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WORKING PAPER

A Model of Antecedents and Characteristics of Corporate Spin-Offs

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ABSTRACT

A persistent question surrounding corporate spin-offs is: 'What accounts for the performance of corporate spin-offs? In order to be able to provide an answer to this question, we have reviewed the literature on corporate spin-offs. We found that after two decades of studying corporate spin-offs, the literature remains fragmented with little efforts at accumulation, the empirical work infrequently build upon one another. Therefore, we have designed a model of antecedents and characteristics of corporate spin-offs by identifying the key dimensions that contribute to the performance of a CSO.

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INTRODUCTION

Corporate spin-offs are widespread in technology-based industries such as semiconductors (Braun and MacDonald, 1978), disk drives (Christensen, 1993), and lasers (Klepper, 2002). In the semiconductor industry, many corporate spin-offs can be traced back to one firm alone, Fairchild Semiconductor (Klepper, 2001). The Thompson database reports 2106 announced CSO between 1980 and 2005, of which 1128 have been effectively completed. Despite these impressive figures, The Thompson database only lists those CSOS which are publicly announced, excluding employee-based spin-offs and spin-offs from private firms. We might thus expect far more CSO than those identified by the Thompson database. In fact, Cooper (1971) found that firms with less than 500 employees and small subsidiaries have about ten times as high spin-off rates as large firms. In a study on European corporate spin-offs, Moncada (1999) found that CSO represented around 12.9 % of new firm formation in Europe. These figures indicate that, while precise estimates of CSO do not currently exist, we should expect them to be more prevalent than commonly acknowledged.

Corporate spin-offs are often the result of restructuring or reorganizations of the parent company. Activities that are not within the company's core-competencies and that do not meet minimum performance requirements are either closed down or spun-off. Moreover, sectors with high spin-off frequencies are often sectors that undergo a high level of cost-cutting activity. Deregulation seems to have been one of the driving factors in encouraging the emergence of CSO in the energy and telecommunications sector. Corporate spin-offs might also be formed when employees are not able to realize their ideas in the parent company. These employees want to exploit an unused potential based on their key-experience acquired within the parent company. Some of them are frustrated because the parent firm does not allow them to pursue an opportunity, so they decide to leave the parent firm. Others spot opportunities in the external environment and decide to pursue the opportunity themselves, rather then sharing it with the parent firm.

Several studies have looked at the phenomenon of corporate spin-offs and found that they create excess stock return for the parent firm and the corporate spin-off. For the parent firm, excess share price improvements of about 3% around the announcement date of the spin-off have been found (Daley et al., 1997; Schipper & Smith, 1983). But what accounts for the performance of CSO? Besides the motivation to create a CSO, also other factors come into play when considering the performance of CSO. Since CSO originate from a parent firm, one can expect a CSO to inherit certain resources and routines from its parent. Moreover, the strategy the CSO follows and its industry conditions will further influence its performance. In their attempt to better understand corporate spin-offs, scholars have singled out one motivation to create a CSO or limited characteristics of the CSO and investigated their impact on performance. In this paper we propose a model that links the antecedents and characteristics of corporate spin-offs to their performance. The model recognizes the roles and importance of different components to the performance of a CSO. This model allows us to understand under what conditions CSO add value to their shareholders and to their parent firms.

There is no consensus in the literature on the definition of corporate spin-offs. Therefore, this paper starts with clarifying the confusion around the definition, followed by the development of our own definition of corporate spin-offs. Next, we develop a model that outlines the key characteristics of corporate spin-offs and the link with its performance. The interplay of antecedents and characteristics of CSO creates an understanding of the real contribution and performance of CSO. This model adds to the general understanding of the importance of the phenomenon corporate spin-offs. Last, we formulate our conclusion.

DEFINITIONS OF CSO

Past research on the topic of corporate spin-offs (CSO) has been scattered. Scholars have used different definitions to identify corporate spin-offs. Table 1 provides an overview of the different definitions used in studies on corporate spin-offs. Studies on CSO seem to follow two sets of definitions, which we label the "legal" and the "entrant" perspective on CSO respectively.

The Legal Perspective on CSO

The "legal" definition of a CSO emphasizes the contractual basis of its founding as follows:

> In a spin-off, the parent company establishes one of its divisions as a new publicly traded company and distributes the shares of this company to the parent's existing shareholders. It is almost always structured as a tax-free transaction with no cash flow implications to the parent, spin-off or shareholders (Gertner, Powers & Scharfstein, 2002: 2481).

Following this definition, a CSO is a stand-alone company that did previously not have a capital structure and no debt allocation. Therefore, CSO form an ideal situation to look how certain variables (e.g. capital structure, management composition and assets) are put in place. Subsequent to the spin-off, the parent and the CSO trade as separate entities. This makes it possible to analyse their performance separately and examine the impact certain variables, like the leverage choice (Mehrotra et al, 2003), change in focus (Desai & Jain, 1999), and institutional investor trading (Abarbanell et al, 2003) have on the performance of the CSO and/or the parent. Following the 'legal' definition, the creation of a CSO does not change the equity ownership of the existing shareholders. Therefore, the design of internal governance and control mechanisms can be studied (Seward & Walsh, 1996). Moreover, CSO that qualify under IRS Section 355 Code[3] are the only way to divest assets on a tax-free basis.

For a spin-off to be a tax free transaction, the Internal Revenue Code section 355 demands that the parent and the subsidiary must be engaged in an active trade or business for at least five years prior to the ex-date and the spin-off must have a substantial business purpose, separate from simply saving on income taxes. The reason for the active business requirement is to prevent a corporation from investing its surplus funds in a new business or in the stock of a corporation conducting a business and then spinning that stock off rather than paying dividends (Kudla & McInish, 1984). The business purpose requirement also implies that the purpose for the spin-off is germane to the business of the corporations. There must be a corporate purpose rather than a shareholder purpose motivating the spin-off. The fact that the spin-off must be engaged in an active trade or business for at least five years prior to the spin-off date induces a certain degree of maturity of the spin-off business. A huge advantage of using the 'legal' definition is the relative ease of data collection since the Security Data Company's (SDC) Worldwide Acquisitions database uses this definition to describe CSO. Table 1 provides an overview of the data sources used in the diverse articles.

The use of the 'legal' definition of a CSO also has a few disadvantages. The legal definition does not consider the motive to set up a CSO. In particular, CSO set up for financial reasons can have a different effect on the performance of the firm and its parent, than CSO set up for incentive reasons. When collecting data, researchers have not taking the motivation into account. As a result, it is difficult to make reliable predictions about the growth ambitions of the corporate spin-offs. Next, the use of the legal definition leaves out a group of CSO, namely

[3] Under Internal Revenue Code section 355, a spin-off is considered a tax-exempt distribution if after the spin-off the parent retains no more than a 20% interest in the voting power of all classes of voting stock and no more than a 20% interest in each class of nonvoting stock. In addition, the distribution may not be executed as a means of distributing dividends to the stockholders, and both corporations must be engaged in active business after the spin-off and for 5 years preceding the spin-off. Due to the strong tax incentive, most spin-offs involve the near-complete divestiture of the subsidiary. Thus, the parent allocates the assets and liabilities to a freestanding company.

those that have been set up by employees based on knowledge gained while working in and for the parent firm. Also corporate spin-offs set up as private companies are not considered. To conclude, the use of the "legal" definition makes it easy to identify a certain group of CSO, but gives us little insight into the motives leading to their creation.

The Entrant Perspective on CSO

A second group of studies views a corporate spin-off as a means for companies to explore new markets, new technology, or new methods of distribution (see table 1 for an overview). We label this group "entrant" CSO. In these studies, it is less clear what a corporate spin-off exactly is. Authors use several, related definitions to define a CSO. Parhankangas and Arenius (2003) offered perhaps the most comprehensive definition of a CSO. To them,

> "A CSO is a new business formation based on the business ideas developed within the parent firm being taken into a self-standing firm…" (Parhankangas and Arenius, 2003: 464).

In the case of "entrant" CSO, it is not always the parent who takes the initiative to create a CSO. A large number of the 'entrant' CSO is set up by employees of the parent firm. Employees of incumbent firms are in a position to start their own ventures using new knowledge created through incumbent investments (Agarwal et al, 2004). The potential for employee entrepreneurship results from incumbent firms being imperfect and permeable storehouses of knowledge which causes new organisations to emerge from other organizations (Stinchcombe, 1965). Scholars identified several reasons why employees found a CSO e.g. founders of CSO may have been frustrated with their prior employers' unwillingness to pursue ideas they perceived to be promising (Klepper, 2001), CSO may be triggered by change in leadership and the subsequent change in support for certain activities. Using the "entrant" CSO definition, researchers usually have a clear view of the motivation to set up a CSO.

