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Do spin-offs really create value? The European case

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Abstract

We study wealth effects for a sample of 156 spin-offs from 15 different European countries that were announced between January 1987 and September 2000. The cumulative average abnormal return over the 3-day event window is 2.62%. This number increases to 2.66% for the subsequently completed spin-offs. The cumulative average abnormal return is 3.57% for completed spin-offs by companies that increase their industrial focus and only 0.76% for non-focus increasing companies. The difference between these two sub-samples is significantly different from zero. These results are in line with previous studies for the US. The long-run returns in excess of matching firms are mostly insignificant for parents, subsidiaries and pro-forma combined firms. This result suggests that, unlike US spin-offs, European spin-offs are not associated with long-run superior performance.

JEL classification: G32; G34
Keywords: Divestitures; Spin-offs; Event study; Long-run excess returns; Industrial focus

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1. Introduction

There is a broad consensus in both the academic and the popular literatures that spin-offs tend to create value for shareholders. This consensus is based on evidence from a number of studies indicating that, on average, the announcement of a spin-off by a US firm is associated with a positive abnormal stock return. Moreover, shares of firms completing spin-offs appear to exhibit excess returns over periods of up to 3 years following the restructuring. During the last decade, spin-offs have become more popular in Europe, perhaps due to the documented positive wealth effects in the US. The large number of European spin-offs completed in recent years provide us with an opportunity to examine whether the conclusion that spin-offs tend to create value only applies to US firms or whether it is more broadly applicable.

A spin-off is a pro-rata distribution of the shares of a firm's subsidiary to the shareholders of the company. No cash transaction takes place. After the spin-off, the shareholders of the parent company hold shares in both the parent company and the subsidiary. Announcements of spin-offs by US firms are associated with strongly significant abnormal returns that range from 1.32% to 5.56%. [3] Spin-offs of companies that increase their industrial focus by divesting a division in a different branch than the parent company are associated with higher abnormal returns than spin-offs of companies that do not increase their industrial focus (see e.g. Daley et al., 1997; Desai and Jain, 1999). In addition, Krishnaswami and Subramaniam (1999) also find that firms with higher levels of information asymmetry exhibit higher abnormal returns in the announcement period. These results show that the market efficiently responds to the spin-off announcements by incorporating expected future benefits into the current stock price.

A number of US studies also find long-run superior performance of spun-off firms and their parents. Cusatis et al. (1993), Desai and Jain (1999) and McConnell et al. (2001) find that parents and subsidiaries, involved in a spin-off, outperform matching firms. Contrary to the results for the announcement period, the finding for the long-run excess returns is remarkable. According to the efficient market hypothesis, the positive effects of the spin-off should be incorporated in the announcement date returns. An interesting question is then whether spin-offs are really associated with positive long-run excess returns or whether the US results were a consequence of chance. Fama (1998) argues that studies finding significant long-run returns receive more attention in the academic and the popular literature because they are more interesting. For this reason Fama (1998) and Lyon et al. (1999) argue that it is useful to study such anomalies out-of-sample. In case of spin-offs it makes sense to study spin-offs outside the US. This gives us out-of-sample results on the long-run performance of companies involved in spin-offs.

[3] See e.g. Rosenfeld (1984), Copeland et al. (1987), Slovin et al. (1995), Johnson et al. (1996), Daley et al. (1997), Desai and Jain (1999), Krishnaswami and Subramaniam (1999), Mulherin and Boone (2000) and Maxwell and Rao (in press).

In this paper we study European spin-offs. [4] Spin-offs have only become popular in Europe during the second half of the 1990s. In the period from 1987 to 1994, only 62 spin-offs took place. From 1995 onwards the volume of spin-offs rapidly increased. The period from January 1995 to September 2000 witnessed no less than 170 European spin-offs. Different results between the US and Europe can a priori be expected due to corporate governance differences. Differences in corporate governance between countries can be measured by means of the index of La Porta et al. (1998). According to this index, shareholders of companies in continental Europe are less protected than shareholders in Anglo-Saxon countries.

The most important results from this study can be summarized as follows. In total, 156 spin-offs that were announced by European companies over the period from January 1987 to September 2000 are analyzed. The cumulative average abnormal return is 2.62% over the 3-day event window. This number increases to 2.66% for the subsequently completed spin-offs. The cumulative average abnormal return is 3.57% for completed spin-offs by companies that increase their industrial focus and only 0.76% for non-focus increasing companies. The difference between these two sub-samples is significantly different from zero. This result is in line with previous studies for the US. The divestiture of relatively large subsidiaries is also associated with larger abnormal returns. Contrary to Krishnaswami and Subramaniam (1999), we do not find any relation between the level of information asymmetry and the size of the abnormal return. However, introducing information asymmetry in the regression weakens the industrial focus effect. Therefore, the evidence on the industrial focus effect is not conclusive. The short-run results are not different between countries with different corporate governance systems.

Long-run excess returns, defined as the difference between the company return and the return on a matching firm, are mostly insignificant. The long-run excess returns in our study are higher for countries with *lower* levels of shareholder protection. Therefore, it cannot be concluded that the difference between our results and previously published results for the US can be attributed to differences in corporate governance systems. If that were the case, the long-run excess returns in our study would have been higher for countries with higher levels of shareholder protection. The results in this paper support the efficient market hypothesis. We conclude that, on average, spin-offs really create value, as they are associated with positive abnormal returns on the announcement date. However, unlike US studies, we do not find evidence that spin-offs, on average, exhibit positive long-run excess returns.

The rest of this paper is organized as follows. In Section 2 we discuss the factors that can explain the wealth effects from spin-offs. The data description and

[4] Other empirical research on announcements of non-US spin-offs was carried out by Janssens de Vroom and Van Frederikslust (2000) and Murray (2000). Janssens de Vroom and Van Frederikslust (2000) find positive abnormal returns for their "English Legal Origin sample" of 176 observations (that mostly includes the US and the UK) and insignificant abnormal returns for their "Other Legal Origin sample" of 34 observations. Murray (2000) finds positive abnormal returns for UK companies. Both studies only look at announcement date returns and not at long-run excess returns.

the methodology are included in Section 3. The empirical results are included in Section 4. The paper is concluded in Section 5 with a summary and conclusions.

2. Factors that can explain the wealth effects from spin-offs

2.1. Improvement of industrial focus

The motive that is most frequently mentioned in literature for conducting a spin-off is the intention of the firm to concentrate on its core business. Daley et al. (1997), Krishnaswami and Subramaniam (1999) and Desai and Jain (1999) find that the abnormal returns for the focus increasing spin-offs are larger than for the non-focus increasing spin-offs. Focus-increasing spin-offs are generally defined as spin-offs in which the parent company has a different two-digit Standard Industry Classification (SIC) code than the subsidiary. Desai and Jain (1999) also study the long-run performance of spin-offs after the announcement date. This leads to the interesting result that the superior performance of the focus-increasing spin-offs persists in the post-spin-off period. We test the hypothesis that spin-offs of firms that increase their industrial focus are associated with higher abnormal returns than spin-offs of firms that do not increase their industrial focus.

