Do acquisitions and internal growth impact differentially firm performance?

by

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ABSTRACT

Should companies focus on acquisitions or would they be better off by investing those resources internally instead? Our paper analyses the operational and market performance of a representative sample of U.S. listed companies over the period 1990-2004, and compares the performance of the firms that perform internal growth with those that do external growth. We find evidence that both kinds of growth strategies create value for the shareholders, as the intensity of both growth strategies is associated with higher abnormal returns. In addition, the effects of growth on market performance materialized contemporaneously for both strategies. It also appears that in the short run, internal growth is consuming the cash-flow returns of the companies. However, when we run panel regressions with lagged growth variables, we find that internal growth has a positive impact on operational performance, once the companies had sufficient time to increase their sales and realize economies of scales or other cost reduction strategies.

> *Whether fueled organically, through acquisitions, or by a mixture of both, growth is growth, and any kind of growth has the potential to create shareholder value […].*
> Growing Through Acquisitions (The Boston Consulting Group Report 2004, p. 23)

1. Introduction

Company growth can be achieved in a number of ways. The two most important ones are external growth, which is realized through mergers and acquisitions (M&As), and internal growth, which is usually defined as a company's growth rate excluding any scale increases from M&As (Dalton and Dalton, 2006).[1] Both types of growth strategies are regularly used simultaneously by companies. However, according to Delmar *et al.* (2003), the analysis and comparison of these two generic growth strategies has been neglected to a large extent in the academic literature. This is somehow surprising because these two types of growth are likely to require different managerial skills and organizational structures, as well as to have a different impact on firm performance (see, e.g., Penrose, 1959; Delmar *et al.*, 2003; Dalton and Dalton, 2006; McKelvie *et al.*, 2006).

In this paper, our focus is on firm performance. More precisely, we are interested in whether the source (internal vs. external) of asset growth has a differential impact on the financial and operational performance of the firms. With this respect, while there is an abundant literature on the implications of external growth on firm performance, to the best of our knowledge, the implications of internal growth on firm performance have been mostly overlooked in the finance literature.[2] The aim of this study is to fill this gap by providing an

[1] External growth and internal growth are also referred in the literature as acquisition growth and organic growth, respectively. Both denominations are used interchangeably in the remainder of the text.

[2] It is also important to stress that the management and entrepreneurship literature does not provide that much evidence on performance implication of internal growth. Except for the work of Xia (2006) that relates growth to Tobin's *q* ratio (as a measure of performance), the literature focuses more on the determinants of growth

analysis of the relation between firm growth strategies and firm performance using a large sample of listed U.S. firms.

Despite the lack of academic evidence on the relationship between growth strategies and firm performance, the professional literature seems to provide some '*mixed*' answers to our research question. Indeed, consulting firms advising companies seem to emphasize one growth strategy over the other because of their differential impact on firm performance. For example, firms such as Bain[3] are encouraging companies to perform mergers and acquisitions (M&As), arguing that the more external growth they do, the more their financial and economic performance will increase. Even if it recognizes the merit of both growth strategies, BCG[4] also emphasizes in external growth report from 2004 that the highly acquisitive companies of their U.S. sample have the highest mean total shareholder returns, and that the most successful acquisitive growers outperformed the most successful organic growers, allowing them to gain market share more rapidly than their counterparts. According to BCG, for experienced acquirers like Pfizer, Cisco and Newell, M&A expertise developed through successive acquisitions has become a competitive advantage in its own right. On the other hand, others such as General Electric's consultancy department have recently praised the advantages of internal growth and encourage companies to pursue it because of the lower costs, the better return of investment and the incentives that it gives to pursue innovation.[5] In the same spirit, Dalton and Dalton (2006), in an article written for a professional audience, also advice companies to *'buy organic'* because it is a less risky strategy than growing

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strategies and the typology of growths rather than on the performance dimension (see, e.g., Trahan (1993); Hay and Lyu (1998); Harhoff *et al*. (1998); Sorenson (2000)).

[3] Source: Bain & Company, 'Global Learning Curve Study', 2003.

[4] Source: The Boston Consulting Group, 'Growing Through Acquisitions: The Successful Value Creation Record of Acquisitive Growth Strategies', 2004.

[5] Source: General Electric Commercial Finance report: Leading views from GE (May 2005).

through acquisitions. The authors argue that successful companies turn to M&As only when they have exhausted their internal growth opportunities. Another argument put forward by the authors is the market signal associated with well known organic growers such as Dell, Pfizer and Procter and Gamble, for which 40 to 90 percent of their market value is for their future growth potential (Dalton and Dalton, 2006).

Both growth strategies have advantages and drawbacks. Two of the most often mentioned rationales for conducting acquisition growth are synergies between the combining firms and the creation of market power. Synergy gains can be defined as the ability of a combination to be more profitable than the individual units that are combined (Gaughan, 2002). The origins of these synergies are diverse: they can originate from economies of scale or scope (see, e.g., Bradley *et al.*, 1983 and 1988; Peteraf, 1993); they may derive from better corporate control over the target's asset (see, e.g., Manne, 1965; Jensen and Ruback, 1983; Jensen, 1988); they may derive from the adoption of better corporate governance mechanism (Wang and Xie, forthcoming); finally, synergies may appear also from new co-specialized assets (see Teece (1986) for theoretical arguments and Capron (1999) for empirical evidence). Another rationale put forward for acquisition growth is market power, which refers to the capacity of a company to act independently of its competitors and customers (Hay and Morris, 1991; Carlton and Perlof, 2004). The market power hypothesis has been empirically tested and rejected to a large extent by several studies since Eckbo (1983).[6]

[6] Eckbo (1983) tested the collusion hypothesis (i.e., "that rivals of the merging firms benefit from the merger since successful collusion limits output and raises product prices and/or lower factor prices") and finds little evidence indicating that mergers are driven by market power argument. This result has been confirmed by many subsequent studies (see, e.g., Eckbo, 1992, Fee and Thomas, 2004; Aktas *et al.*, 2007). Finally, let us also quote a recent study realized by Devos *et al.* (forthcoming), where the authors empirically test several underlying sources of merger gains. In their sample, merger gains seem to be more driven by efficient resource allocation, rather than a decrease in taxes or an increase in market power.

