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ARE ACQUISITIONS WORTHWHILE? AN EMPIRICAL STUDY OF THE POST-ACQUISITION PERFORMANCE OF PRIVATELY HELD BELGIAN COMPANIES INVOLVED IN TAKE-OVERS.

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ABSTRACT

Few studies have addressed the performance of smaller unquoted companies involved in take-overs, especially in the Continental European countries. Therefore this study addresses the post-take-over financial characteristics of privately held companies involved in 143 Belgian take-overs between 1992 and 1994. Specifically, this paper examines the financial performance of the acquiring firm after the take-over, using statistical analysis of industry-adjusted variables. Our findings show that following the take-over, the profitability, the solvency and the liquidity of most of the combined companies decline. This decline is also reflected in the failure prediction scores. With respect to the added value, take-overs are found to be accompanied by increases in the labour productivity, caused by the general improvement of gross added value per employee of Belgian companies in the last ten years and partly caused by laying off the target's workers. So it seems that, contrary to the general expectations and beliefs, take-overs usually do not seem to improve the acquirer's financial performance.

INTRODUCTION

The acquisition of one firm by another one remains a very popular strategic manoeuvre, but is also a heavily contested means of realizing corporate growth. In general, organizations select the acquisition strategy as an alternative or a supplement to internal efforts aimed towards growth, diversification or profitability. Acquisitions are thus investment decisions by the acquiring firms. A firm should implement an acquisition strategy only if it is expected to improve its organizational performance and if it is preferable to alternative growth strategies. However, it is not certain at all that acquisitions provide real benefits.

The economic consequences of mergers and acquisitions were investigated in many studies. The empirical literature on the financial effects of take-overs has drawn on two principal sources of statistical evidence: stock market data and accounting-based data. However, the vast majority of the take-over literature deals with the impact of the merger and acquisition announcements on the share price of the bidding and the target company. Since stock market event studies are not suitable for measuring pre-and post-take-over performance of privately held companies, we use accounting data to study the impact of take-overs.

Few studies addressed the performance of the smaller unquoted companies involved in take-overs. Nevertheless, Da Silva Rosa et al. (2001) note that the majority of take-over bids are for private targets. Furthermore, most accounting studies were carried out in the US and the UK and are usually restricted to samples of very big companies with publicly traded securities. Little is know about the performance of target and acquiring companies in the take-over market in Continental European countries such as Belgium – a market that is dominated by take-overs of small, privately held companies. However, theories developed to explain

public bids do not necessarily apply to private bids (Chang, 1998; Da Silva Rosa et al., 2001). Therefore, our research is motivated by the lack of empirical research on the operating performance of unquoted companies involved in take-overs.

This paper aims to evaluate the financial characteristics and performance of unquoted large and small companies (both target and acquirer) that were involved in take-overs. In this study of 143 Belgian private take-overs we investigate if acquisitions provide performance gains for the acquirers using a comprehensive set of measures. The research question is: do the acquiring firms, according to the general expectations and beliefs, show better performance after the take-over, or should they better not engage in a costly take-over? In other words, are they been better off with or without acquiring another company?

The paper is organized as follows. Section 2 gives a brief review of previous post-take-over performance research, focusing on studies that use financial accounting data. In Section 3, we describe the methodology used in this paper, which includes the data collection, the accounting-based performance measures and the methodology. The results are reported in section 4. The paper ends with the summary and conclusions in section 5.

LITERATURE REVIEW

Mergers and acquisitions are one of the actively researched topics in finance. Especially, performance issues have been subject to various academic studies. The vast majority of these studies, however, focus on take-overs of big, listed companies and these studies examine the

impact of take-over announcements on stock market returns. Share price event studies however are not the only approach to assess the acquisition effects. A second source of statistical evidence derives from companies' annual reports. Both methodologies have their advantages and disadvantages.

Accounting studies of take-overs have received a lot of criticism. Fisher and McGowan (1983) state that '*there is no way in which one can look at accounting rates of return and infer anything about relative economic profitability…'*. Chatterjee and Meeks (1996) however suggest two competing hypotheses that favour the further use of accounting-based research: (1) the stock market is semi-strong efficient and (2) the informational efficiency of the stock market has been overestimated. Moreover, an important problem with stock market event studies is that they are not suitable for measuring the pre- and post-take-over performance of unquoted companies, contrary to the accounting studies of take-overs. Whereas most empirical studies using the event-study methodology focus on daily stock returns surrounding announcement dates[1], accounting studies of take-overs usually study accounting rates of return during several years before and after take-overs. On the other hand, there are also some problems with accounting-based studies: (1) different studies examine different accounting measures of performance, making it difficult to compare the results; (2) there is a problem with the benchmark itself and with the selection of an appropriate methodology, and (3) frequently there is a lack of appropriate data (Cosh and Hughes, 1994; Chatterjee and Meeks, 1996; Cosh et al., 2001).

The pattern of long-run post-announcement negative abnormal returns to acquirers appears to be inconsistent with market efficiency, and by implication with the methodological approach

[1] Event studies that also look at the long-run post-acquisition performance are: Franks, Harris and Titman (1991), Healy, Palepu and Ruback (1992), Agrawal, Jaffe and Mandelker (1992) and Loughran and Vijh (1997).

of using security returns to evaluate the future cash flow effects of corporate decision making (Baker and Limmack, 2001; Loderer and Kenneth, 1992).

Some researchers (Ravenscraft and Scherer, 1987a and 1987b) have expressed concerns that the stock market performance of the bidder and the target firms around the acquisition date does not indicate whether the strategy represented by the acquisition has succeeded or failed. This view suggests that on average the capital market may not form unbiased estimates regarding the prospects of acquisitions.

Moreover, the studies that do investigate post-acquisition operating performance are usually restricted to samples of very big companies with publicly traded shares (e.g., Healy, Palepu and Ruback, 1992; Parrino and Harris, 1999). Exceptions are the studies by Ravenscraft and Scherer for the USA (1987a and 1987b, 1989) and Cosh, Hughes and Kambhampati (1993) and Cosh and Hughes (1994) for the UK.

Most accounting studies address both the pre-take-over performance of the target and the acquiring companies and the post-take-over performance of the acquiring company. The post-take-over performance studies that use financial accounting data, seek to determine whether, on average, take-overs are followed by changes in profitability. Firstly, these studies investigate the profit potential of the acquired companies, as manifested in their pre-take-over earnings. Furthermore, since the target's annual account information is absorbed into that of the acquirer, it can be expected that the pre-take-over performance of a target company will influence the post-take-over performance of the acquirer. This works well when the acquired company is reasonably large relative to the acquirer, but, when the target is small relative to

the acquirer, weighted average profitability gains are less likely to show through in the results of the combined firm (Cosh and Hughes, 1994; Higson and Elliott, 1994).

The aim of almost every post-acquisition study is to answer the following question: do the acquiring firms show better performance after the take-over or should they better not engage in a costly take-over? In accounting studies of take-overs this question is usually addressed by comparing the performance of the combined entity (i.e. the acquiring plus the target company) with control groups. These control groups are of two main types: before-and-after comparisons and comparisons with units that had no merger but are similar in size, industry, etc.

Most empirical work on stock market event studies find significant target price increases around the take-over announcement date (gains averaging 28%). Acquirers appear to have no gains around the announcement date, but there is also no evidence of significant losses (Jensen and Ruback, 1983; Franks and Harris, 1989 and Caves 1989). This supports the conclusion 'that mergers create value and, hence, are economically efficient' (Caves, 1989). In the long term however, prior studies of post-merger share-price performance report significant negative abnormal returns that challenge the efficiency of the market and raise questions about the validity of announcement gains as estimates of the gains from merging. Franks, Harris and Titman (1991) found that the previous findings of poor performance after the take-over are likely to be due to benchmark errors rather than to the mispricing at the time of the take-over.

