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Determinants of Growth through Mergers and Acquisitions: Empirical Results from Belgium

by

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Abstract

This paper empirically investigates the determinants of growth through mergers and acquisitions (M&As) in a typical Continental European country, Belgium. For this purpose we use data on 378 private and listed bidders that engaged in 816 M&As during 1997–2005, and match this sample with companies that did not pursue any external growth. By analyzing firm characteristics, industry and aggregate market variables, we are also able to determine what motives are important in the decision to acquire. Our results show that intangible capital and firm size significantly positively affect the M&A decision whereas ownership concentration and bank loans have a negative impact. Furthermore, M&As are significantly more likely in industries where incumbents are operating at a relatively low scale, that are less concentrated, and that were recently deregulated. Industry growth and aggregate financial market conditions have no impact, however. Yet, the determinants of the M&A decision differ to some extent in low- versus high-growth industries.

Keywords: mergers and acquisitions, growth, motives, ownership, financing

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1. Introduction

Mergers and acquisitions (M&As) are a popular means of growth for companies. In 2005 alone, 29,585 deals were announced worldwide, accounting for an aggregate deal value of USD 1 trillion in the USA and USD 883 billion in Europe. While several studies have used logit or probit regression analysis to examine the company features that likely make firms takeover *targets* (e.g., Palepu, 1986; Barnes, 1999; Powell, 2001), only a few papers have investigated the characteristics of *bidding* companies. Furthermore, these studies have only examined M&As in the Anglo-Saxon world, typically during the fourth merger wave. Trahan (1993) and Sorenson (2000), for example, use data from the USA whereas Hay and Liu (1998) analyse M&A transactions in the UK. These studies conclude that the probability of initiating an M&A is significantly related to a variety of firm characteristics. In particular, they document a positive relation with firm profitability, the market-to-book ratio and firm size whereas leverage has a significantly negative impact.¹ However, these authors do not thoroughly investigate the influence of industry and aggregate market variables on the external growth decision.² Hence, firm size may spuriously capture the impact of industry concentration whereas the market-to-book ratio may reflect the ease of bidding companies to compensate target shareholders with stock when share prices are soaring (e.g., Martin, 1996; Faccio and Masulis, 2005). In contrast, this paper will pay careful attention to industry characteristics, such as the potential for economies of scale, industry concentration, deregulation and industry growth, and aggregate financial market variables, such as stock prices and interest rates, in the external growth decision.

¹ Besides, a few other studies have examined the relation between isolated firm characteristics and the likelihood of initiating an M&A. As an example, Harford (1999) analyzes the role of corporate cash reserves whereas Lehto and Lehtoranta (2004) investigate investments in R&D.

² Only Hay and Liu (1998) have investigated the role of product market structure to some extent by means of the firm's market share and by identifying the industries that are dominated by a firm or a group of firms. They find that bidder market share is significantly negatively related to growth by acquisition. Also, dominant firms in industries with a dominant group have higher M&A growth rates.

Another major contribution of this paper is that unlike earlier research, we will analyze M&A transactions during the fifth merger wave in a typical Continental European country, viz. Belgium. M&As during the 1980s, and particularly those in the USA, were initiated for different reasons than today's transactions. Gaughan (2002), for example, argues that M&As in the fourth wave were the result of significant inefficiencies in the way corporations were run on the one hand and the increased size of financial markets on the other. Hence, the M&A wave of the 1980s was characterized by hostility and a heavy use of leverage. In contrast, Weston and Jawien (1999) contend that the current M&A wave is largely the result of global competition, technological change and deregulation. In Europe the integration process further strengthened this wave. According to Bruner (2004), the development of the EU made it easier to transfer technology and intellectual capital, exploit economies of scale, and reduce the idiosyncrasies of government regulation. So, there is a need to also incorporate industry and overall market variables when analyzing the determinants of M&A activity in a European context, which this paper does.

Moreover, corporate ownership and governance structures in Continental Europe, for example in Belgium, are very different from those in Anglo-Saxon countries. The number of listed firms is much higher in the USA or UK than in the average Continental European country. Market capitalisation as a percentage of GDP, for example, amounts to 143.21% in the USA while the average for EU-countries is only 79.68% (Eurostat, 2005). Hence, while the existing literature has concentrated on *listed* acquiring companies, it seems necessary to also include *private* bidders in a Continental European M&A study, as is done in this paper. Private enterprises may find it more difficult to finance their growth, especially M&As, as the latter deals cannot be implemented in a number of subsequent stages. Also, when target shareholders are unwilling to accept the stock of a private bidder, private acquirers may have no alternative than to finance their M&As by means of internal sources and debt. In contrast, listed firms can always raise new equity through open-market stock issues or they can even compensate target shareholders through a stock swap. The latter arguments have proved to be quite relevant in an Anglo-Saxon context. Yet, in a Continental

European M&A study, it seems important to take into account that listed firms have a much more concentrated ownership structure on average. La Porta *et al.* (1999) show that for the ten largest publicly traded companies, the median ownership stake of the three largest owners equals 62% in Belgium while it is only 15% in the UK and 12% in the USA. As a result, controlling shareholders in listed (but also non-quoted) firms may be reluctant to issue new stock to pay for their M&As in order not to dilute control. Alternatively, as these large shareholders typically have more control over the firm's resources and decisions, incentive problems between managers and shareholders should be less severe in a Continental European M&A context on average.³ To differentiate between ownership concentration curbing M&As because of the desire to maintain control vis-à-vis ownership concentration resulting in less managerial incentive problems, we will also examine whether the role of ownership is different in related versus unrelated M&As. Indeed, when managers pursue diversification of their human capital rather than shareholder value maximization or when managers suffer from hubris, they may engage especially in diversifying M&As. In addition, as Jensen (1986) points out that value-decreasing takeovers are more likely in firms with limited growth prospects, we will also split up the sample in low- and high-growth firms, respectively.

To examine the above research questions, we use data on a sample of Belgian bidders during the period 1997–2005. In Belgium, all corporations – public and private – have to publish their financial statements, thereby providing us with unique access to the accounting data of more than 330,000 firms. Yet, Belgium, having a typical Continental European blockholder system, is not fundamentally different from the other countries on the Continent. First, only a limited number of firms are listed in most countries and there is a relatively high degree of ownership concentration in these publicly quoted firms when compared with Anglo-Saxon countries. Holding companies, families and industrial corporations are the main investors in listed firms. Moreover, control in listed firms is often levered via pyramidal ownership structures (e.g., Renneboog, 2000; Faccio and

³ We do want to point out that governance structures in the USA have become more effective in the last decades.

Lang, 2002). Faccio and Masulis (2005), who investigate a sample of 3,667 European listed bidders during 1997–2000, among which 40 Belgian acquirers, find that the ultimate voting stake of the bidder's largest shareholder on average amounts to 32.04% in Belgium. This percentage is similar to that in the other Continental European countries in their sample, such as France (30.01%) and Germany (30.57%). Also, they show that most Belgian bids are entirely cash financed (87.50%), which again is comparable to France (78.97%) and Germany (84.89%).

Our multivariate logit results show that unlike earlier Anglo-Saxon-based research, internal cash flow generation and the stock of cash slack do not affect the M&A decision in a typical Continental European setting. Also, the interaction terms of these variables with ownership concentration are not significantly related to the probability of external growth. Yet, the impact of ownership concentration is significantly negative, especially at higher levels of control. Likewise, firms that are relying more heavily on bank loans are less likely to initiate M&As. Overall, these findings are inconsistent with Jensen's free cash flow theory, but suggest that internally (the desire to maintain control) and externally (bank-driven) imposed financial constraints can restrain a firm's external growth strategy. Next, intangible assets and firm size significantly positively influence the M&A decision. We also document that M&As are significantly related to some industry characteristics. In particular, M&As are more likely in industries where incumbents are operating at a relatively low scale. Besides, M&As have a higher probability of occurrence in industries that are less concentrated and that were recently deregulated. Aggregate financial market conditions, however, do not affect the M&A decision. So, firms are not tempted into M&As solely because of favourable capital market conditions, which is consistent with the above-documented lack of managerial incentive problems in firms that have highly concentrated ownership on average.

When the sample is subsequently split into low- and high-growth industries, we again find no support for Jensen's free cash flow theory. Yet, our analyses do reveal some relevant differences regarding M&A determinants across these two subsamples. First, the M&A decision of firms in high-growth industries now becomes positively affected by the availability of cash, provided that

ownership is not too highly concentrated. Also, bank loans and intangible assets are only significant in the high-growth subsample. Lastly, aggregate financial market characteristics have some impact on the M&A decision in the high-growth subsample, as we find that firms are less likely to grow through M&A when stock markets are booming (a high P/E ratio). Deregulation, on the other hand, seems to matter only in low-growth industries.

Finally, distinguishing between related versus diversifying M&As for those companies that grow externally provides no supportive evidence either that managerial incentive problems on average underlie the M&A decisions in our sample. Overall, we find that smaller bidders facing internal (resulting from a higher ownership concentration) and external (resulting from a larger bank debt ratio) financial constraints tend to engage in related M&As. In contrast, firms with more intangibles opt for diversifying M&As. Regarding industry conditions, we find that acquiring firms generally initiate unrelated M&As when industry incumbents are already operating at a relatively large scale. Industry concentration bears an inverse U-shaped relation with the relatedness of M&A deals. Finally, aggregate financial market conditions do not impact the nature of M&As.

The remainder of this paper is organized as follows. Section 2 provides an overview of the various hypotheses regarding the decision to grow through M&As. Section 3 describes the sample. The results from the logit regression analyses as well as various robustness checks are presented and discussed in Section 4. Section 5 concludes this paper.

2. Hypotheses

A number of arguments have been developed to explain *why* firms may choose to grow through M&As, besides or instead of internal expansion (see, for example, Trautwein, 1990; Weston *et al.*, 2001; Gaughan, 2002). First, acquiring a target in a line of business in which the bidding company wants to enlarge is often a faster way to grow than via internal expansion, because the target is an organization already in place, with its own production capacity, distribution network, and clientele. This may also reduce the risk of investing for the growing company. Besides, growth through

M&As can be a cheaper alternative, in particular when the replacement cost of target assets is higher than their market value. Finally, and in contrast to organic growth, M&As can be (partly) paid for with stock. This may be interesting for firms that do not have enough cash reserves and/or have fully used their debt capacity.

In this section we develop a set of testable predictions that are built on the above arguments. Table 1 presents an overview of the various explanatory variables and the hypothesized sign of their relation with the probability of an M&A and the relatedness of this M&A, respectively. Important to note is that this study focuses exclusively on bidder characteristics, industry and aggregate market variables. Hence, although firms with net operating losses carried-forward may become attractive takeover *targets* to reduce the overall tax bill, this type of motive cannot be captured by our study. Likewise, an M&A may be initiated because of unique *target* technology or managerial capabilities, but this rationale again cannot be gauged by looking solely at bidder features.

