Mergers & Acquisitions in the Food Business: How did the 2002 and 2008/2009 Economic Crises Impact Corporate Valuation?

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ABSTRACT

Transaction market multiples are widely used as benchmarks for negotiation between buyers and sellers. This research focuses on financial performance expressed as transaction market multiples of sales, EBITDA and net profit for the 2002-2009 period.

The number of transactions declined much more in 2002 than in 2008 and 2009, but the value of transactions displayed the opposite trend. The 2008-2009 economic crisis impacted the valuation of food companies more than the 2002 crisis. Market multiples declined much more in 2009 than in 2002 and 2003.

On average, transaction multiples are stable, even though their values on a given year are affected by economic cycles.

The EV/EBITDA provides results with smaller spread than EV/ Sales and EV/net profit. The present research shows that valuations of dairy companies are quite close to the average valuations in the food business. But valuations of wines and spirits companies are a lot higher than other food business companies. Transaction market multiples at food subsector level provide more accurate tools to the stakeholders of M&A in order to avoid over-payment and financial distress.

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Keywords. market multiples, transaction market multiples, valuation, transaction, M&A, food

1   Introduction

Comparative methods involving market multiples are often used by professionals to value target companies. Target firm valuation is usually expressed as transaction market multiples of sales, EBITDA and net profit. No study has so far looked at M&A transactions in the food business over the period 2002-2009, which was marked by two major economic crises that affected investors' expectations and therefore market prices. Did the 2002 crisis and the 2008-2009 crisis have the same impact on M&A activity in terms of transactions numbers and valuations? The question is critical for managers who buy or sell companies and seek to determine relevant prices for their tender offers. This paper seeks to answer it by examining transaction market multiples of sales, EBITDA and net profit.

The paper is structured as follows. Section one reviews the existing literature on the topic. Section two presents the concept, methodology, and data. Section three presents empirical findings about corporate valuation. Section four develops structural models for the economic relationship between the valuation and turnover of food companies. Finally, conclusions are drawn.

2   Literature Review

The literature review focuses on valuation methods using comparable multiples, and empirical research about M&A and market multiples in food industries.

2.1   Valuation using comparable multiples

Even though market multiples are widely used in M&A and included in textbooks, few research papers offer any empirical studies on the practice (Lie and Lie, 2002; Dittmann and Weiner, 2005). Furthermore, in studying which variables may forecast prices better, the main publications focus on public market multiples. Research concentrating on M&A activity usually focuses on transaction market multiples, using the price paid by acquirers, which includes premiums for corporate control. Hence, Ruigrok and Wagner (2003) and Contractor (2007) analyzed one hundred empirical studies over 30 years and provided partial theoretical explanations for mixed results between the financial performance and the degree of a firm internationalization mainly through M&A.

Performance measures based on market value incorporate expectations about future events that are reflected in stock market prices. This is a critical advantage over economic performance measures, which are based solely on accounting data (Revsine *et al.*, 2008; Penman, 2009).

In corporate finance, enterprise valuation is usually based on firms' financial characteristics (Taussig & Hayes, 1968; Stevens, 1973; Damodaran, 2012). A valuation multiple expresses the market value of an asset relative to certain key performance statistics of the asset being valued. The market valuation method assumes semi-strong form market efficiency as defined by Fama (1970) and amended by Jensen (1978) and Grossman and Stiglitz (1980): price is an unbiased estimate of expected supply and demand as it incorporates available public information, up to the point that the marginal revenues from research do not exceed the marginal costs of additional efforts of research. Price deviations are mainly random, but return on stock may exhibit some discernable patterns, such as seasonal effects, month of the year effect and day of the week effect (Ikenberry *et al.* 2008; Chan et *al.* 2008). The choice of value driver must match the choice of market price variable.