Based on the results of stock market event studies one would expect accounting studies to confirm these positive conclusions. However, as Caves (1989) put forward, accounting studies '*are resoundingly negative on the average productivity of mergers and sharply at variance with the findings of event studies*'. Most accounting studies find a great percentage

of firms with below average profitability in the years following the merger or acquisition.[2] Ravenscraft and Scherer (1987a and 1987b) find similar results in their analysis of the actual outcomes of mergers and take-overs of small, non-listed companies. On the other hand, Healy, Palepu and Ruback (1992) examine post-acquisition performance for the 50 largest US mergers between 1979 and mid-1984 by using new cash-flow measures of economic performance and measures, containing market values of debt and equity. Unlike the other studies, they find significant improvements in the asset productivity of the merged firms, relative to their industries, leading to higher operating cash flow returns.

Few studies have investigated the financial performance of private take-overs. Amihud, Lev and Travlos (1990) found that the signalling implications of the method of payment are likely to be affected by the ownership structure of the firms. Chang (1998) and Da Silva Rosa et al. (2001) confirm this finding. Chang (1998) examined the bidder returns at the announcement of a take-over proposal when the target firm is privately held. His research indicates that bidders experience a positive abnormal return in stock returns, contrary to the negative abnormal return found for bidders acquiring a publicly traded target. Concerning the cash offers, bidders experience no abnormal returns. So it seems that different signalling implications exist due to the method of payment across private and public bids. Da Silva Rosa et al. (2001) find more or less similar results in their research concerning private Australian bids. Cash based bids generate a positive return, but share based bids are not associated with higher abnormal returns for bidders. Da Silva Rosa et al. (2001) stipulate that the higher cost of obtaining information on privately held firms is thus likely to be associated with higher returns for the acquiring firms since they capture a greater proportion of the expected gains.[3]

[2] For an excellent summary of earlier accounting studies, see Chatterjee and Meeks (1996).

DATA AND METHODOLOGY

Data

Our main data come from the CD-ROMs of the National Bank of Belgium and from the Belfirst CD-ROM for the years 1989-1999. It concerns published annual accounts of non-financial Belgian companies, subject to the legislation.

In Belgium companies are bound to deposit their annual accounts in a prescribed form dependent on their size. A distinction can be made between companies that have to prepare their annual accounts in a complete form and small companies that prepare their annual accounts in an abbreviated form. The first group of companies has more than 100 employees or satisfies at least two of the following criteria: number of employees (yearly average) of at least 50; turnover (VAT excluded) of at least 200 million Belgian francs and total assets of at least 100 million Belgian francs.[4] Companies that do not meet these criteria, are allowed to prepare their annual accounts in an abbreviated form. These companies do not have to apply the full disclosure requirements and e.g. do not have to report sales-figures.

It should be clear that definitions of 'large' and 'small' are very relative (e.g. Cosh and Hughes, 1994). In other surveys small and medium sized companies are often defined as firms employing less than 500 workers. In Belgium the number of companies employing more than 500 workers is only about 300 in the 1990's, relative to a total number of more than 200.000 companies that deposit their annual accounts with the National Bank of Belgium. However, there are much more (between 13.000 and 14.000 in the 1990's) companies with complete

[3] It was impossible to examine the impact of the method of payment or the impact of the accounting method since we have no information about these topics.

form annual accounts.[5] This means that the population of companies with complete form annual accounts, the so-called large companies in Belgian accounting terms, includes both 'large' and 'small' companies.

All companies with complete form annual accounts (companies that are taken over adopt the legal status of 'Absorption by another company'), acquired in 1992, 1993 or 1994, were selected. The very small or 'micro' companies, with annual accounts in an abbreviated form, were excluded from the analysis. This selection procedure led to a total number of 191 acquired firms, of which 59 in 1992, 47 in 1993 and 85 in 1994.
To this point, we only had a list of companies that were taken over. Their acquirers were not mentioned on the CD-ROMs, nor was it possible to trace them in Belgian financial newspapers since these companies were often too small. Because the National Bank of Belgium has a central database, which collects information about acquisitions in Belgium, the acquiring companies were traced with the help of the National Bank of Belgium.

In a next step, some companies were excluded from the population of the complete form take-overs because some information was lacking or because they were subject to special accounting requirements, making them difficult to compare with the other companies. Therefore financial and property companies were excluded. In total 48 companies were excluded so that the final population consists of 143 acquisitions. Because we include multiple take-overs in our study (i.e. take-overs in which the acquirers acquire more than one company), the number of acquired companies (143) is larger than the number of acquirers (123). The set of companies comprises 109 'single' acquirers and 14 'multiple' acquirers that

[4] 200 million Belgian francs = 4 957 870 Euro; 100 million Belgian francs = 2 478 935 Euro.
[5] Source: Ooghe and Balcaen (2000) and the CD-ROM's of the National Bank of Belgium.

acquired 34 target companies. Table 1 shows the number of multiple and single acquirers and their targets.

Insert Table 1 about here

Variables: accounting measures of performance

To evaluate the performance of the target and the acquiring companies, the different basic elements of the financial situation of a company are investigated: profitability, liquidity, financial structure or solvency and added value. We use four different profitability measures to evaluate the performance of acquiring and acquired companies, two liquidity measures, two solvency measures and two measures of added value. The 10 financial ratios which are presented in table 2, provide a comprehensive view of a company's financial situation.

The difference between the gross and the net return on the shareholders' equity lies in the non-cash expenses, which are either excluded (gross) or included (net) as expenses.

A non-classical measure of liquidity is the net cash ratio, which relates short-term investments to current assets. The financial independence ratio is the complement of the debt-to-total-assets ratio. The second solvency ratio used, is the cash flow coverage of debt. This ratio is an indicator of the debt repayment potential of a company because it relates the liabilities of debt to the cash flow that can be used to redeem these liabilities.

Insert table 2 about here

Some studies show a preference for cash flow measures and for 'fundamental' measures because the researchers are concerned about the reliability of accounting data (Higson and Elliott, 1993). We added the cash flow return of shareholders' equity as our fourth profitability measure and the cash flow coverage of debt as a second solvency ratio and we included two more 'fundamental' measures to our analysis: gross added value per employee and personnel expenses per employee (both in thousands of Belgian Francs). Value added is a good proxy for a company's overall economic performance (Ooghe and Van Wymeersch, 2000).

Take-overs are often seen as a means of restructuring distressed firms. Therefore, we include the scores of a short-term and long-term multivariate logit model. These two models that were estimated on a sample of Belgian annual accounts by Ooghe, Joos and De Vos, have proven to be reliable predictors of company failure (see: Ooghe, Joos and Bourdeaudhuij, 1995). They integrate different and sometimes contrasting aspects of a company's financial situation. The logit scores vary between 0 and 1 and reflect the failure risk of the company. The higher the score, the larger the failure risk of the company or the weaker its financial situation and vice-versa. The variables included in the models, are presented in Appendix 1.

Methodology

In this study we investigate the post-acquisition performance of the acquiring companies. In order to exclude industry and size effects, we evaluate the industry or industry & size-adjusted performance. For the 10 financial ratios and the two multivariate logit scores described above, industry values are available through a yearly study about 'The financial

situation of the Belgian companies', performed by the Department of Corporate Finance of the University of Ghent[6]. For each ratio and logit score, this study provides the three quartiles (Q1, Q2 and Q3) for the entire population of Belgian annual accounts and for several subgroups with respect to industry (17 industry classes[7]), size class (so called large companies with complete form annual accounts, small companies with abbreviated form annual accounts and companies without employees) and region (Flanders, Wallonia and Brussels). The first two classifications are especially useful for this study.

The values presented in this study, are industry-adjusted or industry & size-adjusted. This is achieved by subtracting the median value for the industry or for the industry|&size class from the value of each variable for a given company. The difference between the firm value and its industry or industry & size class median is standardized by dividing it by the interquartile range (= the difference between the third and the first quartile) of that industry or industry & size class (see: Joos, Ooghe and Sierens, 1998). Quartiles rather than averages and standard deviations are preferred because of the asymmetry and non-normality of the distribution of financial ratios. All variables in the formula are calculated for the same year.

$$(X_i - Q_{2\text{-industry y}}) / (Q_{3\text{-industry y}} - Q_{1\text{-industry y}})$$

where X_i is the value of the variable for firm i;

$Q_{2\text{-industry y}}$ is the median of the variable for the industry or industry&size-class y of firm i; and

$Q_{3\text{-industry y}} - Q_{1\text{-industry y}}$ is the interquartile range for the variable for the industry or industry&size-class y

of firm i.