Concerning the drawbacks of acquisition growth, it is important to underline that M&As can also destroy shareholder value if the management reinvests the firm's resources, or free cash flows, for their own personal interest in inefficient business combinations (see, e.g., Jensen, 1986; Shleifer and Vishny, 1989). Other drawbacks are related to merger failures which are most often due to post-merger integration risk and to exogenous regulatory actions. Datta (1991) empirically examines the impact of organizational differences between US bidders and targets of M&As on post-acquisition performance. He concludes that differences in top management styles negatively impact post-acquisition performance Other important factors affecting post-merger integration according to consultancy firms such as Towers Perrin[7] include the selection of a good post-merger integration team, top management communication, integrated performance measurement and tracking systems, management grip, attention to critical business areas, management of perceptions and expectations, and management of people's issues. Finally, anti-trust laws might prevent or penalize companies which are attempting to perform a combination. Transactions, such as M&As, that are considered to threaten the competitive process, can be prohibited all together or approved under certain conditions (e.g. the divestment of part of the businesses, the offering of free licenses, etc.).[8]

On the other hand, internal growth provides more corporate control, encourages internal entrepreneurship and protects organizational culture for different reasons. First of all,

[7] Source : Towers Perrin Report : « Achieving Post-Merger Integration » (2001)

[8] For example, Aktas *et al.* (2001) analyzed the role of the European Commission (EC) in the Boeing/Mc Donnell merger, which was one of the first non-European mergers considered by the EC. In that case, the EC imposed conditions which were not directly related to the mergers - they asked for Boeing to give up its exclusivity contracts with European clients - and threatened with commercial retaliation if they merged without doing so. Another interesting example from the EC intervention is the blocked merger between General Electric and Honeywell (see Aktas *et al.* (2007)).

managers have a better knowledge of their own firm and assets, and the internal investment is likely to be better planned and efficient (Hess and Kazanjian, 2006). In addition, synergies may also be costly to exploit, making it again more interesting to invest internally (Denrell *et al.*, 2003). Moreover, internal growth attenuates top management styles and firm structures differences, which can be source of value destruction in business combinations (Datta, 1991). Finally, companies that are investing internally are also able to create sustainable competitive advantages since their value-creation processes and positions are less likely to be duplicated or imitated by other firms. Internal growth strategies are more private and less prone to any hostile action from other companies. This leads to better rewards from the capital market (see, e.g., Barney, 1988; Dalton and Dalton, 2006).

Internal growth presents also some drawbacks. Compared to external growth, there is empirical evidence from several European markets that it is a slower process, more suited for small companies, high-tech companies and/or companies with available growth opportunities (see, e.g., Levie, 1997; Delmar *et al.*, 2003; McKelvie *et al.*, 2006). It is also difficult to growth internally in mature and declining industries, where mergers and acquisitions are the only serious growth option for firms to increase their sales and market shares (Penrose, 1959).

The adopted growth option (internal vs. external growth or a mix of the two strategies) might have a direct impact on the strategy of the company and its performance, as well as on the development of our economies in general. The global M&A market has indeed an unprecedented announced deal value of $4.3 trillion in 2007 ($1.4 trillion of which was performed by US acquiring companies), with the top 10 completed deals totaling over $370 billion.[9] Which type of growth strategy creates more value for the shareholders? Should companies focus on M&As or would they be better off by investing those resources internally instead? This paper will attempt to shed some light on this issue by comparing the impact of

[9] Source : Bain & Company 2007 Newsletter on M&A Activity (January 2008)

internal growth and external growth on firm performance, which has not been broadly studied in the academic literature because internal growth is not an "event". It is a lengthy process that progressively takes place over time. Therefore, its empirical study is not straightforward. In contrast, a lot of empirical studies have been made on M&As about short and long-term market performance around the deal announcement dates, as well as post-merger accounting performance.

Although target companies earn significant positive abnormal returns in most short term studies (see, e.g., Jensen and Ruback, 1983), the literature documents mixed results for acquirers. Early studies document that acquirers' cumulative abnormal returns (CAR) around the announcement date are at best equal to zero, or worse, even negative (Jensen and Ruback, 1983). Recent contributions uncover some acquisition type that yield positive abnormal return for the acquirer, in particular smaller deals and private target acquisition (see, e.g., Fuller *et al.*,2001; Moeller *et al.*,2004). On the other hand, long-term market performance studies report that mergers and acquisition may be value destroying corporate decisions (see, e.g., Loughran and Vijh, 1997; Rau and Vermaelen, 1998; Agrawal and Jaffe, 2002; Bouwman *et al.*, forthcoming). Let us also mention that Mitchell and Stafford (2000) and Betton *et al.* (2008), when using a calendar-time portfolio approach, do not find significant long-run abnormal return following acquisitions.[10]

The evidence is also mixed for accounting-based performance studies of acquisition decisions. The first attempts to measure post-merger operating performance goes back to Healy *et al.* (1992). They examine the performance of the 50 largest mergers between U.S. public industrial companies between 1979 and 1983, and find higher post-merger operating cash flow returns relative to their industries. On the contrary, using a sample of 315 U.S. deals

[10] The calendar-time portfolio approach is strongly advocated by Fama (1998) for long-term abnormal return analysis. It tracks the performance of an event portfolio in calendar time relative to a benchmark.

completed during 1981-1995 and firms matched on performance and size as a benchmark, Ghosh (2001) finds no evidence of any improvement in cash flow returns following corporate acquisitions. Finally, Linn and Switzer (2001) analyzed the pre- and post-merger industry-adjusted cash-flow returns of a sample of 412 combinations between 1967 and 1987 from the NYSE and the AMEX. The change in performance of the merged firms is only positively significant for pure cash offers when looking at the entire sample, and is not significant for pure stock or mixed offers.

To assess the impact of each type of growth strategy on firm performance, we consider all U.S. companies listed on the NYSE, the NASDAQ and the AMEX between January 1990 and December 2004. Our sample encompasses 7,223 companies with available stock market and accounting data. We split the 15-year study window into five adjacent 3-year periods. The starting point of our methodology is the computation of a total growth rate, based on the relative increase in total assets of the company. Then, following the approach developed in Xia (2006), we decompose our total growth rate into an external growth, which is the part of the growth in total assets due to mergers in acquisitions, and an internal growth rate for each 3-year sub-period and each company of the sample.[11,12] We subsequently validate our internal growth measure with different other potential proxies (machinery and equipment, R&D and employees growth rates). Then, for each company and each 3-year sub-periods, we use the Fama-French (1993) three factor model to estimate the firm mean abnormal return as a shareholder value creation measure, and the industry-adjusted cash flow returns on assets as

[11] To study the relation between CEO compensation and firm internal versus external growth, Rosen (2005) uses also an asset-based growth measure decomposition of the firm. However, the used methodology is not explained in detail by the author.

[12] The adopted methodology allows also the acquired asset, through M&As, to growth internally over the considered period.

an accounting performance measure. Finally, we perform panel regressions where the performance measures are regressed over the growth measures.

Our findings can be summarized as follows. We find evidence that both kinds of growth strategies create value for shareholders, as the mean abnormal returns are positively associated with the growth measures. It appears also that the two generic growth strategies provide the same marginal gain for the shareholders. The similar magnitude of the coefficients associated with the internal growth and external growth measures gives support to the idea that companies display some rationality and tend to choose an optimal growth strategy given the context in which they are evolving. The effects of growth (both internal and external) on market performance are mostly a contemporaneous effect (i.e. growth and performance are positively associated when both variables are measured over the same time interval). Indeed, once we lag the growth measures, the significance disappears. Concerning the operational performance, our results show that in the short run, internal growth is consuming the cash-flows of the companies, as the cash flow returns are negatively affected by the intensity of the internal growth. However, when we lag the internal growth variable (i.e. when we test for the impact of past growth on today's performance), the associated coefficient of the regression becomes significantly positive, indicating that in the longer run, organic growth has a positive impact on operational performance, once the companies have sufficient time to increase their sales and realize economies of scales or other cost reduction strategies. Moreover, the effect of external growth on cash flow returns is not significant.

