0.426	0.392	1.000	0.946
Dow Jones	0.420	0.387	0.429	0.405	0.341	0.443	0.410	0.946	1.000

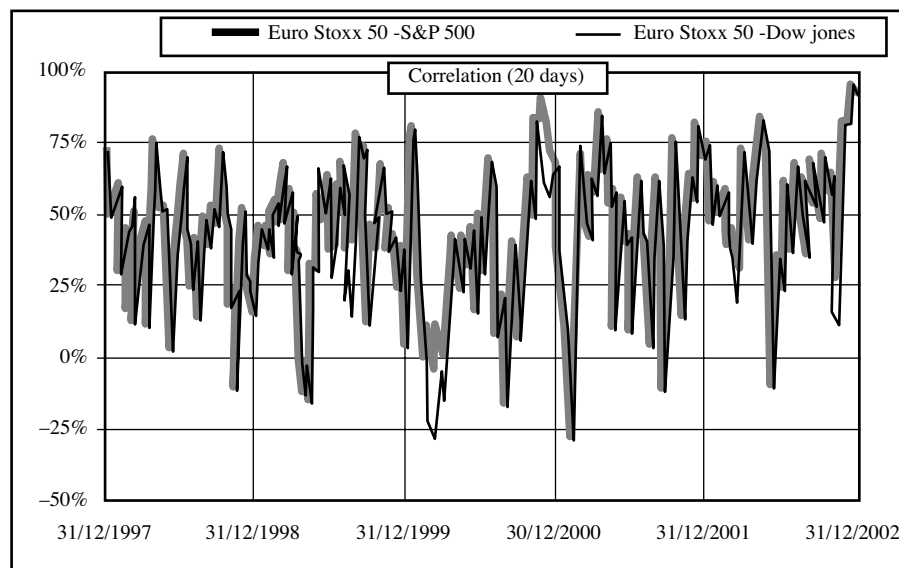
**Table12. Correlation of the Euro Stoxx 50 with other main world indexes.  
Correlation calculated with daily data in the period Jan 2000-Dec 2002**

	Euro Stoxx 50	AEX	CAC 40	Ibex 35	Mibtel 30	Xetra-Dax	FTSE 100	S&P 500	Dow Jones
Euro Stoxx 50	1.000	0.929	0.966	0.874	0.884	0.901	0.854	0.498	0.459
AEX	0.929	1.000	0.895	0.783	0.814	0.791	0.831	0.440	0.418
CAC 40	0.966	0.895	1.000	0.849	0.864	0.841	0.847	0.469	0.435
Ibex 35	0.874	0.783	0.849	1.000	0.816	0.755	0.742	0.411	0.382
Mibtel 30	0.884	0.814	0.864	0.816	1.000	0.812	0.774	0.445	0.415
Xetra-Dax	0.901	0.791	0.841	0.755	0.812	1.000	0.748	0.573	0.534
FTSE 100	0.854	0.831	0.847	0.742	0.774	0.748	1.000	0.439	0.410
S&P 500	0.498	0.440	0.469	0.411	0.445	0.573	0.439	1.000	0.935
Dow Jones	0.459	0.418	0.435	0.382	0.415	0.534	0.410	0.935	1.000