The relative valuation approach is often described as market-based: it reflects the price investors are willing to pay for each unit of earnings, sales, and cash flows at a given time (DePamphilis, 2009). Comparative methods like the market multiples use market data as the numerator and aggregates taken from the corporate financial statements as the denominator. Equity market price at the numerator may be matched with shareholders' claims at the denominator. Shareholders' claims may be aggregates coming from the statement of income or cash flow (Pereiro, 2002; Suozzo et al., 2001).

In a context with no tax, transaction costs or financial distress costs, capital structure has no effect; Modigliani and Miller (1958) show that equity value is not affected by debt level. Outside such a context, Modigliani and Miller (1963) indicate that capital structure impacts corporate value: tax shields, transaction costs and financial distress costs affect share value. Entity-based multiples use the market value of invested capital, which includes market capitalization, while preference share capital and financial debt could be used to avoid capital structure issues. However, Schreiner and Spreemann (2007) and Nel *et al.* (2013) have found empirical evidence that entity-based multiples give less accurate valuations than equity-based multiples. Equity-based multiples use the market price of a share or market capitalization of a company. In the numerator, corporate value is equity value measured by market price, and does not include financial debt. Market price is used as a proxy for the firm's intrinsic value. Market price incorporates investors' expectations about future cash flows. If market inefficiencies are correlated with earnings or cash flow information, differences between the pricing accuracy of earnings multiples and cash flow multiples may arise partly from market inefficiencies rather than from the multiple's ability to measure value. Aboody *et al.* (2002) find that some market inefficiencies may induce a likely negligible bias in price level and stock return analysis, while cross-sectional variation in mispricing is likely to be smaller than cross-sectional variation in intrinsic values.

Corporate value may be related to a firm's ability to generate sales, EBITDA and net profit, which measure earnings used as the denominator of market multiples. Most equity research on M&A uses relative valuation such as market multiples like price-to-sales ratios, value-to-EBITDA and value-to-EBIT for firms in similar activities (Taussig & Hayes, 1968, Penman, 2013). EBITDA stands for earnings before interest, taxation, depreciation and amortization. It measures the wealth generated, and thus represents the potential operating cash generated by a company. EBITDA is computed as total sales minus paid operating costs (depreciation and amortization are unpaid operating costs). EBIT stands for earnings before interest and taxation. It is the operating income generated by the usual activity and business of a company. In terms of computation, EBIT equals sales minus all operating costs, thus including depreciation and amortization.

However, this method has some major drawbacks, concerning 1) the impossibility of using multiples when earnings are negative, 2) the difficulty of analysing cyclical and commodity companies with volatile earnings and 3) the use and interpretation of market multiples, because it is difficult to establish relevant corporate peer groups (Palepu *et al.,* 2008; Damodaran, 2009; Mînjină *et al.,* 2010). Value estimates based on a combination of market multiples and a group of comparable firms do not take into account firms' specificities in terms of risk, growth and cash flow potential. But it is possible to adjust values for differences in financial leverage between firms, and for differences in their accounting rules. Another potential concern is that relative valuation reflects the mood of investors on the market - but at any moment in time, investors may overvalue or undervalue stocks in a given sector. Finally, the method is vulnerable to manipulations, for instance in defining the sample of comparable firms. The method requires control of any significant difference between corporate assets and those of the peer group. A comparable firm is a firm with cash flows, growth potential and risk similar to the company being valued (Damodaran, 2012).

The major advantages of market multiples methods is that it provides useful, relevant and simple information for buyers and sellers on key performance indicators. It is a very useful method to value private and thinly-traded firms with weak reliable trading prices, but it does require a few explicit assumptions. It reflects investors' market valuation, since it aims at measuring relative value rather than intrinsic value (Arzac, 2008; Eckbo 2010; Damodaran, 2012).

2.2   M&A and market multiples in food industries

Previous research has looked at M&A in the food manufacturing industries. Food industries are highly fragmented into several submarkets where firms operate in oligopolistic competition (Marion, 1986; Marion and Kim, 1991). This can make it difficult to find public data about food companies in a given submarket in order to access relevant market multiples.