<Insert Table 1>

2.1. Managerial motives

Jensen (1986) argues that M&As could be driven by managerial motives, where the objectives of the firm's managers do not necessarily lead to a maximization of shareholder value. On the one hand, managers may have incentives to expand their firm beyond its optimal size. The reason is that growth generally increases managerial power and compensation. Moreover, it enables managers to diversify their wealth, including human capital, and improve job security when the target's cash flows are less than perfectly correlated with those of their own firm (Amihud and Lev, 1981; Morck *et al.*, 1990). So, firms subject to such agency problems of equity can be expected to pursue M&As, which allow growing at a faster rate, and diversifying M&As in particular.

Besides, Roll (1986) argues that *hubris*, i.e. the excessive self-confidence of managers, is another important rationale underlying mergers and acquisitions. When there are no aggregate gains in M&As, takeovers may be caused by the bidder management's faith that their higher

valuation of the target firm is correct. Even with synergy gains and/or benefits from a change in control, the winning bidder may pay too much for the target when its management suffers from hubris, again to the detriment of its own shareholders. Malmendier and Tate (2004) show that overconfident managers tend to become more involved in diversifying M&As. They also document that these transactions in particular are unlikely to create value for the acquiring company.

Jensen further argues that especially managers of firms with large free cash flows tend to engage in value-decreasing takeovers. Likewise, Morck *et al.* (1990) conclude that the worst acquisitions are made by well-performing firms, since their managers are most likely to be infected by hubris. Hence, we expect that the relation between internal cash generation and the M&A decision will be positive under the agency as well as the hubris hypothesis. We include EBITDA/total assets in our regression specification to proxy for internal cash flow generation. Alternatively, we examine the cash ratio, to capture the effect of ready-available cash reserves (instead of the annual cash generation).⁴ Consistent with this idea, Harford (1999) finds that cash-rich firms in the USA are more likely to acquire other companies. Moreover, these acquisitions are found to destroy shareholder value on average.

An important remark regarding managerial motives underlying the positive relation between internal cash generation (cash ratio) and the M&A probability is that this relation should be weaker for firms with a highly concentrated ownership structure. Indeed, managerial agency problems and hubris likely are less severe when a firm's shares are highly concentrated in the hands of a few large shareholders, as these investors will monitor the firm's management more closely. Hence, the probability that firm managers engage in value-destroying M&As can be expected to be lower, *ceteris paribus*. In Belgium, relatively few companies are listed on the stock exchange whereas holding companies, families or industrial corporations own non-trivial ownership stakes in a lot of

⁴ Jensen (1986) also argues that firms paying out a large portion of their earnings as dividends have less cash available to spend on acquisitions. As we already examine the impact of the cash ratio on the M&A decision, we do not separately consider the influence of the dividend payout ratio.

publicly quoted firms. For private enterprises, ownership is even more concentrated on average, making agency problems of equity and managerial hubris even less likely. In order to investigate the effects of ownership, we calculate an ownership concentration index, using the sum of squared ownership percentages by the firm's various shareholders.⁵ Alternatively, we also examine the impact of the stake held by the firm's largest owner. Furthermore, we will test for potential nonlinearities in the influence of firm ownership structure (see also Morck *et al.*, 1988). We subsequently also introduce interaction terms between ownership concentration on the one hand and the ratio of EBITDA and cash to total assets, respectively, on the other hand to capture the above managerial incentives story more accurately. If managerial self-serving behaviour is prevalent and highly concentrated ownership can restrain the wasteful investment of company resources, these interaction terms should be significantly negative.⁶

Furthermore, ownership concentration by itself could capture the notion that large owners may care about preserving control and thus avoid issuing new stock to pay for their firm's M&As. As their means of financing M&As is now restricted, this could negatively influence the odds of growth through M&As. Then, a negative relation between ownership concentration and the probability of initiating an M&A in a particular year may arise. In sum, although a high ownership concentration may reduce the likelihood of managerial self-serving behaviour underlying M&A decisions, a negative impact of ownership concentration by itself does not allow us to conclude that agency problems of equity or hubris are prevalent. We consider the coefficients on the above cash

⁵ In Belgium, shareholders in publicly quoted companies have to report their ownership as soon as it exceeds 5% – and any subsequent multiple thereof – of shares outstanding. Companies can lower this threshold from 5% to 3% in their corporate charter. For private enterprises, we were able to collect data on smaller ownership stakes, if available.

⁶ Such interaction terms were not included in previous studies examining bidder motives in the USA/UK as listed firms in those countries generally were assumed to suffer from agency problems of equity and/or hubris, given their widely dispersed ownership. Yet, in our sample of Belgian corporations, where listed firms and especially private enterprises have highly concentrated ownership, managerial incentive problems may be less important on average.

(flow) variables and especially their interactions with ownership to be more informative for this purpose.

Finally, Jensen claims that the presence of debt – because of its debt-service obligations – reduces the free cash flows available for spending at managerial discretion. Furthermore, banks typically are considered to be monitoring creditors and thus may help avoiding managerial over-investment problems (e.g., Degryse and de Jong, 2006). Hence, we will examine the fraction of assets that is financed via bank debt to total assets and expect a negative coefficient on this variable in the external growth equation. Likewise, when banks help to prevent value-decreasing diversifying deals, this variable may have a positive sign when examining the relatedness of M&As.

Overall, it is important to control for the effects of firm size in the above regression models. Large companies often have or can better access the financial resources that are needed to acquire other firms. Besides reinforcing the above incentive problems, these financial resources can also create value when used to acquire a financially constrained target firm, which subsequently can benefit from an internal capital market to finance its positive NPV projects. We thus expect a positive relation between firm size (proxied by the natural logarithm of total assets) and the M&A probability. Evidence for this relation was already documented by Trahan (1993) and Harford (1999), among others. Moreover, we expect large firms to engage more in diversifying M&As as there may be few opportunities left for further growth in their own industry, *ceteris paribus*.

2.2. Synergies

Synergy benefits refer to the ability of a corporate combination to be more profitable than the individual units that are combining (Gaughan, 2002). Three types of synergy benefits can typically be distinguished: operating, financial and managerial synergies. This paper will only examine the effects of operating and financial synergies on the decision to grow through M&A because we cannot differentiate between the managerial capabilities of the target and bidding companies from considering only firm characteristics at the bidder level.

Owning unique assets and knowledge may create an opportunity to realize synergies through M&As, by transferring this intangible capital to another firm (e.g., Lehto and Lehtoranta, 2004). Indeed, M&As may allow firms to fully exploit their competitive advantages in the fastest possible way. M&As can also be used as a means to transfer knowledge in situations where collaborative and contractual schemes do not work. Consistent with the above arguments, the empirical results of Lehto and Lehtoranta (2004) show that a firm's R&D stock positively contributes to its likelihood of becoming an acquirer. By contrast, Blonigen and Taylor (2000) document a significantly negative relation between R&D investments and the probability of engaging in M&As in high-tech industries. They conclude that firms in these industries specialize in either internal development of R&D or acquisitions. The industrial organization (IO) literature further states that R&D effects may be important in both related and unrelated M&As. While related M&As may lead to economies of scale in R&D input, diversifying M&As may create value when complementary resources are combined (e.g., Ahuja and Katila, 2001; Cassiman *et al.*, 2003). We use the ratio of intangible assets on a firm's balance sheet (minus the accumulated goodwill paid in earlier M&As) to total assets and expect a positive relation with the decision to grow through M&A. Its impact on the relatedness of these M&As is an empirical question.⁷

⁷ According to the fourth directive of the European Community (25 July 1978), costs of R&D, concessions, patents, licences, trade marks and similar rights can be capitalised as intangible assets on a firm's balance sheet if they were acquired or created by the company itself, in so far as national law permits this. Belgian accounting law indeed allows firms to capitalize their outlays on the above intangibles, irrespective of how these assets were obtained. Furthermore, when capitalizing an internally created intangible asset, its book value equals the sum of all costs made to realize it, provided that these costs are not higher than a prudent estimate of the future returns from that asset. The book value of externally acquired intangibles equals their purchase price. Alternatively, companies can expense these outlays immediately in their income statement. Gaeremynck *et al.* (1998) investigate the capitalization versus expensing decision of R&D outlays by 321 Belgian firms that invest in R&D and file accounts under Belgian GAAP. They find a significantly positive relation between R&D intensity and the decision to capitalize, suggesting that intangibles on the balance sheet are a reasonable – although not perfect – proxy for the importance of a firm's intangible assets. Since

Besides, we also investigate the potential for more general economies of scale in an industry. This type of operating synergies generally assumes that prior to their M&A, firms are operating at levels of activity that fall short of achieving the full potential for scale economies so that expansion through M&A will lower per-unit costs. Following the IO literature (e.g., Liebeskind *et al.*, 1996; Görg and Strobl, 2002), we calculate the minimum efficient scale (MES) in a firm's industry by means of the median natural log of total assets in its corresponding four-digit SIC industry. Alternatively, we will use the number of employees and firm sales to calculate this variable. Like Huyghebaert and Van de Gucht (2004), we only consider industry incumbents older than ten years to determine the industry MES, as business start-ups typically enter the industry at a small size. We hypothesize a positive relation between this industry MES and external growth, as M&As may allow companies to realize economies of scale in a faster manner, *ceteris paribus*. Furthermore, we expect economies of scale to be important only in related M&As.

Finally, we examine the motive to realize financial synergies – i.e. a lower cost of capital – by looking at the financial structure of potential bidders. We expect that firms with a lot of financial (bank) debt outstanding may seek to quickly reduce their overall risk and realize a lower cost of capital by engaging especially in diversifying M&As. Exploiting such M&As can then create additional borrowing capacity when the cash flow streams from target and bidder are not highly correlated and thus result in a lower cost of capital.

2.3. Market power

In highly concentrated industries, firms tend to recognize the impact of their policies and actions on one another. This could influence firm reactions to changes in competitive behaviour, like quantity restrictions, and result in tacit collusion. Horizontal M&As to increase the concentration within an industry may help firms to realize such market power. So, a positive relation between industry

2005, Belgian listed firms are required to also file their annual accounts under IFRS, but as our sample only includes financial statements filed under Belgian GAAP, IAS 38 is not relevant for this study.

concentration and external growth may arise, particularly in related M&As. Conversely, when the industry is already highly concentrated, it could have a lower incidence of M&As as there is less room left for further consolidation. Also, antitrust authorities may closely scrutinize newly planned deals when industries are already highly concentrated. Consistent with the latter arguments, Andrade and Stafford (2004) find that industry concentration has a negative impact on the decision to grow through M&A.