[6]Ooghe and Balcaen (2000), De financiële toestand van de Belgische ondernemingen: sleutelratio's en risicoindicatoren 1991- 1999.

[7] For an overview of the 17 industry classes: see Appendix 2.

Post-take-over performance studies using annual account information have laboured under a number of difficulties. An important obstacle in evaluating the post-acquisition performance is that the acquired company normally ceases to exist and hence no longer publishes balance sheet information and income statements, once it is absorbed. The standard approach in take-over research to deal with this obstacle is to compare the combined entity's performance before-and-after the take-over and/or to compare with units that are not absorbed and are similar in industry size, etc. Both methodologies have their pros and cons but, as industry data were readily available for the acquiring companies in our study, we chose to combine both.
A problem related with the methodology, is the fact that acquired firms are usually quite small relative to their acquirers. Therefore, a real danger exists that the data of the target company will be 'swamped' within the consolidated whole. Some researchers have tried to avoid this problem by confining their analysis to relatively large acquisitions (e.g., Healy, Palepu and Ruback, 1992). However, this is not a reliable solution since other research showed there are systematic profitability differences associated with size. In our study, we compare the actual post-acquisition industry- or industry & size-adjusted values of the acquirers with the asset-weighted combined pre-acquisition industry- or industry & size-adjusted performance of the acquirer and the acquired firm. By taking the asset-weighted combination, we account for the relative size of the targets compared with their acquirers, according to their total assets.

A problem with traditional before-after comparisons is the business cycle influence. If the post-acquisition value of a performance measure is compared with the value before take-over, it is possible that the change in performance is merely due to better or worse economic conditions and not a result of the acquisition. By adjusting the value of the different performance measures with their industry median, both measured over the same year,

business cycle influences are no longer an issue since the industry median used to adjust the firm values, also reflects the business cycle influences.

Furthermore, since the companies in our study were acquired in different years, the population involved could be divided into three parts according to the year in which the acquisition took place (1992, 1993 or 1994). Information on annual accounts was collected for each of the three populations from three years prior to the acquisition year to five years after the acquisition year. The acquisition year is year (0), the last year before acquisition is year (-1), the first year after acquisition year (+1) and so on. This procedure allowed us to evaluate the performance of the acquiring and the target company, relative to the year of acquisition.

For the acquiring companies, data were available for the whole period, from three years before the take-over to five years after the take-over. Annual account information of the target company is no longer available from year (0) on. Year (0) is excluded from the analysis for two reasons. Firstly, many of the acquiring firms use the purchase accounting method, implying that, in the year of the merger, the two firms are consolidated for financial reporting purposes only from the date of the merger on. Results for this year are therefore not comparable across firms or industries. Secondly, year (0) figures are affected by one-time merger costs, incurred during that year, making it difficult to compare them with the results for other years (Healy, Palepu and Ruback, 1992).

Our hypothesis is that the post-take-over performance of the acquirer in terms of profitability, liquidity, solvency and added value, is higher than the pre-take-over performance of the combined entity. Since we compare financial ratios of a combined post-take-over entity (the

target absorbed by the acquirer) with financial ratios of a combined pre-take-over entity, we can apply a two-related sample test. Since our data are financial ratios and since financial ratios are not normally distributed, the (non-parametric) Wilcoxon Signed Rank test had to be applied in order to examine the differences in financial performance[8].

RESULTS CONCERNING THE POST-ACQUISITION PERFORMANCE

The results are divided into six parts. The various parts discuss the profitability, the solvency, the liquidity, the added value measures and the failure scores of the acquirer in the post-take-over years, compared with the weighted-average profitability of the acquirer and its target in the three pre-take-over years.

Post-take-over profitability

In figure 1 we present the evolution of the median of the industry-adjusted measures of profitability over the entire research period, i.e. from year (-3) to year (+5). Figure 1 clearly shows how the acquirer's profitability changes over time. The NSM and the NRTA decline after the take-over and recover after year (+4). In each of the post-take-over years both ratios are lower than the weighted average of the acquirer and target in year (-1). The CFRSE and

[8] We also applied a cross-sectional regression analysis to incorporate the relation between pre- and post-take-over industry-adjusted performance (see Healy et al., 1992 and Rahman and Limmack, 2000):

$$Ratio_{post,i} = \alpha + \beta\ Ratio_{pre,i} + \varepsilon_i$$

where $Ratio_{post,i}$ is the median industry-adjusted ratio for company i in the five post-take-over years;
$Ratio_{pre,i}$ is the median industry-adjusted ratio for the combination of target and acquirer in the three pre-take-over years;
α is the abnormal industry-adjusted performance, independent of the pre-take-over performance; and
β measures the effect of the pre-take-over performance on the post-take-over performance.

The results from the regression analysis are not reported since they were not significant.

the NRSE improve the first year after take-over and are higher than the weighted average in year (-1). They show a sharp decline afterwards. However, from year (+4) on, there is also a recovery in these profitability measures.

Insert Figure 1 about here

The results of the Wilcoxon test with respect to the year-to-year differences in profitability before and after take-over are reported in table 3. In this table we focus on the differences in profitability for each of the five post take-over years and the combination of acquirer and target in year (-1). Nearly the same conclusions about the differences between the post take-over years and year (-2) and year (-3) can be drawn.

Insert Table 3 about here

Panel A shows the differences in profitability measures between the acquirer in year (+1) and the combination of the acquirer and target in year (-1). It reports more negative than positive differences, indicating that the weighted-average pre-take-over profitability is higher than the post-take-over one of the acquirer. However, the decline in profitability in year (+1) after take-over is not statistically significant at the five per cent level and this leads to the conclusion that the acquirers do not seem to be able to improve their profit performance in year (+1) after the take-over.

We also investigate profitability changes between year (-1) and the years (+2), (+3), (+4) and (+5). The results are reported in Panels B, C, D and E of table 3. Panel B shows a decrease in CFRSE that is statistically significant at the five per cent level. The same holds for the

decrease in NRSE at the 10 per cent level. Similar conclusions can be drawn from the industry & size adjusted differences.
Panels C and D reveal a significant decline 3 and 4 years post-take-over of the industry-adjusted and the industry & size adjusted profitability measures.

The apparent decrease in profitability following take-overs, could have several explanations. One explanation is that the acquiring companies may have experienced 'managerial control loss problems'. It is quite possible that the acquirers experience unexpected problems in managing and integrating their acquisitions. As the combined organization becomes more complex, the acquiring management loses its control and is no longer able to manage its organization efficiently. Finally, this causes profitability levels to decline after the take-over.

A second explanation for the decrease in profitability is that it may reflect the tendency for abnormal returns to regress over time towards more 'normal' levels. The acquirer in general reaches its top profitability level one year prior to the take-over. This may explain why the acquirer engages in a take-over and therefore a decline in profitability could have nothing to do with the take-over, but be merely a logical decline after a very profitable period in the acquirer's history.

Post-take-over solvency

Figure 2 gives the evolution of the median of the two industry-adjusted solvency ratios for the period from year (-3) to year (+5). As we can see from Figure 2, in the pre-take-over years the combination of the acquiring and the acquired company reaches its peak with respect to solvency two years prior to take-over and declines somewhat one year prior to take-over. In

an earlier study about the pre-acquisition profile of privately held companies involved in take-overs (Camerlynck and Ooghe, 2000) we noticed that the acquirer's cash flow coverage of debt decreased in the pre-take-over years. As the weight of the acquirer in the weighted average is generally more important than that of the acquired company, it is quite logical that these lower values are reflected in the weighted average cash flow coverage of debt.
In the first and the second year after the acquisition, we observe an improvement of both solvency ratios. After year (+2) however, there is a sharp decline in the financial independence ratio and in the cash flow coverage of debt till year (+4).

