

Tijdschrift voor Economie en Management  
Vol. XLIX, 4, 2004

## Spin-Offs: Implications for Corporate Policies

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### ABSTRACT

Corporate spin-offs are important corporate restructurings that are associated with significant positive abnormal stock returns at their announcement. Recent research has investigated the sources of these gains. There has been considerable empirical support for theories that argue that excessive diversity of the assets of a large firm gives problems. A spin-off separates diverse units of the firm and results in two companies that have dissimilar assets. This paper explores implications for the organization and optimal corporate policies of these new firms. I argue that because the assets of the two new companies are dissimilar, their optimal corporate policies and internal organization also should be different. The impossibility to implement these dissimilar optimal policies in the original firm likely has aggravated the problems leading to the spin-off.

## I. INTRODUCTION

Coase (1937) argues that firms should be integrated if the costs of transacting within the firm are lower than the costs of using an external market. However, if the costs of integration are larger than the benefits then the firm should separate one or more units.

In this paper, I discuss the simplest way to split a corporation: a corporate spin-off. In a corporate spin-off, the stock of a subsidiary is distributed on a pro-rata basis to the original shareholders of the parent firm. The parent yields control of the subsidiary and no sale takes place: ownership remains (at least initially) unchanged. Thus, after the spin-off the firm is split into two firms that initially have the same shareholders. I will refer to the original firm as the parent firm and to the spun-off unit as the subsidiary or division.

Corporate spin-offs are relatively new to Europe, but they have been common in the U.S. Thus, almost all academic research about spin-offs has been about U.S. firms. This research has established that corporate spin-offs have significant positive abnormal stock returns at the announcement of the spin-off and are therefore beneficial for shareholders. Given the evidence about positive abnormal stock returns, research has subsequently focused on investigating valid economic arguments that can explain these gains for shareholders.

I present theories that can explain the benefits of a spin-off. There has been ample empirical support for theories that argue that too much diversity of the assets of parents and subsidiaries is harmful for the firm. A spin-off alleviates this problem by separating the company into two companies with different assets. In this paper, I argue that because the assets of the two new companies are different, their optimal corporate policies also should be different.

This paper contributes by providing a comprehensive framework for implementing new corporate policies after the spin-off. The paper is therefore also interesting for managers, shareholders and analysts of large companies that could benefit from a spin-off. Only after implementing optimal corporate policies, the full gains of a spin-off can be exploited.

The organization of this paper is as follows. I present evidence from previous research about abnormal returns in section II. In section III, theories that can explain these abnormal returns are presented. In section IV, organizational aspects of a spin-off are investigated. In section V, implications for corporate policies are derived. Section VI presents the conclusions.

## II. THE GAINS FROM SPIN-OFFS

### A. *Abnormal returns*

Earlier studies have investigated the magnitude of the gains of spin-offs. Schipper and Smith (1983), Hite and Owers (1983), Miles and Rosenfeld (1983) and Rosenfeld (1984) all show that announcements of spin-offs are associated with significantly positive abnormal returns. In addition, Rosenfeld finds in his sample that the gains from spin-offs are greater than the gains from sell-offs. Schipper and Smith document a significantly positive abnormal return of 2.8% during the announcement period in a sample of 93 spin-offs, but they find no pre-announcement period gain. Hite and Owers (1983) find significant abnormal returns of 3.3% during the announcement period but also find gains in the pre-announcement period.

In Europe, spin-offs were uncommon before the 1990s. However, the last few years have seen a large number of European spin-offs. Veld and Veld-Merkoulova (2004) investigate a sample of European companies that completed a spin-off in the period 1987 to 2000. During these years most spin-offs in their sample occurred in the United Kingdom (70 spin-offs), followed by Sweden (24 spin-offs), Germany (14 spin-offs) and Italy (11 spin-offs). They find wealth effects for shareholders that are similar to the wealth effects that are documented for U.S. spin-offs: the average cumulative abnormal return at the announcement of the spin-offs is around 2.6%.