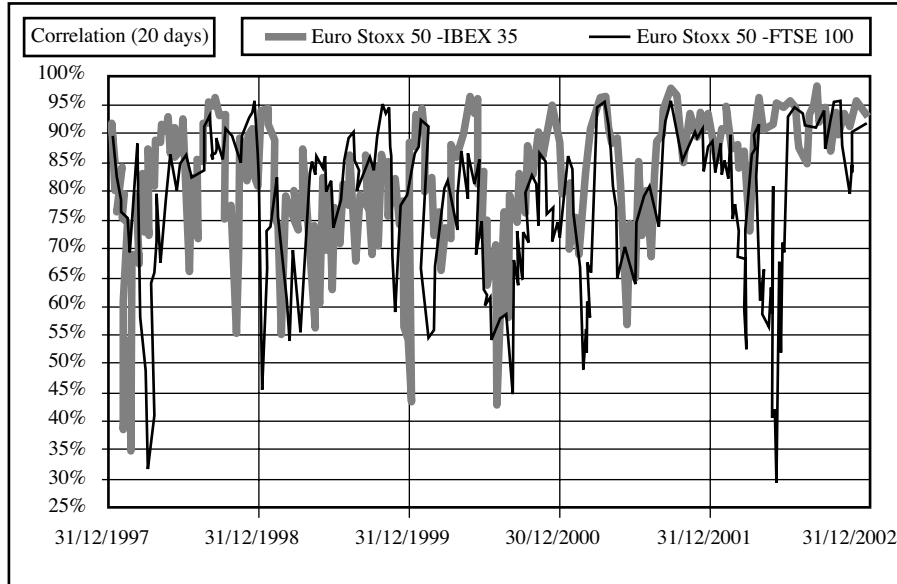
**Table 13. Correlation of Table 11 (97-98) – Correlation of Table 12 (200-2002)**

	Euro Stoxx 50	AEX	CAC 40	Ibex 35	Mibtel 30	Xetra-Dax	FTSE 100	S&P 500	Dow Jones
Euro Stoxx 50	0.000	-0.043	-0.067	-0.054	-0.066	0.003	-0.064	-0.092	-0.039
AEX	-0.043	0.000	-0.139	-0.079	-0.129	0.001	-0.086	-0.069	-0.031
CAC 40	-0.067	-0.139	0.000	-0.099	-0.111	-0.012	-0.110	-0.052	-0.006
Ibex 35	-0.054	-0.079	-0.099	0.000	-0.078	0.003	-0.086	-0.019	0.023
Mibtel 30	-0.066	-0.129	-0.111	-0.078	0.000	-0.080	-0.118	-0.120	-0.073
Xetra-Dax	0.003	0.001	-0.012	0.003	-0.080	0.000	-0.003	-0.147	-0.091
FTSE 100	-0.064	-0.086	-0.110	-0.086	-0.118	-0.003	0.000	-0.047	0.000
S&P 500	-0.092	-0.069	-0.052	-0.019	-0.120	-0.147	-0.047	0.000	0.011
Dow Jones	-0.039	-0.031	-0.006	0.023	-0.073	-0.091	0.000	0.011	0.000

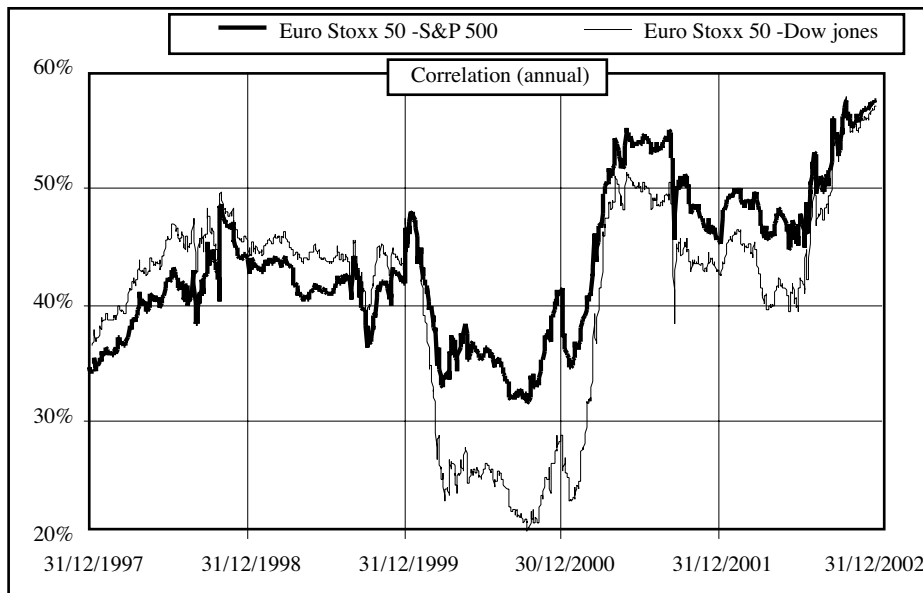
**Figure 13. Correlation between the Euro Stoxx 50 and the S&P 500. Correlation between Euro Stoxx 50 and Dow Jones (20-day rolling daily correlations)**