Insert Figure 2 about here

In table 4 we present the results of Wilcoxon tests for the differences in solvency between year (-1) and the years (+1), (+2), (+3), (+4) and (+5). The differences are not significant in the first and second year after the acquisition (Panels A and B).
In the third and fourth year after the acquisition (Panels C and D) we observe a significant decline in the solvency of the acquirer, compared with the year before the acquisition.

Insert Table 4 about here

When we look not only at the solvency differences with the first year before take-over, but also at the differences from year (-2) and year (-3) to each of the post-take-over years (not reported), we may conclude that take-overs have a negative impact upon the acquirer's solvency: the acquirers are more leveraged in the post-take-over years compared with their pre-take-over debt levels. This decline in solvency can be explained by the decline in profitability (see part 4.1).

Our findings are similar to those of Higson and Elliott (1994), although they are less pronounced. Higson and Elliott (1994) found significantly higher debt levels in the four-year period after take-overs for a sample of 340 UK take-overs in the period 1976-1990, and stated that *'this financial structure result is perhaps the most clear cut of all changes around take-over'*. However, we note that the post-take-over study by Higson and Elliott (1994) deals with the performance of listed companies involved in take-overs. In addition, Ghosh and Jain (2000) also found strong empirical evidence of a statistically and economically significant increase in financial leverage of combined firms after mergers.

Post-take-over liquidity

As we can see from Figure 3, there is a decline in liquidity in the post-take-over years. With respect to the NCR, we notice an increase from year (-1) to year (+2) and a decline in the subsequent years. The CR shows a sharp decline in the post-take-over period. It seems very clear that take-overs have a negative impact on the acquirer's liquidity.

Insert Figure 3 about here

Table 5 gives the results of the Wilcoxon test for the differences in liquidity. In the first two years after the take-over (Panels A and B) no significant differences are found. If adjusted for industry or industry & size, the CR is significantly lower in the third, fourth and fifth year after the acquisition (Panels C, D and E). The declining profitability and solvency in the post-take-over years may explain the decline in liquidity (CR).

Insert Table 5 about here

Post-take-over added value measures

The industry-adjusted medians of the added value measures are plotted in figure 4. Both the GAVE and the PEE decline in post take-over years till year (+4).

Insert Figure 4 about here

The results of the Wilcoxon test are presented in table 6. The differences in the (non-adjusted) GAVE between the combination of acquirer and target in year (-1) and the acquirer in the five post-take-over years are all statistically significant at the five per cent level and indicate that there is an increase in GAVE.

However, if we look at the industry-adjusted or industry & size –adjusted figures, the differences are no longer significant in the first and second year after take-over (Panels A and B). In the years (+3) and (+4) after the take-over (Panels C and D) there is even a 1% significant decrease in the GAVE. Hence, we may conclude that the non-adjusted increase in productivity after the take-over is due to a general improvement. Indeed, Belgian companies, in general, have experienced an important increase of the GAVE the last 10 years (Ooghe and Balcaen, 2000).

Table 6 (Panels A to E) also shows the results from the Wilcoxon test with respect to the PEE. Just like the GAVE, the non industry-adjusted measures reveal a significant increase in the

PEE for all years. However, this effect is due to the industry effect, as we can see from the industry and industry & size adjusted measures.

Insert Table 6 about here

Change in the number of employees of the acquirer after the take-over

Both the GAVE and the PEE consists of a numerator (gross added value or personnel expenses) and a denominator (number of employees). This means that the observed increase could be caused by a decrease in the number of employees after the take-over.

As take-overs are often associated with restructuring activity, one could expect that the acquirer hires not all employees of the target company. On the other hand, if the acquiring company experiences significant growth, it is possible that this growth requires an increasing number of employees. Empirical research on the impact of firm acquisitions on labour is rather limited and suffers from the same problem as most take-over studies, namely that they are confined to analyses of take-overs of big companies with publicly-traded securities.
An important exception to this observation is the study of Brown and Medoff (1988), who directed their attention to the market for corporate control of very small firms, acknowledging the fact that a substantial fraction of the work force is employed by small firms. According to them, the public's perception is conditioned by a relatively small number of highly publicized and extremely hostile take-overs. In their research they distinguish among several different types of acquisitions. In 'simple sales' (i.e., firm A changes ownership without being integrated with any other firm) they find an increase in employment by roughly nine per cent. Firms that are part of 'assets only acquisitions' (i.e., firm A purchases firm B and absorbs firm

B's workers, or firms A and B combine to firm C) are associated with employment growth of about two per cent. Apparently Brown and Medoff (1988) found little support for the common public perception that acquisitions provide the occasion to slash employment.

In our research we calculate the difference between the number of employees of the acquirer in year (+1) and the number of employees of the acquirer in year (-1). In year (-1), the take-over has not yet occurred and the acquirer and its target still have separate identities. From year (+1) on the take-over has occurred and the employees of the target company are absorbed by the acquiring company. PERSa(+1) – PERSa(-1) is an indicator of the number of employees that have joined or leaved the acquiring company one year post take-over, compared with the year prior to the take-over. We compare this variable with the number of employees of the target company one year prior to take-over (PERSt(-1)). If restructuring activity took place, the number of employees that have joined the acquirer after take-over will be smaller than the number of employees of the target in the year prior to take-over, i.e. PERSa(+1) – PERSa(-1) is smaller than PERSt(-1). [9] Table 7 presents the results of the test.

Insert Table 7 about here

The number of negative changes clearly exceeds the number of positive changes, indicating that not all target employees are hired by the acquirer. However, the p-value of 0.389 indicates that the difference between PERSa(+1) – PERSa(-1) and PERSt(-1) is not

[9] As the p-value of the Kolmogorov-Smirnov normality for the two variables was smaller than 0.05, the Wilcoxon Signed Rank test as a non-parametric test for two related samples was appropriate. Before these tests were carried out, we excluded some outlying observations. For example, one of the acquiring companies in our sample was SABENA, the Belgian airline company. This company was the largest company in our research population with more than 10,000 employees. In 1994 this company laid off more than one thousand workers because of heavy restructuring activity. If this company at the same time (i.e. 1994) acquires a company with only eight workers, it is obvious that the difference between the number of employees in year (+1) and year (-1) greatly overstates the target's number of employees. Since there restructuring activities have nothing to do with the take-over, we exclude these take-overs from our research population.

statistically significant. Nevertheless, we may conclude that, at least in some companies, the increase in the acquirer's labour productivity, as measured by the GAVE, can partly be explained by restructuring activities that cause employment layoffs.

Post-take-over failure scores

In figure 5 we observe, till year (+4) after the take-over, a decline of the failure scores, especially of the long term failure score, which means that the financial situation detoriates.

Insert Figure 5 about here

The results of the Wilcoxon test are reported in table 8. For the short-term non-adjusted logit score we observe (almost) no statistically significant differences, which means that the short-term risk of failure is about equal before and after the acquisition.
Concerning the long-term failure scores however, we may conclude from the industry-adjusted values that the post-acquisition long-term failure risk is higher than the pre-acquisition risk. This difference is significant at the one per cent level for all years.

Insert Table 8 about here

So, we may conclude that take-overs have a negative impact on the overall financial situation of the acquiring company in the long term. This conclusion coincides in general with the negative evolution of the individual aspects of the financial situation, discussed above.

SUMMARY AND CONCLUSIONS

In the extended empirical literature on the financial effects of take-overs two different approaches are developed: stock market event studies that use the target and the bidding firm's stock prices and accounting studies that use annual accounts information, derived from the companies' annual reports.

This paper evaluates the post-take-over performance of the acquiring company by using the standard approach in take-over research, i.e., the before-after analysis of the take-over. Because we evaluate the performance of small, privately held companies that were involved in a take-over, accounting data are used.
The research question is: do acquiring firms perform better after the take-over? In other words, are they better off with or without the acquisition of another company? Earlier research shows no significant increase in the post-acquisition profitability. This study leads to several conclusions with respect to the finacial characteristics and performance of the acquiring companies.