The main contribution of our paper is that we consider an empirical framework where the effects on firm performance of both internal and external growth measures are studied simultaneously. With respect to Xia (2006), our contribution relies on the use of better firm performance measures. The performance measure used in Xia (2006) is the Tobin's q ratio (the ratio of the market value of a company's financial claims to the replacement value of its

assets). There are two major shortcomings with the Tobin's *q* ratio. The first one is that the book value is often used as a proxy for the replacement value of the assets, and the second problem is that the Tobin's *q* ratio is either used as a proxy for firm/management performance (see, e.g., Servaes, 1991; Carroll *et al.*, 1998; Xia, 2006) or as a proxy for firm growth opportunities (see, e.g., Opler and Titman, 1993; Szewczyk *et al*., 1996; Shin and Stulz, 1998; Rajan *et al.*, 2000).[13]

Our paper is related to Eberhart *et al.* (2004) that examine long-term abnormal stock returns and operating performance following unexpected increase of research and development (R&D) expenditures . Using a sample of 8,313 cases of R&D increase between 1951 and 2001, the authors provide evidence to support the idea that the market is slow to incorporate intangible information. Moreover, operating performance increases also following R&D expenses suggesting that these are beneficial investments. Additional results are presented by Chauvin and Hirschey (1993), with R&D expenditures having a significant positive influence on the market value of the firm between 1988 and 1990 on the US market, while Szewzyk et al. (1996) find that R&D induced abnormal returns are positively related to the % increase in R&D spending on the US market between 1979 and 1992. Our paper is also related to some extent to Rosen (2005) where the author analyzes whether the two generic growth strategies have a differential impact on CEO compensation. The results indicate that both internal growth and external growth add to compensation. What is interesting is that from an economic point, external growth and internal growth add almost the same amount of dollar per million dollars of asset increase, around $102 precisely. Note also that changes in equity value are positively correlated with the level of compensation.

[13] Moreover, Tobin's *q* is affected by measurement errors (see Whited (2001) and Ericksson and Whited (2006) for a discussion of this issue and ways to tackle it).

The remainder of the paper proceeds as follows. Section 2 describes the sample, the research design, and validates the internal growth measure. Section 3 provides the results of the operational and market performance for each type of growth strategy, as well as some robustness tests. Section 4 concludes.

2. Sample and research design

2.1. Sample Description

Our sample includes all U.S. companies listed on the NYSE, AMEX and NASDAQ between January 1, 1990 and December 1, 2004. We use the Securities Data Corporation's (SDC) Mergers and Acquisitions database to identify the acquisitions completed by these companies. The sample period ends in year 2004 because we require a 3-year event window to compute the performance measures. Accounting and market data are obtained from the Compustat and CRSP databases. Banks and utilities are excluded from the sample because they are subject to different accounting rules.

Our initial SDC extraction includes 31,038 M&As for which the bidder is a listed U.S. firm, with a completed deal date between the period 1990-2004, a deal value superior to $1 million, and a percentage owned below 50% before the merger and above 50% after the merger. Targets can be U.S. or non U.S. firms. Similarly, the Compustat and CRSP extractions provided an initial sample of 12,760 companies for which all the necessary market and accounting variables are available for at least one year. Growth and performance measures are computed over subsequent 3-year periods, leading to a panel of up to 5 observations per firm over the studied period (1990-2004). After eliminating all the companies which do not have a minimum requirement of 3 successive yearly accounting variables in Compustat to compute the growth measures, we end up with a sample of 7,223 companies and 18,085 completed deals.

Table 1 reports descriptive statistics on characteristics of the firm in the sample for total assets, sales, market capitalization and number of employees. The sample is split in 5 subsequent sup-periods of 3 years. We are able to follow between 2,699 and 3,984 individual firms for a given 3-year period. Table 2 provides the M&A sample distribution over time (using the completion year of the M&A) and by industry.[14] Panel A shows that the sample exhibits a peak in the number of transactions between 1997 and 2000, which is consistent with the well documented "friendly" M&A wave of the end of the nineties (Betton *et al.*, 2008). Panel B indicates that the acquirers come from 34 different industries, with the Services industry being the most widely represented in our sample (29.3% of the M&A's acquirers belong to that sector). Therefore, our tests need to control for industry clustering by adjusting the company's operating performance with their corresponding industry (Healy *et al.*, 1992), as described later on in this section.

Table 3 reports descriptive statistics about M&A deals in the sample. Panel A shows that most acquisitions are accounted using the purchase method (91.3%). Panel B indicates that most deals are uncontested (98.8%), while Panel C shows that the deals of our sample are made more often by cash (46.9 %) than by stock (24.7%). These characteristics are very similar to the ones reported in the literature. For example, Moeller *et al.* (2004) report 40.4% cash deals and 24.6% stock deals for 12,023 transactions announced by U.S. firms in the period 1980-2001. Finally, Panel D reports that 15.6% of our sample deals are cross-border acquisitions. This proportion is quiet close to the one obtained by Moeller and Schlingmann (2005). Table 4 provides information on deals realized by our sample firms by sub-periods of 3-year. It appears that the majority of the companies are not doing M&As at all. For example, for the 1996-1998 period, 2,053 companies have not grown externally, while 1,429

[14] Industry definitions follow the classification in 38 categories by Kenneth French. (http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/).

companies have realized a single acquisition and 502 companies have performed more than one acquisition.

2.2. Growth Measures

Computing the growth rates. For each company in the sample, we create a yearly measure of organic and acquisition growth based on the decomposition of the company's total asset growth. The approach is similar to Xia (2006). The total growth rate in fiscal year *t*, *Ga*(*t*), is defined as [(TA_t/TA_{t-1})-1], where TA_t are the total assets of the firm at the end of fiscal year *t*. If this firm does not realized M&As or asset divestments during a given year *t*, then its asset growth is due only to internal growth, *Gi*(*t*), which is equal to the total growth rate, *Ga*(*t*), in this case. However, if the company undertakes acquisitions during a given year, the total growth rate reflects three processes: (1) the internal growth rate of the original assets TA_{t-1}; (2) the addition of the acquired target's assets, *ta*, which is added at instant (1-τ), $\tau \leq 1$, with the fiscal year being regarded as length 1 in time (for example, if the merger happens at the first of September, then τ, the part of the year that is has not yet elapsed, is equal to 1/3); (3) the internal growth of the acquired assets over the time fraction τ.