Mergers and takeovers between food industry companies over the 1980s and 1990s left several categories in the hands of just a few corporations. Average concentration generally remained unchanged from 1947 to 1977 (Mueller & Rogers, 1984), but Marion and Kim (1991) noted that during the 1980s, concentration increased sharply in producer goods industries (from 37.7% in 1977 to 43.7% in 1982) and consumer goods industries with low advertising (from 43.0% in 1977 to 50.2% in 1982). Goldberg (1983) identified major motives for M&A including size, growth, economies of scale, profitability, market share, market power, synergy, acquisition of specific products, increased utilization of resources, and diversification. Adelaja, Nayga, & Farooq (1999) used a two logit model applied to the 1985-1994 period and found that firm liquidity, leverage, profitability, growth in sales, stock, earnings capacity, percentage of common stocks traded in the stock market, and market-to-book ratio were statistically significant to explain mergers and acquisitions in the US food sector. However, activity or sales ratio, firm size and price-earnings ratio were not statistically significant factors. Hudson & Herndon (2002) reported strong increases in merger and partnership activity in the US food and agriculture sectors during the 1990s. Major motivations related to firm size, placement in the market channel, and research and development activities. The formation of the single European market in 1993, the economic boom from 1995 to 2000, the enlargement of the EU through the accession of 8 new member states in 2004, mainly from Central Europe, and the economic boom from 2005 to 2007 may have provided incentives for European corporations to merge. These changes opened up perspectives for value creation, requiring new knowledge and skills.

Food and agribusiness corporations have adapted to larger market sizes. Analyzing 21 meat and dairy European agricultural, Heyder et al. (2011) find that the internationalization of agricultural cooperatives, often through mergers, has a significant positive impact on firm performance. Over the period 1996-2001, Declerck (2003) found that a target food company was worth about 1.1 to 1.4 times its turnover, 15 times its EBITDA, and 24 times its net profit. Hotbausen and Zmileski (2012) find that some market multiples are less affected than others by value drivers such as risk, growth, income tax, cost structure and working capital. Hence, "enterprise value to unlevered earnings" is less affected by value drivers than "enterprise value to EBITDA".

Furthermore, market multiples are sensitive to business cycles (Hofthausen and Zmijeski, 2012). Food industries are among the industries that are less sensitive to business cycles (Berman and Pfleeger, 1992), but no study has looked at M&A transactions in the food business over the period 2002-2009, which was marked by two major economic crises. An economic crisis affects stock market price immediately, since market price reflects current and expected future cash flows, and so the numerator of a market multiple is affected. Expectations made by investors affect market stock prices, while earnings on current year come from financial statements and do not incorporate anticipations. Therefore, market multiples may vary over time.

We can now seek to answer the question: did the 2002 crisis and the 2008-2009 crisis have a similar impact on M&A activity in terms of number and valuation?

3 Methodology and Data

This section focuses on the methodology of market multiples, structural research and data.

3.1 Methodology for relative valuation of a firm using market multiples

The methodology is based on the literature reviewed in the previous section.

The market value of a company is usually measured using enterprise value (EV). EV is calculated as market capitalization plus debt, minority interests and preferred shares, minus total cash and cash equivalents. Due to a lack of information here, EV is computed as the sum of equity capital and debt capital.

The measure of earnings that forms the denominator of the market multiple is extensively documented in the research. For Dechow (1994), earnings have a better ability to reflect firm performance than cash flows, which suffer more severely from timing and matching problems. Sloan (1996) shows that stock prices better reflect current earnings from financial statement analysis than accruals and cash flow forecasts. Kaplan and Ruback (1995) find that market price to EBITDA is a better criterion than market price to sales.