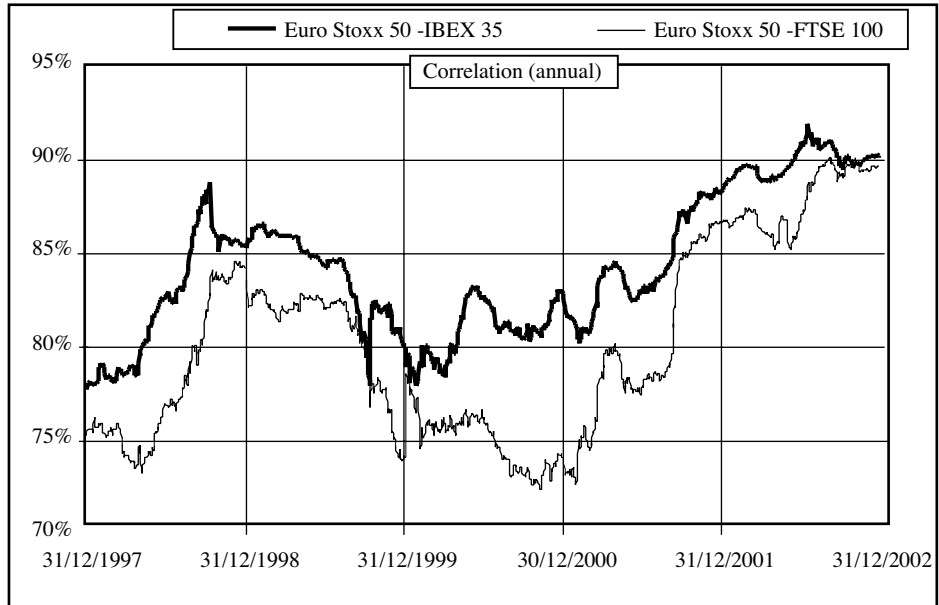
**Figure 14. Correlation between Euro Stoxx and Ibex 35.**  
**Correlation between Euro Stoxx 50 and FTSE 100 (20-day rolling daily correlations)**



**Figure 15. Correlation between Euro Stoxx and S&P 500.**  
**Correlation between Euro Stoxx 50 and Dow Jones (annual rolling daily correlations)**



**Figure 16. Correlation between Euro Stoxx and Ibex 35.**  
**Correlation between Euro Stoxx 50 and FTSE 100 (annual rolling daily correlations)**