To capture the extent of concentration within an industry we use the Herfindahl-Hirschman (HH) index. This measure is defined as the sum of the squared market shares of all incumbents in the corresponding four-digit SIC industry. Based upon the above arguments, we expect this variable to show a non-linear relation with the M&A probability. To seize this possible non-linear impact, we will also introduce a quadratic term in industry concentration. We then expect the simple term to have a positive coefficient when firms seek to enlarge market power. Conversely, that of the quadratic term should be negative when further consolidation is more difficult to achieve once industry concentration is already high.

2.4. Industry shocks

Deregulation is likely to be an important determinant of M&A activity across industries. It removes artificial constraints on the size of industry incumbents and incites new firms to enter the market. To adapt to the changes engendered by deregulation, industries may need to restructure and mergers and acquisitions can facilitate this process (e.g., Mitchell and Mulherin, 1996; Mulherin and Boone, 2000; Andrade *et al.*, 2001; Harford, 2005). So, we expect that (related) M&As are more likely to take place in deregulated industries, *ceteris paribus*.⁸ To test the above conjecture, we create a dummy variable that equals one for industries that were deregulated, as of the year of their

⁸ During the late 1990s and at the beginning of this century, European policy makers have made special efforts in the further deregulation of network industries (e.g., telecommunications, postal services, electricity, gas, air and railway transport). Of all industries that are included in our sample, only communication services experienced a deregulation in 1998 whereas railroad transport was deregulated in various steps during the period 1991–2001.

deregulation, and zero otherwise. Alternatively, we set this dummy equal to one as of one (two) year(s) before deregulation to account for a potential anticipation of changes in regulation.

Mitchell and Mulherin (1996), Andrade and Stafford (2004), Powell and Yawson (2005), among others also point out the role of industry growth. On the one hand, industry growth could be negatively related to the M&A probability (e.g., Powell and Yawson, 2005). The reason is that firms in mature or declining industries may want to shift their resources into growing industries (diversifying M&As), to guarantee their long-run survival. Myers and Majluf (1984), for example, argue that the acquisition of financially constrained targets with good investment prospects by companies with plenty of cash but few valuable growth opportunities may be value enhancing. Conversely, firms in low-growth industries may be obliged to consolidate in their own industry; this notion is commonly referred to as the bankruptcy-avoidance hypothesis. In the latter case, firms with low growth prospects will engage mostly in related M&As.

On the other hand, Andrade and Stafford (2004) have argued that especially firms in high-growth industries are likely to become acquirers, provided that they can collect the financing that is needed to buy industry peers. These companies then try to benefit as much as possible from the high growth in their own industry by expanding through M&A, which often is the fastest way to grow. When industry growth positively influences the M&A likelihood, we expect these M&As to be related in nature, all else constant. In sum, the data will have to reveal the true relation between industry growth and the likelihood and nature of M&As. We investigate its impact by means of the one-year lagged sales growth rate in the corresponding four-digit SIC industry.

Finally, we control for overall macro-economic conditions in the above regression models. By incorporating the one-year lagged real GDP growth rate as an additional explanatory variable, we indeed can better isolate the effects of industry growth from that of the overall economy. The relation between GDP growth and M&As likely is positive when firms seek immediate increases in production capacity in a growing economy. The desire for firm growth through M&As might, in

turn, be tempered by bad business conditions. Overall, the empirical evidence on the relation between GDP growth and M&As is limited and mixed (e.g., Beckenstein, 1979; Guerard, 1985).

2.5. Under-valuation/over-valuation hypothesis

If stock prices are depressed, the takeover of a listed firm may constitute a bargain relative to investing in new facilities from scratch. Moreover, the valuation of non-quoted firms likely will also be lower when stock prices are down, through the use of a higher risk premium or through the use of industry multiples when valuing target stock. This under-valuation hypothesis suggests that stock prices and the decision to grow through M&As are negatively related. Consistent with these arguments, Golbe and White (1988) find a negative relation between Tobin's q and M&A activity.

Conversely, soaring stock prices can facilitate the financing of M&As when these deals can be compensated with stock. Myers and Majluf (1984) already argued that managers are more likely to issue new shares when they consider their stock to be over-valued. Shleifer and Vishny (2001) and Rhodes-Kropf and Viswanathan (2004) apply this idea of asymmetric information between firm-insiders and outsiders to explain M&A activity. Shleifer and Vishny model the behaviour of acquiring managers and conclude that managers in over-valued firms have an incentive to engage in stock acquisitions. Rhodes-Kropf and Viswanathan clarify why target shareholders accept these stock offers. The empirical results of Martin (1996) and Faccio and Masulis (2005) reveal that acquirers indeed are more inclined to pay with stock when share prices are high. This suggests a positive relation between stock prices and external growth. Yet, it remains to be seen whether such a positive relation would arise in a sample of M&A bidders that is dominated by private enterprises, as ours. The reason is that target shareholders may be unwilling to accept non-listed bidder stock. In addition, as argued above, when large owners care about preserving control, they may be reluctant to issue new shares in M&As. Given the large number of private enterprises in our sample we will use the average P/E ratio for the entire stock market on the day of the M&A announcement

to capture an under-/over-valuation of share prices.⁹ Its relation with the incidence of M&As is an empirical question. Also, we are uncertain about its impact on the relatedness of these M&As.

Finally, we control for the yield spread between corporate and government bonds and the term spread between long-term and short-term interest rates, as these may also influence financing decisions and hence investment decisions. The higher the yield spread (term spread), the more expensive it will be for a firm to borrow money. Overall, this will negatively affect firm investment rates, including growth through M&A. Hence, we expect a negative impact of the yield spread (term spread) on the likelihood of M&A. We measure the yield spread as the difference between the average yield on European corporate bonds with rating BBB and a duration of five years and the average yield on Belgian government bonds of the same duration. The term spread is calculated as the difference between the yield on five-year Belgian government bonds and the yield on three-month Belgian Treasury Notes. We will implement various robustness checks on these measures.

3. Sample

In this section, we discuss our sample selection criteria. The M&A transactions in this study were collected from the Zephyr database, which contains detailed information on more than 400,000 M&A deals worldwide. M&As involving public as well as private bidders are covered and there is no minimum deal value in order for M&As to be included in this data source. Using the Zephyr database, we initially identified a sample of 397 Belgian bidders that announced at least one merger or acquisition during the period 1997–2005. Overall, these 397 firms engaged in 918 M&As during the sampling period. The reason why we focus on *Belgian* bidders is that the information in the Zephyr database can be easily combined with the financial statement information in Belfirst.¹⁰ The latter source contains the annual accounts of more than 330,000 Belgian corporations, covering

⁹ If an acquirer initiates more than one M&A in a particular year, we use the P/E ratio at the moment of the first takeover. Alternatively, we have tested the robustness of our results when using the average P/E ratio of these M&As.

¹⁰ The Zephyr and Belfirst database are both commercialized by Bureau Van Dijk Electronic Publishing.

more than 80% of the country's GDP.¹¹ The Belfirst database also provides information on the activities of the bidding firms, by means of their four-digit SIC codes. Yet, as the annual accounts of banks, insurance companies, real estate investment trusts and holdings are compiled in another manner, firms with a main SIC code that starts with "6" were never included in our sample.

Overall, our sample of Belgian bidders likely is representative for the Continental European M&A market. The summary statistics in Faccio and Masulis (2005) already demonstrated that some important bidder characteristics and deal features in Belgium during 1997–2000 are not fundamentally different from those in other Continental European countries. In addition, Figure 1 shows that M&A activity in Belgium follows the same pattern as that of the European Union as a whole. M&A activity increased steadily from 1997 till 2000. After a small decline in 2001 and 2002, M&A activity ticked up again afterwards and was at its highest level in 2005.

<insert Figure 1>

We considered all announced transactions that are covered by Zephyr, irrespective of whether they were completed or not. The reason why we focus on *announced* transactions is that we wish to investigate the *motives* behind the decision to grow through M&As, regardless of the outcome of the planned deal. Indeed, an intended transaction may not go through because of, for example, a competing offer or no approval by target shareholders. These reasons are outside the scope of the bidder. Table 2 provides an overview of the status of the 918 transactions that were collected from the Zephyr database. This table shows that approximately 80% of the transactions in

¹¹ In Belgium, small corporations are allowed to file their financial statements in an abbreviated form while large firms have to submit full accounts. The only shortcoming of abbreviated accounts is that companies are not required to report their sales figures; small firms indeed only have to report their gross margin (= sales – cost of goods sold). A company is regarded as small if not more than one of the following criteria is exceeded: an average annual workforce of 50 employees, an annual turnover (excluding VAT) of €7,300,000 and total assets of €3,650,000. If the average annual workforce exceeds 100 employees, a company is always considered as large. In our sample, only 17.87% of the bidders are small according to these criteria.

our sample were completed by March 2006, the moment of data collection. Hence, only a small portion of the announced transactions in our 1997–2005 sample had not proceeded (yet).

<insert Table 2>

Nonetheless, some of the announced M&As are transactions where the bidding company already owned a controlling stake in the target firm and thus simply increased this block at the M&A announcement that we consider. As these deals cannot really capture a firm's intentions to pursue an external growth strategy, which is the goal of this paper, we decided to remove all deals where the bidder already owned 50% of the shares in the target before the M&A announcement. Table 3 shows that 85 out of 918 transactions (9.26%) had to be deleted from the sample.¹²

<insert Table 3>

Finally, we removed the M&A transactions that were initiated shortly after the bidder's IPO. The reason is that the IPO may have had a serious impact on several of the firm-level explanatory variables, such as asset structure, leverage, firm size, etc. As the explanatory variables in our analyses are lagged during one year, the IPO thus could have introduced a lot of noise into our estimations. So, we deleted the 17 M&As that took place in the first year after the bidder's IPO.

The above selection criteria resulted in a sample of 378 bidders that engaged in 816 M&As between 1997 and 2005. If an acquiring firm initiated more than one M&A in the same year, we included it only once for that specific year in our analyses hereafter, thereby reducing the final sample size to 585 observations. Overall, 256 bidders engaged in one M&A, 56 in two M&As and 66 in three or more M&A transactions in a particular year. The total sample is largely dominated by takeovers (95.04%) rather than mergers (4.96%), and this in contrast to the USA/UK. Besides, 53.19% of the M&As in our sample are cross-border deals. The three other countries Belgian

¹² Alternatively, we investigate the robustness of our results when using an ownership cutoff of 20% rather than 50%. Indeed, La Porta *et al.* (1999) and Dinç (2005), among others, argue that an entity may already own a controlling stake if its voting rights exceed 20%. There are 16 additional cases where the bidder's ownership stake before the M&A was between 20% and 50%. Our results do not change when these transactions are also removed from the sample. These results are not reported, but all robustness checks reported in this paper can be obtained from the authors upon request.

bidders most actively aim for M&A targets are France (12.13%), The Netherlands (9.31%) and Germany (5.27%).