### B. *The ex-day puzzle*

After the announcement, it usually takes several months before the spin-off takes effect: at that point in time two separate exchange-listed companies are created. Both companies initially have the same set of shareholders. However, on the first day of trading – the ex date or distribution date of the spin-off transaction – ownership changes: some shareholders sell shares of one company but keep their shares of the other company; other shareholders buy extra shares in one company but not in the other. Also, new investors now have the opportunity to buy shares of the subsidiary.

Recently, researchers have found some puzzling evidence about abnormal price movements at or shortly after the ex date. Brown and Brooke (1993) investigate the behavior of stock prices of subsidiaries

after the ex date. They find that subsidiary stock experiences an average negative abnormal return of around  $-4.3\%$  in the first 30 days after the ex date. They argue that the need for institutional investors to rebalance their portfolios causes this negative abnormal return. They find that if the parent firm is in the S&P 500, the decline in stock prices is even higher. Their explanation is that managers of index funds are forced to sell the shares of the subsidiary because the subsidiary's stock is not part of the index.

Cusatis, Miles and Woolridge (1993) investigate stock returns up to three years after the spin-off. They find evidence of significantly positive abnormal returns both for spun-off units and their parent firms. Their explanation is that both a parent and a subsidiary become 'pure plays' in the takeover market, making it less expensive for bidders to acquire the desired part of the original firm.

Vijh (1994) finds that stock of parent firms has an average abnormal return of  $3.0\%$  on the ex date, a magnitude that is approximately equal to the abnormal return on the announcement date. To explain why there is an additional abnormal return on the ex dates, Vijh (1994) proposes a clientele effect: parent and subsidiary stocks attract distinct clienteles of investors.

Abarbanell, Bushee and Raedy (2003) argue that if it is true that the spin-off results in two firms that are sufficiently different from each other, institutional investors will rebalance their portfolios because of their investment styles or the fiduciary restrictions that they are facing. For example, an income-oriented fund is not interested in stocks of companies that do not pay dividend. They find strong evidence that investment strategy and fiduciary restrictions have an impact on the demand for stocks after spin-offs, but they do not find evidence that this trading causes the abnormal returns.

However, in contrast to these studies of U.S. firms, Veld and Veld-Merkoulova (2004) find no long-run abnormal returns after the spin-offs of their sample of European firms. More study is needed to find out whether and why European stocks show different behavior than U.S. stocks.

### *C. Tax issues*

Taxes influence the gains from spin-offs. In the U.S., most spin-offs are structured as non-taxable distributions. If the unit to be spun off is not already a legally separate subsidiary, but a department or a

division, then a reorganization under Section 368 of the Internal Revenue Code must take place first. Section 368 governs the tax-free transfer of assets from the parent company to a subsidiary. After the subsidiary is formed, Section 355 of the Internal Revenue Code of 1954 describes the conditions under which a subsidiary is allowed to split from a parent corporation without the imposition of taxes. Important conditions are that the parent must distribute at least 80% of the stock of the subsidiary and that the distribution cannot be a device, e.g., for the distribution of profits.<sup>1</sup>

In Europe, taxability differs from country to country. Veld and Veld-Merkoulova (2004) report that taxability does not seem to create major problems for European companies because in most countries – except in the Netherlands, Germany and France – companies are allowed to defer their tax payments.

Veld and Veld-Merkoulova (2004) also report that in some countries, tax authorities create uncertainty for corporations that consider a spin-off. Usually, companies know beforehand whether their planned spin-offs are taxable or not, but in France tax authorities will inform companies only after the spin-off whether the transaction is taxable. In Germany, taxability depends on the percentage of shareholders that sell their shares within five years after the spin-off: if more than 20% of the shareholders sell their stocks, the spin-off will be taxable.

### III. REASONS FOR A SPIN-OFF

In this section, I investigate economic arguments that can explain the gains from spin-offs that were reported in the previous section. The benefits and costs of an integrated company are discussed. If the costs of integration are higher than the benefits, then large firms should divest one or more of their units. Most studies that attempt to explain the causes for spin-offs take the benefits as given and concentrate on the costs of integration.

