

Competition, Corporate Governance and Equity Carve-Outs – The European Case*

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Studying a unique sample of 103 European equity carve-outs occurring between 1994 and 2004 I find highly significant abnormal returns of more than 2% around the announcement date. Announcement effects differ significantly between different law systems and decrease with minority shareholders' risk of being expropriated by managers or inside owners, like e.g. the parent firm. I also find abnormal returns to increase with competition in subsidiary's industry, which forces subsidiaries to act more efficiently and, consequently, reduces the free-cash-flow problem. Though, both, good corporate governance and fierce competition, mitigate possible agency conflicts their impacts turn out to be mutually independent.

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1 Introduction

Financial researchers generally agree with the proposition that corporate restructurings create value for shareholders. Veld and Veld-Merkoulova (2004) show announcements of spin-offs to be followed by positive stock market returns, while Lang et al. (1995) report assets sales to be accompanied with highly positive abnormal returns. Similar findings exist concerning the going public of subsidiaries. However, existing studies find announcement effects of carve-outs to range between 0.67% (Vijh, 2002) and 11.3% (Schill and Zhou, 2001). Possible explanations for these huge variations are differences in the estimation periods or in the econometric methodology employed. Furthermore, since existing studies focus exclusively on single countries, cross-country differences or differences in countries' quality of corporate governance laws, which may contribute to the findings as well, remain unconsidered.

In contrast to alternative ways of restructuring, like spin-offs, the protection against expropriation and, therefore, the quality of shareholder protection should be especially important with equity carve-outs. While in a spin-off the parent firm and the subsidiary are separated with the help of a share dividend, which is distributed among parents' shareholders, in an equity carve-out shares are sold to new investors. Typically, the parent firm remains a large inside owner following the carve-out, with Vijh (2002) reporting an average ex-post ownership of 71.9% in a sample of 336 US carve-outs. That is, contrary to spin-offs, which do not lead to an immediate change in the shareholder structure, a minority stake is created in an equity carve-out.

The analysis of ownership structure around the world lead La Porta et al. (1999) to the conclusion, that the risk of expropriation of minority shareholder may be more

severe than controlling problems. Furthermore, recent work on corporate governance finds shareholders' rights to differ significantly through different legal systems and countries (see e.g. La Porta et al, 1998). Moreover, Dyck and Zingales (2004) report private benefits of control to differ accordingly. That is, the risk of expropriation is expected to be increased in countries with low levels of corporate governance. Thus, high levels of minority shareholder protection should reduce minority shareholders risk of expropriation and, consequently, the costs of capital.

Due to a unique European sample of equity carve-outs I am able to control for the influence of different corporate governance systems on announcement effects and to provide out-of-sample results to studies concerning US carve-outs. That is, analyzing 103 European equity carve-outs, which occurred between 1994 and 2004, I find highly positive abnormal returns around the announcement date. In common law countries the announcement effect equals 4.15%, whereas civil law countries exhibit a significantly smaller abnormal return (1.69%). After controlling for well documented determinants of abnormal returns, the benefits of carve-outs remain to increase with countries' quality of shareholder protection (as introduced by La Porta et al, 1998). In line with prior research subsidiaries' relative size contributes to the size of abnormal returns as well. Competition in subsidiaries' product market – as yet a largely unnoticed variable in the existing restructuring literature – is found to be an additional factor improving the value of the restructuring. Furthermore, I find the impact of competition and the quality of countries' corporate governance rules on abnormal returns to be independent of each other. That is, both effects are neither reinforcing each other, as it is the case in Grosfeld and Tressel (2002), nor does an improved impact of one regressor leads to an decreased impact of the other (see e.g. Nickell et al., 1997).

The paper closest to mine is Veld and Veld-Merkoulova (2004) who study the performance of European spin-offs, without finding any differences in announcement effects between different countries. As mentioned above, since no change in the ownership structure occurs in spin-offs, changes in value can be solely attributed to efficiency gains due to the restructuring and are not expected to depend as heavily on the quality of corporate governance as in equity carve-outs. Moreover, this finding confirms my point of view that the expropriation of minority shareholders plays a crucial role in equity carve-outs, because the quality of minority shareholder protection is not found to systematically influence other general characteristics of corporate restructurings which may, in turn, affect abnormal returns. Since, to the best of my knowledge, no research contemplating a multi-country sample of equity carve-outs exists, this paper is the first analyzing the role of minority shareholder protection in corporate restructurings and, hence, contributes to the restructuring as well as to the corporate governance literature.

The rest of the paper is organized as follows. Chapter 2 highlights the existing literature concerning equity carve-outs and corporate governance. Chapter 3 presents the dataset as well as some descriptive statistics, whereas chapter 4 contains the event study results for the whole sample as well as for several sub samples of legal systems. The cross sectional regressions are conducted in chapter 5, where 5.1 outlines the hypotheses in detail while 5.2 presents the regression results. In the following sub section, 5.3, the relationship between corporate governance and competition is analyzed. Chapter 6 concludes.

2 Literature overview

The existing literature provides a wide range of studies, finding abnormal returns following the announcement of equity carve-outs. Most of these studies focus on the

US market and document significantly positive abnormal returns around the event date. One of the first analyses was conducted by Schipper and Smith (1986) reporting abnormal returns of 1.83% in the [-4; 0] event window. Other, more recent studies include Vijh (2002), Hulburt et al. (2002) for the US or Wagner (2004), Elsas and Löffler (2004) for the German market.

In the existing literature several determinants of abnormal returns of corporate restructurings have emerged. The efficiency hypotheses, predicting efficiency gains following a restructuring, can be applied as well to corporate spin-offs as to equity carve-outs, whereas the financing hypothesis, contemplating the intended use of the raised funds, is exclusive to the latter. Therefore, the cited literature refers to both forms of restructurings as far as the efficiency hypotheses are concerned. The efficiency hypotheses consists of three strands of argumentation, i.e. the incentive, focusing and opaqueness hypothesis, which will be discussed successively.

Aron (1991) argues that the separation of business units can enhance divisional managers' incentives through the introduction of a separate performance measure for the subsidiary following the restructuring. This enhancement can even occur before the restructuring is accomplished since managers anticipate that the fair value of their division will be revealed after the reorganization. Chemmanur and Yan (2004) build their model on a corporate control rational, for spin-offs increase divisional managers' risk of loosing control to another (more able) manager and, therefore, provide the incumbent with incentives to exert effort. Some related empirical evidence is provided by Seward and Walsh (1996).

Subsidiaries' stock listing provides the owner not only with a powerful tool for compensation mechanisms, but may also reduce the opaqueness for investors. As outlined by Habib et al. (1997) and Nanda and Narayanam (1999) the separation of business units makes the pricing system more informative and offers additional

information to investors. Fu (2003) finds the probability of insider trading to be reduced following equity carve-outs. In this vein, Gilson et al. (1998) show that analyst coverage increases and that analysts' forecasts are more accurate following the break-up. Additional evidence is given by Tuna (2002). Krishnaswami and Subramaniam (1999) state that firms engaging in a separation of business units have higher ex-ante levels of information asymmetry compared to their industry peer group. Opposed evidence is found by Huson and MacKinnon (2003) who report spin-offs to increase the informational gap between informed and uninformed traders, because, following the divestiture, better informed traders are able to fully exploit their superior information about one unit without taking diversifying effects of the other unit into account. That is, asymmetric information between shareholders is increased following spin-offs.

Focusing on core business is found to be another driving force of abnormal returns in restructurings. Possible reasons are the reduction of complexity or the elimination of negative synergies. As outlined by Rajan et al. (2000), advantages of internal capital markets are expected to be offset by their drawbacks if firms operate in different lines of business¹. Empirical evidence is provided by Comment and Jarrell (1995), Daley et al. (1997) and Desai and Jain (1999), who show that focusing strategies are rewarded by the capital markets. Veld and Veld-Merkoulova (2004) find similar results for a sample of 156 spin-offs occurring between 1987 and 2000 in Western Europe. Evidence for the case of equity carve-outs is presented by Vijn (2002). The huge diversification literature addresses the flip-side of this analysis, where diversification discounts (see e.g. Berger and Ofek, 1995) are found as well as diversification premia (see e.g. Villalonga, 2004).

¹ For a discussion of the recent literature concerning the pros and cons of internal capital markets see Martin and Sayrak (2003).

The above mentioned efficiency hypotheses arise from the separation of business units and, consequently, influence spin-offs as well as equity carve-outs. In contrast, since during a spin-off shares are not sold but rather distributed as a share dividend among investors, the utilization of funds raised affects only carve-outs. Allen and McConnell (1998) find that firms which use funds to pay down debt or to increase shareholders' dividend end up with higher announcement effects. In line with Lang et al. (1995) and Jensen (1986), they presume an agency-prone management trying to build up big corporate empires, so that plans to retain funds within the firm are seen as bad news. In contrast, Vijh (2002) reports slightly higher abnormal returns for firms investing the funds instead of paying them off.