Not surprisingly, 41.30% of the bidders in our sample are publicly quoted whereas only 2.57% of the target firms are listed. Table 4 provides an overview of the annual distribution of the M&A transactions during the sampling period and their method of payment. The high incidence of cash payments in our sample is consistent with the idea that bidder shareholders may care about preserving control. Besides, cash is being used more often when the bidder is a privately-held firm, consistent with the idea that target shareholders may be less willing to accept bidder stock when their company is taken over by a private enterprise.

<insert Table 4>

Table 5 reports the bidder industry distribution for the 585 sample observations. The three most-represented industries in our sample are food and kindred products, business services, and engineering & management services.

<insert Table 5>

For each event firm, we randomly selected from Belfirst a non-acquiring company in the same industry. *Matched-pair sampling* is often justified on the grounds of efficiency, especially in the presence of high search costs. Manski and Lerman (1977), Zmijewski (1984) and Palepu (1986), however, point out that the use of a matched-pair sample design may cause both parameter and probability estimates to be asymptotically biased because a firm's probability of being selected in the sample is a function of the dependent variable.¹³ Nevertheless, Palepu (1986) clarifies that this bias is non-trivial especially when the objective of the study is to predict which firms are likely to become takeover targets; when the objective is to test hypotheses, as is the case in this paper, it is

¹³ Weighted Exogenous Sample Maximum Likelihood can deal with this bias, but one needs to know the proportion of event firms in the entire population for this purpose. Yet, Maddala (1991) argues that one does not need to use a weighting procedure when using the logit model in choice-based samples, as the coefficients of the explanatory variables are not affected by the unequal sampling rates from the two groups. It is only the constant term that is affected. Hence, the estimates of the other coefficients and their standard errors remain valid.

not a problem. Next, the *random* matching procedure as used in this paper has been used before to examine the decision to grow through M&As (e.g., Sorenson, 2000) and is to be preferred for the following two reasons. First, a selection bias may arise when observations are not randomly drawn from the population (Heckman, 1979). Then, parameter estimates and tests may result in misleading inferences. Second, matching acquiring and non-acquiring firms by means of certain criteria, like for example firm size, may induce problems as size itself could be an important force underlying the M&A decision.¹⁴ Combining event firms with matching firms resulted in a total sample of 1,170 observations from 155 different four-digit SIC industries.

An acquiring company is included in our analyses only for the year(s) in which the firm initiates an M&A. The matching firm is then included for the corresponding calendar year. The data for both the acquiring and matching firms are measured one year before the transaction.¹⁵ For the sample firms that belong to a corporate group (20.17%), we used the *consolidated* financial statements – when available – from Belfirst to measure the firm-level explanatory variables. The reason is that an internal capital market may be created between the members of an industrial group while assets may also be shifted from one entity to another. When the acquiring or matching firm is a group member but does not consolidate itself, we used the consolidated annual accounts of the ultimate owner. Belfirst was also the main source for firm ownership information and to calculate the industry-level variables.¹⁶ Stock market data were collected from Datastream and Belgostat.

¹⁴ We have investigated the robustness of our results when matching is also done on firm size. Besides, we have tested the robustness of our results when matching is done based upon whether the bidder has a stock market listing or not.

¹⁵ We also have tested the robustness of our results by estimating a model where the firm-level explanatory variables are measured as three-year averages before the M&A (not reported). The results from this robustness check show that our conclusions are indeed robust.

¹⁶ We look at a shareholder's direct as well as indirect ownership to calculate its *ultimate* ownership. Indeed, ultimate owners may control direct shareholders through multiple tiers of ownership (e.g., Renneboog, 2000; Buysschaert *et al.*, 2004). Yet, Belfirst did not report the ownership information for all sample firms. For 435 out of 585 M&A observations, we could collect the bidder ownership data. After contacting a randomly selected subsample of private

The GDP growth rate at constant prices was downloaded from Eurostat whereas bond yields were retrieved from Bloomberg. To limit the influence of outliers, all variables were winsorized at 5–95%, i.e. extreme values were replaced by the corresponding percentiles.

Table 6 contains summary statistics on the various explanatory variables. For the firm-level characteristics, we also report the p -values of a parametric t -test and a non-parametric Wilcoxon rank-sum test to determine whether these variables are significantly different across acquiring and non-acquiring firms. Our results show that the average EBITDA/total assets equals 10.27% for acquirers and 11.64% for non-acquirers, which is significantly different only under a t -test. Yet, the cash ratio is significantly larger for the non-acquiring firms (17.31%) than for the M&A bidders (10.27%). The ownership concentration index equals 49.08% in the sample of firms that initiate M&As, which is significantly below the 95.54% of firms that do not engage in M&As. In bidding (matching) firms, the largest owner on average holds a stake of 59.71% (96.80%). Furthermore, acquirers have a larger proportion of bank loans as compared with non-acquirers (20.79% and 24.10%, respectively) although their total debt ratio is not significantly different (60.20% and 60.89%, respectively). Intangible assets (minus the goodwill paid in earlier M&As) are significantly higher in the acquiring sample (1.43%) than in the non-acquiring matching sample (0.64%). Bidding companies are also significantly larger than non-acquiring firms.

Regarding the industry and aggregate market variables, we observe that the average size of industry incumbents (6.55) is rather comparable to that of non-acquiring firms (5.87). Next, the average industry has a HH-concentration index of only 16.32% and grows by 5.26% per annum. Real GDP on average grows by 2.24% per year. The average P/E ratio for the Belgian stock market is 11.90 per annum during 1997–2005, with a standard deviation of 2.65. The average yield spread (term spread) equals 1.09% (1.21%).

matching firms on which we did not have any ownership information, we learned that for almost all of these firms shares were being held by members of the same family. Hence, we set the ownership concentration index equal to one for all privately-held matching firms on which we did not have ownership data. As ownership concentration is not known for all event firms, we also estimated the models without the ownership concentration variable (see Section 4.1).

<insert Table 6>

4. Results

In this section we discuss the results of various logit regression models. We first examine the entire sample of acquiring and matching firms. In a second step, we split the sample according to industry growth. Finally, we investigate the choice between related versus unrelated M&As for the firms that pursued external growth (no matching is done here).

4.1. Logit regression analysis on the entire sample

In the logit regression models hereafter, the dependent variable is a binomial choice variable that equals one if the company grows through an M&A in a particular year and zero otherwise. An event firm and its matching counterpart are included in the analyses only for the M&A year while the explanatory variables are measured in the year before. Examining pairwise correlations among the various explanatory variables revealed that the correlation coefficient between the P/E ratio and the yield spread was too high ($\rho = -0.82$). So, we decided to only include the P/E ratio in the regression model and replace it with the yield spread in a robustness check. For the other variables, pairwise correlation coefficients did not indicate any multicollinearity problems.

The results of the logit regression analyses are presented in Table 7. Panel A reports our findings when including EBITDA/total assets whereas the cash ratio is included in Panel B. In column 1 of each panel, the models include the simple terms in EBITDA/total assets and the cash ratio while column 2 reports the results of these variables when interacted with (1–ownership concentration).¹⁷ In column 3, we replace ownership concentration by the percentage of shares held

¹⁷ We first tried to estimate the model with an interaction term between the ratio of EBITDA (cash) to total assets and ownership concentration, but the pairwise correlation between this simple term EBITDA/ASSETS (CASH RATIO) and its interaction with ownership concentration was too high (> 0.90) to include them in the same model. Hence, we created a new interaction variable EBITDA/ASSETS * (1–OWNERSHIP CONC) and then deleted EBITDA/ASSETS from the model. This new model should allow us to test the managerial incentives hypothesis in an equal manner.

by the largest shareholder. Column 4 of each panel is estimated with a simple and a quadratic term in ownership concentration whereas column 5 reports the results of a piece-wise regression model in ownership concentration. In column 6, the models exclude ownership concentration, as the latter variable is only known for 435 out of 585 M&A observations in our sample (robustness check). So, the models in column 6 could be estimated on the full sample. Finally, column 7 reports the results of another robustness test where we use both industry and firm size as criteria to construct the sample of non-acquiring matching firms.

Table 7 shows that internal cash flow generation, proxied by EBITDA/total assets (Panel A), and available cash reserves, measured by the cash ratio (Panel B), do not affect the M&A decision. When we try to estimate free cash flow more directly following the methodology of Lehn and Poulsen (1989), this new variable again is not significantly related to the M&A decision (not reported). So, firms are not tempted into M&As solely because of easy access to internal financial resources. Split-sample regression results point out that these conclusions hold for stand-alone firms as well as firms that are member of an industrial group (not reported). Our findings contrast with what has been found earlier for Anglo-Saxon M&As during the fourth merger wave (e.g., Trahan, 1993; Hay and Liu, 1998; Harford, 1999; Sorenson, 2000). Next, the coefficients on the interaction terms of EBITDA/total assets and the cash ratio with (1–ownership concentration) are neither significantly different from zero. Overall, the above findings thus suggest that managerial incentive problems are not a major driving force behind the M&As in our sample.¹⁸ This conclusion may not be too surprising in a Continental European context, where firm ownership is highly concentrated on average and shareholders as a result have a large interest in monitoring firm management.

Indeed, when managerial motives drive M&A decisions in firms with large free cash flows but small ownership concentration, this would imply a positive parameter estimate on $EBITDA/ASSETS * (1-OWNERSHIP\ CONC)$. A similar reasoning applies to the cash ratio in Panel B of Table 7.

¹⁸ As an alternative, we also included the number of M&As in the previous year relative to the sample total to capture managerial herding behavior (e.g., Scharfstein and Stein, 1990) and again find no impact on the likelihood of M&A.

Yet, the results in columns 1–2 also reveal that firms with a higher ownership concentration are less likely to initiate mergers and acquisitions, *ceteris paribus*. Split-sample regression results point out that these conclusions hold for publicly quoted as well as private bidders (not reported). This relation also arises when considering only the ownership stake of the firm’s largest shareholder (column 3). Although a negative coefficient here could indicate that large shareholders temper managerial over-investment problems by effective monitoring, our findings rather suggest that firms with a highly concentrated ownership structure care more about preserving control, given that the results on the cash (flow) variables above do not support Jensen’s free cash flow theory. Large owners wishing to maintain control indeed may find it difficult to engage in M&As once they disapprove the possibility of issuing new shares to compensate target shareholders. The results in columns 4 and 5 actually point out a non-linear relation between ownership concentration and the probability of engaging in M&As. The piece-wise regression results in column 5 further indicate that the significantly negative relation between ownership concentration and the likelihood of M&A is driven by the firms where ownership concentration exceeds 75%.