2.2. Information asymmetry

Krishnaswami and Subramaniam (1999) argue that firms may engage in a spin-off because there is information asymmetry between the management of the firm and the external capital market. This information asymmetry may result in undervaluation of the firm. After the spin-off, information asymmetry, and hence undervaluation, is likely to decrease. Krishnaswami and Subramaniam (1999) find that firms with higher levels of information asymmetry exhibit higher abnormal returns adjusted for the probability of a spin-off upon the announcements of spin-offs.

Habib et al. (1997) also present an information-based explanation for spin-offs. They derive a model in which a firm can increase its value by spinning off a subsidiary. The spin-off will lead to an increase of the number of securities that is traded on the market. This makes the price system more informative and, hence, leads to a decrease of information asymmetry. This decrease of information asymmetry will lead to an increase of the total value of the firm and its spun-off subsidiaries.

The Krishnaswami and Subramaniam (1999) paper suggests the testable hypothesis that spin-offs of firms with large information asymmetries are associated with higher abnormal returns than spin-offs of firms with low information asymmetries. The Habib et al. (1997) paper leads to the hypothesis that firms, which show a decrease in information asymmetry after the spin-off, experience positive long-run excess returns.

2.3. Corporate governance

It is often argued that managers in Anglo-Saxon countries are more focussed on shareholder value creation, and that managers in continental European countries are more likely to take the interests of all the firm's stakeholders into account (see e.g. Moerland, 1995). According to La Porta et al. (2000), their index of "shareholder rights", which stems from La Porta et al. (1998), is a suitable measure for corporate governance differences between countries. This index ranges from zero to seven. A high value of the index means that shareholders are better protected against the adverse behavior of managers. We analyze whether spin-offs in countries with lower shareholder protection are associated with lower abnormal returns than spin-offs in countries with higher shareholder protection.

2.4. Geographical focus

Companies can increase their geographical focus by spinning off a foreign division. Based on the literature on the relationship between geographical diversification and firm value, it is possible to expect either a positive or a negative relationship between spin-off announcement returns and an increase in geographical focus. [5] The first reason for an increase in geographical focus to reduce firm value is that the spin-off of a foreign division may lead to reduced economies of scale in production. The second reason is that the spin-off may signal that the firm previously may have made a poor decision expanding to the foreign market. The third reason is that the firm may be at a relative disadvantage to competitors who operate internationally. Other theories state that an increase in geographical focus may lead to an *increase* in firm value. First, the reduced complexity of the firm may lower monitoring and coordinating costs. Second, the managers might have chosen to globally diversify in order to decrease their own risks even if it results in lower shareholder value. Third, the possibility of cross-subsidization of less efficient divisions is reduced.

Given the arguments presented above, an increase in geographical focus may either be associated with higher or with lower abnormal returns. The outcome depends on the strength of the arguments in favor of a decrease in geographical focus versus the arguments in favor of an increase of geographical focus. The geographical focus dummy corresponding to an increase in geographical focus is designed to measure its total effect on shareholder value in our sample.

2.5. Other variables

2.5.1. Taxes

In the US some spin-offs are taxable. [6] Empirical research by Copeland et al. (1987) and Krishnaswami and Subramaniam (1999) shows that taxable spin-offs

[5] See e.g. Bodnar et al. (2000) and Denis et al. (2002) for an overview of these competing theories.

[6] See Schipper and Smith (1983), Copeland et al. (1987, p. 136) and Krishnaswami and Subramaniam (1999) for a discussion on the tax consequences of US spin-offs.

are associated with lower positive abnormal returns than non-taxable spin-offs. Spin-offs in European countries generally do not create tax problems, because it is possible to defer tax payments. Exceptions are the Netherlands, Germany and France. Before June 1998, spin-offs in the Netherlands were seen as a distribution of income or capital and they were taxed accordingly. Under the pressure of some large Dutch companies, spin-offs were no longer taxed from June 1998 onwards. Instead, the fiscal claims were passed on to the future. [7] In Germany, spin-offs can be arranged in a tax-neutral way. However, if more than 20% of the shareholders transfer their shares within five years after the spin-off, the spin-off will still be taxed (Zaman, 1998). In France, it is not possible for the company to ask for approval from the tax authorities before the transaction is carried out. In both Germany and France, it is not known at the announcement date whether the spin-off will be taxed. The decision on the taxation in France will only be taken after the spin-off date. In Germany it will depend on the transfer of shares in the period after the spin-off. For this reason we do not include a variable on taxation in our analysis.

2.5.2. Regulation

Schipper and Smith (1983) and Krishnaswami and Subramaniam (1999) have studied whether regulatory motives play a role for American companies to engage in a spin-off. Both studies show that the abnormal returns are not affected by the regulatory status of the spin-off. Spin-offs are legally possible in all European countries. Besides that, there are no motives for European companies that make spin-offs particularly attractive for regulatory purposes. [8]

2.5.3. Wealth transfers

Another potential explanation for the positive stock market reaction to spin-off announcements is the possibility to transfer wealth from bondholders to shareholders. [9] The measurement of this effect requires the use of bond data. However, since most European companies use non-tradable bank debt instead of bonds, we cannot measure this effect for the firms in our sample.

2.5.4. Size of spin-off

A number of studies find that the wealth effects are larger when the portion of assets that is divested is larger (see, e.g., Hite and Owers, 1983; Miles and Rosenfeld,

[7] See Poetgens and Jakobsen (1999) and Van Olffen et al. (1998).

[8] More detailed information on the regulation and taxation of spin-offs in Europe is, on request, available from the authors.

[9] Hite and Owers (1983), Schipper and Smith (1983) and Dittmar (in press) find that the announcement period *bond* returns are not significantly different from zero. Schipper and Smith (1983) and Dittmar (in press) find that only a small number of companies decline in bond ratings after the spin-off. On the other hand, a recent study by Maxwell and Rao (in press), on a large sample of spin-offs, does find evidence that bondholders on average suffer a significantly negative abnormal return in the month of the spin-off announcement. Another study that finds such a wealth transfer is Parrino (1997). In a case study of the Marriott spin-off he shows that the restructuring not only reduced the collateral on Marriott's existing debt, but also reduced the bondholder claims on cash flows from the business.

1983; Krishnaswami and Subramaniam, 1999). In our study we control for this by using the market value of equity of the divested subsidiary relative to the sum of the equity capitalizations of the parent and the subsidiary. This is computed on the day of the completion of the spin-off.

3. Data description and methodology

3.1. Data description

We analyze a sample of European spin-offs. A European spin-off is defined as a spin-off in which a European parent spins off a subsidiary. This subsidiary can be either from the same or from a different country. All European countries are taken into account with the exception of the Eastern European, formerly Socialist, countries.

The sample covers the period from January 1987 to September 2000. The announcement dates are obtained from the Securities Data Company (SDC) Mergers and Acquisitions Database. Data on stock prices, market values of equity and market indices are derived from Datastream. Primary SIC codes are from the Compustat (where available) and SDC databases. The original sample consisted of 230 European spin-offs. Table 1 reports the annual distribution of the announcements to spin off a part of the company.