In most studies, researchers have singled out one motive e.g. CSO set up to explore a new technology (Chesbrough, 2003; Sapienza et al, 2004), new markets (Agarwal et al, 2004; Helfat & Liebermann, 2002), new methods of distribution, or new products/services. Unfortunately, these studies have not employed the same definition to select "entrant" CSO, making it difficult to compare findings across studies. Chesbrough (2003) and Sapienza et al. (2004) select only the corporate spin-offs which are created to exploit technological competencies developed internally within the parent firm (see table 1 for the exact definition employed). Agarwal et al (2004) select those corporate spin-offs who are started by individuals who were employees of existing firms in the industry (incumbent firms) in the year prior to the spin-outs' formation. They do not impose the criterion that the corporate spin-offs need to be based on a technological competency. In their study, Helfat and Liebermann (2002) go one step further and divide the group of entrant CSO into parent spin-off and entrepreneurial spin-offs. In a parent spin-off, the parent firm retains a financial interest and representation in the board of directors. Entrepreneurial spin-offs are stand-alone companies founded by employees of incumbent firms in the same industry. So, these studies select different subgroups of corporate spin-offs.

Another source of disagreement is the fact that there is no consensus about the percentage of shares the parent firm still owns after spin-off. According to Ito (1995), a spin-off is defined as a firm that is partially owned by the parent, but independently managed and sometimes listed on the various stock markets. The parental ownership varies between 0 % and 100 % and the control exercised by the parent is flexible and differs in degree based on strategic, financial and human resources. Some studies poses more restrictive constraints by imposing that the parent firm can not own more that 49% of the stock (Sediatis, 1997) or less than 50% of the CSO' stock can be owned by other corporations (Sapienza et al, 2004). The different definitions and the different percentage of shares used, make it difficult to compare the results of the studies performed.

Another disadvantage of using the 'entrant' definition of CSO is the fact that there exists no publicly accessible database that uses the definition of 'entrant CSO'. Researchers have therefore built their own database of entrant CSO (see table 1), focusing mostly on one particular industry (e.g. the disk drive industry (Agarwal et al, 2004), the US automobile industry (Klepper, 2002)) or a particular region (e.g. Japan (Ito & Rose, 1994), Sweden (Lindholm, 1997) and Finland (Parhankangas et al., 2003)). Generalization is therefore not possible. To conclude, the use of the definition of 'entrant CSO' provides good insights into the motives to create a CSO, but does not allow a clear sampling of CSO.

The Integrative Perspective on CSO

Going over the definitions and data sources summarized in table 1, one can notice that the group of CSO selected by the 'legal' and the 'entrant' perspective are almost two mutually exclusive groups. CSO in the 'legal' perspective will mostly be companies that are noted on the stock exchange market, while the 'entrant' perspective will rather select private owned companies. However, both types are labelled corporate spin-offs in the literature. To overcome this diversity, we propose the following definition of a CSO:

> "A corporate spin-off is a separate legal entity that is concentrated around activities that were originally developed in a larger parent firm. The entity is concentrated around a new business, with the purpose to develop and market new products or services based upon a proprietary technology or skill."

The proposed definition has the advantage of being comprehensive. It integrates the two existing streams of definitions of CSO. Our definition includes those 'legal' CSO who are set up around new businesses. It includes daughter firms, set up to commercialize new products or services and joint ventures, which are based on technology developed in the parent firm. Our definition also includes most of the 'entrant' CSO e.g. employee-based CSO where founders have left the parent firm due to a conflict or lack of support, but which are based on activities that were originally developed in the parent firm. Also CSO set up with support of the parent firm to explore new markets and new technologies are included.

Our definition excludes 'legal' CSO set up around existing business e.g. sales offices in foreign countries. All companies which are the result of external corporate venturing activities are also excluded e.g. spin-inns, since they are based on technology developed outside the parent firm. Forms of divestments like sell-offs or management buy-outs are excluded, since there are not concentrated around a new business.

The definition takes the angle of new business creation and start-ups. Start-ups have been found to contribute significantly to an economy in terms of exports, employment, taxes paid, research and development, and innovations (Utterback et al., 1988) and play an important role in bringing new technologies to the market (Christensen, 1997; Henderson, 1993). Previous literature reports spin-off firms being important agents of knowledge transfer from established corporations to new businesses, hereby promoting the prosperity and well-being of regions, industry clusters and nations (Dorfman, 1983; Lindholm, 1997, 2000; Pavitt, 1991). By preserving the relationship with its parent, the spin-off may combine the advantages of maintaining the entrepreneurship of a small firm and utilizing the existing assets of a large corporation (Teece, 1988). Spinning off businesses may benefit the parent firm by decreasing the administrative burden, releasing funds for the development of core businesses, and serving as a means for exploring new, revolutionary ideas at arm's length from main stream businesses

(Ito and Rose, 1994). We see corporate spin-offs as a means to create new businesses to commercialize a new technology or to explore new market opportunities. This can happen with or without the support of the parent firm. Now that we stated what we understand under corporate spin-offs, we can start to explore the key characteristics of a CSO and the dimensions that contribute to its performance.

Insert Table 1 about here

KEY CHARACTERISTICS OF CORPORATE SPIN-OFFS

The bulk of the literature on corporate spin-offs has focused on one particular characteristic of a corporate spin-off and its relation to the corporate spin-off's performance. Most studies that use the 'legal' perspective on corporate spin-offs (CSO) have linked the antecedents to create a CSO to the performance of CSO and their parents (see table 1 for an overview of the studies). Studies using the 'entrant' perspective have mainly focused on the knowledge relatedness between the CSO and the parent and its impact on performance. Little attempt has been made to integrate the two streams of literature into one model. However, if we want to understand the performance of CSO, we need to have insight in the different characteristics that influence this performance. We will first discuss the studies that focus on the 'legal' perspective of CSO, the results they have found concerning the relationship between the characteristics of the CSO and its performance. Next, we give an overview of the findings of the studies focusing on the "entrant' perspective. Then we will integrate both perspectives on CSO with existing literature to create an insight into the key characteristics of CSO and the way in which these characteristics influence its performance.

The Legal Perspective on CSO

Studies employing the legal perspective of corporate spin-offs (CSO) are mainly published in financial journals e.g. Journal of Financial Economics, The Review of Financial Studies, and The Journal of Finance. Several of these studies have empirically analyzed the sources of shareholder gains around spin-offs (Cusatis et al., 1993; Daley et al., 1997; Desai and Jain, 1999; Hite and Owers, 1983; Krishnaswami and Subramaniam, 1999; Schipper and Smith, 1983; Seward and Walsh, 1996). Hite and Owers (1983) report an event-period excess return of 3.30 % surrounding first announcements and 7.00% over an extended period beginning fifty days before the first announcement and ending on the completion date when the spin-off becomes certain. Schipper and Smith (1983) document a two-day excess return of 2.84% and Daley et al (1997) reports a two-day announcement date return of 3.4%. Researchers have attributed these potential sources of gains to several motivations to create the CSO. These motivations can be classified as follows: 1) focus and restructuring motivation; 2) financial motivation; 3) incentive motivation; and 4) tax and regulatory motivation. In the following paragraph, we will discuss each of the motivations.

Focus and restructuring motivation Practitioners and the popular press usually propose an information-related motivation for CSO. For instance, CEO of most firms engaged in CSO claim that the CSO improves the market value since investors are able to perceive value more clearly after the spin-off (Krishnaswami and Subramaniam, 1999). Creating a CSO can allow the parent firm to focus its activities and to reduce asymmetries that might exist due to the numerous activities of the parent firm. CSO enhances value because separating the divisions of a firm into individually operated and traded entities mitigates the information asymmetry in the market about the different divisions' profitability and operating efficiency (Krishnaswami and Subramaniam, 1999). Even when there are no negative synergies between divisions, information asymmetry can itself be a sufficient motivation for corporations to engage in spin-offs.

Also Daley, Mehrotra, and Sivakumar (1997) document a significant improvement in operating performance in the year after the event for spin-offs that separate divisions that operate in different industries. Desai and Jain (1999) use two other methods to identify focus improving spin-offs, and report that the improved operating and financial performance following spin-offs is robust to the classification scheme. Hite and Owers (1983) classify firms based on the reasons given by the firms for the spin-off and find that the subsample where the motivation was improvement in focus exhibits the largest abnormal returns in the period from 50 days prior to the announcement to the completion date of the spin-of. Indirect evidence for the focus improvement motive is provided by Allen et al. (1995). They examine whether the abnormal returns around spin-offs is a consequence of the correction of a prior mistake. They show that when a spin-of is preceded by the acquisition of the division the positive abnormal returns around the spin-off represent the re-creation of value that was destroyed at the time of the earlier acquisition.