#### A. *The benefits of combining units*

In many cases it is efficient to combine smaller firms into one large firm. Coase (1937) argues that firms should be integrated if the costs of transacting within the firm are lower than the costs of using an external market. I identify five basic extensions of his analysis:

(1) vertical integration; (2) information benefits; (3) economies of scale; (4) financial synergies; and (5) tax benefits. First, it can be advantageous for firms to be vertically integrated. Klein, Crawford and Alchian (1978) expand the analysis of Coase by including in the costs of undertaking transactions in the market, the costs of potential opportunistic behavior between buyers and sellers. In their analysis, one party can expropriate quasi-rents from the other party after contracts are signed. Second, large firms provide information benefits. Alchian and Demsetz (1972) argue that large firms permit better monitoring of production as well as rewards in team production. Jensen and Meckling (1991) argue that in large firms there are economies from transferring general knowledge. Third, large firms may provide economies of scale. Economies of scale arise when the costs of administration, raising funds, marketing and distribution are lower in big firms than in smaller disjoint units. Fourth, financial synergies may be obtained by channeling funds from cash-rich divisions without profitable reinvestment opportunities to divisions which do not generate enough cash to invest in new growth opportunities. Internally generated funds can be an attractive source of capital because they avoid the costs of asymmetric information associated with raising external capital.<sup>2</sup> Fifth, combining units can generate tax benefits. If one firm can use another firm's net operating losses, capital losses, investment tax credits or other carry-forwards faster than the other firm to offset its taxable profits, then the present value of these benefits is increased by combining the two firms (Scholes and Wolfson (1992)).<sup>3</sup>

### *B. The costs of combining units*

There are also costs of combining units. In this sub-section, I present cost-based hypotheses for spin-offs. In general, these hypotheses are not mutually exclusive.

#### 1. Focus

The focus hypothesis argues that spin-offs can enhance the focus of the parent firm. Focusing on core activities is beneficial for firms that have evolved over time into big conglomerates of unrelated assets. Divesting assets that are unrelated to the core business of the firm increases shareholder's value (Comment and Jarrell (1995); Berger and Ofek (1995); John and Ofek (1995)).

Daley, Mehrotra and Sivakumar (1997) investigate whether spin-offs enhance focus and therefore increase the value of the firm. They classify spin-offs as own-industry spin-offs if the spun-off unit operates in the same industry as the parent firm, and as cross-industry spin-offs if the spun-off unit operates in a different industry. They consider the industries of parents and subsidiaries different, if the subsidiary has a two-digit Standard Industry Classification (SIC) code that is different from the SIC code of the parent. Their hypothesis is that in contrast to an own-industry spin-off, a cross-industry spin-off increases the focus of the parent firm. They find evidence that cross-industry, focus-increasing spin-offs have positive abnormal returns at the announcement, and thus create shareholder value, while own-industry spin-offs do not seem to create value. Consistent with the focus-hypothesis they find that the operations of the parent firms improve, but they do not find evidence of performance improvement by the subsidiaries. Similarly, Desai and Jain (1999) find that focus-increasing spin-offs have higher abnormal returns than non focus-increasing spin-offs.

In their sample of European spin-offs, Veld and Veld-Merkoulova (2004) also find (weak) evidence that abnormal returns are positively related to increase in industrial focus.

## 2. Diversity

A more recent hypothesis also argues that unrelated parts of the firm should be spun off, but this hypothesis is more specific about the exact nature of the diversity in assets.

In a multidivisional firm, the CEO makes decisions regarding the allocation of funds across divisions or the promotion of one manager instead of another. The managers affected by these decisions attempt to influence the outcome of these decisions. Such activities waste resources, but if the stakes are large, then the incentives for influence activities are high. For example, Meyer, Milgrom and Roberts (1992) argue that the prospect of layoffs creates influence costs since the managers of declining units try to protect their jobs.