The literature on corporate governance deals with the "ways in which suppliers of finance to corporations assure themselves of getting a return on their investment."² This question is of high relevance for minority shareholders since they do not possess appropriate incentives (and possibilities) to control firms' management. Furthermore, the existence of inside blockholders, as it is typically the case following equity carve-outs, increases the risk of being expropriated. Tunneling assets to the blockholder (Johnson et al., 2000) or choosing the management according to blockholders' interests (Burkart et al., 2003) may be ways of decreasing outside shareholders' benefits. Moreover, Nenova (2003) and Dyck and Zingales (2004) find these private benefits of control to differ among countries. Thus, a country's quality of corporate governance rules turns out to be important for minority shareholder protection.

² See Shleifer and Vishny (1997) p. 737.

The literature on international corporate governance has evolved in several steps³. The first studies focused on the determinants of corporate governance in single countries, like executive compensation, ownership structure or boards of directors. Then papers compared rules and mechanisms of corporate governance across several countries and legal systems. The second strand of research started with La Porta et al. (1998) who analyzed the quality of corporate governance in 49 countries, taking into account shareholder protection as well as creditors' rights. Their results – especially their shareholder right index – were extensively used in subsequent research. Dittmar et al. (2003) show managers to be less agency-prone in countries with high standards of corporate governance and La Porta et al. (2002) report firms to have higher Tobin's Qs when operating in an environment with comprehensive shareholder protection rules.

The research on corporate governance and restructurings is restricted to recent studies analyzing the impact of corporate governance on spin-offs. Ahn and Walker (2004) study the influence of corporate governance measures to explain the spin-off decision, finding that diversified firms with more efficient levels of corporate governance are more likely to conduct a spin-off than their peers. De Vroom and van Frederikslust (2000) find significantly positive announcement effects for spin-offs in common law countries (mostly US), whereas announcement effects are insignificant in civil law countries. Veld and Veld-Merkoulova (2004) study a sample of 156 spin-offs (108 of them completed) occurring in Western Europe between 1987 and 2000 and find highly significant announcement effects, which can be explained by industry focus and subsidiaries' size. However, the quality of corporate governance in the respective countries does not affect abnormal returns. Nevertheless, the long run

³ See for a comprehensive survey of international corporate governance studies Denis and McConnell (2003).

performance of their sample firms seems to be higher for countries with low levels of shareholder protection.

3 Dataset and descriptive statistics

The sample is identified with the help of several sources. The identification is primarily based on a keyword search in the Lexis/Nexis and Factiva databases. Furthermore, the SDC Platinum New Issue database is used, crosschecking each observation with Lexis/Nexis or Factiva. Additionally the sample is compared with samples of existing (single country) studies. To fit the search criteria, the parent firm has to hold at least 50% prior to the IPO and to be exchange listed. Balance Sheet Data come from Worldscope, Orbis and from Hoppenstedt. Price data are from Thomson and the EuroStoxx 600 index is used for adjustment purposes.

Insert table 1 here.

As can be seen in table 1, 60% of the sample carve-outs occurred in the hot markets of the late nineties (1998-2000), whereas the number reached its minimum in 2001. Moreover, the distribution is clustered among countries since Germany and Great Britain make up for 50% of the restructurings. Smaller countries, like Portugal or Finland, but even countries as large as Italy, account only for at most 4% of sample carve-outs. The largest fraction of observations is found in German law countries (Germany and Switzerland), followed by French law countries (Spain, France, Greece, Italy, the Netherlands and Portugal) with 27%, Anglo-American law countries (Great Britain, 20.4%) and Scandinavian law countries (13.6%), where the classification is adopted from La Porta et al. (1998). The occurrence throughout time does not differ between different legal areas. Apart from the Scandinavian countries,

the number of carve-outs increases from 1998-2000 in all law systems. The time patterns between the different jurisdictional regimes are positively correlated, with 0.25 being the lowest correlation between Scandinavian and Anglo-American countries, and 0.89 being the highest (Anglo-American and French origin countries). The fluctuation through time, measured by the standard deviation of the yearly number of observations, equals at most 1.3 times the mean (Great Britain) and is the lowest for Scandinavian countries (79% of the average yearly number of Scandinavian carve-outs). Cross border deals, i.e. a parent firm conducting a carve-out of a foreign subsidiary, make up for 16% of the sample deals.

Insert tables 2a and 2b here.

The distribution of industries among the carved-out firms is presented in tables 2a and 2b. Industry classifications are obtained with the help of 2-digit SIC codes. Since no subsidiary operates in the agriculture or public administration sector (SIC codes of 10-19 and 90-99, respectively), both categories are dropped. To provide a better understanding of the sample some categories are split up further. The manufacturing sector (SIC 20-39) is divided into a class including traditional industries, like foods & beverages, printing & publishing or industrial machinery & equipment, labeled MAN, and a class of high-tech industries, e.g. semiconductors or biotechnologies, labeled ELECT. From the transportation and utilities sector, labeled TRANS, the communication sector (COM), giving home to e.g. cellular phone companies, is separated. Furthermore, service industries are split into two classes. The first one includes companies with the 2-digit SIC Code 73, like internet firms or internet service providers, and is therefore named SIC73. The remaining service firms are grouped in the second class, labeled SERV. Mining and construction firms can be

found under the abbreviation MIN, companies operating in the financial sector under FIN and wholesale firms and retailers under TRADE.

As can be seen in table 2a, the industry classification allows us to analyze the time structure of the sample in greater depth. Especially during the late nineties the numbers of carved-out firms from communication, high-tech and internet industries (COM, ELECT and SIC73) reach extremely high values before falling back to prior levels in 2001. The 1999 peak in the financial sector (FIN) can be explained by several equity carve-outs of online-banking units (e.g. Comdirect). The remaining industries exhibit rather stable time series patterns.

Table 2b shows the distribution of industries across countries. The northern countries may exhibit a tendency towards carve-outs of subsidiaries operating in the mining and manufacturing sectors, but in general no clear pattern can be identified. During the late nineties, the percentage of carved-out communication, high-tech and internet units increases in each legal system, reaching up to 55% in German origin law countries and down to 36% in Scandinavia. The figures for French origin law countries and Great Britain lie in between.

Insert table 3 here.

Table 3 reports key financial data about the parent as well as about the subsidiary for the event year. Some of the data used for descriptive statistics are only available for a sub sample. Therefore, the number of observations is shown in the last column. Parent firms are quite large compared to their subsidiaries. Measured in total assets, the average parent equals 70 times its subsidiary (10 times for the median). This relationship can be confirmed if the number of employees is used instead. Moreover, with an average of 69,000 employees and 59 billion € of total assets parent firms

belong to the biggest 350 companies worldwide. Even the carved-out entities are far from being tiny. Average total assets of 4,758 million € is topped only by 532 European companies. Because of some large outliers the results are slightly distorted. Using the median, parent firms make it among the top 360 European companies, while the subsidiaries range among the 2000 largest companies in Europe.

The influence of parents' size can also be seen by looking at the cash flow figures. With a mean of 630 million € parents' cash flow exceeds the average cash flow of all European companies with data in Worldscope in 2003 by 500 millions. Compared with the respective 2-digit SIC peer group, parents' cash flow averages 7.5 times the peer groups' average cash flow in the carve-out year.

The median parent company shows a free float, i.e. shares not held by institutions, insiders or single investors accumulating at least 5% of share capital, of 73%. In contrast, the median free float in European firms is much larger (91.5% in 2003).

Following the carve-out the parent company keeps a large fraction of subsidiaries' equity. 62% keep at least 50% of the subsidiary's stock and the average fraction sold equals 36%.

4 Event study and cross country results

Following the methodology outlined by Brown and Warner (1985) an event study is conducted. The event date is identified through a search in the Lexis/Nexis and Factiva databases. The first date at which the restructuring was announced by the parent company is used. In several cases some rumors by analysts or other market participants existed before the carve-out was confirmed by the company. Therefore, the presented abnormal returns may underestimate the total effect since in some cases speculations may already have influenced parents' share price. In 7 cases the

announcement took place at Saturday or Sunday and was shifted to the next trading day (in all cases the following Monday).