Perman (1996 and 1997) shows that price earning ratios (P/E) are robust criteria to forecast market prices. Liu *et al.* (2007) confirm the previous findings that valuations derived from industry multiples based on reported earnings are closer to market prices than those based on reported operating cash flows. Earnings measures such as EBITDA or EBIT or net profit will thus be preferred as value indicators.

Market multiples of EBITDA, EBIT and net profit are accounting measures computed according to accounting principles and rules. The multiple must be defined consistently across all firms in the sample. This is the case for EBIT and EBITDA. EBIT and EBITDA are not affected by the firm's debt level, but firm value may be affected by a positive or negative financial leverage effect. EBITDA does not include depreciation and amortization of long-life assets. However, EBIT is affected by depreciation and amortization, which are non-cash costs. Differences in depreciation and amortization methods across companies and countries may thus affect EBIT, but not EBITDA. As a measure of operating earnings, EBITDA will be preferred.

What are the determinants of which multiple to use in valuing a firm? How do changes in the determinants affect the multiple?

The EV/EBITDA ratio increases with higher expected growth, a lower reinvestment rate to generate expected growth, lower depreciation and amortization, a lower tax rate and lower cost of capital and risk.

An alternative measure which is less affected by accounting rules is the ratio of market value to sales. However, this usually leads to results that are difficult to interpret, since sales are not directly related to the economic margin, while EBITDA and EBIT are measures of economic performance. Price to sales is nonetheless a useful measure to assess the value of market share. It is mainly relevant for new companies and retailers.

Net profit is strongly affected by financial and exceptional costs and revenues. It is a residual aggregate of the firm's entire activity.

Multiples are unconstrained on the upper end, which means that firms can have very high price to EBITDA or net profit. This may happen when earnings drop. Consequently, median values are preferable to averages.

Furthermore, there are two main types of market multiples: public market multiples and transaction market multiples.

Public market multiples

Public market multiples are computed for a group of public companies in a given industry. A price multiple is calculated as a ratio between stock market value and an observable accounting variable (earnings, cash flow, EBIT, EBITDA, sales, etc.). Averaging these ratios provides a representative price multiple for the comparison group. These ratios are widely available for public companies (Example: go to http://yahoo.investor.reuters.com/ and select "ratios").

Transaction market multiples

For transaction market multiples, the comparison group refers to recent transactions that are comparable in terms of type (mergers, LBOs, etc.), industry and size. Transaction multiples are useful because they reflect not only firm specificity, but also deal specificity, for instance the existence of a control premium, liquidity premium, etc. They are also usually easier to find for non-public companies with low disclosure requirements. They are widely used as benchmarks for negotiation between buyers and sellers.

Transaction market multiples fit the research objective better

Since most food companies are not publicly traded, transaction market multiples appear to fit the objective of the research better than the public market multiples method.

Measures of market multiples for analysis of targets acquired

Transaction market multiples are thus selected for examination. Earnings may be measured by three different aggregates: 1) sales, to avoid any computation distortion, 2) EBITDA, to measure operating earnings with limited distortions of computation, and 3) net profit, to measure net income resulting from operating, financial and exceptional corporate activities.

3.2   Structural research using econometrics

The analysis of empirical observations is complemented by structural research using econometric tools (OLS regressions) to explain enterprise value (EV). The dependent variable is EV. The explanatory variables are sales, EBITDA and net profit.

First, a statistical linear model is constructed in order to explain corporate valuation (y_t) as a function of sales (x_t).

Equation (1) $y_t = \text{ß}_1 + x_t \text{ß}_2 + \varepsilon_t$

However, OLS results present heteroskedasticity even using White's heteroskedastic consistent covariance matrix to address heteroskedasticity. Consequently, the structural relationship is tested:

-    by generalized least squares estimations (GLS),
-    by a model with "multiplicative heteroskedasticity".

Since some heteroskedasticity exists, the variance of the regression errors may be directly related to the dependent variable.