Financial motivation It is not uncommon for parent firm documents to state that a corporate spin-off would allow heterogeneous business units to establish capital structures that are better suited to the nature of their assets or growth prospects. At the moment of spin-off, a stand-alone company is created that did previously not have a capital structure. Therefore, spin-offs offer the possibility to examine how the capital structure is build, and what the parent's firm choice of leverage for the spin-off is. Dittmar (2004) found that parent firms choose lower leverage ratios (average debt to value) for the spin-offs. Lower leverage is attractive since low debt financing reduces the pressure to generate cash flow. However, spin-offs with more financial leverage were found to have a higher cash flow return on assets, lower variability of industry operating income and a greater proportion of fixed assets (Mehrotra et al., 2003).

Parent firms may spin off to expropriate wealth from debt holders by allocating most of the debt to one of the entities (Dittmar, 2004). Parrino (1997) finds that this may have occurred in the 1993 Marriot spin-off. The Marriot spin-off transferred wealth from bondholders to shareholders and caused the total value of the company's public securities to decline. Conversely, Hite and Owers (1983) and Schipper and Smith (1983) found no evidence of widespread bondholder expropriation. Firms in need of external capital show a higher propensity to engage in spin-offs since the total amount of capital raised increases significantly in the two years following a spin-off (Krishnaswami and Subramaniam, 1999).

Incentive motivation CSO can be used to improve the managers' incentives (Glassman, 1988). The spin-off incentive policy exploits the fact that after a spin-off, the managerial productivity is much easier to evaluate than when the division belongs to the parent firm (Aron, 1991). The possibility of creating a CSO may motivate certain divisional managers to perform better, since they know that the division will be carefully examined to investigate a potential CSO. CSO can also be events through which top management is restructured. CSO can sometimes even serve as a mechanism of management dismissal, with the opportunity to manage a smaller, weaker firm serving as a "consolation prize" for managers leaving the parent firm (Wruck and Wruck, 2002).

The characteristics of the spin-off's top management team are important as they are significantly associated with the value created at the announcement of a spin-off (Wruck and Wruck, 2002). The study performed by Seward and Walsh (1996) confirms that a CSO facilitate the implementation of efficient internal governance and control mechanisms, but found no support for the fact that gains around spin-off announcements can be attributed to improvements in efficiency of governance practices. Further, Mehrotra et al. (2003) found no evidence that managerial incentives or governance characteristics affect the leverage ratios chosen for CSO. The pre-spin-off CEOs did not take on an unusually low or high level of financial leverage in the firms they managed following a spin-off. They found no support for agency theories that imply capital structure choices serve managers' private interests.

Tax and regulatory motivation Tax and regulatory factors can also form the basis to create a CSO. It can be a means to overcome legal obstacles which prevent the firm from accomplishing its objectives. A regulated firm may be able to spin-off a subsidiary in a fashion that results in either the parent or the subsidiary escaping the external constraint of regulation (Kudla & McInish, 1984). In some cases, significant tax benefits can be obtained by spinning off a CSO. A firm may also be able to spin-off an overseas subsidiary to avoid paying U.S. taxes on the income from that division (Kudla & McInish, 1984). Although the benefits to firms from tax and regulatory motivations do exist, Schipper and Smith (1983) did not find any evidence to support this hypothesis. Mauer and Lewellen (1990) on the other hand, argue that an improvement in the value of the tax-timing option component of securities prices is a likely contributing factor to abnormal stock returns associated with CSO.

Scholars have tried to explain the excess stock return caused by CSO by studying the motivations to set up a CSO. We should be cautious in interpreting the findings of these studies, since these studies focus on the short term performance. McConnel et al (2001) is one of the few studies who investigates whether a strategy of buying parents and subsidiaries after spin-off would have earned excess returns. They study parents and spin-offs over 7 years following the completion of the analysis reported by Cusatis et al (1993). The conclusions they drew depend upon the performance benchmark employed. When compared with the matched firm benchmark used by Cusatis et al. and the Fama and French (1993) 3-factor model, the strategy does not beat the benchmark. When compared with size- and book-to-market-matched portfolios, the strategy does beat the benchmark.

The fact that most studies using the legal perspective on CSO apply a short time frame to test the performance of CSOs and its parents has several limitations. First, no predictions can be made concerning the long term performance of CSO. The study of McConnell et al (2001) does not find strong support for the existence of excess stock return on a long term basis. The authors however do not explain the potential causes of this finding. Second, most studies using the legal perspective on CSO would not be able to provide an explanation, since they do not take the resources of the CSO, the industry conditions of the CSO, or the potential ongoing relationship between the parent and the CSO into account.

Entrant Perspective on CSO

Studies using the entrant perspective on corporate spin-offs (CSO) are mainly published in journals like Strategic Management Journal, Research Policy, Journal of Business Venturing, and Industrial and Corporate Change. These studies have mainly emphasized the relationship between parent and a CSO and its impact on the performance of a CSO. CSO form a distinct kind of start-ups in the sense that they originate from a parent firm. The initial stock of inherited knowledge (Huber, 1991) is likely to have long-term effects on the CSO. Whenever people leave one firm to found a new company, there is a transfer of resources and routines (Phillips, 2002). This implies that the CSO may have some advantages over start-ups that lack a parent firm. Insight into the relationship between a CSO and its parent is therefore necessary in order to explain the performance of CSO. The relatedness between a CSO and its parent can be twofold: 1) knowledge relatedness and 2) governance relatedness.

Knowledge relatedness Knowledge relatedness indicates the extent to which the knowledge bases of two firms overlap. Knowledge relatedness includes production, technology and marketing knowledge (Rumelt, 1974; Sapienza et al, 2004). Production knowledge involves the ability of spin-offs to meet variations in demand level and changes in customer specifications. CSO can learn techniques from the parent firm for efficient and effective customization of production. In case the CSO share some technological knowledge with its parent firm, it will be able to augment its technological knowledge base by learning from its parent. A solid technological knowledge base will allow the CSO to cut the development time from product idea to commercial product. To the extent that the CSO shares some knowledge with its parent firm about customer groups, distribution channels, and marketing strategies and expertise, it will be able to strengthen its marketing competencies by learning from its parent firm.

Past research on the relationship between knowledge relatedness and performance of CSO has been inconsistent. Sapienza et al (2004) found that production and technological knowledge relatedness is related to growth, but marketing knowledge relatedness was not found significant. On the other hand, Davis et al. (1992) found that a high level of marketing relatedness is associated with high sales growth. Other studies have reported positive relationships between technological relatedness and sales growth (Doutriaux, 1992), between overall relatedness and profitability (Woo et al., 1992) and between production relatedness and return on assets (Davis et al., 1992). Sorrentino & Williams (1995) found no significant differences in the market shares achieved by high-, medium-, and low-related CSO and conclude that relatedness does not affect CSO performance. However, Agarwal et al (2004) found that a parent firm's capabilities at the time of a CSO's founding positively affect the spin-out's knowledge capabilities and its probability of survival. CSO have a higher survival edge in the market due to their entrepreneurial flexibility and their inherited knowledge.

Governance relatedness A CSO can also be related to its parent through its governance structure. Especially in the case where the CSO is supported by its parent firm or in the case the parent firm invests in the CSO, it is likely that one or more members of the board of directors are full-time employed by the parent firm. Moreover, in case of support, it is likely that the

CEO of the CSO will be a person with strong social ties to the parent firm executives. These CEOs can coordinate the parent's interests more effectively than outside CEOs.

The board members and top management teams put in place can have a serious impact on the performance of the CSO. Chesbrough (2003) has identified several Xerox' CSO and examined the impact Xerox had on them over time. He found that Xerox's own initial equity position was negatively correlated with the performance of its CSO. This was not due to their equity per se, but to Xerox's practices in managing its spin-offs. Xerox rarely invited outside members onto CSO boards when it had majority control and they usually inserted a Xerox manager into the CEO position. A balanced mix of insiders and outsiders in the board and the top management team can prove to be of vital importance. Also the network these members have and/or can build, can be important for the performance of the CSO (Sediatis, 1998).