For the study three different ways of calculating abnormal returns are used: market model, mean adjusted returns, and market adjusted returns. The index used for both the market model and market adjusted returns is the Euro Stoxx 600. In all models the estimation period includes 200 trading days, starting at date $t=-226$ and ending at $t=-26$, where $t=0$ indicates the announcement date. Abnormal returns are estimated for 51 days around the announcement. As mentioned by Brown and Warner (1985) for short estimation periods the results of the different models are not expected to diverge. Accordingly, no differences between the three models used can be found in this study. Thus, all results represented are based on the market model approach.

Insert tables 4a and 4b here.

Table 4a presents the abnormal returns of each trading day in the event window. The average abnormal return on the event date equals 1.11% and is highly significant⁴. The return of the trading day preceding the announcement exhibits positive abnormal returns as well. This can be explained by insider trading or market rumors. Table 4b shows cumulated abnormal returns of several symmetric event windows around the announcement. Abnormal returns cumulate to 2.19% in the [-1; +1] window. That is, some of the information processing and revaluation seems to occur before and after the event date. Furthermore, table 4b implies using the [-1; +1] window for the cross sectional regressions explaining cumulated abnormal returns' size, since the major part of price revaluation seems to occur in this period.

⁴ A simple sign test (p-value equals 0.023 at the eventdate) and a nonparametric Corrado-Test (p-value of 0.010) can back up this result.

One advantage of a European dataset consists in the existence of several juridical systems within the sample. As outlined by La Porta et al. (1998) shareholder protection differs across different law systems and might, therefore, influence the size of abnormal returns. There are 4 different origins of law in the sample. The Scandinavian law includes the Scandinavian countries, represented in the sample by Finland, Norway and Sweden. The German law origin includes the juridical systems of Germany and Switzerland and the French origin law countries are Belgium, France, Greece, Italy, Portugal, Spain and the Netherlands. These three law origins are part of the civil law, whereas the Anglo-American law origin, represented in the sample by the United Kingdom, is part of common law systems.

Insert tables 5a and 5b here.

Abnormal returns in the event period are found to differ between the different law systems. But, independent of the sub sample, abnormal returns remain significantly positive. In German law countries the cumulated abnormal return in the [-1; +1] window equals 1.31%. Even if the abnormal return on the event date is not significant, highly significant returns are found at $t=-1$ and $t=+1$ (p-value equals 0.012 and 0.000, respectively). Cumulated returns in the symmetric 3 trading day window around the announcement are slightly higher in French law and Scandinavian law countries, 1.89% and 2.34% respectively.

Table 5b presents cumulated abnormal returns of common law and civil law countries, where the civil law countries contain the observations presented in table 5a. As before, the [-1; +1] event window shows the highest significance and is therefore used for comparison. The cumulated abnormal return in the United Kingdom equals 4.15%, whereas the same figure for civil law countries averages

1.69%. A simple hypotheses test rejects the hypothesis of equal means (p-value of 0.003).

The presented event study results confirm the findings from the existing literature. Analyzing a sample of 76 equity carve-outs Schipper and Smith (1986) find abnormal returns of 1.83% in the [-4; 0] event window. More recent studies report similar sizes of abnormal returns. Vijh (2002) finds positive cumulated returns of 1.94% in the [-1; +1] window and Mulherin and Boone (2000) report an abnormal gain of 2.27% during the same period. Whereas the above authors focus exclusively on the US market, Elsas and Löffler (2004) report an abnormal return of 1.08% for German equity carve-outs⁵. That is, both the sign and magnitude of abnormal returns in the European sample does not differ from evidence found in other studies.

Regarding the differences between several law systems the above results correspond with intuition. Investors' willingness to invest in a minority stake depends on the gains associated with the restructuring and the risk of being expropriated by blockholders. That is, since minority shareholders want to be compensated for the risk of being expropriated, the benefits of the restructuring are (partly) offset by the demanded risk premium. But, if corporate governance rules are better designed to protect minority shareholders, the risk premium decreases and the benefits associated with the restructuring prevail, leading to higher announcement effects. Since Anglo-American legal regimes are expected to provide superior shareholder

⁵ The number from Elsas and Löffler (2004) equals the abnormal return at the announcement date and excludes 3 firms operating in the banking and insurance industry as well as 4 firms with infrequent trading in the event period. In an earlier version of their paper, Elsas and Löffler report the abnormal returns for the complete sample to equal 0.87%. Furthermore, their paper includes exclusively German carve-outs while the German civil law figures reported in this paper include Swiss and cross-country carve-outs as well.

protection rights, minority shareholders' willingness to pay increases, which, in turn, increases abnormal returns.

Nevertheless, as outlined in a wide range of studies, there are several firm-specific determinants influencing the benefits of an equity carve-out and, therewith, abnormal returns. Furthermore, the quality of shareholder protection may widely differ between countries with the same law origin. Therefore, a cross sectional regression analysis is conducted in Chapter 5 including the La Porta shareholder right index as a measure for each country's quality of shareholder protection rights as well as several variables controlling for firm-specific characteristics.

5 Cross-sectional analysis

As outlined in chapter 4 there is a strong and robust positive market reaction to the announcement of equity carve-outs. Furthermore, returns in common law countries, which are known for high shareholder protection, turned out to be significantly higher than those in civil law countries. Nevertheless, shareholder protection rights within one class of legal origin turn out to be widely dispersed, e.g. Spain and Belgium, both belonging to a sub-group of civil law countries, the so-called French origin law countries, show large differences concerning shareholder protection rules with Spain scoring a 4 out of 6 and Belgium a 0, with 6 indicating the best level of protection.

Moreover, other variables, like subsidiaries' size or industrial focus are found to affect the benefits associated with restructurings and, in turn, to influence abnormal returns. Therefore, a cross sectional regression is conducted to take these differences into account. 5.1 outlines the hypotheses tested in the regression and introduces the proxies used. 5.2 presents the results of the estimated models, whereas 5.3 addresses the question whether competition serves as a substitute to corporate governance or if both are rather complements or mutually independent.

5.1 Hypotheses and empirical design

The existing literature on equity carve-outs and restructurings developed several determinants of announcement effects. As outlined above, focusing on core business increases abnormal returns. This finding may be due to the elimination of negative synergies or the reduction of complexity. In line with Vijh (2002), Krishnaswami and Subramaniam (1999) and others 2-digit-SIC codes are used to classify industry affiliation. The dummy variable INDUSTRY equals 1 if the parent firm and the subsidiary operate in the same line of business and 0 otherwise.

As well as industrial diversification, geographical diversification is likely to influence firm value. This may be due to differences in (corporate) culture or to logistical problems. In this vein, Denis et al. (2002) report larger diversification discounts with higher geographic diversification. In order to control for this effect another dummy variable, labeled CROSSBORDER, is introduced, equaling 1 if the subsidiary and the parent firm operate in different countries and 0 otherwise.

First mentioned by Schipper and Smith (1986), opaqueness is found to be a leading rationale behind the carve-out decision. Even if more recent studies (e.g. Huson and McKinnon, 2003) report negative effects of separating business units on asymmetric information, because of increased asymmetric information *among* traders, most of the empirical and theoretical evidence see break-ups as an information enhancing event. In line with Elsas and Löffler (2004), the standard deviation of market model residuals is used as a measure of opaqueness. The related proxy is labeled OPAQUENESS.

One main difference between corporate spin-offs and equity carve-outs is the raising of new funds in the second case. As outlined by Allen and McConnell (1998) the use of funds influences the value of the restructuring. Following Jensen (1986) and Lang et al. (1995) parent firms' managers are seen as acting as empire builders, which is

not necessarily in line with owners' interests. Thus agency conflicts may reduce the value of the restructuring. Tighter credit constraints in highly leveraged firms make it more difficult for managers to divert cash to pet projects or in their own pockets. A cash injection should, as a result, be less harmful to highly leveraged companies. Monitoring and controlling are alternative ways of ensuring managers to act in line with shareholders' incentives and to invest the raised funds accordingly. Shareholders' incentives to engage in monitoring and controlling typically increase with their percentage ownership (see e.g. Perry, 1999, for empirical evidence). Wahal and McConnell (2000) report decreasing managerial myopia with the existence of a blockholder and Denis et al. (1997) find value destroying diversification to increase with the free float of shares. Therefore, parents' free float, defined as the percentage of shares not owned by insiders or single shareholders, owning at least 5% of parent firms' stock, and the leverage of the parent company, expressed in book values, are used to control for the managerial discretion hypothesis.

Several studies find a positive influence of subsidiaries' size on abnormal returns (see most recently Elsas and Löffler, 2004, or, for European spin-offs, Veld and Veld-Merkoulova, 2004). Obviously, subsidiaries' efficiency gains are more likely to affect the value of the whole conglomerate if the subsidiary is sufficiently large compared to parent firms' remaining assets. Like in Allen and McConnell (1998) the ratio of subsidiary's to parent's book value of total assets, labeled SIZE, is used to control for this effect.