Therefore, assuming that all the assets owned by the firm grow at the same rate, the internal growth rate *Gi*(*t*) solves the following equation:

$$TA_t = [1 + Gi(t)]TA_{t-1} + [1 + Gi(t)]^{\tau}\, ta\,. \qquad (1)$$

Once both *Ga*(t) and *Gi*(t) are estimated, we can compute the external growth rate *Gx*(*t*) for each company at any given year:

$$Gx(t) = Ga(t) - Gi(t)\,. \qquad (2)$$

In order to illustrate our basic formulas, let us take a simple example. Suppose that *Company A*'s total assets for fiscal years 2002 and 2003 were \$23MM and \$25MM respectively. If it did not perform any acquisitions during that period of time, its total growth

rate for the period, *Ga*(2003) = (25/23) -1 = 8.7%. Because there was no acquisitions during that period of time, its internal growth rate, *Gi*(2003), is also equal to 8.7% and the external growth rate, *Gx*(2003), is equal to zero.

What happens if our company decides to perform an acquisition during that period instead? Let's say that the first of September 2002, *Company A* decides to buy *Company B*, a small company whose total assets are worth $1.5MM. Then, the internal growth rate of *Company A* is *Gi* that solves the following equation:

$$\$25 = \left[1 + Gi(2003)\right]\$23 + \left[1 + Gi(2003)\right]^{\frac{1}{3}}\$1.5\,. \tag{3}$$

The internal growth rate that solves Equation (3) is 1.9%. The corresponding external growth rate is equal to the total growth rate minus the internal growth rate: 8.7% - 1.9% = 6.8%.

Extending this framework to the case of several combinations and divestments in a given year is straightforward:

$$TA_t = \left[1 + Gi(t)\right]TA_{t-1} + \sum_j \left[1 + Gi(t)\right]_j^{\tau} ta_j - \sum_j \left[1 + Gi(t)\right]_k^{\tau} ta_k\,, \tag{4}$$

where, *j* and *k* correspond to the number of mergers and acquisitions and divestments at a given year *t*, respectively.

Adjustment for the accounting method. In addition, the accounting methods used to record the business combination (pooling of interests or purchase method[15]), the means of payment (cash, stock, debt or a mix), the percentage of control of the target, and the price paid can significantly influence the data and introduce biases in the computations. Therefore, we have to adjust the total assets in the formulas for all the possible cases.

Let's first take a look at the two different types of accounting methods: the pooling of interests method and the purchase method. The pooling method presumes that two companies

[15] After the issuance of FASB Statement No. 141 in July 2001, all business combinations must be accounted for using the purchase method. However, both methods coexisted before the fiscal year 2002.

merge as equal, resulting with either the creation of a new company, or with one company becoming part of the other. Therefore, both previous entities retain their operating activities. Moreover, companies that are willing to merge under the pooling method have to meet 12 criteria from the SEC[16] (including similar size and type criteria). No new assets or liabilities are created by the combination, and the values for the assets and liabilities that are carried forward are the book values of each company. On the other hand, the purchase method is based on the notion that one company acquires another company. As a result, assets and liabilities are recognized by the surviving company at their fair market value, and any excess of purchase price paid over the net fair value is considered as goodwill. The goodwill as well as the difference between the fair market value and the book value have to be amortized against expense. Therefore, we have to correct the total assets according to the accounting regime used for each combination. To correct for the different accounting methods, we follow the same procedure as in Xia (2006)[17] and compute the adjusted total assets, *adjusted TA*, using the following equations.

- Pooling of interests method:

$$adjusted\ TA = TA_t - \left(GW_{t-1} + GW_{ta}\right), \tag{5}$$

- Purchase method:

$$adjusted\ TA = TA_t - \left(GW_{t-1} + GW_{ta} + \alpha P + \beta \times TgtLiabMV - \beta \times ta\right). \tag{6}$$

$$0 \leq \alpha \leq 1;\ 0.5 < \beta \leq 1$$

P refers to the price paid for the control-achieving transaction; α refers to the weight of equity and/or debt securities paid in the price of the combination deal (in contrast to payments in the form of cash or other assets), so that αP represents the portion of price paid in the form of equity and/or debt securities; β refers to the accumulated controlled portion of the target from

[16] Accounting Principles Board Opinion (APBO) No. 16, 1970.

[17] Xia's paper demonstrates the formula for all the different cases and all possible combination types.

this deal and the previous deals (if any), β must be bigger than 0.5 for the control of the target to be obtained; *TgtLiabMV* is the market value of the target firm's liabilities[18], so that βx*TgtLiabMV* represents the amount of target's liabilities assumed by the acquirer during the business combination; GW_t is the goodwill of the company at time *t*, GW_{ta} is the goodwill of the target company at the combination date; the other items are defined as before.[19]

Non-Overlapping 3-year sub-periods Creation. We then transform our yearly internal and external growth measures into 3-year measures for each company, the 3-year measure being the sum of the three years composing the panel. Because we want to focus mainly on the impact of investments and acquisitions on corporate and market performance, but also because a majority of the divestments are not available on the SDC database, we decided to drop any observation for which the total growth is negative over any given 3-year period, as well as the very few cases of divestments that remained after dropping those panels[20]. While it's true that this choice might have some undesirable consequences (survival bias, sample selection bias...), the loss of those observations will make sure that long (since the growth measures are estimated over three years) and big divestment periods, such as the selling of a major part of the operations, or even bankruptcy, will not impact our results.

In addition, the use of 3-year non-overlapping observations has two other advantages. Firstly, their length is sufficient for the estimation of a Fama-French three factors model (i.e. 36 monthly market returns available for each company over the 3-year period to perform the regressions). Secondly, non-overlapping sub-periods are adequate for inference and for the

[18] Also available through SDC.

[19] For some of the companies (especially private targets), the target's total assets are not always available in SDC. In that case, we use the ratio '*deal value*/*percentage acquired*' as a proxy for the target's total assets. The validity of this hypothesis is tested in the robustness section of this paper.

[20] 2835 companies were dropped from this procedure

use of time lagged panel regression tests to assess the performance of each growth strategy. The use of smaller regrouping period would not allow us to perform a Fama-French model with our monthly data efficiently; while larger regrouping period would cause issues when lagging our variables through time (see the following two sections for more details).

Validation of the internal growth measure. To validate our internal growth measure, we perform three panel regressions. The dependent variable is the internal growth measure for each regression. As independent variable for each regression, we select three different variables that we expect to be correlated with internal growth. These are the growth rates of property plan and equipment, employees and R&S expenses. Indeed, if the companies realize internal grow during a given period, it sounds intuitive and reasonable to expect an increase in their number of employees, their machineries, as well as their R&D expenses. Table 5 presents the analysis. Hausman specification tests are also reported in the table for each panel regression and recommend fixed-effect panel regression for all cases (all the chi-squares are significant at conventional level). Overall, our results indicate that an increase in equipment, employees or R&D expenses is positively associated with an increase in internal growth, therefore confirming to a large extent that the internal growth rate proxy fulfills its intended purpose.

With our internal growth measure being validated, we can now precede with the computation of the performance measures.