The entrant perspective gives an insight into the relationship between the CSO and its parent and the potential benefits of such a relationship. However, little attention is devoted to the motivation to set up a CSO, its industry conditions or the strategy the CSO has followed. Moreover, it is difficult to compare the results of the studies since they use different measures to capture performance e.g. sales growth (Davis et al., 1992; Sapienza et al, 2004), market share (Sorrentino & Williams, 1995), growth in revenues and market value (Chesbrough, 2003). This might partly explain the inconsistence in the results found by different studies. However in order to create a full understanding, we need to consider multiple characteristics of the CSO and look at their combined impact on performance.

Integrative Perspective on CSO

The legal and the entrant perspective on CSO offer a quite complementary perspective on CSO and its parents. The studies using the legal perspective are mostly connecting the motivation to set up a CSO to the short term performance of the CSO and its parent. Studies using the entrant perspective have devoted more attention to the relatedness between the CSO and its parent and its influence on the performance of the CSO. In this paper, we are interested in explaining the performance of CSO by considering the different characteristics of a CSO that influence this performance. The relatedness is one aspect that can explain the performance of CSO, but there are other aspects to consider in order to fully understand if and why CSO perform well. The motivation to create a CSO will influence the resources the CSO receive by start-up and will also be determining for a potential ongoing relationship between parent and CSO. In an attempt to incorporate all variables that determine the performance of a CSO, we have developed a model of antecedents and characteristics of CSO (see figure 1).

Insert Figure 1 about here

Parent resource and industry conditions

Since a CSO is concentrated around activities originally developed in a parent firm, a first aspect to consider is the conditions of the parent firm. The conditions of the parent firm may seriously influence the motivation for a parent firm or an employee to set up a CSO. E.g. in case the parent firm is not doing well because profits and market share are declining, the parent firm may decide to focus on its core activities. A CSO can then become a means to get rid of certain activities. In case of focussing on core activities, certain activities within the parent firm will be terminated. An employee may consequently decide to continue with the activity by creating a CSO. CSO may be triggered by organizational crisis, change in leadership, or lack of upward mobility for employees (Brittain & Freeman, 1986; Garvin, 1983). Employees may become frustrated when they perceive their ideas and inventions are being shelved or killed due to resource constraints of the parent firm. The attitude and support the parent gives to explore new ideas can have a serious impact on the number of CSO created by employees. Recently, some scholars have looked at employee entrepreneurship in regard to CSO (Agarwal et al., 2004; Klepper, 2001).

Also the dynamics within a parent's industry can be the trigger to set up a CSO. Disruptive events in the parent industry often cause CSO to take place. E.g. in case the industry of the parent firm is altering huge changes, the parent firm may create a CSO to explore new technologies or new market opportunities. Studies in the legal perspective view have identified four motivations to create a CSO: 1) focus and restructuring motivation; 2) financial motivation; 3) incentive motivation; and 4) tax and regulatory motivation. However, in the literature on CSO, little attention has been devoted to use a CSO as a means to explore new markets, new technologies, new business models, or new production tools for the parent firm. To reduce the business risks associated with these activities, a parent firm could create a CSO to explore opportunities. This issue has been tackled by the literature on radical innovation.

A persistent theme in the academic literature on technological innovation is that established firms have great difficulties crossing the abyss created by a radical technological innovation that revolutionizes competition in their industry (Hill and Rothaermel, 2003). Hill and Rothaermel (2003) propose that the performance of an established firm in response to a radical innovation will be higher if the firm establishes a loosely coupled, stand-alone division to commercialize new technology. Loosely coupled business units allow local adaptation and increased sensitivity to environmental changes. Without labelling the loosely coupled business units, the idea of CSO is obviously present. To the authors' knowledge, no scholars have investigated CSO in this regard.

The resources and industry conditions of the parent firm can seriously influence the motivation for a parent firm or an employee to set up a CSO. The motivation to create the CSO on the one hand, and the resources and industry conditions of the parent firm on the other hand, will impact the resources the CSO receives from its parent and the potential ongoing relationship between CSO and parent firm. E.g. in case the parent firm supports the CSO, one might expect the parent firm to provide the CSO with certain resources. However, if the parent firm is going in decline, it will probably give little resources to the CSO.

CSO Resources

One of the main challenges for every new firm is to identify and assemble an initial resource base (Brush et al., 2001; Penrose, 1959). Corporate spin-offs are unique in the sense that they originate from an established firm. This implies that CSO may receive resources from the parent. Even in case there is no direct transfer of resources from the parent to the CSO, research has suggested that routines and resources transfer from old to new organizations through personnel migration (Almeida & Kogut, 1999; Pfeffer & Leblebici, 1973). In line with the resource-based view, we identify four dimensions of resources: financial, physical, human and organizational resources (Barney, 1991). Organizational resources are the systems, the routines and the relationships embedded in the company. They represent the ways in which firms combine and transform their other initial resources (Galunic & Rodan, 1998). Financial resources include all the different money resources that firms can use such as capital from the entrepreneurs, from equity investors and debtors. Physical resources include the physical technology used in the firm, a firm's plant and equipment, its geography and its access to raw materials. Human resources include the training, experience, judgment, intelligence, relationships, and insight of individual managers and workers in the firm.

The resource mobilization task is challenging in the case of CSO, since a CSO is concentrated around a new business, with the purpose to develop and market new products or services based upon a proprietary technology or skill. CSO need to overcome the skepticism of resource providers e.g. the parent or external parties, since the uncertainty and risk associated with the new venture is particularly heightened when the underlying product or technology is unproven (Aldrich & Fiol, 1994). The amount and quality of the resources received from the parent can be an important signal for external parties to invest in the CSO. Some CSO will start with a formal transfer of technology from the parent in the form of a license or a patent. The formality of the technology transfer will also depend upon the parent support to the spin-off and the knowledge relatedness between parent and spin-off. A parent firm may provide the CSO with some necessary financial resources, human and technological resources. Moreover, affiliation with a high-status organization as a parent firm may make it easier for CSO to raise financial and other resources needed to start new ventures (Agarwal et al, 2004).

The relationship between a CSO and its parent may extend beyond formation, e.g. transfer of rules, routines, and procedures from parent to CSO (Brittain & Freeman, 1986; Romanelli, 1991).The motivation to set up a CSO will heavily influence a potential ongoing relationship between the parent and the CSO. If the CSO is set up under hostile conditions, the chances for an ongoing relationship are very small. In case a CSO is created out of frustration by an employee, often the parent firm is not even aware of the fact that the CSO is created, so no ongoing relationship takes place. On the other hand, if the CSO is set up to explore a new market opportunity or a new technology, it is in the parent firm interest to keep a good ongoing relationship with the CSO.

The relationship with the parent firm will influence the resource base of a CSO. A constructive relationship with its parent will allow the CSO to get some necessary resources from its parent, even after start-up. A good relationship with the parent may allow to continue to use certain resources of the parent. Particular in industries that requires expensive machinery, this can be a huge saving cost and translate in a competitive advantage. The relationship with its parent can also impede a CSO to get the necessary resources e.g. a parent firm can oblige the CSO to use the resources the parent firm has been using although the CSO would be better off using other resources. The sharing of resources will also be dependent upon the knowledge relatedness between CSO and parent. Related knowledge will contribute to the efficiency of communicating and transferring knowledge from the parent firm to the spin-off's knowledge base (Grant, 1996). The effect of lineage can both empower and constraint the CSO. Too much resources acquired from the parent may give the CSO not enough independence to build up its own resource base. Too few resources may constraint the CSO since it first need to focus on gathering the necessary resources. Depending upon the situation, a tight or loose relationship might be preferable.

Strategy of CSO

CSO need a strategy to develop their resources over time to progress through the different phases of development and create significant wealth (Penrose, 1959; Barney et al., 2001). We have defined CSO as separate legal entities that are concentrated around a new business, with the purpose to develop and market new products or services based upon a proprietary technology or skill. At start-up, CSO often do not have a clear view on the market they wish to enter. In many cases, the market does not yet exist or the customers still need to learn to use the new product. CSO tend to operate in dynamic environments where customer tastes, product-service technologies and competitive weapons often change unpredictably. As a consequence, they can not build their strategy based on a detailed competitive analysis. They will rather have to rely on strategic alliances and pre-commitments from stakeholders as a way to reduce and/or eliminate uncertainty and to erect entry barriers. This assumes a dynamic decision making environment which tend to lead to an effectuation process.