In contrast to spin-offs, the ownership structure changes in equity carve-outs, since shares are sold to new investors. At the same time, the parent company typically remains a large blockholder after the restructuring. Therefore, minority shareholders' fear of being expropriated influences their willingness to invest in the subsidiary. As outlined by Nenova (2003) and Dyck and Zingales (2004) the size of blockholders'

private benefits of control varies across different countries, making minority shareholdings more profitable in countries with high levels of corporate governance. As outlined above, the quality of investors' protection typically depends on the origin of the legal system, with common law countries being, in general, superior to civil law regimes (La Porta et al, 1998 and 2000). Nevertheless, shareholder protection widely differs even among countries with the same legal origin. The Antidirector-Right-Index, developed by La Porta et al. (1998), assigns a value of 0 to 6 to each country depending on its quality of shareholder protection. This index is used to control for the influence of corporate governance, where ANTIDIRECTOR contains for each observation the value of shareholder protection in parent firms' country.

Improvement of subsidiaries' performance following equity carve-outs can be attributed to several factors. As mentioned before, the elimination of negative synergies, the reduction of opaqueness and the introduction of performance related pay systems result in an increased firm value. Furthermore, the separation from the parent firm allows the subsidiary to follow its own strategy without restrictions imposed by the parent, e.g. winning parents' competitors as clients or suppliers may have been impossible within a conglomerate structure. This results in an improved performance of carved-out units, as reported by Hulburt et al. (2002) as well as in negative announcement effect for subsidiaries' competitors (see Slovin et al., 1995, and Hulburt et al, 2002).

Therefore, subsidiaries' efficiency gains result rather from an improvement of subsidiaries' competitiveness due to changes in subsidiaries' corporate structure than from developments in production technologies, which should affect all market participants. For subsidiaries acting as a monopolist in the product market these improvements have a minor impact, since no additional market share can be gained. In contrast, firms operating in markets with fierce competition may be able to

assemble a bigger market share and a larger fraction of overall profits. As outlined by Allen and Gale (2000) efficiency gains are much more important in strongly competitive markets. Therefore, the level of competition in subsidiaries' product market should affect the value of the restructuring and, consequently, abnormal returns.

Modern finance looks at competition from a corporate governance point of view. Intuitively one might expect good corporate governance and product market competition to be substitutes since both force managers to act more efficiently. Nevertheless, recent research by Grosfeld and Tressel (2002) and Januszewski et al. (2002) find the quality of shareholder protection and competition to be rather complements than substitutes, indicating that positive effects of strong competition are enhanced in the presence of good corporate governance.

The variable used to control for competition in the subsidiary's industry is the Herfindahl index of sales in the 2-digit-SIC peer group in the year of the announcement. For simplicity the Herfindahl index is subtracted from 1 to construct the proxy variable COMPETITION. Thus, COMPETITION equals 0 if the subsidiary operates as a monopoly in the product market and 1 under perfect competition.

Insert table 6 here.

Table 6 summarizes the independent variables used as well as their construction and economic importance.

5.2 Determinants of abnormal returns

Table 7a shows the results from the cross sectional regression framework. Firms' cumulated abnormal returns in the [-1, +1] event window as well as at the event date

are used as dependent variables. I estimate restricted models as well, whose results are presented in the 5th and 6th column of each table. However, their results differ only slightly from those of the complete models. Simple OLS regressions are used to estimate the models presented in 5.2. Each model is checked for heteroscedasticity without finding any indications. Redundant variable tests are conducted for the variables omitted without finding any joint significance. All results are based on 100 observations since balance sheet data is not available for 3 companies.

Insert tables 7a and 7b here.

The models presented in tables 7a and 7b show no significant impact of focusing on firms' value. Thus, neither work finding positive effects of focusing strategies nor authors arguing in favor of corporate diversification can be unambiguously confirmed. The signs of both focusing variables, INDUSTRY and CROSSBORDER, slightly indicate support of theories suspecting conglomerates to act inefficiently and geographical diversification to be harmful for firms' value; but both results are insignificant. Most of the empirical evidence concerning the benefits of focusing is found looking at spin-offs⁶. Subsidiaries are almost always totally divested in spin-offs, whereas parents typically remain a major shareholder following equity carve-outs (50.1% on average, see table 3). Therefore, in cases with huge disadvantages due to corporate diversification spin-offs may be the preferred choice of restructuring. The value of restructurings increases with the standard deviation of market model residuals. Nevertheless, the influence of OPAQUENESS is insignificant and does not provide a strong confirmation of Elsas and Löffler (2004), Fu (2003) or Krishnaswami

⁶ Most recent evidence for a sample of European spin-offs is provided by Veld and Veld-Merkoulova (2004). For evidence concerning equity carve-outs see Vijh (2002) or Schipper and Smith (1986).

and Subramaniam (1999). Huson and MacKinnon (2003), who report increased asymmetric information following spin-offs, cannot be confirmed either. Alternative proxies for opaqueness are the number of analysts following the firm or analysts' prediction errors, measured as the standard deviation of analysts one year earnings per share forecasts. I received this data from IBES for a sub sample of parent firms and estimated the models with the reduced sample. The results are qualitatively similar to those for the opaqueness variable reported in tables 7a and 7b and are omitted for brevity. This result is in line with Elsas and Löffler (2004) and Krishnaswami and Subramaniam (1999) who did not find any large qualitative differences between these possible proxies, either.

To control for the managerial discretion hypothesis two proxies are applied. Parents' debt to total assets ratio is used, because managers of highly leveraged firms have a strong motivation to use funds to pay down debt in order to avoid financial distress. Besides financial constraints, the risk of managerial discretion depends as well on the level of control and monitoring through shareholders, which is expected to increase with the percentage of shares held by large investors. Neither the existence of blockholders, measured with the variable FREEFLOAT, nor the level of parent firms' leverage increases the value of the restructuring. Therefore, both variables do not provide sufficient evidence for the managerial discretion hypothesis. But to provide conclusive evidence the detailed use of funds need to be taken into account, which lies clearly beyond the scope of this paper.

As can be seen in table 7a abnormal returns increase significantly with subsidiaries' relative size. Elsas and Löffler (2004) and Krishnaswami and Subramaniam (1999) report similar results for carve-outs and spin-offs, respectively. Klein (1986) and Lang et al. (1995) document similar findings for the case of asset sales. It seems reasonable to argue that parents' abnormal returns increase with the relative size of

subsidiaries' assets. First, subsidiaries efficiency gains are stronger reflected in parents' pre-event share price if the subsidiary is large compared to the remaining assets. Second, larger subsidiaries may receive an increased perception through investors leading to more information revelation. Third, smaller parents' may receive additional efficiency gains through reduced opaqueness similar to those of their carved-out subsidiaries. This is less likely to be the case, if the post-event parent remains a huge and heavily diversified conglomerate.

As already outlined above, equity carve-outs lead to the creation of a minority equity-stake, for parent firms remain typically large shareholders of the subsidiary following the restructuring. Antidirector rights protect minority shareholders from being expropriated and function as investment insurance, guaranteeing investors to receive returns on their investments. Abnormal returns are found to increase significantly (p -value equals 0.0262) with the quality of shareholders' rights, measured by the Antidirector-Rights-Index introduced by La Porta et al. (1998). The results are statistically and econometrically significant, since an increase by one step in the Antidirector-Rights-Index is rewarded by an increase in abnormal returns by 1.24%, all else equal. Translated into year end market capitalization, an improvement by 1 step in country's level of the shareholder protection index leads to an additional gain of 90.5 million \$ for the median parent company. Put differently, since minority shareholders want to be compensated for the risk of being expropriated, this amount equals the risk premium demanded to accept a deterioration in shareholder rights by one additional step.

As is shown in table 7a competition has a positive impact on the size of the announcement effect (p -value equals 0.0730). Allen and Gale (2000) find efficiency gains, as they may be present in equity carve-outs through the introduction of performance related pay systems or the reduction of negative synergies, to be

especially valuable for firms operating in competitive product markets. That is, while the advantage of efficiency improvements for subsidiaries in monopolistic markets may be limited, subsidiaries in competitive markets may be able to distract market shares from their competitors due to the comparative advantage. Additional evidence comes from Hulburt et al. (2002) who find negative announcement effects for subsidiaries' competitors, whereas – to the best of my knowledge – no direct effect of competition on abnormal returns has yet been analyzed. Moreover, the influence of competition is found to be economically significant. A change of one standard deviation for COMPETITION results in a change of abnormal returns of 1.5%, whereas the difference between a subsidiary acting as monopolist and a price taker (theoretically) equals 8.5%⁷.