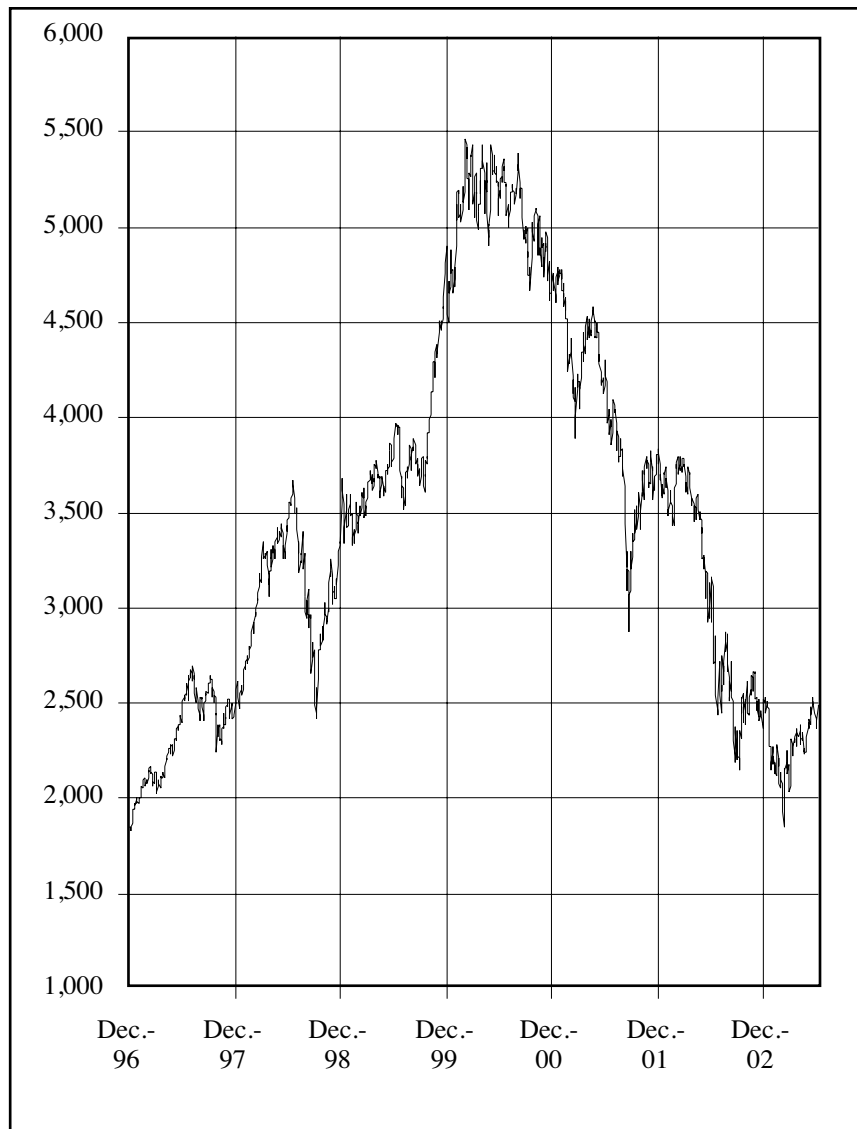


## Appendix 1

SHAREHOLDER VALUE CREATORS AND SHAREHOLDER  
VALUE DESTROYERS IN EUROPE. YEAR 2002**Market Value of the companies in the Euro Stoxx 50 in December 2002 and in previous  
years (million euros)**