The row with the total number of observations shows that with 44% the UK is heavily represented in the total sample (102 out of 230 observations). Other countries that are relatively well represented include Sweden with 30 observations (13%), Germany with 18 observations (8%), Norway with 18 observations (8%) and Italy with 14 observations (6%). The remaining 10 countries take up 21% of the sample (48 observations). The last column of Table 1 shows that the distribution in time is also disproportionate. Most announcements, 168 (73%), were made in the period from January 1995 to September 2000. The period from 1987 up to and including 1994 only counted for 62 (27%) observations.

A number of spin-offs had to be eliminated from the original sample. The first reason is that a parent company sometimes announced spin-offs of two or more subsidiaries simultaneously. We checked these double records and eliminated 16 double counts. We also eliminated announcements where one subsidiary was spun off by multiple parents. The only case where this applied was with the English utility National Grid. This led to the elimination of 7 announcements. The third reason is that for a large number of companies no stock prices were available in Datastream and/or the announcement was contaminated with other important financial news on the company. This led to the elimination of 51 observations. The final sample consists of 156 observations. This final sample still shows a large representation of the UK with 70 observations (45%), Sweden with 24 observations (15%), Germany with 14 observations (9%) and Italy with 11 observations (7%). Out of these 156 spin-off announcements, 108 were completed at the moment this research was finalized (April 2002), 31 were still pending and 17 were withdrawn.

Table 1
Observations by announcement year

Year	UK	GER	FRA	ITA	SWE	NOR	DEN	FIN	NL	B	CH	SP	AUS	IRE	GRE	Total
1987	2	1														3
1988	2		2			1										5
1989	7					1			1							9
1990	6		1				1									8
1991	6	1			1	5			2							15
1992	2	1			2	1		1								7
1993	4				1	1								2		8
1994	3			1	1			1					1			7
1995	11	1		1		1			1			1				16
1996	10		3	1	9	1					2					26
1997	11	1		1	3						1					17
1998	13	5		1	7	2			3							31
1999	10	4		5	4	3	2	1		1	3			1		34
2000	15	4	1	4	2	2		3		1	3	3	2		4	44
Total number of observations	102	18	7	14	30	18	3	6	7	2	9	4	3	3	4	230
–/– multiple announcements	8	1	2			1	1	2							1	16
–/– no stock prices in Datastream or contaminating information	17	4		3	6	7	1	2	3		3	2	1	1	1	51
–/– multiple parents	7															7
Total sample	70	13	5	11	24	10	1	2	4	2	6	2	2	2	2	156
Completed	51	4	2	8	22	8	1	2	2	2	3	0	1	2	0	108

Distribution of European companies that announced a spin-off in the period from January 1987 to September 2000 by announcement year and country of the parent company. The spin-off announcements are identified from the SDC Mergers and Acquisitions Database. Spin-offs are eliminated for the following reasons: (1) double records of companies that announce the spin-off of two or more subsidiaries on the same dates, (2) spin-offs by multiple parents and (3) spin-offs for which no Datastream price data are available and/or for which the announcement was contaminated by other important news on the company. Countries are denoted as follows: UK for United Kingdom, GER for Germany, FRA for France, ITA for Italy, SWE for Sweden, NOR for Norway, DEN for Denmark, FIN for Finland, NL for the Netherlands, B for Belgium, CH for Switzerland, SP for Spain, AUS for Austria, IRE for Ireland and GRE for Greece.

3.2. Proxies

The variables that are used in the analysis are related to the hypotheses described in Section 2.

Industrial focus. An improvement in industrial focus is measured using a dummy variable. This variable is 1 if the two-digit SIC code of the subsidiary is different from the two-digit SIC code of the parent (spin-off of an unrelated division) and 0 if the two-digit SIC codes are the same. [10]

Information asymmetry. The information variable that is used, the normalized standard deviation of forecasts, is derived from the Institute of Brokerage for Investment Services (IBES). This variable is measured as the standard deviation of all earnings forecasts made in the last month of the fiscal year preceding the spin-off announcement year. The idea behind this variable is that disagreement between analysts is an indication of information asymmetry. We normalize the standard deviation by dividing it by the stock price of the firm in the middle of the month in which the standard deviation of forecasts is measured. We have also made calculations for a second variable, i.e. the earnings forecast error measured before the announcement of the spin-off, from now on to be referred to as the forecast error. [11] Both variables are positively and significantly (at the 1%-level) correlated. They also generally give the same results. For this reason we only report results for the normalized standard deviation of forecasts. [12]

Shareholder rights. Shareholder rights are measured using the index put forward by La Porta et al. (1998). The index ranges from zero (very low shareholder protection) to seven (very high shareholder protection). Not surprisingly, the value of the index is lower for countries in continental Europe than for Anglo-Saxon countries. [13]

Geographical focus. Like industrial focus, an increase in geographical focus is measured using a dummy variable. This variable is 1 if a foreign division is spun off and 0 if a domestic division is spun off.

Relative size. Relative size is measured as the market value of equity of the divested subsidiary relative to the sum of the equity capitalizations of the parent and the subsidiary. This is computed on the day of the completion of the spin-off (see also Krishnaswami and Subramaniam, 1999). The mean market value of the

[10] Ideally, we would also like to use data on the number of segments and on the segment sales. However, the data for these variables are not available in Compustat for European companies. This is probably caused by the fact that in most European countries there is no legal obligation to report data on segment sales.

[11] The average earnings forecast in the last month of the year preceding the spin-off announcement is defined as the predicted earnings. The forecast error is defined as the ratio of the absolute difference between the predicted earnings and the actual earnings per share to the stock price in the middle of the forecast month. Firms with more information asymmetry are expected to have higher forecast errors.

[12] Results for the forecast error are available from the authors on request.

[13] The index has the following values for the countries in our study: UK (5), Germany (1), France (3), Italy (1), Sweden (3), Norway (4), Denmark (2), Finland (3), the Netherlands (2), Belgium (0), Switzerland (2), Spain (4), Austria (2), Ireland (4) and Greece (2).

parents after the spin-off is 5642 million US dollars with a median of 921 million US dollars. This is much higher than the market value of the parents in studies on US spin-offs. For example, Desai and Jain (1999) report an average post-spin-off market value of 1123 million US dollars with a median of 268 million US dollars. Krishnaswami and Subramaniam (1999) report statistics that are close to the ones reported by Desai and Jain (1999). The mean relative size in our sample is 33.51% with a median of 29.62%. A comparison with the US studies shows that the relative size of the subsidiaries is also larger than in the US. For example, Desai and Jain (1999) find a mean relative size of 21.5% and a median of 13.8%.

3.3. Methodology

3.3.1. Event study methodology

The announcement effects of the spin-offs are measured using an event study methodology as described in, e.g., Mikkelson and Partch (1986) and Hite and Owers (1983). The market index chosen is the Datastream total return index for the individual European countries. [14] Denoting the announcement date, reported by SDC, as day 0, the estimation period ranges from day −220 to day −21. The event window ranges from day −1 to day +1.