2.3. Measure of market performance

In this sub-section, we describe the used methodology to assess the value creation for the shareholders of each growth strategy. Because each type of growth is more likely to have different induced risk levels, as broadly illustrated in the introduction of the paper, we use a

risk-adjusted measure of performance. Therefore, we estimate the mean-calendar abnormal returns through the Fama and French (1993) three-factor model, and we use it as a shareholder value creation measure.

The Fama and French three-factor time-series regression equation is as follows:

$$R_{jt} - R_{ft} = \alpha_j + b_j\left(R_{mt} - R_{ft}\right) + s_j SMB_t + h_j HML_t + \varepsilon_{jt}, \quad (7)$$

where R_{jt} is the monthly stock return of firm j in time t, R_{ft} is the 1-month T-bill return, R_{mt} is the CRSP value-weighted market index return, SMB_t is the return on a portfolio of small stocks minus the return on a portfolio of large stocks, and HML_t is the return on a portfolio of stocks with high book-to-market ratios minus the return on a portfolio of stocks with low book-to-market ratios. The intercept (α) is the abnormal return measure. Equation (7) is estimated for each company and each 3-year observation using the ordinary least squares method.[21]

Then, we estimate the effect of each growth strategy on firm performance, by performing a panel regression of the abnormal mean returns of Equation (7), after adjusting them for heteroscedasticity (as in the FGLS[22] approach of Saxonhouse, 1976), on the contemporary and lagged internal and external growth rates :

$$\alpha_{jt} = \gamma_0 + \gamma_1 Gi_{jt} + \gamma_2 Gx_{jt} + \gamma_3 Gi_{jt-1} + \gamma_4 Gx_{jt-1} + \varepsilon_{jt}, \quad (8)$$

where the index t goes from 1 to 5 index and denotes a given sub-period of 3-year.

2.4. Operational performance measure

We use cash flows measures to assess the operational performance of the firms. Those measures have two advantages compared to other standard accounting measures: they moderate the impact of the financing of the acquisition (cash, stock or mixed) and the impact

[21] We require at least 24 available observations out of 36.

[22] Feasible Generalized Least Squares

of the method of accounting for the transaction (purchase or pooling accounting) as stressed by Healy *et al.* (1992) because they exclude the effect of depreciation, goodwill, interest expense/income, and taxes. Therefore, those properties make them more interesting for our study than earnings based performance measures. In addition, it must be underlined that this is a non-risk adjusted operational measure, as opposed to our risk-adjusted value creation measure.

Operating cash flows are defined as sales (Compustat item 12), minus the cost of goods sold (Compustat item 41), and selling and administrative expenses (Compustat item 132), plus depreciation (Compustat item 14) and goodwill expenses (Compustat item 204).[23] The cash flows are then deflated by the firm's total assets to obtain a comparable metric. We prefer not to use the market value of assets as a deflator because a post-acquisition increase (or decline) in market value will decrease (increase) cash flow ratios even if the operating cash flows stay steady.

Because cash flows variables are affected by firm-specific and industry-wide factors, we adjust them using industry performance as a benchmark, by subtracting every year the industry median from the firm value.[24]

Finally, we cluster again our industry adjusted cash flow returns into five 3-year panels, by cumulating the single year returns, and we perform a panel regression of the cash flow returns on the contemporary and lagged internal and external growth rates.

2.5. Descriptive Statistics

Table 6 reports descriptive statistics for the different growth and performance measures for each panel.[25] The companies of our sample have an internal growth rate panel average of 43%

[23] The used Compustat items are described in Appendix.

[24] Once more, we use the classification in 38 categories by Kenneth French.

and an external growth rate average of 11% (since the majority of the companies didn't perform any external growth at all in most panels) between January 1990 and December 2004. In addition, the average 3-years cumulated cash flow return was 3.2% when deflated on assets.

Finally, we wanted to investigate the association between both types of growth. Are they completely independent or are both kind of growth strategies related? We correlated our internal and external growth measures for all the periods by pooling all our observations, and found no statistically significantly correlation between them ($\rho = 0.02$), confirming the other similar results obtained in the literature (see, e.g., Luypaert and Huyghebaert, 2007) (unreported result).

3. Performance results

3.1. Preliminary analysis

Table 7 provides a preliminary analysis on the relation between the combination of growth intensity and firm performance. Panel A of Table 7 presents the average (upper value) and median (lower value) alphas, sorted according to the intensity of internal and external growth rates performed over the 15-year period. We notice that the mean and median abnormal returns increase as the amount of internal and external growth goes up, suggesting a positive relationship between growth and value creation for the shareholders. Indeed, the average (median) alpha goes from 0.0014 (0.0018) for the low *Gi*/low *Gx* sample to 0.0084 (0.0081) for the high *Gi*/high *Gx* sample. Moreover, the companies with high *Gi*/low *Gx* performed

[25] For all our variables and for each panel, 5% of the top and bottom outliers are removed from the sample (i.e. 10% total), as our global data has rather important variance and extreme values. This procedure leads us to discard 1810 observations for each of our growth rates, 2,279 observations for the alphas, and 1,934 observations for our cash flow returns over the whole period of time.

better than the companies with low *Gi*/high *Gx* (0.0071 and 0.0019 for the mean), suggesting that the impact of organic growth on performance might be more important. All the figures are significantly different from zero at a 1% level. There is also a significant increase (at a 1% level) for all the sub-samples when we compare them to the low Gi/low Gx sub-sample. Panel B of Table 7 presents the same matrix but for operational performance. Again, all the figures are significantly different from zero at a 1% level, Both high Gi/low Gx and high Gi/high Gx sub-samples are significantly different from the low Gi/low Gx sub-sample at a 1% level. It appears that both types of growths – and especially *Gi* – might have a slight negative impact on the cash-flow returns (the mean cash flow returns significantly decrease roughly from 0.43 to 0.32 when comparing the low *Gi* sample with the high *Gi* one), although it is hard to judge if the overall effect is significant from the approach used in Table 7. The different panel regressions of the next sub-section should give us a better understanding of the different relationships between the different variables, as well as their significance.

3.2. Panel regressions on market and operational performance

Tables 8 summarizes the results from our panel regressions of the internal and external growth rates on market (Panel A) and operational (Panel B) performance. After having conducted a Hausman specification test for each regression (the results of which are also reported in the tables for each panel), and given that the each corresponding Chi-square is significant, we present results using a fixed-effect panel data estimator. For each panel, we provide two specifications. Specification (1) considers only contemporaneous growth measures, while in Specification (2) we add lagged growth measures by one period as well.