Firstly, take-overs have a negative impact on the acquirer's profitability. However, these results are almost never statistically significant. One year prior to take-over, the combined entity of the acquirer and its target reaches its highest profit margins. This was caused by a sharp rise in the acquirer's sales margin one year prior to take-over. In the first post-take-over years, a significant decline in profit margins is noticed. A similar result is found with respect to the net return on total assets: the higher the net return on assets realized by the acquirer in year (-1), the higher the weighted averages. However, in the post-take-over years the acquirer is not able to sustain these high profitability levels.

Two possible explanations for the apparent decrease in profitability, following the take-over, can be found: 'managerial control loss problems' and some kind of 'mean reversion' in accounting rates of return. It can be imagined that acquirers experience unexpected problems in managing and integrating their acquisitions. As the combined organization becomes more complex, the acquiring management loses its control and is no longer able to manage its organization efficiently, which results in declining profits. On the other hand, a decrease in profitability may reflect the tendency for abnormal rates of return to regress over time toward 'normal' levels. We found acquirers reach their top profitability level one year prior to the take-over, perhaps stimulating them towards a take-over. Therefore, a decline in profitability may have very little to do with the take-over itself, but may be merely a logical decline after a period of very high profits in the acquirer's history.

Secondly, we analyse the changes in the solvency position after take-over. Here, similar conclusions as with respect to the profitability are obtained. In the first two years after the acquisition the solvency improves, but from year (+2) on we observe a sharp decline in the financial independence and the cash flow coverage of debt, which is at variance with the rise in the acquirer's solvency in the pre-take-over years. The acquirers are thus more leveraged in the post-take-over years, compared with their debt levels in year (-1).

Thirdly, we also investigate the changes in liquidity position after acquisition. Here again, the take-over has a significant negative impact on the acquirer's liquidity.

In addition, we also investigate some more 'fundamental' performance measures to evaluate the overall economic performance of companies, involved in take-overs. We find a sharp

increase of the acquirer's gross added value per employee, which suggests that take-over has a positive impact upon the acquirer's labour productivity. However, two remarks must be made with respect to this conclusion. First, the increased productivity after take-over is due to the general improvement in gross added value. Belgian companies in general experienced an important increase in gross added value per employee in the last ten years. Second, we argue that, at least with some companies, this could be due to the restructuring activities, accompanied by a reduction of the number of employees. With respect to the personnel expenses per employee, we observe a significant increase for all years, but this effect disappears once the industry effect is taken into account.

Finally, we also analyse pre- and post-take-over failure scores. With respect to the short-term logit scores no differences can be found. The long-term industry-adjusted failure scores however reveal a significant detortiation of the financial situation of the acquirer after the acquisition.

Focusing on take-overs of small, privately held companies, the general conclusion is that take-overs usually do not seem to improve the acquirer's performance. On the contrary, especially from the third year after the take-over on, the profitability, solvency and liquidity of the acquiring firm detoriate and this overall detoriation is reflected in a higher long-term failure risk. Acquisitions in general seem to be much more difficult to manage than the acquirers thought before. This conclusion is in line with the post-take-over results of earlier studies, which mainly address to the take-over of large and publicly traded companies.

Further research could investigate whether better and worse performing acquisitions can be distinguished from each other in terms of their pre-acquisition characteristics? What are the potentially differentiating financial characteristics of successful acquisitions?

It could also be interesting to study the impact of the method of payment (cash or shares) and the impact of the accounting method (purchase or pooling of interests) on the financial performance of private take-overs, although we observe that probably for Belgian private take-overs payment in cash is by far the most frequently used payment method and the purchase-method the most frequently applied accounting method.

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APPENDIX 1

Multivariate logit failure prediction model: Ooghe, Joos and De Vos (see Ooghe, Joos and Bourdeaudhuij, 1995)

	Variables	Sign
	One year prior to failure	
	Intercept	-
X1	Direction of the financial leverage = net return on total assets before taxes – average interest rate of debt (1 if > 0, 0 if <0)	-
X2	(Accumulated profits or losses + Retained earnings) / (Equity + Liabilities less accrued charges and deferred income)	-
X3	Cash & Short term investments / Total assets	-
X4	Overdue taxes and social security changes (1 if >0, 0 else)	+
X5	(Inventories + Accounts receivable – Accounts payable – Taxes, remuneration and social security debts – Advances received on contracts in progress) / Total assets	-
X6	Net return on operating assets before taxes	-
X7	Short-term financial debt /Short-term debt	+
X8	Debts guaranteed / Total debt	-
	Three years prior to failure	
	Intercept	-
X1	(Accumulated profits or losses + Retained earnings) / (Equity + Liabilities less accrued charges and deferred income)	-
X2	Publication lag of the annual accounts	+
X3	Overdue taxes and social security charges (1 if >0, 0 else)	+
X4	(Earnings before interest, taxes, depreciation and amortization (EBITDA) – Capital investments) / Total assets	-
X5	Relationships with affiliated enterprises = (Amounts receivable from them + Commitments guaranteed on their behalf + Other financial commitments in their favour) / Total assets	-
X6	Total debt / (Equity + Liabilities less accrued charges and deferred income)	+

APPENDIX 2
Number of sample companies per industry

Industry (a)	Number of companies							
	Acquired firms				Acquiring firms			
	1992	1993	1994	Total	1992	1993	1994	Total
1. Agriculture	1	1	0	2	0	2	0	2
2. Utilities	0	0	0	0	0	0	0	0
3. Manufacturing (4-8)	7	11	14	32	9	9	16	34
4. Metals	1	5	5	11	1	6	5	12
5. Food	4	3	5	12	4	1	6	11
6. Chemicals	0	0	2	2	1	0	2	3
7. Textiles and apparel	1	1	1	3	2	1	2	5
8. Timber	1	2	1	4	1	1	1	3
9. Paper and printing	1	0	3	4	1	0	2	3
10. Construction	2	1	4	7	1	1	4	6
11. Wholesale	10	5	25	40	7	6	18	31
12. Retail	1	0	3	4	1	1	0	2
13. Hotel, restaurant & catering	0	3	5	8	0	2	1	3
14. Transportation	3	1	8	12	2	3	7	12
15. Real estate	5	4	6	15	4	2	7	13
16. Business services (b)	6	3	7	16	7	2	6	15
17. Personal services	2	1	0	3	1	1	0	2
Total (1-2, 4-17)	38	30	75	143	33	29	61	123

(a) Industry classification based on Ooghe and Balcaen (2000)
(b) Exclusive management activities of holdings (NACE-BEL 74.151) and coordination centres (NACE-BEL 74.152) because of their special nature

TABLE 1

Single and multiple take-overs: number of acquiring and acquired companies.

	Number of companies acquired	Number of acquiring companies
Single take-overs	109	109
Multiple take-overs	34	14
2 companies acquired	22	11
3 companies acquired	3	1
4 companies acquired	4	1
5 companies acquired	5	1
Total	143	123

TABLE 2

Overview of the performance measures used (Ooghe and Balcaen, 2000)

Variable	Description	Definition
NSM	Net sales margin before taxes	Net operating income / Sales
NRTA	Net return on total assets before taxes	Earnings before interest and taxes / Total assets
NRSE	Net return on shareholders' equity after taxes	Profit after taxes / Shareholders' equity
CFRSE	Cash flow return on shareholders' equity after taxes	Cash flow after taxes / Shareholders' equity
FIR	Financial independence ratio	Shareholders' equity/ Total liabilities and equity
CFCD	Cash flow coverage of debt	Cash flow after taxes/ Total liabilities
CR	Current ratio	Current assets / Short term-liabilities
NCR	Net cash ratio	Cash and short term investments / Current assets
GAVE	Gross added value per employee	Gross added value / Number of employees
PEE	Personnel expenses per employee	Personnel expenses / Number of employees

TABLE 3: POST TAKE-OVER PERFORMANCE RESULTS WITH RESPECT TO PROFITABILITY (Wilcoxon Signed Rank Test)