Chapter 5.2 shows, besides subsidiaries' size, the quality of corporate governance and the level of product market competition to be the driving forces behind the gains in European equity carve-outs. While subsidiaries' size is found in former studies to have an impact on abnormal returns, corporate governance and competition issues have not been addressed so far. The findings for the European sample show the importance of shareholder protection and the influence of competition as a value enhancing component for corporate restructurings. Intuitively, competition seems to be a substitute for good governance, whereas recent research indicates the contrary. But so far no conclusions can be drawn concerning the relationship of both variables. Therefore, chapter 5.3 deals with the interdependency of corporate governance and competition.

⁷ In contrast, I find no competition effect for parent firms. One explanation could be that parent firms typically do not suffer from restrictions in the operating business through a majority shareholder as it is the case for subsidiaries. Moreover, while the carved-out subsidiaries operate in one industry a large fraction of ex-post parents are quite diversified.

5.3 Competition and corporate governance

Empirical as well as theoretical research suggests product market competition to improve firms' efficiency. Hart (1983) models competition as a mechanism to discipline managers. In his framework the existence of entrepreneurial managers, acting totally in line with shareholder value maximization, reduces managerial slack and forces managers in other firms to work harder and, therewith, increases firms' profitability. In an extension of Hart's model Scharfstein (1988) finds these results to depend on the form of managers' utility function. Schmidt (1997) and Aghion et al. (1999) provide further theoretical evidence on the relation between competition and performance. As Hart (1983) they apply an agency theoretic framework finding that competition aligns managers' and shareholders' incentives.

Empirical support is given in Blundell et al. (1995) who document a positive relation between competition and the level of innovation. Green and Mayes (1991) report technical efficiency to be reduced with a certain level of market concentration, and Nickell (1996) finds growth in productivity to increase with competition.

Competition seems, as well as corporate governance, to improve firms' efficiency by reducing agency costs or producing additional growth. Therefore, one might think about corporate governance and competition as alternative or substitutive ways to strengthen corporate performance, since both increase managers' incentives to act in line with shareholders interests. With fierce competition managers have to work harder to avoid a loss of firms' market share, which could lead to managers' dismissal and, at the extreme, to the bankruptcy of the firm. On the other hand, good corporate governance laws increases the probability of an efficiency improving takeover (by a rival), which often leads to the dismissal of targets' management. That is, managers' incentive to increase their effort level is, in both cases, driven by the fear to lose the job. Metaphorically speaking, from managers' point of view it does not

matter, if a rival takes over the whole firm or the firm's market share. Authors arguing competition and corporate governance to be alternative ways to increase efficiency include Aghion et al. (1999) and Bolton (1995).

Nevertheless, another strand of the literature finds both effects to reinforce each other. While Grosfeld and Tressel (2002) provide recent evidence for the Warsaw Stock Exchange, Holmstrom and Milgrom (1994) provide theoretical support.

As outlined in 5.2 the level of competition as well as the quality of corporate governance influences abnormal returns. With both variables independent of each other, a change in the quality of shareholder protection does not influence the impact of increased competition. On the contrary, a complementary relationship leads to a different impact of competition in countries with good corporate governance. With both variables reinforcing each other, subsidiaries facing an intensification of rivalry in their product market should benefit more if corporate governance is highly developed, and vice versa. Were both regressors counterbalancing, an improvement in one variable results in a decreased impact of the other, leading to a maximum effect, which is reached when both effects are in perfect balance.

In order to check for the nature of the relationship an additional cross sectional regression model, which includes an interaction term, is estimated. The model, which is presented in table 8, separates the impact of competition on abnormal returns for carve-outs in countries with high and low levels of corporate governance. This is done with the interaction term, which equals COMPETITION for countries with a high quality of shareholder protection and 0 otherwise. The median level of ANTIDIRECTOR was used to split the sample, where index levels of at least 3 were necessary to belong to the upper half of the sample.

We expect the interaction term to be significantly different from 0 if competition and corporate governance are complementary. Thereby, a reinforcing relationship leads

to a positive interaction term, whereas a counterbalancing relation results in a negative sign of the interaction variable. In contrast, with both regressors being mutually independent, the interaction term should not affect abnormal returns at all.

Insert table 8 here.

Table 8 shows the impact of product market competition on abnormal returns to be independent of the quality of corporate governance. That is, in countries with high levels of shareholder protection the influence of competition does not significantly differ compared to 'bad' corporate governance countries⁸.

Empirical evidence concerning the relationship between product markets and corporate governance is scarce. Nickell et al. (1997), studying a sample of British firms operating in the manufacturing industry, find corporate governance measures to substitute for competition. A theoretical explanation is given by Aghion et al. (1999), who find competition to be an alternative instrument to discipline agency prone managers. Nevertheless, recent work by Grosfeld and Tressel (2002) finds opposed results.

⁸ An alternative approach provides further confirmation of this result. Instead of analyzing the additional impact of competition on firms operating in countries with high levels of shareholder protection, the reverse model is estimated. That is, an interaction term is used to study the additional impact of a change in the Antidirector-Rights-Index on carve-outs operating in highly competitive industries. Analogous to the interaction term in table 8, the median level of COMPETITION is used to split the sample. But no significant additional impact of shareholder protection on the upper half of the sample firms could be found.

6 Conclusions

Previous literature has shown announcements of equity carve outs to be followed by positive abnormal returns. But, as far as I know, no evidence exists about the influence of countries' quality of corporate governance laws on abnormal returns' size. One main characteristic of equity carve-outs, compared with other forms of restructurings like spin-offs or asset sales, is the creation of a minority equity stake in the subsidiary. As outlined by La Porta et al. (1999) the expropriation of minority shareholders tends to be a more severe problem than controlling or monitoring issues. Furthermore, private benefits of control are found to differ significantly among countries (Dyck and Zingales, 2004), indicating that minority shareholders' risk of expropriation decreases with increasing quality of corporate governance rules. Thus, the existence of a European carve-out sample provides a unique opportunity to study the influence of corporate governance on minority shareholders. That is, this work provides not only out of sample evidence to existing studies on restructurings but also closes the gap between the corporate governance and corporate restructuring literature. Moreover, despite the growing importance of European markets no related equity carve-out study exists. The paper closest to mine is Veld and Veld-Merkoulova (2004) providing an analysis of European spin-offs, whereas the creation of a minority stake is unique to carve-outs.

Studying a sample of 103 equity carve-outs, occurring in Europe between 1994 and 2004, highly significant announcement effects are found. Abnormal returns, which average 2.19% for the complete sample, are found to differ significantly between different legal systems. That is, carve-outs in common law countries (United Kingdom) are accompanied by abnormal returns of 4.15% in the [-1; +1] event

window, whereas abnormal returns in civil law countries equal 1.69% during the same period. This result is significant at the 1% level.

In order to control for firm specific effects a cross sectional regression is estimated. In doing so, it is possible to account for differences in the quality of shareholder protection laws between the individual countries of a legal class, e.g. Belgium and Spain possess both law systems with French origin but the quality of their shareholder protection laws differs widely. Using the Antidirector Rights Index, proposed by La Porta et al. (1998), to control for differences in corporate governance laws, the above results can be confirmed. That is, abnormal returns around the announcement increase with the level of shareholder protection guaranteed by country law, indicating that minority shareholder are willing to pay more if corporate governance is better designed to protect them. The additional risk premium demanded by minority shareholders for a reduction in the quality of corporate governance by one step in the Antidirector-Rights-Index is found to equal 90 million \$ for the median sample company.

Furthermore, abnormal returns increase with the amount of competition in subsidiaries' industries. A possible explanation is that strong competition increases the need for an appropriate management and an efficient corporate structure in order to survive in the market. The separation with the help of an equity carve-out allows the subsidiary to develop independently of the parent firm or to lift the restrictions imposed by the conglomerate structure, e.g. winning parent firms' competitors as customers or suppliers. Competition – as yet a widely unnoticed variable in corporate restructurings – may be seen as an alternative way of forcing managers to work more efficiently. Moreover, I find the impact of both variables on abnormal returns to be independent of each other. Generally, evidence on the relationship between competition and corporate quality is scarce. Nickell et al. (1997) report corporate

governance and competition to be substitutes, whereas recent research by Grosfeld and Tressel (2002) find both variables to be rather complements.

Besides providing out of sample evidence on restructurings this paper presents first insights concerning corporate governance and restructurings, where the special role of minority shareholders in equity carve-outs is highlighted. Furthermore, competition is found to improve abnormal returns, whereas the impact of corporate governance and competition is mutually independent. Therefore, several questions for further research emerge, concerning the influence of corporate governance and competition on restructurings, and the relationship between both variables.