Jongbloed (1994) argues that activities designed to influence the CEO's decision include overstatements of productivity and the value of investment opportunities of the manager's own division or sabotage of the performance of the other divisions. In large firms, top management frequently tries to benefit from financial synergies by

channeling funds from cash-rich divisions with assets in place to divisions with growth options that can use the cash more profitably. The managers of divisions with their assets in place use political influence to subvert the transfer, arguing that they too have important investment projects. The predicted result is underinvestment in divisions with growth options and/or overinvestment in divisions with assets-in-place. Thus, combining units with assets-in-place and growth options in one firm will give problems. Evidence is found that firms with units that have large differences in their investment opportunity sets are more likely to separate units than firms with more homogeneous units. Also, of the firms that do divest, either the highest-growth unit or the lowest-growth unit is separated.

Rajan, Servaes and Zingales (2000) present a general model that predicts that power struggles inside diversified firms distort the optimal allocation of resources between divisions. If divisions are diverse in resources and opportunities, the resources flow towards the most inefficient divisions, resulting in inefficient investment. A similar study by Scharfstein and Stein (2000) presents a model of rent-seeking behavior by division managers. Their model predicts that capital budgets of weaker divisions will be subsidized by stronger divisions.

McNeil and Moore (2005) find that abnormal returns are higher if resource allocation within the original firm was more inefficient before the spin-off. Similarly, Burch and Nanda (2003) argue that the value gain of the combination of parent and subsidiary after the spin-off is an increasing function of diversity in investment opportunities.

Recently, several papers have investigated changes in investment behavior around spin-offs. Ahn and Denis (2004) argue that diversified firms make inefficient allocations of investments funds: subsidiaries that have many investment opportunities underinvest and subsidiaries that have few investment opportunities overinvest relative to free-standing firms with similar opportunities. After the spin-off, the investment inefficiency is reduced, especially in the case of subsidiaries with growth opportunities. Before the spin-off these subsidiaries were underinvesting, but after the spin-off their investment is similar to control firms. They find less evidence that subsidiaries with few investment opportunities overinvest compared to their industry counterparts. Similar to Ahn and Denis (2004), Gertner, Powers and Scharfstein (2004) find that spin-offs cause investments of subsidiaries to be more in line with their investment opportunities. The effect is most pronounced if parents and subsidiaries are unrelated.

### 3. Information asymmetry

Habib, Johnsen and Naik (1997) argue that because a spin-off increases the number of traded securities on the stock market, the price system will become more informative. As a consequence, the degree of information asymmetry between managers of the firm and uninformed investors decreases. In their model, a more informative price system improves the quality of investment decisions made by managers and reduces the uncertainty of investors about the value of divisions. This will lead to an increase in the value of parent firm and subsidiary after the spin-off.

Krishnaswami and Subramaniam (1999) report that before the spin-off, firms in their sample have higher levels of information asymmetry than comparable control firms. Using various measures of information asymmetry, they find that the degree of information asymmetry decreases after the spin-off. Consistent with their predictions, firms with high information asymmetry have higher abnormal returns at the announcement of the spin-off than firms with low information asymmetry.

In contrast to the studies by Habib, Johnsen and Naik (1997) and Krishnaswami and Subramaniam (1999), Huson and MacKinnon (2003) find that the information asymmetry between informed and uninformed investors actually increases after the spin-off. They argue that this occurs either because informed traders can better exploit their information about a particular division after the spin-off, or the precision of their private information increases because additional public information complements their private information. Their results are stronger when parent firms spin off unrelated subsidiaries.

Veld and Veld-Merkoulova (2004) investigate whether the degree of information asymmetry is related to abnormal returns of European spin-offs. However, they do not find a relation between abnormal returns and information asymmetry.

### 4. Merger and takeover facilitation

Cusatis, Miles and Woolridge (1993) argue that a spin-off is an efficient way to transfer control of certain divisions to acquiring firms because if bidders are interested only in a part of the firm, they do not have to take over the entire firm. Bidders can negotiate

directly with the shareholders of the recently spun-off subsidiary instead of having to negotiate with the management of the parent firm. They find that both parents and subsidiaries experience significantly more takeovers after their spin-off than control groups of similar firms.