Effectuation processes take a set of means as given and focus on selecting between possible effects that can be created with that set of means (Sarasvathy, 2001).The process of effectuation allows the CSO to create one or more several possible effects irrespective of the generalized end goal with which it started. The process not only enables the realization of several possible effects (although generally one or only a few are actually realized in the implementation) but it also allows a decision maker to change his or her goals and even to shape and construct them over time, making use of contingencies as they arise (Sarasvathy, 2001). It differs from a causation process in that a causation process takes a particular effect as given and focus on selecting between means to create that effect e.g. the Porter model in strategy is a causation model. However, in the journey of discovering a new technology and transforming this technology into a market-ready product, numerous hurdles need to be taken. Most of these hurdles are unpredictable and can not be foreseen. Therefore, we argue that CSO will follow effectuation processes in defining their strategies.

The CSO strategy will be influenced by its resource base and the relationship with its parent. The effect of originating from a parent may influence the spin-off beyond formation, as the transfer of rules, routines, and procedures from parent to progeny organizations can both constrain and empower the spin-off (Brittain & Freeman, 1986; Romanelli, 1991). Operating at the forefront of innovation, corporate spin-offs can capitalize on knowledge gained from discoveries made during the course of their founders' employment in established firms (Bhide, 2000). The prior employment affiliations may influence the initial resource base of the spin-off, but also the ability to build a strategy. Organizational blueprints can transfer across firm boundaries, in a manner analogous to the reproduction and transmission of biological genes (Winter, 1991). These transfers may include unique insights and decision rules used to transform resources into action (Prahalad & Bettis, 1986), cognitive dimensions of competency (Fiol, 1991), and specific knowledge and information (Boeker, 1997). While building their strategy, CSO will be constraint by the resources they have, the resources they need to acquire, the relationship with their parent firm and the external environment. The way CSO build their strategy has not been previously examined in the literature.

Environmental conditions and control by the parent firm

The effect of the external environment on a company's strategic choices is widely acknowledged in the literature (Boyd et al. 1993). CSO tend to operate in dynamic environments where markets and technologies often change unpredictably. Because product-market innovations are common in such firms, managers often find themselves dealing with a rather diverse array of customers, that is, with a heterogeneous market (Miller & Friesen, 1983). To cope with the very complex environment CSO often adopt a rather organic structure. Since CSO strive to be adaptive, their entrepreneurial efforts will reflect the demands of their environments and their capacity to transform their resources. Different environments confront firms with different information processing tasks, which can have a varying complexity. The environmental conditions of a CSO e.g. dynamism, hostility and heterogeneity, will directly influence its strategy. Dynamism is characterized by the rate of change and innovation in the industry as well as the uncertainty or unpredictability of the actions of competitors and customers. Hostility represents the degree of threat to the firm posed by the multifacetedness, vigour and intensity of the competition and the downsizing and upswings of the firm’s principal industry. Heterogeneity or complexity encompasses variations among the firm’s markets that require diversity in production and marketing orientations (Miller and Friesen, 1983).

Also the control exercised by the parent will influence the way a CSO’ strategy result in performance. An ongoing relationship with the parent can in some case impede the CSO to determine its own strategy. E.g. the parent firm may wish to only enter those markets that are of interest to the parent firm. However, the CSO might be better off entering other, non-related markets. Chesbrough (2003) found that Xerox’s practices in managing its equity position diminished the CSO' revenue growth and market value. In general, Xerox followed internal practices that promoted coordination with the CSO and its own internal resources. Xerox allocated capital to the CSO as part of the annual budget cycle. It recruited internal managers to serve as CEO of the CSO it controlled. Moreover, Xerox's practices restricted the scope of search activities conducted by the CSO.

The strategy of a firm reflects how well a firm is able to perform in the face of increased environmental challenge and complexity. It is dependent upon the resources acquired by the CSO, the relationship with the parent and the industry conditions of the CSO. In their attempt to explain the performance of CSO, scholars have devoted almost no attention to the environmental conditions of the CSO or the control exercised by the parent firm.

CSO performance

RBV-scholars have argued that firm-specific resources and capabilities, which are both rare and valuable, determine the competitive advantage of a firm. When such resources are simultaneously not imitable (i.e. they cannot easily be replicated by competitors), not substitutable (i.e. other resources cannot fulfil the same function), and not transferable (i.e. they cannot be purchased in resource markets), those resources may produce a competitive advantage that is long lived (i.e. sustainable) (Barney, 1991). Resources are indeed important for a CSO to perform well. However, in examining the performance of CSO, we must take into account that they originate from a larger parent firm. Previous research has suggested that entrepreneurial origin is an important source of resource differences, strategies, and performance (Knight, 1989; McGrath &MacMillan, 2000; Shrader & Simon, 1997).

In this study, we have tried to incorporate all factors that influence the performance of a CSO (see figure 1 for a graphic representation). Most studies on CSO have singled out one variable to examine the influence of this variable on the performance of a CSO. A few recent studies have considered the interaction of several variables on performance. Thornhill and Amit (2000) make a distinction between a non-financial and a financial relationship and found that the non-financial dimension of the parent-CSO relationship has a higher impact on the success of the CSO than does the financial dimension. Tubke (2004) has identified several factors influencing the CSO decision and the success of the CSO process.

McGrath, Venkataraman & MacMillan (1992) pointed out that in case of new ventures, traditional financial measures of performance such as return on investments, return on equity, net profits, and cash flows, lose part of their value because they monitor only some aspects. The studies on the 'legal' perspective of CSO have focused on the financial performance of CSO, often by measuring the excess stock return. However, by focusing on the excess stock return, one measures the short term performance of a CSO, usually measured after one year of start-up. However, not all CSO are public companies. In contrary, most CSO studied by the 'entrant' perspective studies are private companies. Therefore, these studies have introduced different measures to capture performance. Sapienza et al (2004) use sales growth to measure performance, since they believe sales growth represents the outcome of all three types of knowledge overlap (technological, production, and marketing-related knowledge) to a greater extent than does patenting or new product introduction. Other studies use markets share, since market share can be considered a measure of the firm's vitality, defined as its ability to face both market and competitive challenges in a dynamic environment (Sorrentino & Williams, 1995).

Measuring the performance of CSO shares many of the difficulties associated with evaluating the performance of small, entrepreneurial firms. Covin and Slevin (1989) identified three reasons for using subjective performance measures of small-firm performance over more objective, hard numerical data: 1) the inability and/or unwillingness of firms to provide financial data, 2) the difficulty of interpretation and comparison of data due to differing firm objectives, and 3) the influence of industry effects. Their solution to the problem of performance evaluation was to create a weighted average performance index for firms based upon the product of 'importance' scores and 'satisfaction' scores on a series of questions about various financial criteria (e.g. sales, cash flow, profit margin). A similar approach was used by Venkatraman (1990) who operationalized performance with three indicators, two of which reflect managerial satisfaction and a third that evaluates the performance of the competition.

CONCLUSION

In this paper we propose a model that recognizes the role and importance of different components to the performance of a CSO. This model allows us to better understand under what conditions CSO can add value to their shareholders and to their parent firms. To build this model, we have departed from a collection of studies on corporate spin-offs. We have assimilated the emerging findings from these studies within our model of "Antecedents and Characteristics of Corporate Spin-offs" (see figure 1). The accumulating findings point to three significant conclusions with respect to the performance of corporate spin-offs: 1) Identification of an additional motivation to create a CSO; 2) Break down of the relationship between CSO and its parent into different components; 3) Recognition of the environment and the control exercised by the parent as key moderators.

1) Additional motivation to create a CSO The literature has identified four major motivations for a parent firm to create a CSO: focus and restructuring motivation; financial motivation; incentive motivation; and tax & regulatory motivation. We have complemented the different motivations to set up a CSO as discussed in the literature, with the motivation to create CSO as a means to explore new markets, new technologies, new business models, or new production tools for the parent firm. To reduce the business risks associated with these activities, a parent firm could decide to create a CSO to explore opportunities. This would suggest that CSO could become an important part of a parent's firm strategy in exploring new opportunities. To the authors' knowledge, no scholars have investigated CSO in this regard.

2) *Different components of the relationship CSO-parent* Due to the unique nature of CSO, we have added the parent industry, conditions and resources to the resource-strategy-performance framework in the setting of CSO. A hostile or friendly spin-off can have a serious impact on the resources, subsequent strategy and performance of a CSO. Moreover, besides the resources as identified in the RBV-view we also need to consider the knowledge relatedness with the parent as an important element in the resource base of a CSO.

3) *Recognition of the environment and the control exercised by the parent as key moderators* The importance of the external environment on the strategy of a company has been recognized in previous literature (Miller & Friesen, 1983; Zahra & Bogner, 1999). In this paper, we extend the link between environment and strategy-making to the setting of corporate spin-offs. Moreover, in case of a CSO, also the control exercised by the parent firm moderates the relationship between strategy and performance.