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Table 1
(Distribution of Events)

Year	FIN	NOR	SWE	CHE	DEU	ESP	FRA	GRC	ITA	NLD	PRT	GBR	Sum
1994	0	1	1	0	2	0	1	0	0	0	0	0	5
1995	0	1	0	2	2	0	0	0	0	1	0	0	6
1996	0	1	1	1	0	0	0	0	1	0	0	0	4
1997	1	0	0	1	1	0	1	0	0	0	0	1	5
1998	0	0	1	0	7	1	1	0	0	0	0	2	12
1999	1	0	1	1	10	2	2	0	0	2	1	3	23
2000	0	1	1	1	7	2	5	1	0	0	1	9	28
2001	0	0	0	1	1	1	0	0	0	0	0	0	3
2002	0	0	0	0	0	0	0	0	1	0	0	2	3
2003	0	0	0	0	2	1	0	0	1	0	0	2	6
2004	1	1	1	1	0	1	0	0	1	0	0	2	8
94-04	3	5	6	8	32	8	10	1	4	3	2	21	103

Table 1 shows the distribution of events over time and between the different European countries, e.g. one subsidiary was carved-out by its Greek parent in 2000. Countries are sorted by their legal origin. Finland, Norway and Sweden possess a Scandinavian law system; Switzerland and Germany a German law system; Spain, France, Greece, Italy, the Netherlands and Portugal belong to the French class of law systems and Great Britain to the Anglo-American juridical regimes. The classification is adopted from La Porta et al. (1998).

Table 2a
(Industries & Time)

Year	MIN.	MAN.	ELECT.	TRANS.	COM.	TRADE	FIN.	SIC73	SERV.	Sum
1994	0	3	0	0	0	0	1	0	1	5
1995	0	3	2	0	0	1	0	0	0	6
1996	0	2	2	0	0	0	0	0	0	4
1997	1	1	1	1	0	1	0	0	0	5
1998	0	3	3	0	3	1	0	1	1	12
1999	1	2	5	0	2	1	4	7	1	23
2000	0	2	1	1	6	3	3	11	1	28
2001	0	1	0	1	0	0	1	0	0	3
2002	0	1	0	0	0	0	1	0	1	3
2003	0	0	0	1	1	1	2	1	0	6
2004	1	2	1	0	1	0	1	1	1	8
1994-2004	3	20	15	4	13	8	13	21	6	103

Table 2a shows the distribution of industries over time, e.g. in 2000 there were 6 announcements of equity carve-outs of subsidiaries operating in the communication industry, labeled COM. MIN. is short for mining & construction (2-digit SIC Codes 10-19), MAN. for manufacturing (SIC 20-39) without electrical and electronic equipment (SIC 36) and instruments and related products (SIC 38) which are abbreviated through ELECT. TRANS. stands for transportation and utilities (SIC 40-47 + 49), COM. for communication (SIC 48), TRADE for the wholesale and retail trade industries (SIC 50-59) and FIN. for the financial sector (SIC 60-69). Service industries (SIC 70-89) are split into 2 groups: Business services (SIC 73), which contains most of internet and New Economy related firms, and the remaining companies (SERV.). The sub groups for manufacturing, transportation & utilities and service industries, including high-tech and internet firms, show their highest figures during the late nineties and fall back to their original level at 2001. The 1999 peek in the financial sector (FIN.) can be explained by several equity carve-outs of online-banking units (e.g. Comdirect).

Table 2b
(Industry & Country)

Country	MIN.	MAN.	ELECT.	TRANS.	COM.	TRADE	FIN.	SIC73	SERV.	Sum
FIN	1	2	0	0	0	0	0	0	0	3
NOR	1	1	1	0	0	0	1	1	0	5
SWE	0	3	0	0	0	0	0	3	0	6
CHE	0	1	3	0	0	0	3	1	0	8
DEU	0	3	10	0	1	5	4	7	2	32
ESP	0	2	0	2	3	0	0	0	1	8
FRA	0	3	0	0	3	1	2	0	1	10
GRC	0	0	0	0	1	0	0	0	0	1
ITA	0	1	0	1	1	0	1	0	0	4
NLD	0	1	0	0	0	0	0	1	1	3
PRT	0	0	0	0	2	0	0	0	0	2
GBR	1	3	1	1	2	2	2	8	1	21
Total	3	20	15	4	13	8	13	21	6	103
SL	2	6	1	0	0	0	1	4	0	14
GL	0	4	13	0	1	5	7	8	2	40
FL	0	7	0	3	10	1	3	1	3	28
BL	1	3	1	1	2	2	2	8	1	21

Table 2b shows the distribution of industries between different countries, e.g. one subsidiary operating in the mining and construction sector, labeled MIN, was carved-out by a Finnish parent company. MIN. is short for mining & construction (2-digit SIC Codes 10-19), MAN. for manufacturing (SIC 20-39) without electrical and electronic equipment (SIC 36) and instruments and related products (SIC 38) which are abbreviated through ELECT. TRANS. stands for transportation and utilities (SIC 40-47 + 49), COM. for communication (SIC 48), TRADE for the wholesale and retail sector (SIC 50-59) and FIN. for the financial sector (SIC 60-69). Service industries (SIC 70-89) are split into 2 groups: Business services (SIC 73), which contains most of internet and New Economy related firms, and the remaining companies (SERV.). The 4 rows at the end of table 2b show industry statistics for the different legal origins: Scandinavian, German, French and British or Anglo-American origin, respectively.

Table 3
(Descriptive Statistics)

		Mean	Median	Std. Dev.	Maximum	Minimum	Obs.
Parent	Employees	69,203	26,577	97,374	441,502	26	102
	Total Assets	50,900	9,208	109,972	611,945	12	102
	Total Debt	17,971	2,342	52,179	293,568	0	102
	Sales	15,054	5,965	19,838	131,782	1	102
	Free float	68.3%	72.6%	72.8%	0.0%	100.0%	103
	Cash Flow	1961.79	637.69	2995.42	10478.00	-663.55	90
	Free Cash Flow	-530.27	-1.45	5680.66	21177.13	-30418.00	81
Deal	ex-ante Holdings	86.0%	100.0%	20.1%	100.0%	31.1%	103
	ex-post Holdings	50.1%	52.0%	26.8%	100.0%	0.0%	101
	Sold	36.9%	28.0%	27.0%	100.0%	-9.0%	103
Subsidiary	Employees	5,003	930	10,987	82,611	8	96
	Total Assets	4,758	425	19,273	136,071	3	101
	Total Debt	1,611	50	7,869	61,791	0	101
	Sales	1,211	347	2,231	12,059	0	101
	Cash Flow	79.71	15.54	198.82	1542.33	-196.30	94
	Free Cash Flow	-152.49	-2.91	896.56	523.94	-7133.66	69

Table 3 shows some descriptive statistics for the sample firms. Values are from the year of the announcement and are displayed in million €. Most data are received from Worldscope, some supplementary data come from infinancials, Orbis (Bureau van Dijk) and Hoppenstedt. For some items data were only available for a sub sample. Therefore, the number of observations is reported in the last column.

Table 4a

(Abnormal Returns around Announcement)

Day	AR	t-test	p-value	Day	AR	t-test	p-value
-25	0.40%	1.42	0.1573	1	0.18%	0.64	0.5236
-24	0.26%	0.93	0.3522	2	-0.13%	-0.47	0.6355
-23	0.51%	1.81	0.0723 *	3	0.01%	0.05	0.9610
-22	0.34%	1.20	0.2303	4	-0.33%	-1.19	0.2351
-21	-0.26%	-0.94	0.3481	5	0.09%	0.31	0.7589
-20	0.08%	0.30	0.7635	6	0.51%	1.82	0.0698 *
-19	0.86%	3.08	0.0024 ***	7	0.18%	0.63	0.5301
-18	0.27%	0.98	0.3293	8	-0.47%	-1.69	0.0919 *
-17	0.07%	0.26	0.7982	9	-0.12%	-0.42	0.6757
-16	0.53%	1.91	0.0575 *	10	0.04%	0.13	0.8978
-15	-0.09%	-0.34	0.7372	11	0.12%	0.42	0.6721
-14	-0.27%	-0.96	0.3402	12	-0.02%	-0.08	0.9329
-13	-0.41%	-1.46	0.1459	13	-0.13%	-0.47	0.6407
-12	0.05%	0.18	0.8605	14	-0.27%	-0.96	0.3366
-11	-0.27%	-0.97	0.3333	15	-0.38%	-1.35	0.1791
-10	0.11%	0.38	0.7077	16	-0.35%	-1.24	0.2154
-9	0.41%	1.45	0.1475	17	-0.27%	-0.95	0.3420
-8	0.26%	0.94	0.3459	18	-0.13%	-0.45	0.6499
-7	0.02%	0.08	0.9379	19	0.03%	0.10	0.9177
-6	0.97%	3.46	0.0007 ***	20	0.11%	0.40	0.6891
-5	0.17%	0.61	0.5425	21	-0.39%	-1.40	0.1626
-4	-0.32%	-1.15	0.2497	22	-0.19%	-0.68	0.4984
-3	0.10%	0.34	0.7319	23	-0.45%	-1.61	0.1101
-2	-0.08%	-0.30	0.7669	24	-0.03%	-0.11	0.9117
-1	0.90%	3.22	0.0015 ***	25	0.20%	0.71	0.4765
0	1.11%	3.96	0.0001 ***				

Table 4a shows abnormal returns around the event date. The test statistic for the performed t-test is calculated using the standard deviation of abnormal returns from the estimation period as proposed by Brown and Warner (1985). The level of significance of each return can be seen with the help of the presented p-values as well as by the number of attributed stars, where *, **, *** indicate significance at the 10%, 5% and 1% level, respectively. Results are based on the total sample (103 observations).