The results from Panel A of Table 8 indicates that an increase of the internal growth rate significantly (*p*-value = 0.00) improves the mean calendar-time abnormal returns of the company that grows up internally. Moreover, an increase in the external growth rate also has a significant positive impact on the company's market performance. Both impacts are of similar

magnitude. Therefore, it appears that both kinds of growth strategies create value for the shareholders, as companies generate higher abnormal returns for the period over which they grow up. In addition, the similar magnitude of the coefficients corroborates the theory that at the aggregate market equilibrium, both kinds of strategies would yield the same marginal gains for the shareholders. In Specification (2) we add two more independent variables to explain market performance: the lagged internal growth rate (i.e. the internal growth rate from the previous three-years period) and the lagged external growth rate (i.e. the external growth rate from the previous three-years period) to study the impact of a variation of internal or external growth on future market performance. The coefficients on the non-lagged variables remain positive and significant. However, consistent with the findings of Mitchell and Stafford (2000) and Betton *et al.* (2008), the coefficients of the lagged variables are non-significant, indicating that investments or mergers do not impact market performance over the long-run.

Panel B of Table 8 presents the coefficients of the panel regressions of the two growth measures on the cash flow returns. In Specification (1), the negative coefficients (significant for the internal growth rate) might seem quite unexpected at a first glance. It appears that in the short run, organic growth is consuming the cash-flows of the companies, as the cash flow returns decrease around the investment dates. This decrease might be the result of the combination of two separate effects.

Firstly, it could be that decreasing cash flow returns are not the consequence of the combination/investment, but rather the cause of it. For example, if bidders perceive that it would benefit them from acquiring a certain company with bad current operational performance but with high synergy potential, they will go on with the acquisition. Similarly, companies with low cash flow returns might seek to improve their situation by expanding internationally for example, therefore increasing their equipment, employees and R&D

expenses. Secondly, we have to keep in mind that an increase in the total assets through organic growth at time *t* will decrease the cash flow returns ratio if the cash flows don't increase proportionally during the same year. If the sales increase or the costs reductions (through improved production methods or economies of scales) take some time to appear, it will take a few years for the cash flow returns to go up.

To test this idea, we run the panel regressions with lagged independent variables in Specification (2). This time, both coefficients become positive (and significant for the lagged internal growth rate coefficient with a *p*-value of 0.06), indicating that in the longer run, organic growth has a positive impact on operational performance, once the companies had sufficient time to increase their sales and realize economies of scales or other cost reduction strategies. This result is consistent with the findings of Eberhart et al. (2004), as they find that companies of their sample experience significant positive long-term abnormal operating performance following their R&D increases.

Hence, it appears that growth impacts market and operational performance differently. On the one hand, the positive effects of growth on market performance and shareholder value materialize immediately (or at least in the same panel), while the gains on operational performance only do after a couple of years.

All these results are consistent with the fact that the companies are valued on the stock market according to the present value of their expected future cash flows (the efficient capital market hypothesis): if a company performs an acquisition or an internal investment which is expected to increase the cash flow returns in the future, it will have a positive impact on the stock price today.

3.3. Robustness Tests

This section reports on two robustness checks: (1) to see whether our results are affected by the use of '*deal value* over *percentage acquired*' as a proxy for the target total assets when the variable is not available in SDC and (2) to assess whether our results are robust to the use of industry-adjusted growth measures.

For the first test, to derive the external growth measure we use a sub-sample of 6,124 M&As from SDC for which all the data is available in SDC. The first column of Table 9 presents the analysis. It confirms that our results are robust to the used proxy, none of the coefficients changing sign significantly compared to the regressions with the initial sample (see Specification (2) in Table 8).

To see if there is any industry effect impacting our growth rates, we adjusted them for industry by subtracting the industry median (for the internal growth rate) or the industry average *(for for the external growth rate* – since the industry median is zero in most panels) for each panel. The results of the two core regressions are presented in the second column of Table 9, and the significance of all the coefficients remains once again similar to the previous tests.

4. Conclusion

This paper addresses the following basic question related to the performance of firms: should the companies focus on M&As or would they be better off by investing those resources internally instead? This question hasn't been broadly studied in the literature because internal growth is not an "event". It's a lengthy process that progressively takes place in time. Therefore, its empirical study is not straightforward.

To answer this question, we analyze 7,223 U.S. companies listed on the NYSE, AMEX and NASDAQ between January 1990 and December 2004.

Firstly, we construct an internal and an external growth rate measure for each 3-year subsequent period and each company of our sample. Then, we compute and use the mean calendar-time abnormal returns as a shareholder value creation measure, and cash flow returns as a measure for operating performance. Finally, we validate our internal growth measure and we estimate which growth strategy performed better, by performing panel regressions of the performance measures on the contemporary and lagged internal and external growth rates.

Using this methodology, we find evidence that both kinds of growth strategies create value for the shareholders, as companies generate higher abnormal returns for the panels over which they grew up. The similar magnitude of the coefficients associated with the internal growth and external growth measures gives support to the idea that companies display some rationality and tend to choose an optimal growth strategy given the context in which they are evolving. The effects of growth on market performance were mostly short-term effects (i.e. they appeared in the same panel as the growth), indicating that investments or mergers do not impact market performance over the long-run

Analyzing the operational performance of the companies also gave some interesting results. It appears that in the short run, organic growth is consuming the cash-flows of the companies, as the cash flow returns decrease around the investment dates. However, when we run the panel regressions with lagged independent variables, both coefficients become positive (and significant for the lagged internal growth rate coefficient), indicating that in the longer run, organic growth has a positive impact on operational performance, once the companies had sufficient time to increase their sales and realize economies of scales or other cost reduction strategies.

Hence, it appears that growth impacts market and operational performance differently. On the one hand, the positive effects of growth on market performance and shareholder value materialize immediately, while the gains on operational performance only do after a couple of

years. All these results are consistent with the fact that the companies are valued on the stock market according to the present value of their future cash flows.

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Appendix – Compustat items

- DATA6/N-Assets - Total (MM$)
- DATA8/N- Property Plant and Equipment - Total (MM$)
- DATA12/N-Sales (Net) (MM$)
- DATA14/N-Depreciation and Amortization (MM$)
- DATA29/N- Employees - Total
- DATA41/N-Cost of Goods Sold (MM$)
- DATA46/N-Research and Development Expense (MM$)
- DATA132/N-SG&A Expenses (Restated) (MM$)
- DATA204/N-Goodwill (MM$)

Table 1
Description of sample firms

This table reports descriptive statistics on the sample firm characteristics for each sub-period of 3-year between 1990 and 2004). *N* denotes the sample size, which corresponds to the number of firms with available accounting data to compute the growth measures. M and MM stand for thousand and million, respectively. Total Assets are available from Compustat item 6; Sales from Compustat item 12; Employees from Compustat item 29 and Market Cap from CRSP (as the product of the number of shares outstanding – SHROUT – and the closing price – PRC).