The ratio of bank loans to total assets has a negative impact on the external growth decision in both panels, although not always significantly so. Although a negative sign is consistent with the bank monitoring and disciplining idea, we already concluded that managerial incentive problems are not a main motive behind the M&As in our sample. So, a negative coefficient on the bank loans variable likely indicates that the obligation to make interest payments and repay the loan principal limits the possibility to finance M&As (by means of additional bank debt), which is consistent with the idea that financial constraints can become binding in a sample that is dominated by private enterprises. Alternatively, bank loan covenants may curb external growth decisions.

Interestingly, the ratio of intangible to total assets is significantly positively related to the likelihood of growth through M&A, thereby supporting the hypothesis that operating synergies from transferring unique assets and knowledge to another firm are an important rationale underlying the mergers and acquisitions in our sample. This conclusion is also consistent with the findings of

Lehto and Lehtoranta (2004), who show that a firm's R&D stock positively contributes to its likelihood of becoming an acquirer.

Consistent with earlier findings for the Anglo-Saxon world, large firms are significantly more likely to become acquirers, *ceteris paribus*. This result may not be surprising as larger firms often have or can more easily collect the funds that are needed to acquire other companies.¹⁹ Remarkably, the variable capturing the industry minimum efficient scale is significantly negatively related to the probability of external growth. This result indicates that scale economies are not a major rationale underlying the M&As in our sample as firms in industries where the median firm is operating at a relatively large scale are less likely to grow through M&As, *ceteris paribus*.

As the quadratic term in industry concentration was not significant in the first model of each panel, we deleted it from all subsequent models. Overall, the data indicate that the likelihood of external expansion decreases with industry concentration (see also Andrade and Stafford, 2004). A negative coefficient is inconsistent with the market power hypothesis, but may reflect that further consolidation is more difficult to achieve in highly concentrated industries. So, to really reject this conjecture, we need to examine the role of industry concentration in horizontal M&As (see Section 4.3 hereafter).

Consistent with the findings of Mitchell and Mulherin (1996) and Andrade *et al.* (2001), the data show that M&As occur more often in industries that recently experienced a deregulation, *ceteris paribus*. This impact of industry deregulation is robust to various alternative definitions of the deregulation variable (see Section 2.4). However, this relation is only significant when the model is estimated on the full sample, without ownership concentration (column 6). The reason is that we lack ownership information on a lot of bidders from deregulated industries. Finally, the

¹⁹ These conclusions also hold when proxying firm size by the log of the number of employees and sales, respectively. Alternatively, we also find robust results when using these alternative metrics to calculate the industry-level MES.

relation between industry growth and the M&A decision is never significant in our sample, which contrasts with previous findings by Andrade and Stafford (2004) and Powell and Yawson (2005).²⁰

We do not find any support for the under- or over-valuation hypotheses in Table 7 as the P/E ratio is not significantly related to the likelihood of M&A. This same conclusion arises when we replace the P/E ratio with the one-year (three-year) total return on the Belgian All Shares Index or the Dow Jones Euro Stoxx Index (not reported). Given the high average ownership concentration in our sample, these findings may not be too surprising as – consistent with our above results – owners may be reluctant to issue new shares in M&As to preserve control. Similarly, given the high incidence of cash payments in a Continental European context, stock prices should be less important in explaining M&A decisions anyway. The real GDP growth rate and the term spread also bear no relation with the likelihood of M&A. In sum, our results indicate that aggregate financial market conditions are not relevant in explaining the M&A activity in our sample.²¹

Finally, column 7 confirms our above conclusions on the firm characteristics that influence the M&A decision once we examine acquirers and matching firms of similar size. For this purpose, column 7 has been estimated on the subsample of firms where the difference between the size of the bidding firm and that of its non-acquiring matching firm is smaller than one standard deviation.²²

<insert Table 7>

²⁰ The finance literature to date has largely used a firm's market-to-book ratio as a measure of its growth opportunities, but this variable could not be calculated for the private enterprises in our sample. Nevertheless, we do not consider this as a shortcoming for the current analysis. First, the market-to-book ratio could be related to the under-/over-valuation of a firm's stock. Second, and perhaps most important for this study, the market-to-book ratio looks at future growth prospects while we are more interested in the impact of industry shocks in the recent past in this section of the paper.

²¹ These conclusions do not change when including nominal rather than real GDP growth, and when using the yield difference between Belgian government bonds with a duration of ten years and Belgian Treasury Notes with a maturity of six months. Furthermore, the results are the same when we replace the P/E ratio by the yield spread, also when this yield difference is calculated using corporate and government bonds with a duration of ten years instead of five years.

²² Besides, our conclusions are robust when estimating the model on the subsample of event and matching firms that are comparable in terms of having a stock market quotation or not as an additional matching criterion.

4.2. Low- versus high-growth industries

Table 8 provides the results of the logit regression models once the sample is split into subsamples based on industry growth. The first subsample consists of the bidders and their corresponding matching firms from the industries with the 25% lowest sales growth rate (Panel A). The second subsample then includes the firms from the industries in the 25% highest growth percentile (Panel B).²³ To estimate these models, we excluded INDUSTRY GROWTH. In columns 1 and 2 of each panel, the models include EBITDA/total assets and the cash ratio, respectively. Columns 3–4 then report the results when these variables are interacted with (1–ownership concentration). Finally, ownership concentration has been removed from the models in columns 5–6. Overall, the results in Table 8 show that at least some variables have a different effect on the decision to grow through M&A, depending on whether the bidder operates in a low- or high-growth industry, respectively.²⁴

Internal cash generation, cash reserves and their interactions with ownership concentration are not significant in explaining the M&A decision in the low-growth subsample. This finding again confirms that managerial incentive problems are not a key driving force behind the M&As in our sample, as agency problems of free cash flow should be prevalent especially in firms with limited growth prospects. However, for the high-growth subsample, we do find that the interaction term between the cash ratio and (1–ownership concentration) is significantly positive in column 4. In other words, the M&A decision of firms in high-growth industries is positively affected by the availability of cash, provided that ownership is not too highly concentrated. Ownership concentration itself remains significantly negatively related to M&A activity, in both subsamples. The piece-wise regression results for both subsamples again point out that this relation is driven by the firms where ownership concentration exceeds 75% (not reported).

²³ When we use the 33th percentile instead of the 25th percentile, we find the same results and conclusions.

²⁴ We have checked whether the cross-sectional variation of the various explanatory variables is different across both subsamples, which might also explain our findings. Except for the variable INDUSTRY DEREGULATION (see further), we fail to reject the null hypothesis of identical degrees of diversity when using an *F*-test.

Interestingly, we find evidence that bank loans negatively affect the M&A decision, but only of firms in high-growth industries. This finding is consistent with our earlier interpretation of this relation being the result of financial constraints rather than reflecting bank monitoring and disciplining. Indeed, if banks are able to prevent managerial over-investment, the bank loans variable should have negatively impacted M&A activity especially in firms with limited growth prospects. This is not what we find. Rather, high-growth firms with a lot of bank loans outstanding may be less likely to expand through M&A because their current debt-service obligations make it more difficult to finance M&As.

Realizing operating synergies from transferring intangible assets and knowledge seems to be driven by the firms in high-growth industries. Indeed, it is only in the latter subsample that intangibles significantly positively affect the M&A decision. Consistent with the findings for the entire sample, we find in both subsamples that firm size significantly positively affects M&A activity whereas the industry MES has a significantly negative impact. Likewise, industry concentration matters as much in low- as in high-growth industries. Deregulation, however, only positively affects external growth decisions only in low-growth industries. The latter finding may not be too surprising, given that only four out of the 26 firms from deregulated industries are included in the high-growth subsample.

Finally, aggregate financial market conditions seem to play some role in high-growth industries. First, Panel B of Table 8 points out firms are less likely to grow through M&A when stock markets are booming. A negative coefficient on the P/E ratio thus supports the under-valuation hypothesis and is also consistent with our above findings. Indeed, when owners care about preserving control, they are unlikely to issue new shares to finance their M&As, so a positive coefficient on this variable would have been unexpected. Yet, when share prices are down, the takeover of an existing firm may appear as an interesting opportunity, in particular when the market value of target assets is below asset replacement costs.

<insert Table 8>

4.3. Related versus unrelated growth

Motives underlying external expansion into a related business could be very different from those behind unrelated or diversifying mergers and acquisitions. Table 9 therefore reports the results of various logit regression models for the sample of firms that grow through M&A (no matching is done here). The dependent variable *related* equals one when the bidder engaged in an M&A where the target is from the same four-digit SIC industry. If the bidder initiated multiple M&As in the same year, we set the dependent variable equal to one when at least one of the target firms is from the same industry.²⁵

Table 9 reveals that internal cash generation, the cash ratio and the interaction terms of these variables with (1–ownership concentration) do not affect the relatedness of M&A deals. These results again indicate that agency problems of equity and hubris are not predominant forces underlying the M&As in our sample, as the existence of managerial self-serving behaviour would imply a negative coefficient on the simple and the interaction terms.

Next, the significantly positive coefficient on the ownership concentration variable points out that firms growing externally are more likely to invest in related businesses when their shares are closely held. Interestingly, our results thus do not support the idea that owners in bidding firms with a highly concentrated ownership prefer to diversify their wealth by pursuing diversifying rather than related M&As. The data further show that companies with more bank debt outstanding tend to engage in related acquisitions. This positive coefficient on the bank loans variable is inconsistent with the financial synergy hypothesis, which conjectures that highly indebted firms may seek to reduce their overall risk and realize a lower cost of capital by diversifying their assets and operations. Together, the results for ownership concentration and the bank debt ratio suggest that firms facing internally or externally imposed financial constraints are less likely to initiate

²⁵ As a robustness check, we have set the dependent variable equal to one when all target firms are from the same four-digit SIC industry in case the bidder was involved in multiple M&As in a particular year (not reported). Alternatively, we have used the two-digit and three-digit SIC codes to classify mergers and acquisitions as being related or not. Overall, our results are robust under these other definitions of related growth.

M&As. Yet, once an interesting external investment opportunity in their own (high-growth) industry arises, they may decide to bid for the firm anyway, especially during periods when targets are lowly valued, but they do not actively aim for targets in other industries.