Chemmanur and Yan (2004) show that a spin-off can increase the probability of a takeover of a division. In their model, the management of a diversified firm can mask its inferior ability to run some units of the firm by superior ability to run other units. After the spin-off, their inferior ability is revealed, and shareholders might vote in favor of a takeover when a bidder expresses interest. Also, it is easier for a bidder to take over a smaller firm. In their theory, a takeover does not necessarily actually have to occur: the increased chance of loss of control can force management to work harder to minimize that probability. Alternatively, management can give up control of the subsidiary to capable division managers when the spin-off is implemented.

## 5. Regulations

Sometimes a split of a firm is necessary because of government laws or regulations. For example, in 1984 the U.S. government forced AT&T to split up into seven so-called Baby Bells (Pacific Bell, Ameritech, Southwestern Bell, US West, Bell Atlantic, BellSouth and Nynex) to undo its telecommunications monopoly.

## 6. Wealth expropriation

Finally, shareholders can simply gain by expropriating wealth from other claimholders of the firm. For example, Parrino (1997) finds that shareholders have gained at the expense of bondholders in the case of the spin-off of Marriott's hotel management businesses (Marriott International) from its hotel properties (Host Marriott) in 1993. The spin-off was unusual because the spun-off unit represented almost 80% of the value of the equity. Usually, the spun-off unit is much smaller than the parent. The parent firm became highly leveraged because almost all debt stayed with the parent (the initial plan called for even higher leverage). Because the asset base that could support the bondholders' claims on the cash flows decreased, the claims of the bondholders lost value.

## IV. IMPLICATIONS FOR MANAGEMENT

In the previous sections, explanations for gains from spin-offs were investigated. These explanations are not mutually exclusive. Also, there does not seem to be only one single true explanation: different firms can have different reasons for a spin-off. However, recent empirical research has shown that a large group of companies engage in spin-offs because their investment opportunity sets are too diverse. In this section, I discuss alternatives for a spin-off to effectuate the split, and investigate the optimal organization for managing these diverse assets after the spin-off.

### *A. Alternatives for a spin-off*

First, before committing to a spin-off, parent management should consider alternative corporate restructurings. The main alternatives for spin-offs are equity carve-outs and asset sales (or sell-offs). In these restructurings, (part of) the subsidiary is sold to interested parties, so cash changes hands, in contrast to spin-offs where no cash changes hands.

An asset sale is a sale of a subsidiary to another company. Selling a subsidiary to another company might be a good idea if the parent has cash-flow problems, no continuing business relationships with the subsidiary any more, and the parent is not concerned that a competitor could benefit by taking over the subsidiary. An equity carve-out is the initial public offering (IPO) of the stock of a wholly-owned subsidiary. Here, claims on the subsidiary are sold to new investors. Similar to spin-offs, the subsidiary's stock is going to trade separately from the stock of the parent firm after the equity carve-out.<sup>4</sup> In an equity carve-out, the parent can either sell its stock of the subsidiary or the subsidiary can sell its own unissued stock. Nanda (1991) views an equity carve-out as a way for the parent to raise funds when managers believe that the parent is undervalued and the subsidiary is overvalued. If the parent is not considered undervalued but has trouble raising funds, the initial public offering of the subsidiary might also be a good way to raise capital.

In contrast to a spin-off where the parent usually retains less than 20% of the equity of the subsidiary to ensure tax-free status (in the case of a U.S. spin-off), in an equity carve-out the parent usually retains a substantial interest in the subsidiary by selling only a minority stake.

Thus, equity carve-outs are likely to be chosen by parent firms that want to keep control over the subsidiary while spin-offs are likely to be chosen when parent firms have no continuing relationship with the subsidiary. Also, a 100% spin-off allows the subsidiary to start alliances with other companies that do not want their proprietary information to reach to the parent firm. On the other hand, a spin-off is not a good idea if parent management doubts that the subsidiary can survive on its own.