Methodological Considerations

It is difficult to compare the performance of CSO found in several studies, since these studies have used different databases to identify CSO. Studies focusing on the legal perspective of CSO mostly use data compiled from the Security Data Company database. As a consequence, these studies single out only part of the CSO, namely those CSO that were announced publicly and added to the SCD database. Studies focusing on the entrant perspective of CSO have compiled their own databases since there exist no database which contains variables of relatedness between a CSO and its parent. These self-composed databases ten to be focused on certain geographic areas, which makes comparison of the results obtained by these studies difficult. The advantage of these samples is that they contain CSO from public and private firms.

Concluding comments

In this paper, we have identified two streams of literature on CSO, which we have labelled the legal and entrant perspective on CSO. Most studies using the ‘legal’ definition of corporate spin-offs (CSO) have linked the antecedents to create a CSO to the performance of CSO and their parents. Most studies using the ‘entrant’ definition have focused on the knowledge relatedness between the CSO and the parent and its impact on performance. This large body of empirical works have provided some clarity in different aspects of the CSO phenomenon. In this paper, we have integrated the existing literature on CSO and have introduced elements of the contingency model into one model of antecedents and characteristics of CSO by identifying the key dimensions that contribute to the performance of a CSO. We hope that future research will test our model by empirically validating the roles and importance of different components to the performance of a CSO.

FIGURE 1

A Model of Antecedents and Characteristics of Corporate Spin-offs

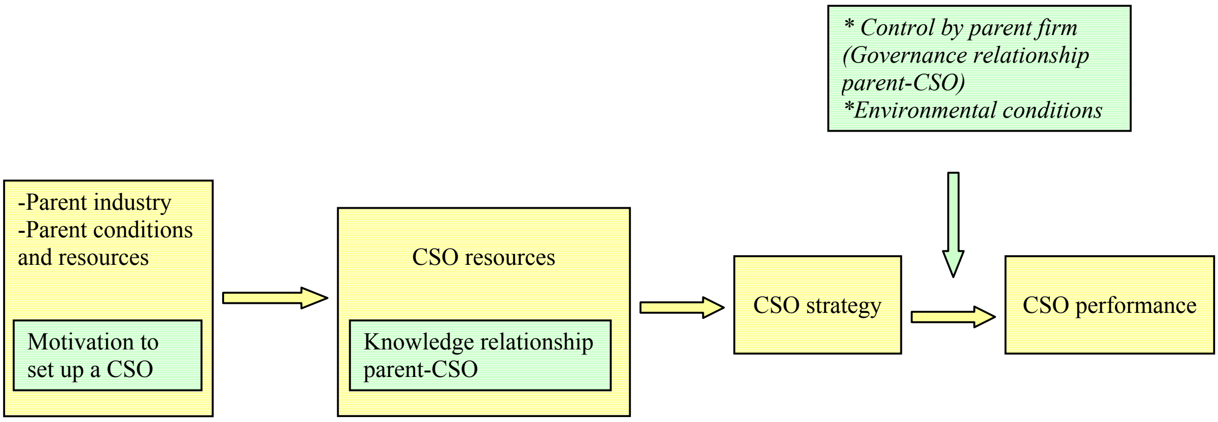

TABLE 1

Overview of Definitions of CSO

The legal perspective

Authors	Definition	Data source
Abarbanell J., Bushee B. & Raedy J., 2003	Corporate spin-offs create new firms with characteristics markedly different from the original firm	Securities Data Company (SDC) Platinum mergers and acquisitions database
Allen J., 2001	In a spin-off, a unit of a corporation is established as an independent company, and shareholders receive shares in the new entity on a pro rata basis.	The Standard and Poor's Quarterly Dividend Record
Allen J., Lummer S., McConnell J. & Reed D., 1995	In the typical corporate spin-off, a corporation (customarily called the parent) forms a new, separate corporation and ownership to a subset of the assets of the parent is transferred to the newly created corporate entity. The shares in the new corporation are then distributed on a pro rata basis to the shareholders of the parent firm.	The Standard and Poor's Quarterly Dividend Record.
Aron D.,1991	A spin-off is a form of corporate divestiture in which the original corporation is separated into two corporations, each with separately traded stock. The stock of the spun-off division is distributed on a pro rata basis to shareholders of the original corporation.	No empirical data
Daley L., Mehrotra V. & Sivakumar R., 1997	A spin-off occurs when a firm creates a subsidiary to hold a portion of its assets, and then distributes the shares of the subsidiary to its shareholders to create an independent company. Spin-offs differ from other modes of asset divestitures in that they do not involve any cash.	*Spin-off firms examined by Schipper and Smith (1983) *additional spin-offs by searching the Wall Street Journal *Supplemented by spin-off cases discussed in Kudla and Mclnish (1988) and Vijh (1994)
Desai H. & Jain P., 1999	A spin-off is a pro-rata distribution of the shares of the subsidiary to the parent's shareholders. A spin-off creates a new entity that trades independently of its former parent.	*Center for Research in Security Prices (CRSP) *The Dow Jones News Service (DJNS) *The Standard & Poor's Dividend Record
Dittmar A., 2004	A spin-off is a pro rata distribution of the stock of a subsidiary to existing shareholders of the firm. The subsidiary may be an existing division or a newly created subsidiary of the parent. At the time of the spin-off, the subsidiary becomes a freestanding company. No funds are raised in a spin-off, and neither firm revalues its assets.	* Security Data Company's (SDC) Worldwide Acquisitions database.
Gertner R., Powers E. & Schartstein D., 2002	In a spin-off, the parent company established one of its divisions as a new publicly traded company and distributes the shares of this company to the parent's existing shareholders. It is almost always structured as a tax-free transaction with no cash flow implications to the parent, spin-off or shareholders.	*Securities Data Corporation's Mergers and Acquisitions Database
Hite G. & Owers J., 1983	A spin-off results in the creation of an independent firm with a corresponding reduction in the asset base of the divestor. The assets divested may be transferred to a newly organized and incorporated firm whose shares are distributed to the original shareholders of the divestor firm. Alternatively, the divestor may transfer the stock of an incorporated subsidiary to its shareholders. In either case, the distribution of the unit's shares is on a pro-rata basis to the original stockholders.	Standard and Poor's Annual Dividend Record
Krishnaswami S. & Subramaniam V.,	A spin-off is a pro-rata distribution of the shares of a firm's subsidiary to the shareholders of the firm. There is	*Center for Research in Security Prices (CRSP)

1999	neither a dilution of equity nor a transfer of ownership form the current shareholders. Spin-offs involve no cash transactions.	*Firms in the National Automated Accounting Research System whose annual reports disclose spin-offs *news wires and articles on Lexis-Nexis and the Wall Street Journal that report spin-off transactions by firms.
Mauer D. & Lewellen W., 1990	In a spin-off, a separate new corporate entity is created to hold the assets relinquished by the firm undertaking the transaction, and the equity ownership interest in those assets is distributed, typically on a pro rata basis, to the stockholders of the previous parent company.	No empirical data
McConnell J., OzbilginM. & Wahal S., 2001	Refer to Cusatis, Miles and Woolridge (1993) for the definition of CSO	To compile the sample, they mimic the steps of Cusatis et al (1993) * Moody's Dividend Record * CRSP Monthly Master File *CCH Capital Changes Reporter
Mehrotra V., Mikkelson W. & Partch M., 2003	In a corporate spin-off, managers break up a company by allocating a segment of a firm's assets to a newly formed publicly traded company. Shares of the new company are distributed pro rata, as a stock dividend, to stockholders of the parent company.	* Initial list of spin-offs came from Daley, Mehrotra, and Sivakumar (1997) * Identified more recent spin-offs by searching The Wall Street Journal Index and obtaining a list of divestiture events from the Securities Data Corporation.
Parrino R., 1997	A spin-off is the separation of a firm's business through a pro rata distribution of the equity	Marriot Spin-off
Schipper K. & Smith A., 1983	A spin-off divides one firm into two; current shareholders receive a pro-rata distribution of separate equity claims on a subset of the original firm's net assets.	* National Automated Accounting Research System (NAARS) *stock distributions coded as spin-offs on the CRSP Daily Master File of ASE and NYSE firms *articles in the business press *Capital Changes Reporter
Seward J. & Walsch J., 1996	A spin-off divides the existing asset base of a corporation into two (or more) separate parts. The current shareholders receive a pro rata distribution of separate equity claims on the assets of each new corporate entity. There is no exchange of cash or financial securities for assets in this transaction.	The Dow Jones News Retrieval Service
Vijh A., 1994	A spin-off is a divestiture of a parent company that relinquished control of a subsidiary by simply distributing the subsidiary shares as a nontaxable stock dividend to current stockholders.	Center for Research in Security Prices (CRSP)
Woo C., Willard G. & Daellenbach U., 1992	A spin-off occurs when a firm distributes to its existing shareholders all of the common stock it owns in a controlled subsidiary, thereby creating a separate publicly-traded company (Rosenfeld, 1984)	*Standard and Poor's on-line news service *review of Kudla and McIninsh's study (1984)
Wruck E. & Wruck K., 2002	In a spin-off transaction, a parent firm's assets are divided between two corporations. Each corporation is a separate public company. Shares of the new company are distributed directly to parent firm shareholders. Most spin-offs are structured as a tax-free return of capital to shareholders.	The Securities Data Corporation Mergers and Acquisitions Database