	Non adjusted					Industry adjusted ($X_i - Q_{t,\text{industry}} / Q_{t,\text{industry}} - Q_{t,\text{industry}}$)					Industry & size adjusted ($X_i - Q_{t,\text{industry,size}} / Q_{t,\text{industry,size}} - Q_{t,\text{industry,size}}$)				
	N^1	N^2 post > pre	N^3 post < pre	p-value		N^1	N^2 post > pre	N^3 post < pre	p-value		N^1	N^2 post > pre	N^3 post < pre	p-value	
Panel A															
NSM (+1) - NSM (-1)	125	55	**70**	0,155		128	58	**70**	0,388		125	57	**68**	0,404	
NRTA (+1) - NRTA (-1)	129	60	**69**	0,543		128	63	**65**	0,766		128	58	**70**	0,679	
NRSE (+1) - NRSE (-1)	129	61	**68**	0,775		128	64	64	0,915		128	59	**69**	0,471	
CFRSE (+1) - CFRSE (-1)	129	60	**69**	0,414		128	63	**65**	0,754		128	58	**70**	0,338	
Panel B															
NSM (+2) - NSM (-1)	117	**63**	54	0,608		120	**62**	58	0,775		117	**63**	54	0,876	
NRTA (+2) - NRTA (-1)	121	**64**	57	0,633		120	**63**	57	0,985		120	**66**	54	0,973	
NRSE (+2) - NRSE (-1)	121	52	**69**	0,086	***	120	53	**67**	0,123		120	47	**73**	0,053	***
CFRSE (+2) - CFRSE (-1)	121	47	**74**	0,033	**	120	51	**69**	0,129		120	45	**75**	0,015	**
Panel C															
NSM (+3) - NSM (-1)	106	50	**56**	0,255		109	39	**70**	0,007	*	105	37	**68**	0,005	*
NRTA (+3) - NRTA (-1)	111	46	**65**	0,096	***	109	39	**70**	0,061	***	109	41	**68**	0,059	***
NRSE (+3) - NRSE (-1)	111	**58**	53	0,899		109	45	**64**	0,354		109	44	**65**	0,226	
CFRSE (+3) - CFRSE (-1)	111	48	**63**	0,655		109	44	**65**	0,390		109	45	**64**	0,195	
Panel D															
NSM (+4) - NSM (-1)	94	**49**	45	0,944		97	35	**62**	0,017	**	95	36	**59**	0,040	**
NRTA (+4) - NRTA (-1)	98	47	**51**	0,214		97	32	**65**	0,002	*	97	33	**64**	0,002	*
NRSE (+4) - NRSE (-1)	98	**51**	47	0,836		97	38	**59**	0,110		97	35	**62**	0,065	***
CFRSE (+4) - CFRSE (-1)	98	44	**54**	0,711		97	37	**60**	0,198		97	37	**60**	0,093	***
Panel E															
NSM (+5) - NSM (-1)	90	**48**	42	0,654		93	42	**51**	0,874		91	**46**	45	0,710	
NRTA (+5) - NRTA (-1)	93	45	**48**	0,207		93	46	**47**	0,353		93	45	**48**	0,289	
NRSE (+5) - NRSE (-1)	93	**53**	40	0,650		93	**47**	46	0,689		93	44	**49**	0,305	
CFRSE (+5) - CFRSE (-1)	93	40	**53**	0,440		93	42	**51**	0,353		93	38	**55**	0,121	

Notes:

N^1 = number of observations

N^2 = number of firms with a higher post-acquisition ratio

N^3 = number of firms with a lower post-acquisition ratio

The highest number of companies in the comparison between post- and pre-acquisition ratios is printed in bold.

* the post-acquisition ratio is significantly different from the pre-acquisition ratio at the 1% level

** the post-acquisition ratio is significantly different from the pre-acquisition ratio at the 5% level

*** the post-acquisition ratio is significantly different from the pre-acquisition ratio at the 10% level

TABLE 4: POST TAKE-OVER PERFORMANCE RESULTS WITH RESPECT TO SOLVENCY (Wilcoxon Signed Rank Test)

	Non adjusted					Industry adjusted $(X_i - Q_{2\text{-indsutry y}}) / (Q_{3\text{-industry y}} - Q_{1\text{-industry y}})$					Industry & size adjusted $(X_i - Q_{2\text{-indsutry y}}) / (Q_{3\text{-industry y}} - Q_{1\text{-industry y}})$				
	N^1	N^2 post > pre	N^3 post < pre	p-value		N^1	N^2 post > pre	N^3 post < pre	p-value		N^1	N^2 post > pre	N^3 post < pre	p-value	
Panel A															
FIR (+1) - FIR (-1)	129	**67**	62	0,965		128	**70**	58	0,660		128	59	**69**	0,538	
CFCD (+1) - CFCD (-1)	128	**69**	59	0,493		128	**73**	55	0,236		127	**70**	57	0,513	
Panel B															
FIR (+2) - FIR (-1)	121	**66**	55	0,546		120	**70**	50	0,296		120	**66**	54	0,702	
CFCD (+2) - CFCD (-1)	121	55	**66**	0,355		120	60	60	0,969		120	55	**65**	0,382	
Panel C															
FIR (+3) - FIR (-1)	111	53	**58**	0,255		109	44	**65**	0,010	*	109	43	**66**	0,003	*
CFCD (+3) - CFCD (-1)	110	50	**60**	0,224		109	47	**62**	0,041	**	108	41	**67**	0,011	
Panel D															
FIR (+4) - FIR (-1)	98	**52**	46	0,987		97	41	**56**	0,020	**	97	39	**58**	0,008	*
CFCD (+4) - CFCD (-1)	98	49	49	0,150		97	38	**59**	0,004	*	97	35	**62**	0,000	*
Panel E															
FIR (+5) - FIR (-1)	93	**48**	45	0,829		93	**50**	43	0,534		93	**49**	44	0,647	
CFCD (+5) - CFCD (-1)	93	**64**	29	0,000	*	93	**47**	46	0,427		93	45	**48**	0,143	

Notes:

N^1 = number of observations
N^2 = number of firms with a higher post-acquisition ratio
N^3 = number of firms with a lower post-acquisition ratio

The highest number of companies in the comparison between post- and pre-acquisition ratios is printed in bold.

* the post-acquisition ratio is significantly different from the pre-acquisition ratio at the 1% level
** the post-acquisition ratio is significantly different from the pre-acquisition ratio at the 5% level
*** the post-acquisition ratio is significantly different from the pre-acquisition ratio at the 10% level

TABLE 5: POST TAKE-OVER PERFORMANCE RESULTS WITH RESPECT TO LIQUIDITY (Wilcoxon Signed Rank Test)

	Non adjusted					Industry adjusted (X_i - $Q_{2\text{-indsutry y}}$) /($Q_{3\text{-industry y}}$ - $Q_{1\text{-industry y}}$)					Industry & size adjusted (X_i - $Q_{2\text{-indsutry y}}$) /($Q_{3\text{-industry y}}$ - $Q_{1\text{-industry y}}$)				
	N^1	N^2 post > pre	N^3 post < pre	p-value		N^1	N^2 post > pre	N^3 post < pre	p-value		N^1	N^2 post > pre	N^3 post < pre	p-value	
Panel A															
CR (+1) -CR (-1)	128	**69**	59	0,964		128	**68**	60	0,998		127	**66**	61	0,876	
NCR (+1) - NCR (-1)	129	**67**	62	0,999		128	**67**	61	0,954		128	**66**	62	0,779	
Panel B															
CR (+2) - CR (-1)	118	**61**	57	0,856		120	**65**	55	0,755		118	59	**59**	0,714	
NCR (+2) - NCR (-1)	118	56	**62**	0,827		120	56	**64**	0,785		118	57	**61**	0,995	
Panel C															
CR (+3) -CR (-1)	110	54	**56**	0,339		109	49	**60**	0,007	*	108	47	**61**	0,004	*
NCR (+3) - NCR (-1)	111	53	**58**	0,755		109	50	**59**	0,731		109	53	**56**	0,575	
Panel D															
CR (+4) - CR (-1)	98	**51**	47	0,939		97	41	**56**	0,016	**	97	42	**55**	0,015	**
NCR (+4) - NCR (-1)	98	**50**	48	0,358		97	**50**	47	0,193		97	**54**	43	0,121	
Panel E															
CR (+5) -CR (-1)	93	41	**52**	0,034	**	93	40	**53**	0,037	**	93	42	**51**	0,067	***
NCR (+5) - NCR (-1)	93	45	**48**	0,950		93	40	**53**	0,556		93	**48**	45	0,686	

Notes:

N^1 = number of observations
N^2 = number of firms with a higher post-acquisition ratio
N^3 = number of firms with a lower post-acquisition ratio

The highest number of companies in the comparison between post- and pre-acquisition ratios is printed in bold.