Combinations of restructuring methods are also possible. Increasingly in the U.S., firms restructure in two stages: first, the parent firm sells up to 20% of the subsidiary in an initial public offering of the subsidiary (an equity carve-out), and performs a spin-off later. It is not clear why firms are proceeding in this way. Low (2001) argues that the equity carve-out could aid the portfolio balancing activities of institutional investors that were discussed earlier in this paper. She finds that subsidiaries perform better (have less negative long-term abnormal returns) in the case of two-step spin-offs, but the gains do not seem to justify the additional costs associated with the initial public offering.

Trying to sell a subsidiary can be a long and frustrating process. If a parent wants to sell a division with many growth options it can be hard to reach agreement because the value of the subsidiary is largely intangible and therefore difficult to assess. Also, the parent does not want to volunteer proprietary information to competitors who might end up not buying. A spin-off might seem to be a quicker solution, but also here delays can happen. The Marriott spin-off that was discussed in the previous section was delayed for almost one year because bondholders were revolting when they heard about the spin-off. Eventually the company was forced to modify its plans.

### B. *New management*

Which executive should run the subsidiary after the spin-off? It is not obvious that the former division manager should become the new Chief Executive Officer (CEO) of the spun-off firm. Division managers usually do not have the knowledge and expertise that is required for good corporate governance and they are not accustomed to dealing with investors, creditors, analysts and a board of directors.

The diversity hypothesis predicts that spun-off firms can either be high-growth or low-growth firms. The challenges that face the new CEO depend on which part of the parent firm is spun off: managing a high-growth firm requires different skills than managing a

low-growth firm. Especially if the division needs equity financing because internally generated funds are insufficient, establishing and maintaining good relations with capital markets is important. The new CEO has to convince investors and analysts that the company has valuable growth opportunities. The skills that are essential for these activities are different from the influencing activities that were discussed earlier. A good solution might be to appoint the former division manager as Chief Operating Officer (COO) because of his good knowledge of the operations of the firm, and appoint a senior manager with corporate governance experience, either from the ranks of parent management or from outside the company, as CEO.<sup>5</sup>

In a subset of firms, the CEO of the parent could also become the CEO of the former subsidiary. For example, Chemmanur and Yan's argument that a spin-off can force management to work harder to minimize the higher probability of a takeover does not necessarily imply that parent management has to hand over control of the subsidiary, although their model demonstrates that in many situations incumbent management might be better off relinquishing control.

### *C. The new board of directors*

After the spin-off, the former subsidiary will get its own board of directors or supervisory board. The size and the composition of the board of the subsidiary is not necessarily similar to the size and the composition of the board of the parent.

Denis and Sarin (1999) and Yermack (1996) find that firm size is positively correlated with board size. Boone, Field, Karpoff and Raheja (2004) find that the number of business segments of a firm is positively correlated with both board size and the fraction of independent outsiders on the board. Given that a spun-off subsidiary is usually relatively small and not very diversified, a small board would seem to be sufficient.

It could be tempting for parent board members to take seats on the new board. Especially if the division manager is chosen as the new CEO, board members from the parent firm who have experience with corporate governance could make a valuable contribution. However, given the different character of the new firm – as predicted by the focus and diversity theories – it might be wise to search for new board members with more knowledge and expertise in the business area of the spun-off firm.

Monitoring management will be an important task of the new board. Demsetz and Lehn (1985) argue that monitoring costs are higher when the operating environment of the firms is more noisy. Lehn, Patro and Zhao (2003) find evidence for their argument that growth firms should have a relatively small board with a relatively low fraction of outside directors.

#### D. *Corporate culture*

Corporate culture is an intangible but very important aspect of an organization. Every organization has its own style and atmosphere that influences how it operates and how its employees are interacting. Its shared values could range from conservative to very entrepreneurial and dynamic. An entrepreneurial culture that would be optimal for a small high-growing division could be disruptive for other divisions if implemented in a large diverse firm: the optimal corporate culture of an assets-in-place firm is very different from the corporate culture of a growth-options firm. After the spin-off the new firm is free to implement its own culture. It is the task of the new CEO to communicate important aspects of the firm's corporate culture to every employee.