The entrant perspective

Author	Definition	Data source
Agarwal R., Echambadi R., Franco A. & Sarkar M., 2004	A spin-out is a distinctive class of entrepreneurial entrants that inherit knowledge form industry incumbents through their founders. Founded by former employees of an incumbent firm, these stand-alone entrepreneurial ventures compete in the same industry as the parent but have no equity relationships with any incumbent.	Disk/Trend Report (a market research publication that has covered the disk drive industry since 1977).
Chesbrough H., 2003	A technology spin-off company is a particular type of spin-off company that is created for the purpose of commercializing one or more research discoveries outside the main business of the firm	Technology spin-off companies that commercialized technology out of one of Xerox's five research centers.
Ito K., 1995	A spin-off is defined as a firm that is partially owned by the parent, but independently managed and sometimes listed on the various stock markets.	* For the US firms, Moody's Investors Service for New York Stock Exchange firms * For Japanes firms, a list was compiled from the charts of Yakura and Ikushima (1986) for Tokyo Stock Exchange firms. In addition, books on the corporate history of large Japanese firms were examined.
Ito K. & Rose E., 1994	A spin-off results in the separation of a business unit from the parent firm, but the parent usually maintains ownership of some percentage of the spin-off's stock.	Japanese parent firms and their spinoff subsidiaries were identified, based on Toyokeizai (1990)
Klepper S., 2002	Spin-offs are stand-alone companies founded by employees of incumbent firms in the same industry	US automobile industry
Lindholm A., 1997	A corporate spin-off is based on product ideas originating from the founder's earlier employment in private firms	The MIT Center for Policy Alternatives sample (the 'CPA' sample), identified and used by Utterback and Reitberger (1982) and Utterback et al. (1988).
Parhankangas A. & Arenius P., 2003	This study focuses on new business formation based on the business ideas developed within the parent firm being taken into a self-standing firm.	*The Talouselämä Journal
Sapienza H., Parhankangas A. & Autio E., 2004	A technology-related spin-off firm is a firm which exploits technological competencies developed internally within the parent firm and is active in industrial manufacturing or in technical services. A spin-off firm was considered independent if less than 50% of its stock was owned by other corporations.	*The Talouselämä business weekly database. *Additionally, managers of the largest Finnish industrial firms and VC were contacted to identify additional SO.
Sedaitis J., 1998	Spin-offs are defined as organizations where the controlling packet of stock (51% or more) was owned by one individual extant organization.	Case studies were made of nine different commodity markets and the client base across seven cities in the European former USSR.
Sorrentino M. & Williams M., 1995	No definition of CSO is mentioned	STR4, the corporate start-up database of the PIMS (Profit Impact of Market Strategy) project

REFERENCES

Abardanell, J., Bushee, B. & Raedy, J. 2003. Institutional investor preferences and price pressures: the case of corporate spin-offs. ***Journal of Business***, 76(2): 233-261.

Agarwal, R., Echambadi, R., Franco, A.M. & Sarkar, MB. 2004. Knowledge Transfer Through Inheritance: Spin-out Generartion, development and survival. ***Academy of Management Journal***, 47, (4): 501 – 522.

Aldrich, H. & Fiol, M. 1994. Fools rush in? The institutional context of industry creation. ***Academy of Management Review***, 19 (4): 645-670.

Allen, J., Lummer, S., McConnell J. & Reed D. 1995. Can takeover losses explain spin-off gains? ***Journal of Financial and Quantitative analysis***, 30(4): 465-485.

Allen, J. 2001. Private information and spin-off performance. ***Journal of Business***, 74(2): 281-306.

Almeida, P. & Kogut, B. 1999. Localization of knowledge and the mobility of engineers in regional networks. ***Management Science***, 4: 905-917.

Aron, D. 1991. Using the capital market as a monitor: corporate spinoffs in an agency framework. ***RAND Journal of Economics***, 22(4): 505-518.

Barney, J.B. 1991. Firm Resources and Sustained Competitive Advantage. ***Journal of Management***, 17, (1): 99-120.

Barney, J. B., Wright, M. & Ketchen, D.J., Jr. 2001. The Resource-Based View of the Firm: Ten Years after 1991. ***Journal of Management***, 27: 625-641.

Bhide, A. 2000. ***The origin and evolution of new businesses***. Oxford, England: Oxford University Press.

Boeker, W. 1997. Executive migration and strategic change: the effect of top manager movement on product-market entry. ***Administrative Science Quarterly***, 42: 213-236.

Boyd, B., Dess, G. & Rasheed, A. 1993. Divergence between archival and perceptual measures of the environment: causes and consequences. ***Academy of Management Review***, 18(2): 204-226.

Braun, E. & MacDonald, S. 1978. ***Revolution in miniature***. Cambridge, England: Cambridge University Press.

Brittain, J. & Freeman, J. 1986. ***Entrepreneurship in the semiconductor industry***. Paper presented at the annual meeting of the Academy of Management, Dallas.

Brush, C.G., Greene, P.G. & Hart, M.M. 2001. From initial idea to unique advantage: The entrepreneurial challenge of constructing a resource base. ***Academy of Management Executive***, 15 (1): 64 – 78.

Chesbrough, H. 2003. The governance and performance of Xerox'x technology spin-off companies, ***Research Policy***, 32: 403-421.

Chemmanur, T. & Yan, A. 2004. A theory of corporate spin-offs. ***Journal of Financial Economics***, 72: 259-290.

Christensen, C. 1993. The rigid disk drive industry: a history of commercial and technological turbulence. ***Business History Review***, 67: 531-588.

Christensen, C. 1997. ***Innovator's Dilemma: When New Technologies Cause Great Firms to Fail***. Boston, Mass.: Harvard Business School Press.

Cooper, A. 1971. Spin-offs and technical entrepreneurship. ***IEEE Transactions on Engineering Management***, 18(1): 2-6.

Covin, J. & Slevin, D. 1989. Strategic management of small firms in hostile and benign environments. ***Strategic Management Journal***, 10: 75-87.

Cusatis, P., Miles, J. & Woolridge, J. 1993. Restructuring through spin-offs: The stock market evidence***, Journal of Financial Economics***, 33: 293-311.