* the post-acquisition ratio is significantly different from the pre-acquisition ratio at the 1% level
** the post-acquisition ratio is significantly different from the pre-acquisition ratio at the 5% level
*** the post-acquisition ratio is significantly different from the pre-acquisition ratio at the 10% level

TABLE 6: POST TAKE-OVER PERFORMANCE RESULTS WITH RESPECT TO ADDED VALUE (Wilcoxon Signed Rank Test)

	Non adjusted					Industry adjusted $(X_i - Q_{2\text{-indsutry y}}) / (Q_{3\text{-industry y}} - Q_{1\text{-industry y}})$					Industry & size adjusted $(X_i - Q_{2\text{-indsutry y}}) / (Q_{3\text{-industry y}} - Q_{1\text{-industry y}})$				
	N^1	N^2 post > pre	N^3 post < pre	p-value		N^1	N^2 post > pre	N^3 post < pre	p-value		N^1	N^2 post > pre	N^3 post < pre	p-value	
Panel A															
GAVE (+1) - GAVE (-1)	121	**75**	45	0,014	**	123	**70**	53	0,415		120	**66**	54	0,340	
PEE (+1) - PEE (-1)	121	**90**	31	0,000	*	123	**82**	41	0,000	*	120	**80**	40	0,000	*
Panel B															
GAVE (+2) - GAVE (-1)	109	**68**	40	0,003	*	115	52	**63**	0,439		106	46	**60**	0,389	
PEE (+2) - PEE (-1)	109	**76**	32	0,000	*	115	**60**	55	0,484		106	**59**	47	0,140	
Panel C															
GAVE (+3) - GAVE (-1)	105	**68**	36	0,024	**	104	37	**67**	0,000	*	101	36	**65**	0,003	*
PEE (+3) - PEE (-1)	105	**81**	24	0,000	*	104	47	**57**	0,023	**	101	47	**54**	0,104	
Panel D															
GAVE (+4) - GAVE (-1)	87	**62**	24	0,001	*	92	30	**62**	0,000	*	84	29	**55**	0,001	*
PEE (+4) - PEE (-1)	87	**69**	18	0,000	*	92	35	**57**	0,002	*	84	38	**46**	0,014	**
Panel E															
GAVE (+5) - GAVE (-1)	87	**59**	28	0,005	*	88	28	**60**	0,002	*	86	43	43	0,719	
PEE (+5) - PEE (-1)	87	**70**	17	0,000	*	88	41	**47**	0,924		86	**50**	36	0,145	

Notes:

N^1 = number of observations
N^2 = number of firms with a higher post-acquisition ratio
N^3 = number of firms with a lower post-acquisition ratio

The highest number of companies in the comparison between post- and pre-acquisition ratios is printed in bold.

* the post-acquisition ratio is significantly different from the pre-acquisition ratio at the 1% level
** the post-acquisition ratio is significantly different from the pre-acquisition ratio at the 5% level
*** the post-acquisition ratio is significantly different from the pre-acquisition ratio at the 10% level

TABLE 7

Change in the number of employees of the acquirer after the take-over

Variable	*N*	*Number of positive changes*	*Number of negative changes*	*p-value of the difference*
[PERSa(+1) - PERSa(-1)] - PERSt(-1)	91(a)	37	**51**	0,389

(a) In 3 cases the acquirer's increase in the number of employees was equal to the acquired firm's number of employees. Stated differently all target employees were employed by the acquiring company.

TABLE 8: POST TAKE-OVER PERFORMANCE RESULTS WITH RESPECT TO FAILURE SCORES (Wilcoxon Signed Rank Test)

	Non adjusted					Industry adjusted $(X_i - Q_{2\text{-indsutry y}}) / (Q_{3\text{-industry y}} - Q_{1\text{-industry y}})$					Industry & size adjusted $(X_i - Q_{2\text{-indsutry y}}) / (Q_{3\text{-industry y}} - Q_{1\text{-industry y}})$				
	N^1	N^2 post > pre	N^3 post < pre	p-value		N^1	N^2 post > pre	N^3 post < pre	p-value		N^1	N^2 post > pre	N^3 post < pre	p-value	
Panel A															
RI ST (+1) - RI ST (-1)	114	54	**60**	0,697		111	51	**60**	0,256		111	55	**56**	0,998	
RI LT (+1) - RI LT (-1)	114	**62**	52	0,846		111	**88**	23	0,000	*	111	**63**	48	0,200	
Panel B															
RI ST (+2) - RI ST (-1)	106	46	**60**	0,344		104	51	**53**	0,544		104	**59**	45	0,476	
RI LT (+2) - RI LT (-1)	106	**59**	47	0,424		104	**83**	21	0,000	*	104	**61**	43	0,200	
Panel C															
RI ST (+3) - RI ST (-1)	107	50	**57**	0,661		103	44	**59**	0,113		103	45	**58**	0,405	
RI LT (+3) - RI LT (-1)	107	**58**	49	0,901		103	**82**	51	0,000	*	103	**64**	39	0,065	***
Panel D															
RI ST (+4) - RI ST (-1)	96	44	**52**	0,190		91	37	**54**	0,040	**	91	40	**51**	0,181	
RI LT (+4) - RI LT (-1)	96	**54**	42	0,161		91	**74**	17	0,000	*	91	**63**	28	0,023	**
Panel E															
RI ST (+5) - RI ST (-1)	90	32	**53**	0,070	***	86	40	**46**	0,616		86	42	**44**	0,650	
RI LT (+5) - RI LT (-1)	90	**51**	39	0,273		86	**73**	13	0,000	*	86	**51**	35	0,153	

Notes:

RI ST = short term logit score
RI LT = long term logit score

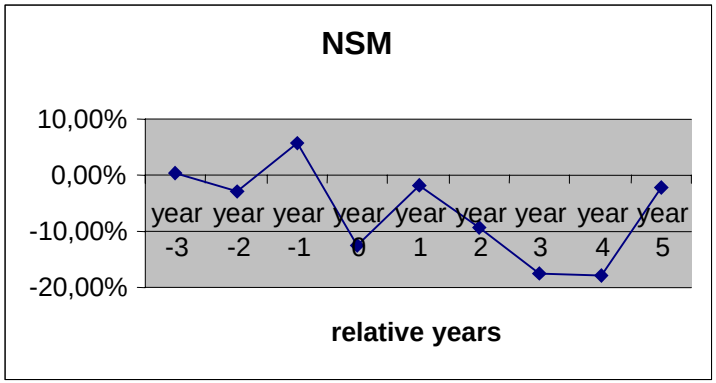
N^1 = number of observations
N^2 = number of firms with a higher post-acquisition ratio
N^3 = number of firms with a lower post-acquisition ratio

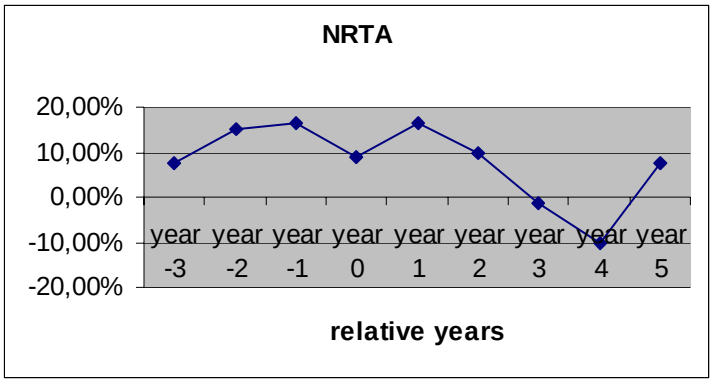
The highest number of companies in the comparison between post- and pre-acquisition ratios is printed in bold.