	Mean	Min	Q1	Median	Q3	Max
Panel A. 1990–1992 (*N* = 2,699)						
Total Assets ($MM)	2,307	1.08	26	127	808	185,192
Sales ($MM)	1,244	0	23	129	595	125,316
Market Cap ($MM)	1,068	0.76	23	104	507	72,009
Employees (M)	7.57	0.01	0.16	0.88	3.94	756
Panel B. 1993–1995 (*N* = 3,338)						
Total Assets ($MM)	2,507	1.14	35	147	763	268,679
Sales ($MM)	1,184	0	33	143	604	151,080
Market Cap ($MM)	1,178	1.36	35	146	628	98,968
Employees (M)	6.43	0.01	0.18	0.90	3.77	716
Panel C. 1996–1998 (*N* = 3,984)						
Total Assets ($MM)	3,024	1.16	54	222	923	409,243
Sales ($MM)	1,299	0	37	144	629	162,518
Market Cap ($MM)	2,001	1.84	46	168	738	245,721
Employees (M)	6.22	0.01	0.12	0.71	3.57	743
Panel D. 1999–2001 (*N* = 3,289)						
Total Assets ($MM)	5,092	1.02	87	345	1,474	890,199
Sales ($MM)	1,968	0	52	207	895	184,825
Market Cap ($MM)	3,680	1.92	56	252	1,119	460,108
Employees (M)	8.15	0.01	0.21	0.96	4.35	1,098
Panel E. 2002–2004 (*N* = 2,980)						
Total Assets ($MM)	6,487	1.21	44	488	1,805	1,281,774
Sales ($MM)	2,285	0	51	244	1,060	240,331
Market Cap ($MM)	3,476	2.36	105	384	1,524	313,073
Employees (M)	8.64	0.01	0.23	0.98	4.89	1,428

Table 2
M&A sample distributions over time and by industry

This table reports the M&A sample distributions by completion year (Panel A) and by industry (Panel B). The sample period is 1990-2004. In panel B, we use the Fama-French 38-industry classification scheme. The industry of the acquirer is used to classify the deals in the sample. *N* and % denote, respectively, the number of acquisitions and the percentage of the sample in each year or industry.

Panel A. Deals per year			Panel B. Deals per industry					
Year	*N*	%	Industry	*N*	%	Industry	*N*	%
1990	448	2,50%	Agriculture, forestry, and fishing	32	0,18%	Fabricated Metal Products	275	1,52%
1991	461	2,50%	Mining	99	0,55%	Machinery, Except Electrical	1,101	6,09%
1992	618	3,40%	Oil and Gas Extraction	917	5,07%	Electrical and Electronic Equipment	1,442	7,97%
1993	840	4,60%	Non-metalic Minerals Except Fuels	14	0,08%	Transportation Equipment	390	2,16%
1994	1,065	5,90%	Construction	167	0,92%	Instruments and Related Products	995	5,50%
1995	1,242	6,90%	Food and Kindred Products	264	1,46%	Miscellaneous Manufacturing Ind.	176	0,97%
1996	1,602	8,90%	Tobacco Products	11	0,06%	Transportation	301	1,66%
1997	2,046	11,30%	Textile Mill Products	74	0,41%	Telephone and Telegraph Comm.	565	3,12%
1998	2,182	12,10%	Apparel and other Textile Products	75	0,41%	Radio and Television Broadcasting	645	3,57%
1999	1,750	9,70%	Lumber and Wood Products	32	0,18%	Electric, Gas, and Water Supply	32	0,18%
2000	1,567	8,70%	Furniture and Fixtures	60	0,33%	Sanitary Services	41	0,23%
2001	1,160	6,40%	Paper and Allied Products	129	0,71%	Steam Supply	0	0,00%
2002	1,058	5,90%	Printing and Publishing	256	1,42%	Irrigation Systems	0	0,00%
2003	941	5,20%	Chemicals and Allied Products	784	4,34%	Wholesale	1,047	5,79%
2004	1,058	6,10%	Petroleum and Coal Products	91	0,50%	Retail Stores	869	4,81%
Total	18,085	100%	Rubber and Plastics Products	144	0,80%	Finance, Insurance, and Real Estate	1,339	7,40%
			Leather and Leather Products	31	0,17%	Services	5,299	29,30%
			Stone, Clay and Glass Products	70	0,39%	Public Administration	42	0,23%
			Primary Metal Industries	239	1,32%	Almost Nothing	37	0,20%
						Total	18,085	100%

Table 3
Description of the M&A sample

The sample includes 18,085 completed M&A deals from SDC over the period 1990-2004. Panel A focuses on the distribution of the used accounting method, i.e. if the deal is accounted with the purchase or the pooling method. Panel B shows the distribution of number of bidders. Panel C displays the distribution of the method of payment, i.e. stock, cash or mix. For each variable, we report the proportion in the sample of the corresponding variable.

Panel A: Accounting method	
Purchase	91.3%
Pooling	8.7%
Panel B: Number of bidders	
1 bidder	98.8%
2 bidders	1.0%
3 or more bidders	0.2%
Panel C: Method of payment	
pure stock	24.7%
pure cash	46.9%
mix of cash and stock	28.4%
Panel D: Cross-border deals	
No	84.4%
Yes	15.6%

Table 4
Completed M&A deals by our sample firms

This table reports for each sub-period of 3-year the number of firms with available accounting data to compute the growth measures (*N*). Out of these firms, we report the number of firms that have not realized any M&A deal, that have realized a single acquisition and two or more acquisitions. The average deal size is also reported in the last column (in million USD).

Period	*N*	No M&A	One-Off M&A	2 or more M&A	Average Deal Size
1990–1992	2,699	1,361	1,014	324	102
1993–1995	3,338	1,725	1,191	422	108
1996–1998	3,984	2,053	1,429	502	198
1999–2001	3,289	1,647	1,218	424	504
2002–2004	2,980	1,495	1,104	381	246

Table 5
Validation of the internal growth measure

This table presents, as a validation test of the internal growth measure, three fixed-effect panel data regressions. The dependent variable is the 3-year internal growth rate measure (*Gi*). In Panel A the independent variable is the 3-year growth rate of property plant and equipment (computed from Compustat item 8). In Panel B the independent variable is the 3-year growth rate of number of employees (computed from Compustat item 29). In Panel C the independent variable is the growth rate of research and development expenses (computed from Compustat item 46). R^2 is the coefficient of determination. *Coef* denotes the estimated coefficient of the corresponding variable. All the data for the different independent variables are obtained from Compustat.

Panel A. Property plant & equipment growth

Variable	Coef	*p*-value
Constant	0.635	0.00
Proprerty plant & equipment	0.007	0.00
Fisher	96.22	0.00
R^2	12%	
N	16108	
Hausman test (random vs. fixed effect)		
Chi-square	7.71	0.02

Panel B. Employee growth

Variable	Coef	*p*-value
Constant	0.609	0.00
Employee	0.048	0.00
Fisher	78.11	0.00
R^2	12%	
N	16048	
Hausman test (random vs. fixed effect)		
Chi-square	9.73	0.01

Panel C. Research and development expense growth

Variable	Coef.	*p*-value
Constant	0.694	0.00
R&D expense	0.001	0.00
Fisher	64.12	0.00
R^2	6%	
N	16002	
Hausman test (random vs. fixed effect)		
Chi-square	5.31	0.00

Table 6
Descriptive statistics on growth and performance variables

This table provides descriptive statistics for the growth and performance variables used in the analysis. The data is split into five panels, representing each one a 3-year sub-period over which the variables are computed. *Gi*, *Gx*, *CF Ret.* and *alpha* respectively represent the internal growth rate, the external growth rate, the cash flow returns on assets and the calendar-time abnormal returns for each panel. We report, respectively, the mean, the standard deviation, the minimum, the first quartile, the median, the third quartile and the maximum of the corresponding variable.