3.3.2. Methodology for the calculation of the long-run excess returns

There is a large amount of literature on the calculation of long-run excess returns. In this literature a number of methods are proposed, most of which suffer from statistical problems. [15] We use one of the commonly accepted methodologies, i.e. the matching-firm approach of Barber and Lyon (1997). [16] Within this matching firm approach we look in each country for a matching firm based on the size of a company and on its market-to-book ratio. More specifically, in the first month after the spin-off for which we have data in Compustat we divide all the companies in a certain market (country) into deciles based on the size of the company. Size is defined as the market value of equity. In the decile that includes the sample firm we look for the five companies that are closest to our sample firm in terms of the market-to-book ratio. The closest matching firm is designated as the first matching firm; the second closest matching firm is designated as the second matching firm and so on to the fifth matching firm. The stock return on the sample firm is then compared to the return on the matching firm. If the first matching firm disappears for whatever reason, we

[14] A disadvantage of using single country indexes is that some European markets are fairly small and their indexes are largely dominated by a few large companies. An alternative would be to use a single European index for the whole sample. However, only a relatively limited number of observations in our sample are from small markets. Besides that, the use of a European index also has some disadvantages, since European capital markets are not fully integrated. Therefore, the use of a single European index will introduce noise. For these reasons, we have chosen single country indexes.

[15] See e.g. Barber and Lyon (1997), Fama (1998), Lyon et al. (1999), Brav (2000), Brav et al. (2000) and Loughran and Ritter (2000) for a discussion of the various methods.

[16] This methodology was also used in recent studies by Desai and Jain (1999) on spin-offs, and by Eckbo et al. (2000) on seasoned equity offerings.

use the second matching firm from there on. If this firm also disappears, we continue with the third matching firm and so on. If the sample firm disappears, it is assumed that the proceeds are invested in its matching firm from that moment on. The application of this method only allows for the use of ordinary t-statistics for events that occur at random. Brav (2000) argues that a problem occurs if the events are not uncorrelated across firms as might be the case with spin-offs. Lyon et al. (1999) recognize this and they present a method to adjust t-statistics for overlapping samples. We use this methodology in our analysis. Following Lyon et al. (1999), we estimate the elements of the variance–covariance matrix Σ for the overlapping long-run returns of firms i and j as

$$\sigma_{ij} = \frac{1}{\tau - a} \sum_{t=s+a}^{s+\tau} (AR_{it} - \overline{AR}_i)(AR_{jt} - \overline{AR}_j),$$

where firm i's excess return is calculated from period s to $s + \tau$, firm j's excess return is calculated from period $s + a$ to $s + a + \tau$, and $0 \leqslant a < \tau$. AR_{it} and AR_{jt} are the monthly excess returns for firms i and j, respectively, and $\overline{AR}_i$ and $\overline{AR}_j$ are their means calculated over the $\tau - a$ overlap period. Lyon et al. (1999) show that this method reduces the misspecification due to the overlap of the long-run returns. [17]

The long-run returns on the combined firm reflect the total impact of a spin-off on the wealth of an investor holding the stock of the parent company prior to the reorganization. These returns are calculated as a weighted average of excess returns on the parent and subsidiary stock, where the relative market values of equity on the spin-off date (or on the first date after the spin-off that they are available) are used as weights.

4. Results

4.1. Announcement date results

The event study results for the whole sample are included in Table 2. The results for all countries show a cumulative average abnormal return of 2.62% for the event window from day −1 to day +1. This abnormal return is significant at the 1%-level. The abnormal returns for smaller event windows, i.e. day 0 and day −1 to day 0, are also significantly positive at the 1%-level. These results are confirmed in the non-parametric sign test that tests for the number of positive observations. The results for Europe are in line with the American studies that were discussed in the introduction.

[17] A similar method of correcting for cross-correlation of long-run excess returns was used by Mitchell and Stafford (2000). They assumed that correlations between overlapping returns are linearly decreasing in the overlapping period, and they based their estimates on the sub-sample of firms with complete overlap. Unlike their method, the correction used by us does not require us to make an assumption about the correlation structure.

Table 2
Abnormal returns on the announcement date

Interval	Cumulative average abnormal returns			
	Mean %	*z*-Statistic	Median	Percentage positive
All Europe (N = 156)				
−10 to −1	0.77	3.50***	0.49	53.21
−1 to 0	1.74	8.99***	0.61***	58.97**
0	1.19	8.30***	0.27***	62.82***
−1 to +1	2.62	10.23***	0.89***	62.82***
+1 to +10	−0.33	−0.27	−0.03	49.36
Including				
UK (N = 70)				
−10 to −1	1.18	2.79***	0.61	60.00*
−1 to 0	2.19	7.72***	0.95***	61.43*
0	1.88	8.91***	0.62***	67.14***
−1 to +1	2.54	7.39***	0.50***	60.00*
+1 to +10	−1.68	−0.87	−0.27	47.14
Sweden (N = 24)				
−10 to −1	1.12	1.96**	1.64	54.17
−1 to 0	0.66	1.17	−0.00	50.00
0	0.57	0.88	0.04	58.33
−1 to +1	0.82	0.87	0.11	58.33
+1 to +10	2.24	0.22	−0.38	41.67
Germany (N = 13)				
−10 to −1	4.42	1.94*	2.26*	61.54
−1 to 0	2.49	2.89***	0.24	53.85
0	0.69	1.28	0.12	53.85
−1 to +1	2.56	2.08**	0.04	53.85
+1 to +10	1.14	0.68	2.03	69.23
Italy (N = 11)				
−10 to −1	−1.11	−0.38	−2.17	36.36
−1 to 0	3.62	5.75***	2.43*	72.73
0	1.51	3.84***	1.03	72.73
−1 to +1	7.97	8.28***	4.16**	81.82*
+1 to +10	2.89	1.62	0.64	54.55

Cumulative average abnormal returns for the whole sample of 156 spin-off announcements by European companies from January 1987 to September 2000. The spin-off announcements are identified from the SDC Mergers and Acquisitions Database. Abnormal returns are based on the market model, estimated over a 200 day-period for each company (from day −220 to day −21). The significance of the medians is tested by means of the Wilcoxon signed rank test. The sign test is used to test the significance of the percentage of firms with positive abnormal returns. The null-hypothesis for the sign test is that the proportion of positive cumulative average abnormal returns is equal to 50%. Asterisks indicate significance at the 10% (*), 5% (**) and 1% (***) level.

Separate results are presented for countries for which we have more than 10 observations. The cumulative average abnormal return for the UK is 2.54% for the event window from day −1 to day +1. This return is also significant at the 1%-level.

Similar results are found for the windows from day −1 to day 0 and for day 0. Our results for the event window day −1 to day 0 are in line with Murray (2000). However, he found an insignificant cumulative average abnormal return for the event window day −1 to day +1, where we find a strongly significant cumulative average abnormal return.

For Italy we find a significantly positive cumulative average abnormal return of 7.97% for the event window from day −1 to day +1. Sweden is the only exception with a cumulative average abnormal return of 0.82%, which is not significantly different from zero. [18] In the case of Germany we find a significantly positive cumulative average abnormal return of 2.56% for day −1 to day +1 event window. This might indicate that German investors are not very afraid of being taxed in a later stage. The major shareholders of the company might have agreed that they would hold on to their shares for the five-year period mentioned in the fiscal law.