Table 4b

(Cumulated Abnormal Returns)

Window	CAR	t-test	p-value
[-0;0]	1.11%	3.9608	0.0001***
[-1;1]	2.19%	5.5311	0.0000***
[-2;2]	1.97%	4.0707	0.0001***
[-3;3]	2.08%	3.7213	0.0003***
[-4;4]	1.43%	2.2796	0.0237**
[-5;5]	1.68%	2.4556	0.0149**
[-6;6]	3.16%	4.2707	0.0000***
[-7;7]	3.36%	4.2448	0.0000***
[-8;8]	3.15%	3.7524	0.0002***
[-9;9]	3.44%	3.8871	0.0001***
[-10;10]	3.58%	3.8582	0.0002***
[-11;11]	3.43%	3.5363	0.0005***
[-12;12]	3.45%	3.4230	0.0008***
[-13;13]	2.91%	2.7834	0.0059***
[-14;14]	2.38%	2.1934	0.0294**
[-15;15]	1.91%	1.7028	0.0902*
[-16;16]	2.09%	1.8138	0.0712*
[-17;17]	1.90%	1.5986	0.1115
[-18;18]	2.04%	1.6760	0.0953*
[-19;19]	2.93%	2.3446	0.0200**
[-20;20]	3.13%	2.4413	0.0155**
[-21;21]	2.47%	1.8859	0.0608*
[-22;22]	2.62%	1.9539	0.0521*
[-23;23]	2.68%	1.9539	0.0521*
[-24;24]	2.91%	2.0787	0.0389**
[-25;25]	3.50%	2.4566	0.0149**

Table 4b shows average cumulated abnormal returns around the event date. The test statistic for the t-test is calculated as proposed by Brown and Warner (1985). The level of significance of each return can be seen with the help of the presented p-values as well as by the number of attributed stars, where *, **, *** indicate significance at the 10%, 5% and 1% level, respectively. Results are based on the total sample (103 observations).

Table 5a
(Civil Law Countries)

Window	German Law Origin			Scandinavian Law Origin			French Law Origin		
	CAR	t-test	p-value	CAR	t-test	p-value	CAR	t-test	p-value
[-0;0]	0.34%	0.8219	0.41	1.21%	1.9754	0.05**	1.04%	1.8264	0.07*
[-1;1]	1.31%	2.2239	0.03**	2.34%	2.7061	0.01***	1.89%	2.3343	0.02**
[-2;2]	1.76%	2.4369	0.02**	2.25%	2.1228	0.04**	1.32%	1.3288	0.19
[-3;3]	1.89%	2.2609	0.02**	3.02%	2.4694	0.01**	1.76%	1.5397	0.13
[-4;4]	1.42%	1.5204	0.13	3.26%	2.3828	0.02**	0.38%	0.2954	0.77
[-5;5]	1.55%	1.5180	0.13	3.67%	2.4456	0.02**	-0.25%	-0.1770	0.86
[-6;6]	3.44%	3.1105	0.00***	4.20%	2.5948	0.01**	0.55%	0.3626	0.72
[-7;7]	4.22%	3.5736	0.00***	3.99%	2.3056	0.02**	0.54%	0.3338	0.74
[-8;8]	4.94%	3.9376	0.00***	4.17%	2.2731	0.02**	-0.23%	-0.1323	0.89
[-9;9]	5.07%	3.8371	0.00***	4.17%	2.1553	0.03**	0.41%	0.2276	0.82
[-10;10]	6.31%	4.5533	0.00***	4.44%	2.1878	0.03**	0.07%	0.0347	0.97
[-11;11]	6.11%	4.2189	0.00***	5.14%	2.4242	0.02**	-0.34%	-0.1714	0.86
[-12;12]	5.01%	3.3220	0.00***	5.07%	2.2961	0.02**	-0.13%	-0.0641	0.95
[-13;13]	5.49%	3.5089	0.00***	5.15%	2.2490	0.03**	-0.99%	-0.4629	0.64
[-14;14]	5.19%	3.2035	0.00***	6.07%	2.5621	0.01**	-2.71%	-1.2214	0.22
[-15;15]	4.85%	2.9037	0.00***	6.67%	2.7253	0.01***	-3.27%	-1.4297	0.15
[-16;16]	4.71%	2.7360	0.01***	7.48%	2.9620	0.00***	-2.43%	-1.0297	0.30
[-17;17]	5.06%	2.8542	0.00***	7.48%	2.8786	0.00***	-1.97%	-0.8122	0.42
[-18;18]	4.89%	2.6823	0.01***	7.97%	2.9871	0.00***	-1.65%	-0.6636	0.51
[-19;19]	5.35%	2.8632	0.00***	8.21%	3.0009	0.00***	-0.91%	-0.3554	0.72
[-20;20]	5.54%	2.8926	0.00***	7.52%	2.6799	0.01***	-0.04%	-0.0134	0.99
[-21;21]	4.32%	2.2048	0.03**	6.74%	2.3489	0.02**	0.15%	0.0572	0.95
[-22;22]	3.93%	1.9585	0.05*	10.03%	3.4164	0.00***	-1.03%	-0.3749	0.71
[-23;23]	3.92%	1.9142	0.06*	11.74%	3.9145	0.00***	-1.43%	-0.5110	0.61
[-24;24]	4.45%	2.1301	0.03**	12.33%	4.0277	0.00***	-2.01%	-0.7043	0.48
[-25;25]	5.33%	2.5025	0.01**	12.43%	3.9843	0.00***	-1.94%	-0.6652	0.51

Table 5a shows cumulated abnormal returns for different law systems. The first sub sample contains 40 carve-outs from Germany and Switzerland (German origin law countries). The second one shows results for Scandinavian origin law systems (14 carve-outs taking place in Finland, Norway and Sweden) and the last provides evidence for 28 carve outs in French origin law countries (Belgium, French, Greece, Italy, Portugal, Spain and the Netherlands). The juridical regimes of all these countries belong to the civil law. Evidence for carve-outs taking place in Anglo-American origin law systems, which belong to the Common law, are presented in table 5b. The level of significance of each return can be seen with the help of the presented p-values as well as by the number of attributed stars, where *, **, *** indicate significance at the 10%, 5% and 1% level, respectively.

Table 5b

(Common versus Civil Law Countries)

Window	Common Law Countries			Civil Law Countries		
	CAR	t-test	p-value	CAR	t-test	p-value
[-0;0]	2.58%	4.3126	0.00***	0.73%	2.3985	0.02**
[-1;1]	4.15%	4.9024	0.00***	1.69%	3.9130	0.00***
[-2;2]	3.06%	2.9503	0.00***	1.69%	3.2107	0.00***
[-3;3]	2.25%	1.8785	0.06*	2.04%	3.3471	0.00***
[-4;4]	1.61%	1.2030	0.23	1.38%	2.0241	0.04**
[-5;5]	3.18%	2.1687	0.03**	1.30%	1.7411	0.08*
[-6;6]	5.40%	3.4072	0.00***	2.58%	3.2038	0.00***
[-7;7]	5.01%	2.9619	0.00***	2.93%	3.3960	0.00***
[-8;8]	3.55%	1.9788	0.05**	3.04%	3.3295	0.00***
[-9;9]	3.87%	2.0463	0.04**	3.33%	3.4527	0.00***
[-10;10]	2.48%	1.2505	0.21	3.86%	3.8193	0.00***
[-11;11]	2.19%	1.0562	0.29	3.74%	3.5445	0.00***
[-12;12]	4.19%	1.9401	0.05*	3.26%	2.9692	0.00***
[-13;13]	1.72%	0.7657	0.44	3.22%	2.8225	0.01***
[-14;14]	1.34%	0.5783	0.56	2.64%	2.2392	0.03**
[-15;15]	0.02%	0.0083	0.99	2.39%	1.9610	0.05*
[-16;16]	-0.46%	-0.1852	0.85	2.75%	2.1864	0.03**
[-17;17]	-2.68%	-1.0563	0.29	3.07%	2.3764	0.02**
[-18;18]	-2.38%	-0.9135	0.36	3.18%	2.3938	0.02**
[-19;19]	-0.06%	-0.0236	0.98	3.70%	2.7173	0.01***
[-20;20]	-0.16%	-0.0581	0.95	3.97%	2.8461	0.00***
[-21;21]	-0.79%	-0.2812	0.78	3.31%	2.3177	0.02**
[-22;22]	0.07%	0.0252	0.98	3.28%	2.2419	0.03**
[-23;23]	-0.24%	-0.0820	0.93	3.43%	2.2959	0.02**
[-24;24]	0.25%	0.0820	0.93	3.59%	2.3552	0.02**
[-25;25]	1.30%	0.4267	0.67	4.06%	2.6146	0.01***