Daley, L., Mehrotra, V. & Sivakumar, R. 1997. Corporate focus and value creation: Evidence from spinoffs, ***Journal of Financial Economics***, 45: 257-281.
Davis, P., Robinson, R., Pearce, J. & Park, S. 1992. Business unit relatedness and performance : a look at the pulp and paper industry, ***Strategic Management Journal***, 13(5): 349-361.
Desai, H. & Jain, P. 1999. Firm performance and focus: Long-run stock market performance following spin-offs, ***Journal of Financial Economics***, 54: 75-101.
Dittmar, A. 2004. Capital structure in corporate spin-offs. ***Journal of Business***, 77(1): 9-43
Dorfman, N. 1983. Route 128: the development of a regional high technology economy. ***Research Policy***, 12: 299-316.
Doutriaux, J. 1992. Emerging high-technology firms: how durable are their competitive start-up advantages?, ***Journal of Business Venturing***, 4: 429-442.
Garvin, D. 1983. Quality on the line. ***Harvard Business Review***, 61(5): 65-75.
Gertner, R., Powers, E. & Scharfstein, D. 2002. Learning about internal capital markets from corporate spin-offs. ***The Journal of Finance***, 57(6): 2479-2506.
Grant, R. 1996. Toward a knowledge-based theory of the firm. ***Strategic Management Journal***, 17: 109-122.
Helfat, C. & Lieberman, M. 2002. The birth of capabilities: Market entry and the importance of pre-history. ***Industrial and Corporate Change***, 11(4): 725-760.
Henderson, R. 1993. Underinvestment and incompetence as responses to radical innovation: evidence from the photolithographic alignment equipment industry. ***RAND Journal of Economics***. 24(2): 248-270.
Hill, C. & Rothaermel, F. 2003. The performance of incumbent firms in the face of radical technological innovation. ***Academy of Management Review***, 28 (2): 257-274.
Hite, G. & Owers, J. 1983. Security price reactions around corporate spin-off announcements. ***Journal of Financial Economics***, 12, p. 409-436.
Huber, G. 1991. Organizational learning: the contributing processes and the literatures. ***Organization Science***, 2: 88-115.
Ito, K. & Rose, E. 1994. The genealogical structure of Japanese firms: parent-subsidiary relationships. ***Strategic Management Journal***, 15: 35-51.
Ito, K. 1995. Japanese Spinoffs: unexplored survival strategies. ***Strategic Management Journal***, 16(6): 431-446.
Klepper, S. 2001. Employee startups in high-tech industries. ***Industrial and Corporate Change***, 10(3): 639-674.
Klepper, S. 2002. The capabilities of new firms and the evolution of the US automobile industry. ***Industrial and Corporate Change***, 11(4): 645-666.
Klepper, S., & Simons, K. 2000. Dominance by birthright: entry of prior radio producers and competitive ramifactions in the US television receiver industry. ***Strategic Management Journal***, 21 (10/11): 997-1016.
Knight, R. 1989. Technological innovation in Canada: A comparison of independent entrepreneurs and corporate innovators. ***Journal of Business Venturing***, 4: 281-288.
Krishnaswami, S., & Subramaniam, V. 1999. Information asymmetry, valuation and the corporate spin-off decision, ***Journal of Financial Economics***, 53: 73-112.
Lindholm, A. 1997. Growth and innovativeness in technology-based spin-off firms. ***Research Policy***, 26: 331-344.
Lindholm, A. 1997. Entrepreneurial spin-off enterprises in Goteborg, Sweden. ***European Planning Studies***, 5(5): 659-673.
Lindholm, A. 2000. ***Entrepreneurial origin and spin-off performance.*** In: Proceedings of the Paper Presented at Babson College Kauffman Foundation Entrepreneurship Research Conference.

Mauer, D., & Lewellen, W. 1990. Securityholder Taxes and Corporate Restructurings. ***Journal of Financial and Quantitative Analysis***, 25(3): 341-360.
McConnell, J., Ozbilgin, M., & Wahal S. 2001. Spin-offs, ex ante. ***Journal of Business***, 74(2): 245-280.
McGrath, R., MacMillan, I., & Tushman, M. 1992. The role of executive team actions in shaping dominant designs: Towards the strategic shaping of technological progress. ***Strategic Management Journal***, 13: 137-161.
McGrath, R., & MacMillan, I. 2000. ***The entrepreneurial mindset***. Boston: Harvard Business School.
Mehrotra, V., Mikkelson, W., & Partch, M. 2003. The design of financial policies in corporate spin-offs. ***The Review of Financial Studies***, 16(4): 1359-1388.
Miller, D., & Friesen, P. 1983. Strategy-making and environment: the third link. ***Strategic Management Journal***, 4(3): 221-235.
Moncada, P., Tubke, A., Howells, J., & Carbone, M. 1999. The impact of corporate spin-offs on competitiveness and employment in the European Union. ***Institute for Prospective Technological Studies***, Technical Report EUR-19040-EN, Seville.
Moncada, P., Tubke, A, Miege, R. & Botella, T. 2001. Corporate and Research-based Spin-Offs: drivers for knowledge-based innovation and entrepreneurship. ***Institute for Prospective Technological Studies***, Technical Report EUR-19903-EN, Seville.
Parhankangas, A., & Arenius, P. 2003. From a corporate venture to an independent company: a base for a taxonomy for corporate spin-off firms. ***Research Policy***, 32: 463-481.
Parrino, R. 1997. Spinoffs and wealth transfers: The Marriot case. ***Journal of Financial Economics***, 43: 241-274.
Pavitt, K. 1991. Key characteristics of the large innovating firm. ***Bristisch Journal of Management***, 2: 41-50.
Penrose, E. 1959. ***The theory of the growth of the firm.*** Wiley, New York.
Phillips, D. 2002. A genealogical approach to organizational life chances: the parent-progeny transfer among Silicon Valley law firms, 1946-1996. ***Administrative Science Quarterly***, 47: 474-506.
Pfeffer, J., & Leblebici, H. 1973. Executive recruitment and the development of interfirm organizaions. ***Administrative Science Quarterly***, 18: 449-461.
Prahalad, C., & Bettis, R. 1986. The dominant logic: a new linkage between diversity and performance. ***Strategic Management Journal***, 7: 485-501.
Romanelli, E. 1991. The evolution of new organizational forms. In J. Blake & W. Scott (Eds), ***Annual review of sociology***, 17: 79-103.
Rumelt, R. 1974. ***Strategy, structure and economic performance***. Harvard Business School Press, Boston, MA.
Sapienza, H., Parhankangas, A., & Autio, E. 2004. Knowledge relatedness and post-spin-off growth, ***Journal of Business Venturing***, 19: 809-829.
Sarasvathy, S. 2001. Causation and effectuation: toward a theoretical shift from economic inevitability to entrepreneurial contingency. ***Academy of Management Review***, 26(2): 243-263.
Schipper, K., & Smith, A. 1983. Effects of recontracting on shareholder wealth: The case of voluntary spin-offs, ***Journal of Financial Economics***, 12: 437-467.
Schrader, R., & Simon, M. 1997. Corporate versus independent new ventures: resources, strategy and performance differences. ***Journal of Business Venturing***, 12: 47-66.
Sedaitis, J. 1998. The alliances of spin-offs versus start-ups: social ties in the genesis of post-Soviet alliances. ***Organization Science***, 9(3): 368-381.
Seward, J., & Walsh, J. 1996. The governance and control of voluntary corporate spin-offs. ***Strategic Management Journal***, 17(1): 25-39.

Sorrentino, M., & Williams, M. 1995. Relatedness and corporate venturing: does it really mater***?, Journal of Business Venturing***, 10(1): 59-73.
Stinchcombe, A. 1965. Social structure and organizations. In J.G. March (Ed), ***Handbook of organizations***: 153-193. Chicago: Rand McNally.
Teece, D. 1988. Technological change and the nature of the firm. In: Dosi G., Freeman, G., Nelson R., Silverberg G., Soete L. (Eds), ***Technological Change and Economic Theory***. Pinter: 256-281.
Thornhill, S., & Amit, R. 2000. "A dynamic perspective of internal fit in corporate venturing" ***Journal of Business Venturing***, 16: 25-50.
Tubke, A., Alvarez de Toledo Saavedra, P., & Gonzalez, J.-L.G. 2004. Towards a first spin-off typology and a new concept for corporate spin-off research, ***International Journal of Technology Transfer & Commercialisation***, 3(3), p. 263-290.
Utterback, J.M., Meyer, M., Roberts, E. & Reitberger, G. 1988. Technology and Industrial Innovation in Sweden: A Study of Technology-Based Firms formed between 1965 and 1980. ***Research Policy***, 17: 15-26.
Venkataraman, N. 1990. Performance implications of strategic coalignment: A methodological perspective. ***Journal of Management Studies***, 27(1): 19-41.
Vijh, A. 1994. The spinoff and merger ex-date effects. ***The Journal of Finance***, XLIX(2): 581-609.
Winter, S. 1991. On coarse, competence, and the corporation. In O. Williamson & S. Winter (Eds), ***The nature of the firm: origins, evolution and development***: 179-195. Oxford England: Oxford University Press.
Woo, C., Willard, G., & Daellenbach, U. 1992. Spin-off performance: a case of overstated expectations, ***Strategic Management Journal***, 13(6): 433-447.
Wruck, E. & Wruck, K. 2002. Restructuring top management: evidence form corporate spin-offs. ***Journal of Labor Economics***, 20(2): 176-218.
Zahra, S. 1996. Technology strategy and financial performance: examining the moderating role of the firm's competitive environment. ***Journal of Business Venturing***, 11: 189-219.
Zahra, S. 1996. Technology strategy and new venture performance: a study of corporate-sponsored and independent biotechnology ventures. ***Journal of Business Venturing***, 11: 289-321.
Zahra, S., & Bogner, W. 1999. Technology strategy and software new ventures' performance: exploring the moderating effect of the competitive environment. ***Journal of Business Venturing***, 15: 135-173.