Not all spin-offs that were announced in our sample period were completed as well. At the time of the completion of our analysis (April 2002), 108 spin-offs were completed. The other 48 spin-offs were withdrawn or, as in most cases, are still pending. Since we are primarily interested in the question whether spin-offs create value, we also calculated mean cumulative abnormal returns for the sub-sample of completed spin-offs. The results are presented in Table 3. In this table we see that the cumulative average abnormal return is 2.66% for the event window from day −1 to day +1. This abnormal return is significant at the 1%-level. It can be concluded that the returns for the whole sample and the returns for the completed sample are very close to each other. Given our focus on the question whether spin-offs create value, we continue our analysis with the completed spin-offs. [19]

In Table 4 the event study results are presented for different sub-samples. In panel A the event study results are compared for companies that increase industrial focus and for firms that do not increase industrial focus. In total, 73 companies increase their industrial focus by carrying out a spin-off. The mean abnormal return for these companies is 3.57%. The mean abnormal return for the 35 companies in the non-industrial-focus sub-sample is only 0.76%. The difference between the two samples is 2.80%. This difference is significant on the 5%-level. The difference in the medians of the two samples is 1.82%, which is significant on the 10%-level. This is similar to the earlier reported results for the US by Daley et al. (1997), Krishnaswami and Subramaniam (1999) and Desai and Jain (1999). They find that the abnormal returns are larger for the focus-increasing spin-offs than for the non-focus increasing spin-offs.

[18] The results for Sweden are partly driven by announcements of Swedish banks that spun off big property divisions that they were forced to acquire during the loan crisis of the early 1990s. These announcements were generally associated with negative abnormal returns.

[19] A disadvantage of this approach is that we introduce a look-ahead bias by assuming that investors know which spin-offs will actually be carried out and which ones will not. However, a comparison of Tables 3 and 4 shows that the results are very much alike. Detailed results for the whole sample are available on request from the authors.

Table 3
Abnormal returns on the announcement date: completed spin-offs

Interval	Cumulative average abnormal returns			
	Mean %	*z*-Statistic	Median	Percentage positive
All Europe (N = 108)				
−10 to −1	0.62	2.57**	0.58	54.63
−1 to 0	1.75	7.20***	0.69***	60.19**
0	1.25	6.98***	0.17**	60.19**
−1 to +1	2.66	8.06***	0.90***	61.11**
+1 to +10	−0.35	−0.80	−0.28	46.30
Including				
UK (N = 51)				
−10 to −1	1.39	2.19**	0.87	64.71**
−1 to 0	2.33	6.80***	1.04***	60.78
0	1.93	7.83***	0.69***	66.67**
−1 to +1	2.41	5.38***	0.39**	60.78
+1 to +10	−2.07	−1.96*	−0.60	41.18
Sweden (N = 22)				
−10 to −1	0.81	1.92*	1.64	54.55
−1 to 0	0.71	1.19	−0.00	50.00
0	0.57	0.81	0.03	54.55
−1 to +1	0.87	0.88	0.06	54.55
+1 to +10	−0.52	−0.97	−0.38	40.91
Germany (N = 4)				
−10 to −1	4.78	0.72	4.77	50.00
−1 to 0	2.04	1.09	1.75	75.00
0	−0.67	−0.33	−1.23	25.00
−1 to +1	3.42	1.42	2.82	50.00
+1 to +10	0.44	−0.09	2.15	50.00
Italy (N = 8)				
−10 to −1	−2.67	−1.28	−2.43	25.00
−1 to 0	2.20	3.31***	1.29	75.00
0	1.61	3.58***	0.69	75.00
−1 to +1	7.87	6.83***	3.18**	75.00
+1 to +10	7.14	3.37***	4.40**	75.00

Cumulative average abnormal returns for the sub-sample of 108 announcements of spin-offs by European companies from January 1987 to September 2000 that were subsequently completed. The spin-off announcements are identified from the SDC Mergers and Acquisitions Database. Abnormal returns are based on the market model, estimated over a 200 day-period for each company (from day −220 to day −21). The significance of the medians is tested by means of the Wilcoxon signed rank test. The sign test is used to test the significance of the percentage of firms with positive abnormal returns. The null-hypothesis for the sign test is that the proportion of positive cumulative average abnormal returns is equal to 50%. Asterisks indicate significance at the 10% (*), 5% (**) and 1% (***) level.

In panel B we compare abnormal returns between companies with a high information asymmetry and companies with a low information asymmetry. The high infor-

Table 4
Announcement period abnormal returns of the completed spin-offs by sub-sample

	Increase industrial focus			Do not increase industrial focus			Difference	
Panel A: Cumulative average abnormal returns (−1, +1) for sub-samples based on industrial focus								
	Mean	Median	*N*	Mean	Median	*N*	Mean	Median
CAR	3.57	1.74	73	0.76	0.26	35	2.80	1.48
Test statistics	4.00***	4.04***		1.36	1.07		2.08**	1.82*
Panel B: Cumulative average abnormal returns (−1, +1) for sub-samples based on information asymmetry (Normalized Standard Deviation of Forecast)								
	High information asymmetry			Low information asymmetry				
CAR	1.44	0.23	46	3.45	1.44	45	−2.01	−1.21
Test statistics	2.01*	1.72*		2.78***	2.80***		1.41	1.14
Panel C: Cumulative average abnormal returns (−1, +1) for sub-samples based on the level of shareholders' protection								
	High shareholders' protection			Low shareholders' protection				
CAR	2.17	0.39	61	3.30	1.95	47	−1.13	−1.56
Test statistics	2.84***	2.32**		3.02***	3.37***		0.87	1.07
Panel D: Cumulative average abnormal returns (−1, +1) for sub-samples based on geographical focus								
	Increase geographical focus			Do not increase geographical focus				
CAR	2.81	1.53	8	2.65	0.89	100	0.17	0.64
Test statistics	1.70	1.33		3.89***	3.77***		0.07	0.36

Three-day cumulative average abnormal returns for sub-samples of 108 announcements of spin-offs by European companies from January 1987 to September 2000 that were subsequently completed. The spin-off announcements are identified from the SDC Mergers and Acquisitions Database. Abnormal returns are based on the market model, estimated over a 200 day-period for each company (from day −220 to day −21). Industrial-focus increasing spin-offs are defined as spin-offs of subsidiaries that have a two digit SIC-code that is different from the parent company. High (low) level of information asymmetry is defined as being above (below) the medium asymmetry value. High level of shareholders' protection includes countries with anti-director rights index equal to 4 or 5. Low level of shareholders' protection includes countries with anti-director rights index equal to 0, 1, 2 and 3. Geographical focus-increasing spin-offs are defined as spin-offs of subsidiaries from a different country than the parent firm. The significance of the means is tested using a *t*-statistic. The significance of the medians is tested by means of the Wilcoxon signed rank test. The difference in means is tested using a *t*-statistic. The difference in medians is tested using the Mann–Whitney statistic. Asterisks indicate significance at the 10% (*), 5% (**) and 1% (***) level.

mation asymmetry sub-sample is associated with a mean cumulative average abnormal return of 1.44% and the low information asymmetry sub-sample exhibits a cumulative average abnormal return of 3.45%. We hypothesized the inverse relationship. However, both the mean and the median differences are not significantly different from zero.