Table 5b presents cumulated abnormal returns for the sub sample of civil law and common law countries. The first set includes 21 carve-outs taking place in the United Kingdom, whereas the second contains 82 carve outs from the French origin, German origin and Scandinavian origin law countries, which are presented in more detail in table 5a. The level of significance for each return can be seen with the help of the presented p-values as well as by the number of attributed stars, where *, **, *** indicate significance at the 10%, 5% and 1% level, respectively.

Table 6
(Independent Variables)

	Name	Proxy	Economic Importance
Focusing	INDUSTRY	Dummy Variable. Equals 1 if both firms operate in the same industry and 0 otherwise	Reduction of negative synergies and complexity. Concentration on core business
	CROSSBORDER	Dummy Variable. Equals 0 if both firms operate in the same country and 1 otherwise	Reduction of global diversification. Concentration on home market
Opacity	OPAQUENESS	Market models residuals from the estimation period [-225; -26]	Reduction of asymmetric information and opacity, increasing precision of performance measure
Managerial Discretion	LEVERAGE	Parents debt to total assets-ratio in book values	Importance of free cash flow problems.
	FREEFLOAT	Percentage of parent's shares not held by insiders or individuals accumulating more than 5% of outstanding shares	Level of managerial control and monitoring through parent's shareholders
Control	SIZE	Total assets of subsidiary to total assets of parent. Book values.	Importance of subsidiary for parent firm. Control variable.
CG	ANTIDIRECTOR	Level of shareholder protection in parent's country. Developed by La Porta et al. (1998)	Influence of investor protection on minority shareholder
Competition	COMPETITION	1-Herfindahl Index of sales in subsidiary's product market in the year of the announcement	importance of subsidiary's autonomy to met challenges of competition

Table 6 summarizes the dependent variables used in the cross sectional regression framework presented in tables 7a, 7b and 8. INDUSTRY, CROSSBORDER, OPAQUENESS, LEVERAGE, FREEFLOAT, and SIZE were found to be determinants of abnormal returns' size in former equity carve-out and spin-off studies, whereas only poor evidence exists concerning COMPETITION and ANTIDIRECTOR.

Table 7a

(Cross Sectional Regression)

Dependent Variable: CAR_3		Complete Model		Restricted Model	
Variable	Exp. Sign	Coefficient	p-value	Coefficient	p-value
CONST		-0.07747	(0.1597)	-0.09164	(0.0463)**
COMPETITION	[+]	0.08883	(0.0730)*	0.08522	(0.0663)*
ANTIDIRECTOR	[+]	0.01240	(0.0262)**	0.00814	(0.0924)*
SIZE	[+]	0.06685	(0.0204)**	0.07609	(0.0053)***
FREEFLOAT	[-]	-0.04968	(0.1278)		
OPAQUENESS	[+]	1.35871	(0.3044)		
CROSSBORDER	[+]	0.00190	(0.9261)		
INDUSTRY	[-]	-0.00954	(0.5621)		
LEVERAGE	[+]	-0.01050	(0.8407)		
R ²		0.14854		0.12088	
Adjusted R ² -		0.07369		0.09341	
F-statistic		1.98442	(0.0571)*	4.39995	(0.0060)***
Observations		100		100	

Table 7a shows results from the cross sectional regression model. The dependent variable used is the cumulated abnormal return in the [-1; +1] event window, which seems to include most of the revaluation process. COMPETITION is 1 minus the Herfindahl Index of sales within subsidiaries' market (measured with 2-digit SIC Codes). ANTIDIRECTOR is the corporate governance index of shareholder rights in parent firms' country, developed by La Porta et al. (1998). SIZE describes the size ratio of the subsidiary and the parent firm, where the size is measured with total assets. FREEFLOAT is the percentage of parents' shares, which is not held by insiders or blockholders. OPAQUENESS is the standard deviation of market model's residuals used to control for opaqueness. CROSSBORDER and INDUSTRY are dummy variables taking on the value one if the parent and the subsidiary operate in different countries or industries, respectively. LEVERAGE is the leverage of the parent firm, expressed in book values. Results are based on 100 observations, since 3 carve-outs had to be deleted because of lack of data. *, **, *** indicate significance at the 10%, 5% and 1% level, respectively.

Table 7b

(Cross Sectional Regression)

Dependent Variable: CAR_0		Complete Model		Restricted Model	
Variable	Exp. Sign	Coefficient	p-value	Coefficient	p-value
CONST		-0.05938	(0.1257)	-0.05029	(0.1087)
COMPETITION	[+]	0.06087	(0.0805)*	0.04905	(0.1274)
ANTIDIRECTOR	[+]	0.00796	(0.0418)**	0.00659	(0.0516)*
SIZE	[+]	0.00736	(0.7128)		
FREEFLOAT	[-]	-0.01114	(0.6254)		
OPAQUENESS	[+]	0.50068	(0.5896)		
CROSSBORDER	[+]	-0.00372	(0.7961)		
INDUSTRY	[-]	-0.01672	(0.1506)		
LEVERAGE	[+]	0.01204	(0.7431)		
R ²		0.08340		0.05550	
Adjusted R ² -		0.00282		0.03603	
F-statistic		1.03495	(0.4159)	2.85000	(0.0626)*
Observations		100		100	

Table 7b shows results from the cross sectional regression model. The dependent variable used is the abnormal return on the event date. COMPETITION is 1 minus the Herfindahl Index of sales within subsidiaries' market (measured with 2-digit SIC Codes). ANTIDIRECTOR is the corporate governance index of shareholder rights in parent firms' country, developed by La Porta et al. (1998). SIZE describes the size ratio of the subsidiary and the parent firm, where the size is measured with total assets. FREEFLOAT is the percentage of parents' shares, which is not held by insiders or blockholders. OPAQUENESS is the standard deviation of market model's residuals used to control for opaqueness. CROSSBORDER and INDUSTRY are dummy variables taking on the value one if the parent and the subsidiary operate in different countries or industries, respectively. LEVERAGE is the leverage of the parent firm, expressed in book values. Results are based on 100 observations, since 3 carve-outs had to be deleted because of lack of data. *, **, *** indicate significance at the 10%, 5% and 1% level, respectively.

Table 8

(Competition and Corporate Governance)

Dependent Variable: CAR_3		Complete Model	
Variable	Exp. Sign	Coefficient	p-value
CONST		-0.09967	(0.0584)*
COMPETITION	[-]	0.10601	(0.0214)**
ANTIDIRECTOR	[+]	0.01843	(0.0845)*
SIZE	[+]	0.06950	(0.0300)**
FREEFLOAT	[-]	-0.05173	(0.1521)
OPAQUENESS	[+]	1.44189	(0.2548)
CROSSBORDER	[-]	0.00010	(0.9963)
INDUSTRY	[-]	-0.00878	(0.6732)
LEVERAGE	[+]	-0.00550	(0.9148)
INTERACTION		-0.02244	(0.5514)
R ²		0.15222	
Adjusted R ² -		0.06744	
F-statistic		1.79547	(0.0798)*
Observations		100	

Table 8 presents the results from the cross sectional regression in table 7a including an additional interaction term between a dummy variable and COMPETITION. The dummy variable equals one if the carve-out is conducted in a country with an Antidirector-Rights-Index of 3 or higher, where the median level of the Antidirector-Rights-Index for the sample firms is used as threshold. Table 6 describes the construction of the remaining variables. *, **, *** indicate significance at the 10%, 5% and 1% level, respectively.