### V. IMPLICATIONS FOR CORPORATE POLICIES

The corporate policies of a large diverse firm are imposed by its core business. After the spin-off however, parent and subsidiary can implement their own optimal policies. For the subsidiary the date of the spin-off is obviously the right moment to implement its own optimal policies, but especially if the spun-off subsidiary is large, the spin-off is also the right moment for the parent to reexamine its own policies because the character of its assets has changed.

In the third section of this paper, evidence was presented that in many spin-offs, units with growth options are separated from units with assets in place. This has implications for corporate policies of both the parent and the subsidiary: the optimal corporate policies of the new firm are likely to deviate from the corporate policies of the old parent firm. In this section, I discuss compensation, financing, dividend and other policies that are affected by the nature of the investment opportunity set of the firm.

### *A. Executive compensation*

Smith and Watts (1992) argue that the investment opportunity set of a firm determines its compensation policy. They predict that managerial compensation rises if the firm has many growth options. This prediction is based on two hypotheses: first, the marginal product of investment decision makers is higher than the marginal product of supervisors; second, a firm with growth options is riskier, which typically translates into higher risk for managerial compensation. Based on the assumption that it is more difficult for shareholders to monitor the manager of a firm that has many growth options than to monitor the manager of a firm with its assets predominantly in place, Smith and Watts predict that a firm with growth opportunities is likely to use a formal incentive plan that ties compensation to firm performance. Their prediction of incentive compensation based on accounting profits is ambiguous because accounting numbers are poor measures of performance in firms with growth options. However, they unambiguously predict higher stock-based incentive compensation as percentage of total compensation in firms with growth options. This suggests that when a firm has both divisions with assets-in-place and with growth options, and spins off either the assets-in-place or the growth options, the optimal compensation policy for each new firm varies with respect to both the level and the form of compensation.

Especially in divisions that have growth options, changes could be substantial after the spin-off. First, the level of managerial compensation should rise because the CEO of the new firm makes his/her own investment decisions and manages a company that is riskier as a free-standing firm than as a division of a larger firm. Second, before the spin-off the division manager had limited decision rights, and his/her incentive compensation would largely consist of bonuses based on accounting numbers of the division. After the spin-off, the former division has its own stock price. Therefore, a large part of its managerial compensation should be tied to the stock price of the new firm.

### *B. Financing policy*

Myers and Majluf (1984) show that in firms that are made up of a combination of units with assets in place and units with growth options, external financing of the investment opportunities of a growth-options unit by an equity issue is costly because of an

asymmetric information problem with outside investors. The problem is driven by uncertainty about the value of the assets-in-place. Suppose managers work in the interest of existing shareholders. Investors figure out that managers who have private information that the assets-in-place of the firm are undervalued have no incentives to issue shares if the cost of issuing shares at bargain prices outweighs the net present value of the new project. Therefore, an equity offering implies bad news about the assets-in-place. This affects the price investors are willing to pay, which in turn affects the decision to issue shares. A spin-off can alleviate these financing problems by separating assets in place and growth options.

Myers (1977) argues that if a firm has debt outstanding, shareholders could refuse to undertake new investment projects with a positive net present value. This so-called underinvestment problem arises because the fixed claimholders have senior claims on the cash flows of the project in the case of bankruptcy. In that case shareholders bear the costs of investment, but fixed claimholders capture the cash-flows. Financing new investment projects with senior claims such as secured debt limits transfers of cash-flows to existing bondholders and thus can help to reduce the underinvestment problem. Another possibility is to finance new projects with short-term debt instead of long-term debt (Myers (1977), Barclay and Smith (1995a)).

After the spin-off, both firms are free to set their own optimal financing goals. Firms with growth opportunities should have a low debt-equity ratio, and relatively more secured debt and short-term debt as a fraction of total debt. Firms with assets in place should be financed with a higher debt-equity ratio. The high debt load could also serve to prevent management from expanding their empire by using their free cash flows to undertake negative net present value investment projects (Jensen (1986)).