In panel C we compare the high and low shareholder protection sub-samples. They show mean cumulative average abnormal returns of 2.17% and 3.30% respectively. The means and medians are not significantly different for the two sub-samples.

Finally, in panel D the results are compared for companies that spun-off a foreign division and for companies that spun-off a domestic division. The mean cumulative average abnormal return for the companies that spun-off a foreign division is 2.81%. The mean cumulative average return for the companies that spun-off a domestic division is 2.65%. The difference is a positive 0.17%. However, this difference is not statistically significant.

In Table 5 the regression results are presented for the cumulative average abnormal returns of the subsequently completed spin-offs over the 3-day interval. Although the total number of completed spin-offs is 108, the maximum number of observations in Table 5 is 84. This is caused by the inclusion of a control variable that measures the size of the spun-off subsidiary relative to the size of the parent

Table 5
Regression of abnormal returns for completed spin-offs

Variable	(1)	(2)	(3)	(4)	(5)
Intercept	−2.075	−1.917	1.138	−2.122	2.298
	(−1.378)	(−0.996)	(0.563)	(−1.418)	(1.125)
Industrial focus	2.666**	1.865	2.213*	2.669**	1.092
	(2.337)	(1.452)	(1.831)	(2.336)	(0.809)
Relative size	10.162**	11.805*	11.124**	10.180**	13.081**
	(2.147)	(1.910)	(2.156)	(2.152)	(2.132)
Normalized standard deviation of forecasts		−14.512			−23.493
		(−0.453)			(−0.773)
Shareholder rights			−0.844		−1.114
			(−1.199)		(−1.556)
Geographical focus				0.549	1.699
				(0.299)	(0.621)
Number of observations	84	72	84	84	72
R^2	0.160	0.161	0.188	0.160	0.211
Adjusted R^2	0.139	0.124	0.157	0.129	0.151

Regression coefficients for the three-day cumulative average abnormal returns for the completed announcements of 84 spin-offs by European companies from January 1987 to September 2000. Only includes the results for those completed spin-offs for which the relative size of the spin-off is known. The spin-off announcements are identified from the SDC Mergers and Acquisitions Database. Industrial focus is a dummy variable equal to 1 if the first two digits of the primary SIC code of a subsidiary to be spun-off are different from the first two digits of the primary SIC code of the parent company, and 0 otherwise. The normalized standard deviation of forecasts is measured as the standard deviation of the analyst earnings forecasts in the last months of the fiscal year preceding the spin-off announcement, divided by the stock price. The "shareholder rights" index is a summary measure of shareholder protection. This index ranges from zero to seven. The source of these data is La Porta et al. (1998). Geographical focus is a dummy variable equal to 1 in the case of a spin-off of a foreign subsidiary, and equal to 0 if the spin-off is domestic. The relative size is equal to the ratio of the market value of the spun-off subsidiary equity to the sum of the market values of the equity of the parent and the subsidiary on the day of the spin-off. Asterisks indicate significance at the 10% (*), 5% (**) and 1% (***) level, based on White heteroscedasticity-adjusted standard errors. *t*-Statistics are in parentheses.

company. This variable is referred to as relative size. Unfortunately, this variable is only available for a limited number of companies. The reason for this is that this variable is only available if Datastream reports both the market value of equity of the parent and the market value of equity of the subsidiary. In a number of cases the subsidiary is not traded on a major stock exchange and, therefore, we do not have reliable data on the market value of equity of the subsidiary. In a few cases, the subsidiary is traded, but its market value is not reported in Datastream. These two factors explain the reduction of the sample size from 108 to 84 companies.

The first regression in Table 5 shows that industrial focus has a positive and significant coefficient. This confirms the earlier reported results from Table 4. In regression (2) we include both industrial focus and the normalized standard deviation of forecasts. The last mentioned coefficient has a very small *t*-statistic. This is in line with the results in Table 4. Therefore, we conclude that, contrary to Krishnaswami and Subramaniam (1999), we do not find any relationship between the announcement returns and the level of asymmetric information. The inclusion of the normalized standard deviation of forecasts leads to a disappearance of the significance of the industrial focus variable. In regression (3) we include a measure for shareholder protection ("the shareholder rights"). This variable does not show the expected positive sign; it shows a negative sign instead. However, this coefficient is not significant. This can be explained by the fact that spin-offs are considered to be value-creating in countries with different levels of shareholder protection. [20] In this regression, the sign for industrial focus becomes significant again. In regression (4) we include both industrial and geographical focus. The geographical focus variable is not significant. This is probably caused by the fact that the positive effects on the increase of geographical focus are canceled out by the negative effects. As in the previous regression, the variable on industrial focus is significant. Finally, in regression (5) we include all four variables. In this regression the variable for industrial focus is no longer significant. This leaves us with some mixed evidence on this variable. We conclude that industrial focus does play a role, but its importance is limited. The coefficient for size is significantly different from zero in all regressions. This confirms earlier results from e.g. Hite and Owers (1983) and Miles and Rosenfeld (1983) that large spin-offs are associated with higher abnormal returns.

4.2. Long-run performance

In Table 6 the annualized long-run excess returns of the parent companies, the subsidiaries and the pro-forma combined firms in the period after the spin-off are included.

There is a discussion in the literature on the use of equal-weighted returns versus value-weighted returns. Loughran and Ritter (2000) argue that equal-weighted

[20] It should also be noticed that the shareholder rights index does not control for the rights of bondholders and other stakeholders such as employees. This may also distort the coefficient estimates in this regression and in following regressions that include the shareholder rights variable.

Table 6
Long-run returns in excess of the matching firm return

	Number of observations	Equal-weighted		Value-weighted		Percentage positive
		Mean	*t*-Statistic	Mean	*t*-Statistic	
Panel A: All parent firms						
t_{sp} to $t_{sp}+6$	106	3.88	0.27	1.32	0.18	48.11
t_{sp} to $t_{sp}+12$	105	−0.65	−0.12	4.43	1.44	49.52
t_{sp} to $t_{sp}+24$	86	6.49	1.50	14.28***	5.31	59.30
t_{sp} to $t_{sp}+36$	68	−0.41	−0.10	−3.96	−1.37	48.53
Panel B: All subsidiaries						
t_{sp} to $t_{sp}+6$	70	11.96	0.66	−24.45**	−2.17	50.00
t_{sp} to $t_{sp}+12$	70	12.58	0.83	−15.75	−1.17	52.86
t_{sp} to $t_{sp}+24$	60	13.72	1.03	−22.04*	−1.69	65.00
t_{sp} to $t_{sp}+36$	53	15.15	0.97	4.62	0.30	67.92
Panel C: All pro-forma combined firms						
t_{sp} to $t_{sp}+6$	61	−2.23	−0.25	0.80	0.12	44.26
t_{sp} to $t_{sp}+12$	61	−2.33	−0.45	−0.89	−0.18	49.18
t_{sp} to $t_{sp}+24$	51	4.24	1.00	8.49*	1.79	60.78
t_{sp} to $t_{sp}+36$	45	2.01	0.43	1.61	0.48	53.33