The significantly negative coefficient on the intangible assets variable suggests that the transfer of intangibles to a target firm is a more important motive underlying diversifying rather than related M&As. This relation may arise when firms in the same industry possess highly comparable intangible assets, which makes it less worthwhile to engage in M&As in order to transfer these assets and knowledge to other firms. Ahuja and Katila (2001), for example, argue that the benefits from an acquisition that brings in knowledge that is too closely related to the acquirer's current knowledge base may be limited. Furthermore, the fact that intangibles are less important in related M&As is also consistent with our earlier findings that reaping economies of scale is not a major rationale behind the M&As in our sample. Conversely, complementary R&D efforts among firms from different industries could pay off more, creating a huge potential for realizing synergies by transferring knowledge and technology to one another (economies of scope). Alternatively, a negative coefficient on the intangibles variable may show up when these unrelated M&As are largely the result of vertical integration. Indeed, vertical integration tends to be valuable especially when the acquirer has extensive technical requirements vis-à-vis its suppliers because of its own high-tech production standards.

Next, large firms are more likely to initiate diversifying M&As. This relation probably indicates that larger companies may have to look outside their own industry to fill their appetite for external growth (given that we already documented that firm size is positively related to the likelihood of M&A in Table 7). Consistent with this firm-level size effect, we also find that diversifying M&As are significantly more likely to occur in industries where incumbents are operating at a relatively large scale.

Our results further point out that related M&As tend to happen more frequently in highly concentrated industries. Yet, the quadratic term in industry concentration is significantly negative,

making clear that from a certain level of concentration onwards (37.32% in column 1), further consolidation in the same industry is more difficult to achieve. This can be the result of less potential for further M&As in highly concentrated industries, when few targets are left over or when antitrust authorities prevent new deals. Overall, the latter results are consistent with the market power hypothesis, stating that a major rationale behind horizontal mergers and acquisitions is the benefit of securing monopoly returns by increasing firm market power.

Finally, industry deregulation, industry growth and aggregate financial market conditions do not influence the relatedness of M&A decisions.

<insert Table 9>

5. Conclusions

This paper empirically investigates the determinants of growth through mergers and acquisitions in a typical Continental European country during the fifth merger wave. For this purpose, we collected data on 378 Belgian bidders that engaged in 816 M&A transactions during 1997–2005 and matched this sample with firms that did not pursue any external growth. Our study contributes to the literature as it provides a unified analysis of the most widely-cited motives in the theoretical M&A literature on why firms may seek growth through M&As. Furthermore, we point out and document that the motives that are important for M&As in a Continental European setting may be considerably different from those in an Anglo-Saxon context, mainly because of variations in corporate ownership and governance structures.

First, we do not find any support for agency problems or hubris underlying M&A activity in our sample, where ownership on average is highly concentrated. This conclusion also shows up when examining the M&A decisions of firms in low-growth industries and when investigating the relatedness of M&A decisions. Yet, ownership concentration significantly negatively affects the external growth decision, consistent with the idea that large owners may care about preserving control and thus avoid issuing stock to pay for their M&As. This inference is further supported by

the high incidence of cash acquisitions in our sample and the lack of significance of stock market prices in explaining M&A decisions in the overall sample. We also find that the occurrence of M&As is more likely in larger firms, where access to external financing may be easier, and firms with a limited portion of bank loans outstanding. In sum, whereas Faccio and Lang (2005) point out that internally and externally imposed financial constraints influence a firm's payment method in M&As, we show that these same forces may also restrain a firm's decision to grow through M&A.

Next, our results do not support the notion that realizing operating synergies by means of scale economies is a key determinant underlying external growth decisions, as the size of incumbent firms is significantly negatively related to the M&A decision, *ceteris paribus*. However, we do find that the transfer of intangible capital is a principal reason behind the M&As in our sample. The latter motive is found to be important particularly in diversifying M&As, where bidder and target firms could benefit from complementary knowledge and technologies. Lastly, we do not find any evidence supporting the financial synergy hypothesis.

Our results further point out that securing market power is a significant consideration in related acquisitions, as we find that such deals are more likely to take place in highly concentrated industries. However, from a certain level of industry concentration onwards, further consolidation in the same industry is more difficult to achieve. Consistent with the idea that M&As can be used to realize an industry restructuring after deregulation, we find that firms in (low-growth) industries that were recently deregulated experience a larger incidence of M&As. Aggregate financial market conditions have no large impact on the M&A decision, which is not surprising in a sample where owners care about preserving control. If anything, we find some support for the idea that firms are more likely to expand externally when stock prices are down, reflecting that the takeover of an existing company may constitute a bargain.

To end, we also want to point out some limitations of our study. As we only investigate bidder, industry and aggregate financial market variables, we acknowledge that some other

potentially important motives underlying M&A decisions cannot be captured by our study. For example, firms may initiate acquisitions because of unique target technology or managerial capabilities. Likewise, firms with net operating losses carried-forward may become takeover targets. Nevertheless, our study still provides an important contribution to the current literature for the following reasons. First, given the lack of support for managerial agency problems and hubris, our findings could help to explain why bidder announcement returns are found to be higher on average for Continental European acquirers when compared with Anglo-Saxon bidders. Second, the above findings on the drivers behind M&A decisions may offer some indications about the potential sources of value creation in M&As. Indeed, our results show which firm characteristics, industry and aggregate market variables should be particularly focussed on when examining short- and long-term operating and stock performance after an M&A, especially in a Continental European setting.

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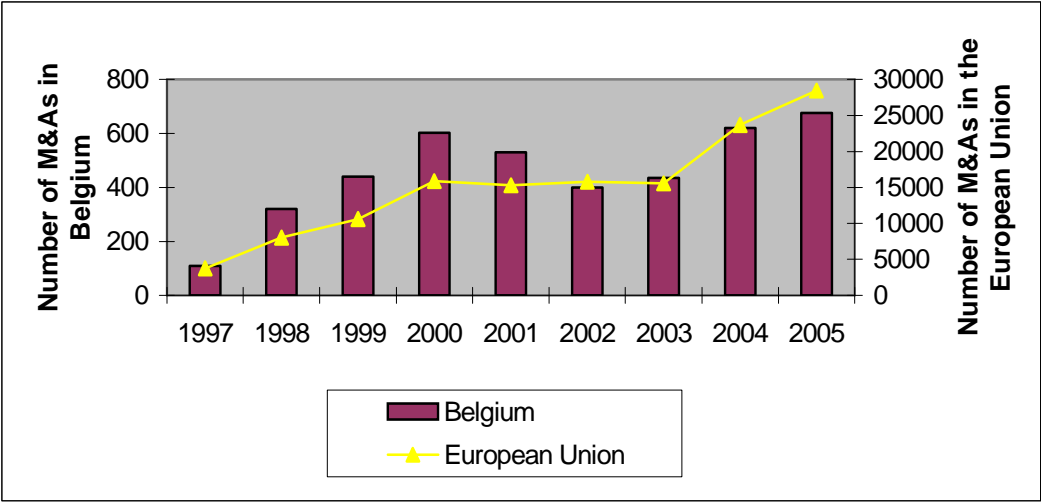
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Figure 1: M&A activity in Belgium and in the European Union



Source: The Zephyr database

Table 1: An overview of the explanatory variables used in the logit regression model

This table presents the definition of the explanatory variables and the hypothesized sign of their relation with the probability of takeover.

Variable	Definition	Hypothesized sign	
		M&A probability	M&A relatedness
Agency problems			
EBITDA/ASSETS	Earnings before interest, taxes, depreciation and amortization / Total assets	+	-
CASH RATIO	Cash and cash equivalents / Total assets	+	-
OWNERSHIP CONCENTRATION	Sum of the squares of the percentage of the shares owned by each shareholder	-	+
BANK LOANS/ASSETS	Bank loans / Total assets	-	+
FIRM SIZE	Natural logarithm of total assets	+	-
Synergies			
INTANGIBLES/ASSETS	Intangible assets minus goodwill / Total assets	+	+/-
INDUSTRY MES	Median of the natural logarithm of total assets of firms older than ten years in the corresponding four-digit SIC industry	+	+
BANK LOANS/ASSETS	Bank loans / Total assets	+	-
Market power			
INDUSTRY CONCENTRATION	Herfindahl-Hirschman index (the sum of the squares of the market shares of each firm in the corresponding industry)	+	+
Industry shocks			
INDUSTRY DEREGULATION	Dummy that equals one if the corresponding industry has been deregulated, as of deregulation, and zero otherwise	+	+
INDUSTRY GROWTH	One-year lagged sales growth rate in the corresponding industry	+/-	+/-
GDP GROWTH	One-year lagged growth rate of gross domestic product at constant prices (real GDP growth rate)	+	?
Under-valuation/over-valuation			
P/E	Price/earnings ratio of the Belgian stock market (Belgian All Shares Index)	+/-	?
YIELD SPREAD	Difference between the average yield on European corporate bonds with rating BBB and the average yield on Belgian government bonds, both with a duration of five years	-	?
TERM SPREAD	Difference between the average yield on Belgian government bonds with a duration of five years and the yield on a Belgian Treasury Note with a maturity of three months	-	?

Table 2: Deal status

This table reports the status of the 918 M&A transactions during 1997–2005, collected from the Zephyr database. An M&A transaction may have been announced/pending, completed or withdrawn at the moment of our data collection (March, 2006).

Deal status	Number of transactions	
Completed	728	79.30%
Pending	181	16.88%
Withdrawn	9	0.98%
Total sample	918	100%

Table 3: Type of transaction

This table provides an overview of the prior ownership stake of the bidders in the initial sample of 918 M&A transactions.

Type of transaction		Number of transactions	
Acquisition	New shareholder takes over control	785	85.51%
	Acquisition increased from $\leq 20\%$ to $\geq 50\%$	3	0.33%
	Acquisition increased from $> 20\%$ and $< 50\%$ to $\geq 50\%$	16	1.74%
	Acquisition increased from $\geq 50\%$ to $\geq 50\%$	85	9.26%
Merger	New shareholder	29	3.16%
Total sample		918	100%

Table 4: An overview of the M&A transactions in our sample period

This table presents the annual distribution of M&A transactions and observations during the sampling period and their corresponding method of payment. The information on the method of payment is based on data of only 134 transactions (due to limited data availability on this deal feature). The observations are also split up according to the public/private nature of the bidding company.