### *C. Dividend policy*

Easterbrook (1984) and Rozeff (1982) argue that the firm's dividend policy depends on the firm's growth opportunities. High-growth firms pay low dividend to avoid constraints in investments, but low-growth firms should pay high dividends because they do not have good opportunities for reinvestment of their cash flows. In the pre-spinoff firm, dividend policy is imposed by the parent. After the spin-off, both firms can implement their own optimal policies.

Given the evidence about asset diversity, the optimal dividend policy of the subsidiary will likely differ from the optimal dividend policy of the parent. This can have repercussions for investors: e.g. an institutional investor who manages a fund that specializes in income stocks will sell the shares of a spun-off subsidiary that does not pay dividend income. This could explain some of the findings about abnormal returns at or after the ex date of the spin-off that were discussed earlier.

#### *D. Other corporate policies*

The firm's investment opportunity set also has an impact on other corporate policies. Skinner (1993) investigates possible links between the firm's investment opportunity set and its accounting procedure choice. The firm's leasing policy also will be affected: Barclay and Smith (1995b) find that growth opportunities are positively related to capitalized leases as fraction of all fixed claims in the firm. This supports their argument that financing new investment projects with senior claims such as capitalized leases limits wealth transfers from stockholders to existing bondholders and so helps to reduce the underinvestment problem that was discussed earlier. Finally, a good hedging policy is important for firms with growth options: it reduces the probability of default and thus increases the debt capacity of the firm.

## VI. CONCLUSIONS

Corporate spin-offs are important corporate restructurings that are associated with significant positive abnormal stock returns at their announcement. Recent research has investigated the sources of these gains. There has been considerable empirical support for theories that argue that excessive diversity of the assets of a large firm gives problems. Because of sub-optimal fund allocation in large diverse firms, divisions with few investment opportunities invest too much and divisions with many investment opportunities do not invest enough. A spin-off separates diverse units and will result in two companies that have different investment opportunity sets. After the spin-off, both firms are free to invest according to their growth potential.

In this paper, I argue that because the assets of the two new companies are dissimilar, their optimal corporate policies and internal

organization also should be different. The impossibility to implement these dissimilar optimal policies in the original firm likely has aggravated the problems. Especially divisions with growth options are likely to have suffered. For example, suboptimal managerial compensation failed to give managers incentives to identify all good investment opportunities and suboptimal financing policies lead to failure to attract funds for the good investment opportunities that were identified. Investigating how these issues contributed to the spin-off should be the subject of future research.

#### NOTES

1. Section 355 specifies three other requirements for tax-free treatment. First, it requires that parent and subsidiary are involved in separate lines of business or deal with separate classes of customers. Second, both companies must have been involved in the active conduct of business for five years. Third, neither the parent nor the subsidiary can be purchased in a taxable transaction by a third party as part of the restructuring. If the conditions of Section 355 are not met, the parent company must pay taxes on the excess of the value of the subsidiary over the parent's tax basis, and shareholders must pay taxes because the distribution is treated as dividend income. These rules are less likely to be important under specific tax circumstances, for example, for firms that have tax-loss carry-forwards that are likely to have comparative advantages in structuring taxable transactions.
2. Alternatively, combining units with different exposures to market-wide factors (such as commodity prices, interest rates and foreign exchange rates) provides for a special case of corporate hedging that is valuable if volatility is costly. Without a combination, units must consider the benefits and costs of alternative hedging instruments, including financial contracts, such as forwards, futures, swaps and options (Smith (1993)).
3. For example, if one firm is not expected to be profitable for five years, then the benefits of reducing taxable income by carry forwards must be discounted back five years. However, a merger with a firm that is currently profitable allows the benefits to be realized immediately.
4. For example, the first annual report of a new firm often provides pro-forma accounting numbers for the years when the unit was still part of the large firm. This information is usually not provided by the annual reports of the large firm in the years before the split-up.
5. Wruck and Wruck (2001) find that it is very unusual that the management of the new firm is comprised solely of former division managers.

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