Annualized returns defined as company stock return minus matching firm stock return for spin-offs by European companies from January 1987 to September 2000. The spin-offs are identified from the SDC Mergers and Acquisitions Database. The pro-forma combined firm is created by weighing the return of the parent and that of the subsidiary by the market value of equity at the spin-off date. The equal-weighted returns are calculated as the average excess returns for the whole sample. The value-weighted excess returns are calculated as the average excess returns weighted by the market values of equity at the spin-off dates. The significance of the means is tested using a *t*-statistic, corrected for the cross-correlation of long-run returns. t_{sp} is the spin-off ex-date. $t_{sp}+6$ (12, 24, 36) is the period from the spin-off date to 6 (12, 24, 36) months after the spin-off date. Asterisks indicate significance at the 10% (*), 5% (**) and 1% (***) level.

returns are more relevant from the point of view of an investor who wants to predict the abnormal returns associated with a random event. Fama (1998), on the other hand, argues that value-weighted returns should be studied, because they more accurately capture the total wealth effects that are experienced by investors. The implications for market efficiency can be completely different. This point is very well illustrated by Brav et al. (2000). They present a scenario in which a sample contains 1000 firms, 999 of which have a $1 million market capitalization (the "small firms") and one firm that has a $1001 million market capitalization (the "large firm"). If it is assumed that the small firms have all underperformed by an equal percentage of 50%, while the large firm has overperformed by 50%, it can be seen that an equal-weighted measure will indicate a severe mispricing (−50%), while a value-weighting will lead to the conclusion that the sample performance is virtually zero. From our perspective we prefer the analysis of equal-weighted returns. The reason for this is that we want to test whether a random spin-off will be associated with long-run superior performance. Therefore, our focus will be on the equal-weighted returns. However, in order to capture the value effects for the market as a whole, we present value-weighted returns as well.

In Table 6 the excess returns are calculated as the difference between the company returns and the returns on a matching firm. This matching procedure is described in Section 3.3. With regard to Table 6 it has to be pointed out that the number of observations goes down with the study horizon because there are shorter time series available for the more recent announcements. This is caused by the fact that our last announcement was from September 2000. First the equal-weighted returns will be discussed.

In panel A, the results for the parent companies are presented. The mean annualized returns are positive for the periods of 6 months and 2 years after the spin-off and are negative for the periods of 1 and 3 years after the spin-off. However, all returns are insignificant. Our results differ from previous results that were published for the US. For example, Cusatis et al. (1993) and Desai and Jain (1999) find that parents of spin-offs perform significantly better than similar firms in the 3-year period after the spin-off.

In panel B we present the results for the subsidiaries. This sample only shows insignificant mean excess returns. This result is also different from earlier results for the US. Desai and Jain (1999) find significantly positive excess returns for their sample of subsidiaries.

A spin-off involves a pro-rata distribution of shares of the subsidiary. This enables us to create a pro-forma combined firm in the period following the spin-off. Following Desai and Jain (1999), we create this "firm" by weighing the return of the parent and that of the subsidiary by the market value of equity at the spin-off date. [21] This gives us the return an investor would have earned if he had held on to the shares of both the parent and the subsidiary after the spin-off. In panel C of Table 6, we see that the pro-forma combined firms are associated with non-significant negative mean excess returns in the 6-month and the 1-year periods after the spin-offs. The mean excess returns in the 2- and 3-year periods after the event are positive, but also insignificant.

A close look at the equal-weighted returns in Table 6 reveals that there is definitely no significant long-run effect for spin-offs. Although the number of observations in panel A is fairly high (between 68 and 106), all t-statistics are very small (between -0.12 and 1.50). This result is also found for the subsidiaries (panel B) and for the pro-forma combined firms (panel C).

Table 6 also includes value-weighted returns. Panel A shows insignificant mean excess returns for the 6-month and the 1-year periods after the spin-off. The period of 2 years after the spin-off shows a significantly positive excess return. However, it turns into a non-significant mean excess return in the 3-year post-spin-off period. We study whether this decline is created by a reversal of a company for which both data on the 2-year and the 3-year periods are available, or whether it is caused by a company for which no 3-year data are available. We find that the Swiss company Novartis mainly causes the decline. In the 2-year period this company, that has a weight of 21.31% in the sample, shows an excess return of 45.90%. This excess return drops

[21] Desai and Jain (1999) use the market value of equity at the end of the month of the spin-off.

to 1.79% over the 3-year period after the spin-off. The subsidiaries in panel B show significantly negative mean excess returns in the 6-month and 2-year periods after the spin-off. However, the 1- and 3-year periods show non-significant returns. The pro-forma combined firms in panel C mostly have insignificant returns. The significantly positive return for the 2-year period in panel C is caused by the same outlier as in panel A.

Brav et al. (2000) and Loughran and Ritter (2000) argue that researchers should be careful with drawing conclusions for market efficiency from studies on long-run excess returns. This warning is based on the fact that e.g. equal- and value-weighted returns can lead to different conclusions. If we review our results it can be concluded that the value-weighted returns, and even more so the equal-weighted returns, indicate that the European markets are efficient. This gives some support for the idea of Fama (1998) that the long-run effects following US spin-offs are rather a result of chance than of causality. However, given the warnings of Brav et al. (2000) and Loughran and Ritter (2000) it should be noticed that more research on different capital markets is necessary before a definite conclusion can be drawn.

In Table 7 the relation between the long-run excess returns of the parent firms and their underlying variables is studied. We focus on the 1-year and the 2-year excess returns. The reason for this is that we want to study a relatively long period after the completion of the spin-off. Therefore, we leave out the 6-month excess returns. As we only have a limited number of observations for the 3-year period, we also leave out these results. In regression (1) we present the results for the 1-year excess returns; regression (2) shows the results for the 2-year horizon. The coefficient for the relative size of spin-off is insignificant in both regressions.

The industrial focus variable has very low *t*-statistics in both regressions. The results for this variable are different from the result of Desai and Jain (1999), who find that US firms that increase their industrial focus with a spin-off exhibit higher long run excess returns than firms that do not increase their industrial focus.

The geographical focus variable is significantly negative in both regressions. We study whether this result is caused by negative earnings surprises for these companies. Earnings forecast data are available for five of the six companies in Table 7 that spin off a foreign division. For three of them negative earnings surprises in the first post-spin-off year are followed by negative abnormal returns. For another firm, a small positive earnings surprise of less than 5% is followed by negative long-run performance. In only one case we find that a positive earnings surprise is followed by a positive abnormal return. Overall, these companies experience an average earnings surprise of −242.47% of the expected earnings in the first post-spin-off year, with a median of −28.99%. Therefore, we conclude that the high negative coefficient for geographical focus improvement is explained by negative earnings surprises. These negative earnings surprises may be caused by the negative consequences of increasing geographical focus that were mentioned in Section 2.4. It may e.g. be possible that the increase in geographical focus has led to reduced economies of scale in production or the firm has put itself at a disadvantage relative to competitors who operate internationally.