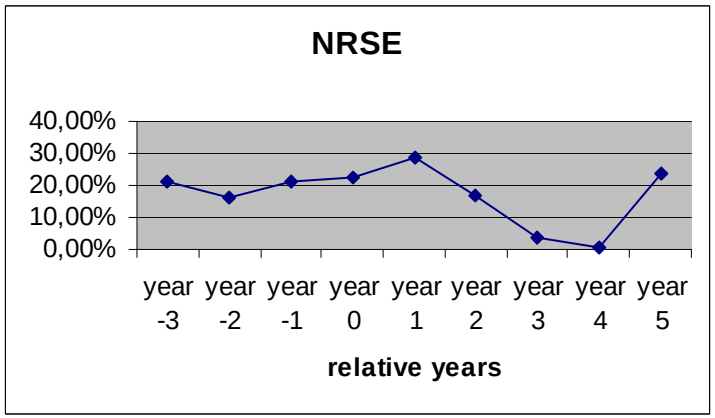
* the post-acquisition ratio is significantly different from the pre-acquisition ratio at the 1% level
** the post-acquisition ratio is significantly different from the pre-acquisition ratio at the 5% level
*** the post-acquisition ratio is significantly different from the pre-acquisition ratio at the 10% level

FIGURE 1

Evolution of the industry adjusted profitability before and after take-over (medians)







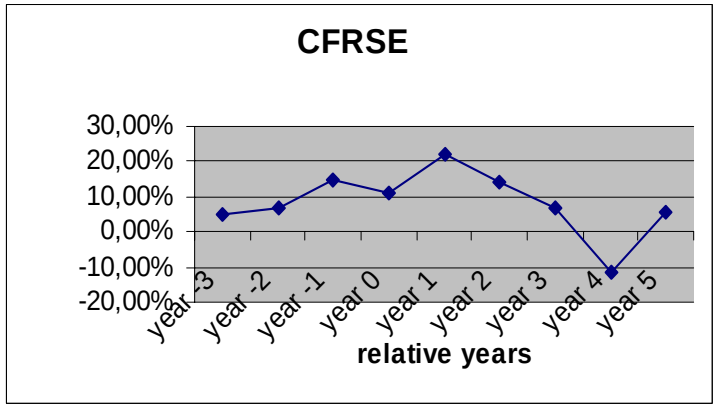
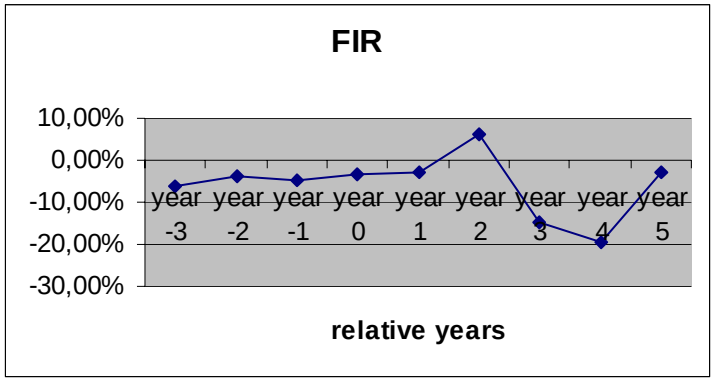


FIGURE 2

Evolution of the industry adjusted solvency before and after take-over (medians)



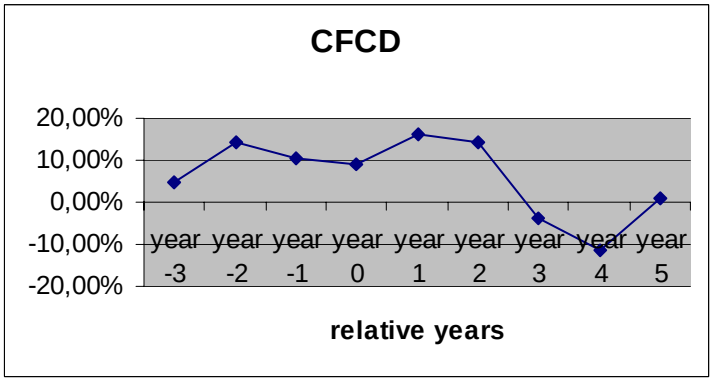
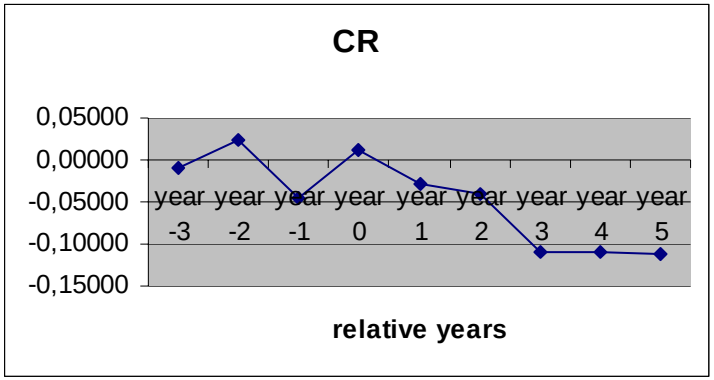


FIGURE 3

Evolution of the industry adjusted liquidity before and after take-over (medians)



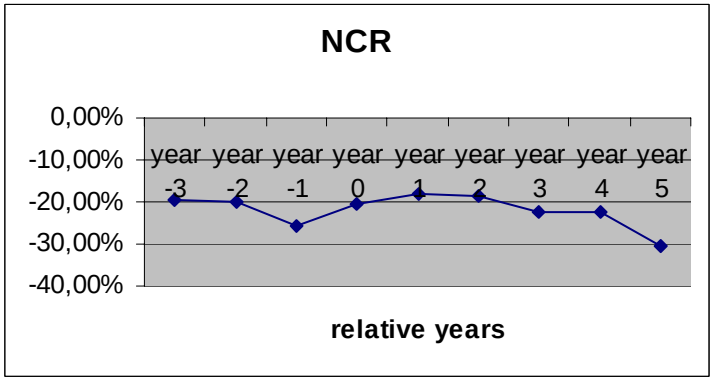
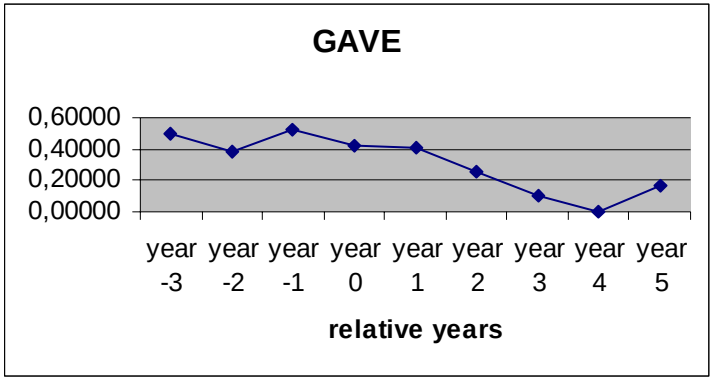


FIGURE 4

Evolution of the industry adjusted added value before and after take-over (medians)



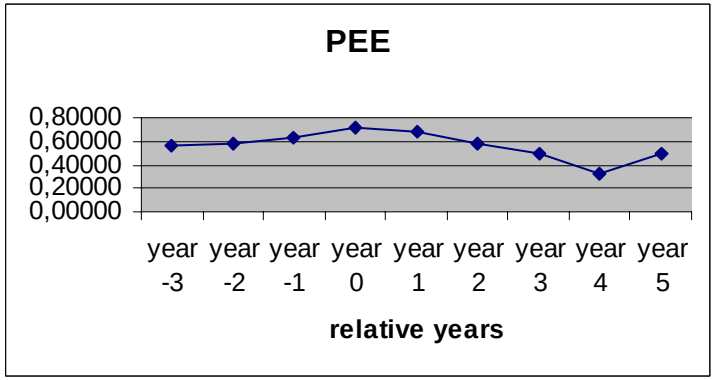


FIGURE 5

Evolution of the industry adjusted failure scores before and after take-over