Therefore, the GLS estimator is found by applying least squares to the transformed model:

Equation (2) $y_t/x_t = \text{ß}_1 (1/x_t) + \text{ß}_2 + \varepsilon_t/x_t$

The variance of the transformed disturbance is constant. The estimated coefficients for the dependent variables are highly significant, at more than 1%. The coefficient estimates are not biased.

A model with "multiplicative heteroskedasticity" is estimated. The various components of the variance are related in a multiplicative way.

Each variance of errors (σ_t^2) is an exponential function of the explanatory variable and the model is given by a mean equation:

Equation (3) $y_t = \text{ß}_1 + X_t \text{ß}_2 + \varepsilon_t$

In this case, variance parameters are suggested to be in the form of the following variance equation:

Equation (4) $$\sigma_t^2 = \exp\,(\text{ß}_1 + X_t\,\text{ß}_2 + \varepsilon_t)$$

The estimate of the intercept coefficient will be biased, but the estimate of the slope coefficient remains unbiased.

3.3 Data

France was the world's leading exporter of manufactured food products in the late 1990s and early 2000s. The French market may have been strongly affected by developments in the EU (Single Market and Enlargement) over the period 1996-2009. This is why this research will be applied to French food companies which experienced M&A as either acquirers and/or targets. Data about French companies with 20 employees or more will be obtained from the journal *AGRA Alimentation*, which reports information on mergers and acquisitions involving at least one French food company.

Financial data such as sales, EBITDA and net profit are available from the "Orbis" data bank, which concerns all companies worldwide with 20 employees or more, and thus covers every company which experienced an M&A activity with a French food firm. However, only a few companies release the amount paid for acquiring a target. Many acquiring companies, particularly private companies and/or family-run small and medium sized enterprises (SMEs) do not release information about deal value. These firms are not included in the sample.

From 2002 to 2009, the databank records 123 M&A involving companies whose turnover exceeds €8 million, with available data about corporate valuation. Companies in the sample exhibit a wide range of turnover levels, from €2 million to €14 billion.

The dairy sub-sector leads M&A activity in this sample with 16% of transactions, and the wine and spirit sub-sector accounts for 12% of transactions (these percentages concern the number of transactions, including transactions with undisclosed value).

The catering services and retail businesses do not process food. As a result, their business characteristics in terms of capital / labor intensity are very different from food manufacturing. In order to compare transactions in the same business, the sample is divided into three groups: companies in the food industry, companies in the catering services, and retail companies.

The adjusted R^2 of the EV/Sales regression is 54% due to some very low and very high valuations, which are exceptions that pollute the sample. When these extreme outliers are eliminated, the adjusted R^2 of the EV on sales regression is 61%. The reduced sample excluding the 5 identified outliers is used for all the research.