	Mean	Std Dev	Min	Q1	Median	Q3	Max
Panel A. 1990–1992 (*N* = 2,699)							
Gi	0.40	0.38	0.00	0.13	0.28	0.53	1.82
Gx	0.04	0.10	0.00	0.00	0.00	0.04	0.59
CF Ret.	0.07	0.70	-2.16	-0.27	0.08	0.37	1.77
alpha	0.006	0.017	-0.028	-0.005	0.005	0.017	0.055
Panel B. 1993–1995 (*N* = 3,338)							
Gi	0.48	0.44	0.00	0.17	0.35	0.67	2.15
Gx	0.08	0.17	0.00	0.00	0.00	0.06	0.93
CF Ret.	-0.01	0.73	-2.92	-0.32	0.04	0.37	1.50
alpha	0.002	0.017	-0.038	-0.008	0.002	0.013	0.046
Panel C. 1996-1998 (*N* = 3,984)							
Gi	0.49	0.45	0.00	0.18	0.38	0.70	2.24
Gx	0.17	0.32	0.00	0.00	0.00	0.19	1.55
CF Ret.	-0.03	0.82	-2.68	-0.45	-0.02	0.47	1.76
alpha	0.002	0.019	-0.043	-0.011	0.001	0.014	0.048
Panel D. 1999-2001 (N = 3,289)							
Gi	0.45	0.46	0.00	0.14	0.31	0.61	2.29
Gx	0.16	0.29	0.00	0.00	0.00	0.18	1.58
CF Ret.	0.08	0.83	-2.54	-0.39	0.09	0.62	2.18
alpha	0.007	0.021	-0.039	-0.008	0.005	0.021	0.075
Panel E. 2002-2004 (N = 2,980)							
Gi	0.36	0.33	0.00	0.13	0.32	0.51	1.69
Gx	0.08	0.47	0.00	0.00	0.00	0.08	0.85
CF Ret.	0.06	0.93	-2.64	-0.42	0.11	0.63	2.15
alpha	0.007	0.015	-0.028	-0.004	0.007	0.017	0.049

Table 7
Intensity of growth and firm performance

This table relates the combination of the intensity of external and internal growth to market and operational performance. The entire sample is divided into four parts, according to the intensity of growth of each company: high *Gi*/high *Gx* (includes the companies with both internal and external growth rates above the median over the whole period of time); high *Gi*/low *Gx*; low *Gi*/high *Gx*; low *Gi*/low *Gx*. Panel A reports the average and median alphas for each one of our four sub-samples. The top value represents the mean, and the bottom value represents the median. Similarly, Panel B reports the average and median cash flow returns on assets for our four sub-samples. Again, the top value represents the mean, and the bottom value represents the median.

Panel A: Market performance

high Gi	0.0071	0.0084
	0.0062	0.0081
Low Gi	0.0014	0.0019
	0.0018	0.0026
	Low Gx	High Gx

Panel B: Operational performance

high Gi	0.0323	0.0317
	0.0524	0.0579
Low Gi	0.0441	0.0425
	0.0714	0.0659
	Low Gx	High Gx

Table 8
Panel regressions on firm performance

This table reports the estimation of fixed-effect panel data regressions where performance variables are regressed on growth measures. Panel A focuses on market performance, where the dependent variable is the intercept (alpha) of the Fama-French factor model as a measure of long-term mean abnormal returns. Panel B focuses on operational performance, where the dependent variable is the cash flow returns. For each panel, we provide two specifications. Specification (1) considers only contemporaneous growth measures, while in Spectification (2) we add lagged growth measures by one period as well. Both the growth and performance measures are computed for each firm over 3-year period. The Hausman Chi-square tests (random vs. fixed effect) are also reported for each panel regression.

Panel A. Market performance

	(1)		(2)	
	Coef.	p-value	Coef.	p-value
Constant	0.210	0.00	0.119	0.00
Internal growth	0.002	0.00	0.004	0.00
External growth	0.002	0.00	0.002	0.00
Lagged internal growth			4E-04	0.41
Lagged external growth			-5E-04	0.19
Fisher-statistic	155.29	0.00	59.18	0.00
R^2	1.74%		2.85%	
N	15635		8523	
Chi-square	8.24	0.02	124.61	0.00

Panel B. Operational performance

	(1)		(2)	
	Coef.	p-value	Coef.	p-value
Constant	-1.122	0.08	4.418	0.00
Internal growth	-1.904	0.00	-12.014	0.00
External growth	-0.347	0.64	-0.573	0.62
Lagged internal growth			1.064	0.06
Lagged external growth			0.818	0.50
Fisher-statistic	26.36	0.00	34.48	0.00
R^2	1.21%		1.94%	
N	15426		8412	
Chi-square	13.09	0.00	6.11	0.05

Table 9
Robustness checks

This table provides additional panel regression analyses as robustness checks. We reports the estimation of fixed-effect panel data regressions where performance variables are regressed on growth measures. Panel A focuses on market performance, where the dependent variable is the intercept (alpha) of the Fama-French factor model as a measure of long-term mean abnormal returns. Panel B focuses on operational performance, where the dependent variable is the cash flow returns. For each panel, we provide two regressions. Regression (1) uses a sub-sample for with available target (2) we add lagged growth measures of one period as well. Both the growth and performance measures are computed for each firm over 3-year period. The Hausman Chi-square tests (random vs. fixed effect) are also reported for each panel regression.

Panel A. Market performance

	(1) Sub-sample with available target total assets		(2) Industry-adjusted growth measures	
	Coef.	p-value	Coef.	p-value
Constant	0.0939	0.00	0.1656	0.00
Internal growth	0.0032	0.00	0.0043	0.00
External growth	0.0022	0.00	0.0021	0.00
Lagged internal growth	0.0004	0.61	0.0002	0.54
Lagged external growth	-0.0004	0.38	-0.0005	0.21
Fisher-statistic	28.11	0.00	44.87	0.00
R^2	1.70%		2.76%	
N	3855		8524	
Chi-square	9.54	0.01	6.04	0.05

Panel A. Operational performance

	Sub-sample with complete target total assets		Industry-adjusted growth measures	
	Coef.	p-value	Coef.	p-value
Constant	5.925	0.00	-0.035	0.97
Internal growth	-16.712	0.00	-12.132	0.00
External growth	-2.122	0.25	-0.676	0.56
Lagged internal growth	1.381	0.06	1.094	0.05
Lagged external growth	0.953	0.61	0.745	0.54
Fisher-statistic	21.12	0.00	37.54	0.00
R^2	2.65%		1.92%	
N	3707		8412	
Chi-square	36.04	0.00	17.94	0.00