Year	Number of transactions	Number of observations	% Cash	% Cash (public bidders)	% Cash (private bidders)
1997	13	10	NA	NA	NA
1998	61	48	50.00%	100.00%	33.33%
1999	62	42	36.36%	16.67%	60.00%
2000	113	65	36.00%	27.27%	100.00%
2001	99	64	42.11%	38.46%	50.00%
2002	97	60	60.00%	53.33%	80.00%
2003	117	95	73.68%	55.56%	90.00%
2004	124	95	57.14%	50.00%	71.43%
2005	130	106	73.33%	87.50%	57.14%
Total	816	585	53.58%	53.60%	67.74%

Table 5: Industry distribution of the acquiring firms

This table reports an overview of the industry distribution of the 585 M&A observations at the two-digit SIC level.

SIC code	Industry	Number of observations
02	Agricultural production crops	1
10	Metal mining	1
12	Coal mining	1
14	Non-metallic minerals, except fuels	2
15	General building contractors	7
16	Heavy construction, ex. building	8
17	Special trade contractors	10
20	Food and kindred products	45
22	Textile mill products	11
24	Lumber and wood products	4
25	Furniture and fixtures	3
26	Paper and allied products	9
27	Printing and publishing	39
28	Chemicals and allied products	26
29	Petroleum and coal products	4
30	Rubber and misc. plastic products	11
32	Stone, clay and glass products	11
33	Primary metal industries	20
34	Fabricated metal products	9
35	Industrial machinery and equipment	14
36	Electronic & other electronic equipment	20
37	Transportation equipment	3
38	Instruments and related products	1
39	Miscellaneous manufacturing industries	8
40	Railroad transportation	2
41	Local and interurban passenger transit	3
42	Trucking and warehousing	15
44	Water transportation	7
45	Transportation by air	2
47	Transportation services	8
48	Communication	12
49	Electric, gas and sanitary services	1
50	Wholesale trade-durable goods	36
51	Wholesale trade-nondurable goods	36
52	Building materials & garden supplies	1
53	General merchandise stores	2
54	Food stores	8
56	Apparel and accessory stores	4
57	Furniture and home furnishing stores	4
58	Eating and drinking places	4
59	Miscellaneous retail	10
72	Personal services	11
73	Business services	77
78	Motion pictures	6
79	Amusement & recreation services	2
80	Health services	5
81	Legal services	4
87	Engineering & management services	55
91	Executive, legislative, and general	1
96	Administration of economic programs	1
Total sample		585

Table 6: Summary statistics

In this table, we report the mean, median and standard deviation of the firm characteristics, industry and aggregate market variables for the M&A firms ($y = 1$) and their matching counterparts ($y = 0$). For each firm characteristic, we also report the p -value of a parametric t-test and a non-parametric Wilcoxon rank-sum test that compares companies that grow through a merger or acquisition in a particular year with companies that did not grow through M&As.

	y = 1			y = 0			<i>t</i> -test	Wilcoxon test
Firm characteristics	<i>Mean</i>	<i>Median</i>	<i>Std. Dev.</i>	<i>Mean</i>	<i>Median</i>	<i>Std. Dev.</i>	<i>p</i> -value	<i>p</i> -value
EBITDA/ASSETS	0.1027	0.0967	0.1082	0.1164	0.1006	0.1361	0.0569	0.2006
CASH RATIO	0.1027	0.0531	0.1336	0.1731	0.0930	0.1932	0.0000	0.0000
OWNERSHIP CONC	0.4908	0.3741	0.3830	0.9554	1.0000	0.1819	0.0000	0.0000
LARGEST OWNER	0.5971	0.5500	0.3342	0.9680	1.0000	0.1394	0.0000	0.0000
BANK LOANS/ASSETS	0.2079	0.1125	0.2408	0.2410	0.2175	0.1997	0.0106	0.0000
TOTAL DEBT/ASSETS	0.6020	0.6252	0.2575	0.6089	0.6424	0.3130	0.6784	0.4349
INTANGIBLES/ASSETS	0.0143	0.0015	0.0258	0.0064	0.0000	0.0204	0.0000	0.0000
FIRM SIZE	10.5361	10.8337	2.4045	5.8682	5.6276	1.8682	0.0000	0.0000
Total sample								
Industry variables	<i>Mean</i>	<i>Median</i>	<i>Std. Dev.</i>					
INDUSTRY MES	6.5472	6.3244	1.0598					
IND CONCENTRATION	0.1632	0.0928	0.1737					
IND DEREGULATION	0.0231	0.0000	0.1502					
INDUSTRY GROWTH	0.0526	0.0425	0.1688					
Market variables	<i>Mean</i>	<i>Median</i>	<i>Std. Dev.</i>					
GDP GROWTH	0.0224	0.0168	0.0111					
P/E	11.9000	11.0000	2.6499					
YIELD SPREAD	0.0109	0.0127	0.0056					
TERM SPREAD	0.0121	0.0114	0.0049					

Table 7: Logit Regression Results on the M&A Decision

The dependent variable equals one if the company grows through an M&A in a particular year and zero otherwise. A company and its matching firm are included in the analyses only for the year of the M&A. A definition of the explanatory variables and the hypothesized sign of their relation with the probability of takeover is presented in Table 1. All explanatory variables are measured in the year before the transaction. Panel A reports the models with EBITDA/ASSETS whereas panel B reports the models with the CASH RATIO.

PANEL A														
Variable	(1)		(2)		(3)		(4)		(5)		(6)		(7)	
	Coefficient	<i>p-value</i>	Coefficient	<i>p-value</i>	Coefficient	<i>p-value</i>	Coefficient	<i>p-value</i>	Coefficient	<i>p-value</i>	Coefficient	<i>p-value</i>	Coefficient	<i>p-value</i>
C	-1.4978	0.2430	-1.6431	0.2138	-0.1356	0.9205	-3.6669	0.0097	-3.7208	0.0095	-3.0289	0.0006	1.5057	0.3838
EBITDA/ASSETS	0.0494	0.9675			-0.0340	0.9778	-0.1821	0.8813	-0.2919	0.8113	0.3693	0.6576	-1.4388	0.2982
EBITDA/ASSETS * (1-OWN CONC)			2.0457	0.5365										
OWNERSHIP CONCENTRATION	-3.1427	0.0000	-2.9047	0.0000			7.1902	0.0114					-2.8391	0.0000
OWNERSHIP CONCENTRATION ²							-8.9441	0.0003						
LARGEST SHAREHOLDER					-4.2415	0.0000								
OWN 0.00 to 0.25									3.3564	0.3024				
OWN 0.25 to 0.50									-0.8984	0.8332				
OWN 0.50 to 0.75									6.7586	0.3163				
OWN 0.75 to 1.00									-17.1397	0.0008				
BANK LOANS/ASSETS	-0.9801	0.0988	-0.9394	0.1123	-1.0031	0.0939	-0.7661	0.2004	-0.7658	0.1998	-0.6348	0.1457	-0.9517	0.1855
INTANGIBLES/ASSETS	17.0868	0.0076	16.9713	0.0073	17.3740	0.0073	16.1958	0.0123	16.2891	0.0121	16.5913	0.0002	0.5999	0.0000
FIRM SIZE	1.1163	0.0000	1.1184	0.0000	1.1325	0.0000	1.1127	0.0000	1.1107	0.0000	1.0617	0.0000	14.1678	0.0668
INDUSTRY MES	-0.6833	0.0001	-0.7204	0.0000	-0.7535	0.0000	-0.6451	0.0001	-0.6222	0.0002	-0.8248	0.0000	-0.6329	0.0122
INDUSTRY CONCENTRATION	-5.1333	0.0777	-3.2539	0.0010	-3.2954	0.0009	-3.3036	0.0011	-3.3475	0.0009	-2.7958	0.0001	-1.5403	0.2551
INDUSTRY CONCENTRATION ²	3.4651	0.4864												
INDUSTRY DEREGULATION	1.1595	0.3041	1.3055	0.2552	1.3755	0.2265	0.5025	0.6640	0.7091	0.5425	2.4499	0.0012	0.6462	0.6704
INDUSTRY GROWTH	0.8443	0.2953	0.8488	0.2925	1.0960	0.1793	0.8030	0.3334	0.6410	0.4369	0.7233	0.2476	0.5860	0.5577
GDP GROWTH	-3.1953	0.8196	-2.5143	0.8573	-3.7781	0.7879	0.1166	0.9935	1.3363	0.9255	-5.3706	0.6054	5.3869	0.7602
P/E	-0.0380	0.3585	-0.0385	0.3517	-0.0431	0.3018	-0.0236	0.5753	-0.0162	0.6990	-0.0119	0.6806	-0.0249	0.6446
TERM SPREAD	9.9414	0.7484	10.3761	0.7368	11.9438	0.7002	15.6099	0.6198	16.4265	0.6031	43.9239	0.0629	17.9646	0.6477
McFadden R-square		0.7096		0.7095		0.7126		0.7191		0.7198		0.5773		0.3181

PANEL B														
Variable	(1)		(2)		(3)		(4)		(5)		(6)		(7)	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
C	-1.5759	0.2252	-1.7363	0.1904	-0.2472	0.8571	-3.6537	0.0103	-3.7278	0.0096	-3.1938	0.0004	1.5549	0.3697
CASH RATIO	0.3812	0.6936			0.5790	0.5462	-0.1061	0.9181	0.0996	0.9232	0.5808	0.3869	0.4461	0.6710
CASH RATIO * (1-OWN CONC)			2.3279	0.3786										
OWNERSHIP CONCENTRATION	-3.1409	0.0000	-2.9002	0.0000			7.2160	0.0117					-2.8257	0.0000
OWNERSHIP CONCENTRATION ²							-8.9654	0.0003						
LARGEST SHAREHOLDER					-4.2408	0.0000								
OWN 0.00 to 0.25									3.2908	0.3163				
OWN 0.25 to 0.50									-0.8585	0.8412				
OWN 0.50 to 0.75									6.6885	0.3214				
OWN 0.75 to 1.00									-17.0593	0.0008				
BANK LOANS/ASSETS	-0.9126	0.1389	-0.8551	0.1550	-0.9005	0.1486	-0.7898	0.2027	-0.7585	0.2218	-0.4866	0.2949	-0.9391	0.2088
INTANGIBLES/ASSETS	17.0571	0.0078	16.1286	0.0123	17.3414	0.0074	16.2692	0.0116	16.3909	0.0112	16.6924	0.0002	0.6250	0.0000
FIRM SIZE	1.1240	0.0000	1.1202	0.0000	1.1449	0.0000	1.1121	0.0000	1.1145	0.0000	1.0718	0.0000	14.3536	0.0596
INDUSTRY MES	-0.6882	0.0001	-0.7151	0.0000	-0.7643	0.0000	-0.6469	0.0001	-0.6291	0.0001	-0.8273	0.0000	-0.6849	0.0071
INDUSTRY CONCENTRATION	-5.1177	0.0789	-3.2098	0.0011	-3.2580	0.0011	-3.3003	0.0011	-3.3202	0.0010	-2.7640	0.0001	-1.4052	0.3034
INDUSTRY CONCENTRATION ²	3.4880	0.4839												
INDUSTRY DEREGULATION	1.1082	0.3289	0.9377	0.4370	1.3107	0.2534	0.5377	0.6399	0.7338	0.5271	2.4283	0.0014	0.7790	0.6081
INDUSTRY GROWTH	0.8422	0.2968	0.8196	0.3104	1.0937	0.1810	0.7974	0.3364	0.6331	0.4427	0.7476	0.2305	0.5305	0.5973
GDP GROWTH	-3.2278	0.8177	-1.7404	0.9011	-3.7694	0.7881	0.2035	0.9886	1.4200	0.9208	-5.1609	0.6193	0.6133	0.7309
P/E	-0.0387	0.3469	-0.0368	0.3703	-0.0442	0.2860	-0.0239	0.5692	-0.0177	0.6727	-0.0112	0.6972	-0.0346	0.5118
TERM SPREAD	10.0454	0.7454	8.8773	0.7745	12.0001	0.6982	15.5204	0.6218	16.2715	0.6061	45.0222	0.0565	15.7242	0.6860
McFadden R-square		0.7097		0.7098		0.7129		0.7191		0.7198		0.5776		0.3156