	2002	%	2001	2000	1999	1998	1997	1996
TOTAL SA	93,267	6.6%	113,098	117,162	95,552	21,084	24,241	15,489
ROYAL DUTCH PTL.	88,065	6.2%	121,006	139,937	130,480	90,979	108,299	73,683
NOKIA	72,476	5.1%	137,087	222,981	206,903	48,687	14,079	9,388
ENI	60,627	4.3%	56,338	54,415	43,692	44,623	41,436	32,162
DEUTSCHE TELEKOM (XET)	51,422	3.6%	81,017	97,250	214,749	76,987	46,686	43,554
L'OREAL	49,048	3.4%	54,693	61,724	53,848	41,629	24,266	20,134
SANOFI-SYNTHELABO	42,659	3.0%	61,340	51,932	30,222	15,171	10,797	8,232
TELEFONICA	41,461	2.9%	70,219	76,396	80,918	39,645	24,562	17,024
AVENTIS	41,334	2.9%	62,674	73,376	44,891	16,306	14,792	8,827
TELECOM ITALIA	38,051	2.7%	50,511	62,823	73,572	38,268	30,669	13,664
TELECOM ITAL.MOBL.	36,688	2.6%	52,881	71,686	73,628	41,832	27,996	13,150
SIEMENS (XET)	36,060	2.5%	66,341	82,802	75,537	32,233	30,595	20,272
BNP PARIBAS	34,734	2.4%	44,520	41,894	41,204	15,323	10,400	6,350
UNILEVER CERTS.	33,466	2.4%	37,638	38,524	31,345	46,624	36,312	22,277
ING GROEP CERTS.	32,162	2.3%	56,435	83,164	57,943	49,090	35,629	22,174
SANTANDER CTL.HISPANO	31,185	2.2%	43,903	51,477	41,226	19,837	14,658	7,977
CARREFOUR	30,175	2.1%	41,531	46,680	62,711	24,984	18,418	19,795
ENEL	30,073	2.1%	38,379	50,202	50,445			
DAIMLERCHRYSLER (XET)	29,903	2.1%	49,261	45,354	77,133	83,741		
BBV ARGENTARIA	29,146	2.0%	44,422	50,004	29,878	27,316	20,040	9,468
DEUTSCHE BANK (XET)	27,287	1.9%	49,352	54,990	51,445	26,570	34,336	18,133
E ON (XET)	26,607	1.9%	44,409	49,462	24,361	25,531	30,903	22,536
GENERALI	25,004	1.8%	39,094	53,002	33,650	36,558	19,787	13,095
ALLIANZ (XET)	24,152	1.7%	70,682	97,956	81,920	77,445	55,698	33,598
ABN AMRO HOLDING	24,027	1.7%	27,898	36,373	36,375	25,835	25,266	16,927
SOCIETE GENERALE	23,853	1.7%	27,068	28,003	24,018	14,084	11,942	7,835
UNICREDITO ITALIANO	23,839	1.7%	22,661	27,864	24,178	23,569	8,052	1,911
AX	22,537	1.6%	40,288	63,526	48,925	42,727	23,522	9,716
PHILIPS ELTN.KON	21,978	1.5%	43,930	51,353	45,776	21,069	19,534	11,013
FORTIS (AMS)	21,551	1.5%	37,643	19,294	16,449	13,089	7,388	5,001
BASF (XET)	21,049	1.5%	25,642	29,585	31,446	19,940	19,739	18,445
MUNCH.RUCK. (XET)	20,368	1.4%	53,961	67,428	45,034	36,037	28,460	15,951
FRANCE TELECOM	19,886	1.4%	51,807	106,093	134,532	69,353	33,280	
LVMH	19,181	1.3%	22,388	34,535	43,556	15,001	13,341	19,302
DANONE	17,785	1.2%	20,484	23,937	17,171	17,971	11,964	8,005
AEGON	17,437	1.2%	43,236	59,488	64,090	61,004	23,724	13,249
SUEZ	17,138	1.2%	34,681	38,780	31,439	25,756	12,780	4,355
VIVENDI UNIVERSAL	16,749	1.2%	67,022	75,710	52,843	35,152	17,172	12,019
REPSOL YPF	15,383	1.1%	19,998	20,779	26,243	13,649	11,720	8,979
BAYER (XET)	14,935	1.0%	26,146	40,804	34,399	26,192	24,870	23,525
RWE (XET)	12,928	0.9%	22,309	25,270	18,353	22,371	15,962	10,939
AIR LIQUIDE	12,673	0.9%	14,295	14,528	13,772	12,957	10,506	9,029
ENDESA	11,805	0.8%	18,602	19,216	20,868	21,577	16,908	14,439
AHOLD KON.	11,125	0.8%	30,046	26,729	18,819	19,720	12,489	8,171
VOLKSWAGEN (XET)	10,876	0.8%	16,436	17,371	17,396	21,010	14,301	9,066
SAINT GOBAIN	9,534	0.7%	14,446	14,361	16,272	10,858	11,627	9,694
LAFARGE	9,534	0.7%	13,639	9,772	12,104	8,312	5,683	4,478
SAN PAOLO IMI	8,983	0.6%	16,924	24,177	18,915	21,146	7,122	3,919
BAYER.HYPO U VBK. (XET)	7,941	0.6%	17,906	23,790	26,584	25,686	17,096	7,624
ALCATEL	5,116	0.4%	23,333	73,289	45,307	20,717	18,978	10,280
<b>Sum</b>	<b>1,423,263</b>	<b>100%</b>	<b>2,239,620</b>	<b>2,747,247</b>	<b>2,592,115</b>	<b>1,585,246</b>	<b>1,098,022</b>	<b>714,853</b>

## Appendix 2

SHAREHOLDER VALUE CREATORS AND SHAREHOLDER  
VALUE DESTROYERS IN EUROPE. YEAR 2002**Evolution of the Euro Stoxx 50 index****References**

Fernández, Pablo (2002), *Valuation and Shareholder Value Creation*, Academic Press. San Diego, CA.