Table 7
Regression of long-run excess return: parent firms

Variable	One-year excess return	Two-year excess return
Intercept	6.978	30.413*
	(0.355)	(1.893)
Industrial focus	−2.141	−0.811
	(−0.189)	(−0.066)
Geographical focus	−40.971**	−24.237*
	(−2.167)	(−1.942)
Relative size	−0.582	26.809
	(−0.027)	(1.375)
Normalized standard deviation of forecasts	−241.083	−620.783
	(−0.531)	(−1.545)
Change in normalized standard deviation of forecasts	−850.904*	−57.401
	(−1.746)	(−0.131)
Shareholder rights	−1.953	−7.090**
	(−0.513)	(−2.254)
Number of observations	62	52
R^2	0.205	0.215
Adjusted R^2	0.118	0.110

Regression coefficients for the 1- and 2-year returns in excess of the matching portfolio return for the European companies that performed a spin-off. The spin-off dates are identified from the SDC Mergers and Acquisitions Database. Industrial focus is a dummy variable equal to 1 if the first two digits of the primary SIC code of a subsidiary to be spun-off are different from the first two digits of the primary SIC code of the parent company, and 0 otherwise. Geographical focus is a dummy variable equal to 1 in the case of a spin-off of a foreign subsidiary, and equal to 0 if the spin-off is domestic. The normalized standard deviation of forecasts is measured as the standard deviation of the analyst earnings forecasts in the last months of the fiscal year preceding the spin-off announcement, divided by the stock price. Changes in the normalized standard deviation of forecasts are measured from the end of fiscal year preceding the spin-off announcement to the end of the fiscal year in which the spin-off is completed. The "shareholder rights" index is a summary measure of shareholder protection. This index ranges from zero to seven. The source of these data is La Porta et al. (1998). The relative size is equal to the ratio of the market value of the spun-off subsidiary equity to the sum of the market values of the equity of the parent and the subsidiary on the day of the spin-off. Asterisks indicate significance at the 10% (*), 5% (**) and 1% (***) level, based on White heteroscedasticity-adjusted standard errors. *t*-Statistics are in parentheses.

The pre-spin-off level of information asymmetry is not significant in both regressions. Therefore, we do not find any support for the hypothesis that firms with higher information asymmetry before the spin-off display better long-run performance. We also test the model of Habib et al. (1997) by measuring the impact of the changes in the information asymmetry on the long-run performance of spin-off parents. The change in the normalized standard deviation of forecasts exhibits the expected negative sign in both regressions. However, this sign is only significant in the first regression. Therefore, we conclude that there is some, albeit weak, evidence for the model of Habib et al. (1997).

The coefficient for the shareholder rights shows a negative sign in both regressions. Moreover, in one of the regressions this coefficient is statistically significant. This is remarkable since it means that a higher level of shareholder protection is associated with lower long-run excess returns. It is unlikely that this finding can be

explained by the more or less shareholder-friendly treatment of spin-offs in different countries, since we saw in Tables 3–5 that the announcement returns were very similar in countries with different shareholder protection. This result can possibly be explained by the fact that firms that undertake spin-offs also continue to maintain their shareholder-oriented policy in the long run.

Our methodology controls for the financial characteristics of the matching firms in the sense that we look for firms with similar size and book-to-market value. However, it is possible that in countries with less shareholder protection, the ''average firm'' that is used as a match is more likely to undertake actions that benefit other stakeholders rather than the shareholders, while the firms that perform spin-offs are more focussed on shareholder value maximization. It is possible that this creates a long-run difference in the stock price performance between the sample and the matching firms. On the other hand, in countries with a good shareholder protection, such as the UK, other firms are more forced to act in the interests of shareholders than in a country like Belgium. This may explain the significantly negative sign for the shareholder rights variable in our regression in Table 7.

From a market efficiency point of view it is interesting to study whether the announcement period returns and the long-run excess returns are related. This analysis is included in Table 8. We find that for the 6-month and 1-year post-spin-off periods, the day 0 abnormal returns are positively related to the long-run excess returns. This would indicate that the market underreacts to the spin-off announcement. However, the coefficient is insignificantly negative for the 2-year post-spin-off period and insignificantly negative for the 3-year period. The finding of a possible underreaction is also not confirmed for the three-day announcement period abnormal returns since the coefficients for all four regressions are insignificant. Furthermore, it can be

Table 8
Regression of long-run excess return on the abnormal returns on announcement date

	Six months		One year		Two years		Three years	
Constant	−6.628	−3.902	−7.959	−3.318	4.715	3.707	1.314	0.227
	(−0.703)	(−0.391)	(−1.441)	(−0.581)	(0.822)	(0.691)	(0.293)	0.055)
Day 0 abnormal return	4.434**		3.287*		−0.307		1.248	
	(2.013)		(1.715)		(−0.170)		(0.846)	
Day −1 to day +1 abnormal return		0.041		−0.839		0.598		1.401
		(0.036)		(−1.536)		(0.350)		(1.227)
Number of observations	54	54	54	54	45	45	39	39
Adjusted R^2	0.01	−0.02	0.03	0.01	−0.02	−0.02	−0.01	0.03

Regression coefficients for the 6-month to 3-year returns on a pro-forma combined firm for the European companies that performed a spin-off. The spin-off dates are identified from the SDC Mergers and Acquisitions Database. Day 0 and day −1 to day +1 abnormal returns are based on the market model, estimated over a 200 day-period for each company (from day −220 to day −21). The 6-month to 3-year annualized excess returns are defined as company stock price return minus matching firm return. The pro-forma combined firm is created by weighing the return of the parent and that of the subsidiary by the market value of equity at the spin-off date. Asterisks indicate significance at the 10% (*), 5% (**) and 1% (***) level, based on White heteroscedasticity-adjusted standard errors. *t*-Statistics are in parentheses.

remarked that the explanatory power of all regressions is extremely small. The adjusted R^2 varies between −0.02 and 0.03. Therefore, it can be concluded that there is not much evidence for underreaction at the announcement.

5. Summary and conclusions

We study the wealth effects and the efficiency of the European capital market for the case of corporate spin-offs. Announcements of spin-offs may be associated with a wealth increase for the shareholders by means of positive abnormal returns. Such a wealth increase can be accomplished if the spin-off leads to an increase in industrial focus or if the spin-off leads to a decrease of the information asymmetry between the management of the firm and its shareholders. The efficient market hypothesis implies that there is no long-run effect. Possible wealth effects will be incorporated in the stock price at the moment the spin-off is announced.

We study announcement effects and long-run performance for a sample of 156 European spin-offs announced from January 1987 to September 2000. We find that the announcement of a subsequently completed spin-off is associated with a positive abnormal return of 2.66% over a three-day window. We find some evidence that the abnormal returns are positively related to an increase in the industrial focus. There does not seem to be a relationship between the abnormal returns and the level of information asymmetry at the time of the spin-off. The corporate governance system does not make a difference for the market reaction to a spin-off announcement. In line with the efficient market hypothesis we do not find any significant long-run excess return in the period after the spin-off. If the return on the parents, subsidiaries and the pro-forma combined firms is compared to the return on a matching portfolio, we find that the excess returns are both economically and statistically insignificant. This leads us to conclude that the capital markets in Europe efficiently react to the information contained in the spin-off announcements.

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