Table 8: Logit Regression Analysis on the M&A Decision for the Subsample of Low-Growth versus High-Growth Industries

The dependent variable equals one if the company grows through M&A in a particular year and zero otherwise. A company and its matching firm are included in the analyses only for the year of M&A. A definition of the explanatory variables and the hypothesized sign of their relation with the probability of takeover is presented in Table 1. All explanatory variables are measured in the year before the transaction. We estimate the models for companies that are in the 25% lowest growth percentile (Panel A) and for companies that are in the 25% highest growth percentile (Panel B).

PANEL A												
Variable	(1)		(2)		(3)		(4)		(5)		(6)	
	Coefficient	<i>p</i> -value	Coefficient	<i>p</i> -value	Coefficient	<i>p</i> -value	Coefficient	<i>p</i> -value	Coefficient	<i>p</i> -value	Coefficient	<i>p</i> -value
C	-0.8059	0.7766	-0.7652	0.7886	-1.2356	0.6939	-0.5480	0.8507	-4.6817	0.0045	-5.0196	0.0032
EBITDA/ASSETS	1.0632	0.6784							0.7706	0.6206		
EBITDA/ASSETS * (1-OWN CONC)					2.2563	0.7028						
CASH RATIO			0.6456	0.7937								
CASH RATIO * (1-OWN CONC)							-1.2606	0.8077			1.2025	0.3350
OWNERSHIP CONCENTRATION	-4.9297	0.0000	-4.9865	0.0000	-4.7117	0.0002	-5.1308	0.0000				
BANK LOANS/ASSETS	0.1870	0.8962	0.3579	0.8057	0.2249	0.8755	0.2333	0.8706	-0.7799	0.4090	-0.4000	0.6830
INTANGIBLES/ASSETS	14.2675	0.1899	14.0521	0.1980	13.6557	0.2111	14.4737	0.1857	7.6412	0.2815	7.8792	0.2705
FIRM SIZE	1.1506	0.0000	1.1478	0.0000	1.1438	0.0000	1.1374	0.0000	0.9652	0.0000	0.9849	0.0000
INDUSTRY MES	-0.7731	0.0388	-0.7430	0.0446	-0.7370	0.0459	-0.7625	0.0412	-0.5856	0.0128	-0.5728	0.0149
INDUSTRY CONCENTRATION	-2.1351	0.2872	-2.2979	0.2433	-2.2590	0.2528	-2.2645	0.2522	-3.8436	0.0082	-3.8343	0.0083
INDUSTRY DEREGULATION	1.4190	0.3728	1.0889	0.5115	1.3859	0.3818	1.4488	0.4052	2.4542	0.0095	2.3590	0.0137
GDP GROWTH	-26.4389	0.4757	-27.8678	0.4504	-24.5415	0.5123	-27.5475	0.4536	-14.9207	0.5115	-16.4510	0.4713
P/E	0.0555	0.6132	0.0476	0.6683	0.0587	0.5941	0.0568	0.6068	0.0748	0.2400	0.0737	0.2487
TERM SPREAD	-39.3485	0.6257	-39.7790	0.6259	-34.7343	0.6640	-31.9637	0.6949	43.7537	0.3762	41.9776	0.3992
McFadden R-square		0.7430		0.7427		0.7429		0.7426		0.5349		0.5365

PANEL B												
Variable	(1)		(2)		(3)		(4)		(5)		(6)	
	Coefficient	<i>p-value</i>	Coefficient	<i>p-value</i>	Coefficient	<i>p-value</i>	Coefficient	<i>p-value</i>	Coefficient	<i>p-value</i>	Coefficient	<i>p-value</i>
C	-1.5241	0.5733	-2.0940	0.4512	-2.6306	0.3423	-4.6216	0.1239	-3.1889	0.0924	-3.6250	0.0649
EBITDA/ASSETS	1.6189	0.5614							1.8339	0.3649		
EBITDA/ASSETS * (1-OWN CONC)					14.4862	0.1989						
CASH RATIO			1.2865	0.5150							0.9377	0.5120
CASH RATIO * (1-OWN CONC)							16.0451	0.0242				
OWNERSHIP CONCENTRATION	-3.1614	0.0002	-3.1844	0.0002	-1.6236	0.2286	-2.0840	0.0265				
BANK LOANS/ASSETS	-2.7343	0.0545	-2.2892	0.1346	-2.8208	0.0513	-1.7183	0.2473	-2.7922	0.0102	-2.4312	0.0358
INTANGIBLES/ASSETS	1.3560	0.0000	1.3683	0.0000	35.3853	0.0449	41.1696	0.0197	17.8845	0.1791	20.6641	0.1025
FIRM SIZE	31.6679	0.0629	32.7520	0.0473	1.3695	0.0000	1.4081	0.0000	1.2944	0.0000	1.2942	0.0000
INDUSTRY MES	-0.7856	0.0174	-0.7697	0.0180	-0.8020	0.0175	-0.7345	0.0339	-0.8220	0.0017	-0.8002	0.0020
INDUSTRY CONCENTRATION	-2.2356	0.2149	-2.0488	0.2628	-2.2767	0.2147	-1.6948	0.3569	-2.3521	0.0743	-2.1974	0.0950
INDUSTRY DEREGULATION	0.4613	0.8765	0.3376	0.9136	0.5731	0.8505	-0.0614	0.9849	-0.7522	0.7657	-0.8982	0.7309
GDP GROWTH	-20.7708	0.4958	-16.4644	0.5803	-22.2748	0.4687	-1.0066	0.9740	-24.6615	0.2806	-21.0025	0.3539
P/E	-0.1429	0.0843	-0.1343	0.0967	-0.1583	0.0694	-0.1125	0.1767	-0.1057	0.0653	-0.0960	0.0841
TERM SPREAD	79.0296	0.2075	81.9234	0.1933	75.9409	0.2316	76.7842	0.2374	93.3994	0.0513	95.9722	0.0461
McFadden R-square		0.7349		0.7352		0.7389		0.7567		0.6443		0.6433

Table 9: Related versus Unrelated Growth

The dependent variable equals one when the bidder engaged in an M&A with a target from the same four-digit industry. If the bidder initiated various M&A, we set the dependent variable equal to one when at least one of the target firms is from the same industry. The explanatory variables are defined in the same way as in the above regression models.

Variable	(1)		(2)		(3)		(4)		(5)		(6)	
	Coefficient	<i>p-value</i>	Coefficient	<i>p-value</i>	Coefficient	<i>p-value</i>	Coefficient	<i>p-value</i>	Coefficient	<i>p-value</i>	Coefficient	<i>p-value</i>
C	1.3853	0.2106	1.4387	0.2099	1.1796	0.2941	1.6787	0.1440	1.1807	0.1748	1.1981	0.1823
EBITDA/ASSETS	0.7640	0.4804							0.1000	0.9095		
EBITDA/ASSETS * (1-OWN CONC)					2.2388	0.2232						
CASH RATIO			-0.1030	0.9174							-0.0606	0.9391
CASH RATIO * (1-OWN CONC)							-1.3268	0.3884				
OWNERSHIP CONCENTRATION	0.5849	0.0538	0.5560	0.0651	0.8227	0.0290	0.4216	0.2107				
BANK LOANS/ASSETS	1.0799	0.0619	1.0518	0.0896	1.0777	0.0629	0.9177	0.1285	1.0704	0.0246	1.0549	0.0407
INTANGIBLES/ASSETS	-0.1234	0.0361	-0.1221	0.0395	-7.5828	0.1124	-7.3349	0.1246	-0.1190	0.0086	-0.1194	0.0091
FIRM SIZE	-7.5810	0.1126	-7.5554	0.1137	-0.1217	0.0388	-0.1240	0.0355	-12.0720	0.0060	-12.0431	0.0061
INDUSTRY MES	-0.2818	0.0323	-0.2785	0.0349	-0.2775	0.0346	-0.2854	0.0303	-0.1795	0.1195	-0.1795	0.1198
INDUSTRY CONCENTRATION	6.5143	0.0072	6.7108	0.0060	6.4891	0.0073	6.7914	0.0051	6.0856	0.0039	6.1225	0.0038
INDUSTRY CONCENTRATION ²	-8.7272	0.0288	-9.0812	0.0239	-8.7401	0.0278	-9.3254	0.0195	-9.2855	0.0075	-9.3489	0.0073
INDUSTRY DEREGULATION	-0.6344	0.5760	-0.6443	0.5721	-0.7041	0.5338	-0.6398	0.5744	-0.5415	0.5269	-0.5404	0.5277
INDUSTRY GROWTH	-0.3243	0.6336	-0.3122	0.6465	-0.3229	0.6350	-0.3347	0.6231	-0.2069	0.7229	-0.2058	0.7244
GDP GROWTH	-6.3179	0.5719	-6.6580	0.5509	-6.5481	0.5581	-6.9677	0.5328	-4.8115	0.6208	-4.8516	0.6181
P/E	-0.0030	0.9229	-0.0022	0.9423	-0.0028	0.9280	-0.0030	0.9212	-0.0233	0.3910	-0.0230	0.3950
TERM SPREAD	-3.0042	0.9005	-2.5688	0.9149	-3.2448	0.8926	-2.3620	0.9218	14.3460	0.5040	14.4143	0.5022
McFadden R-square		0.0493		0.0484		0.0513		0.0499		0.0423		0.0423