4 Results

4.1 M&A activity in the food industries from 2002 to 2009

In the 2000s, following initial growth in French gross domestic product (GDP) as presented in figure 1, the French food industry experienced two crisis periods with negative GDP trends, in 2002 and 2008-2009 as shown in figure 2.
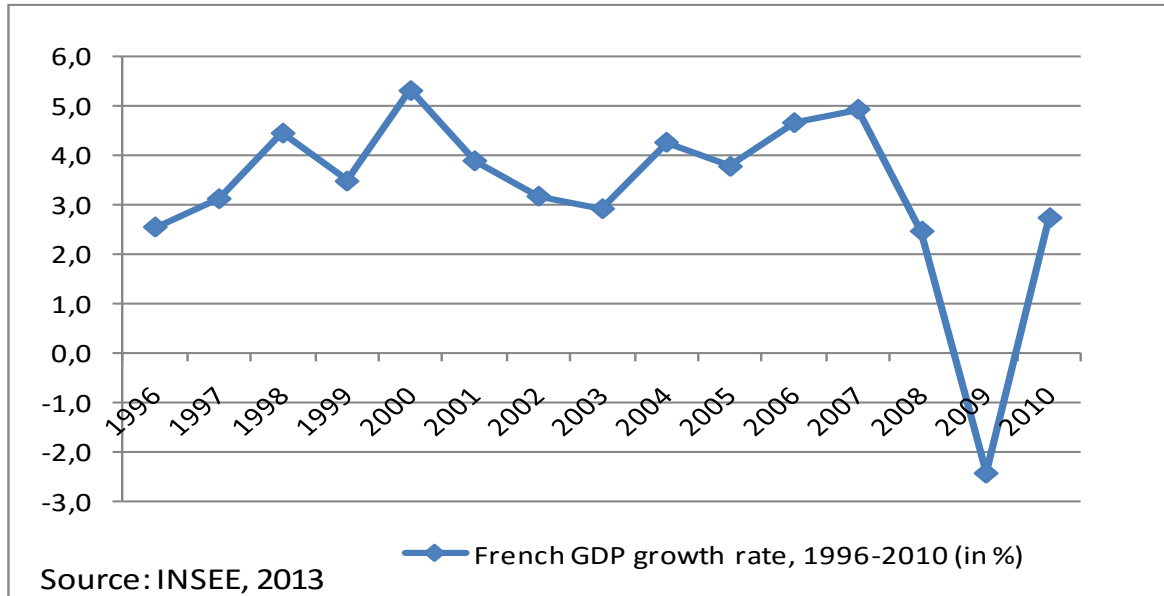
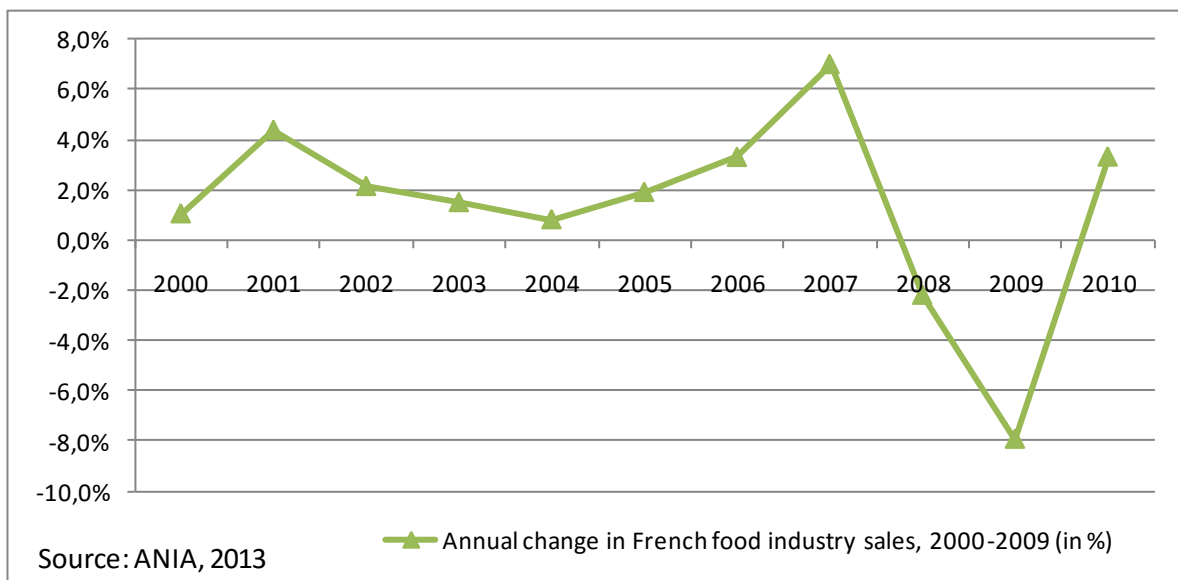**Figure 1.** French Gross Domestic Product, 1996-2010

Figure 2. Annual change in French food industry sales, 2000-2010

In terms of number of transactions, M&A activity in the food industry was less affected by the 2008-2009 economic crisis than the 2002 crisis, as figure 3 shows.
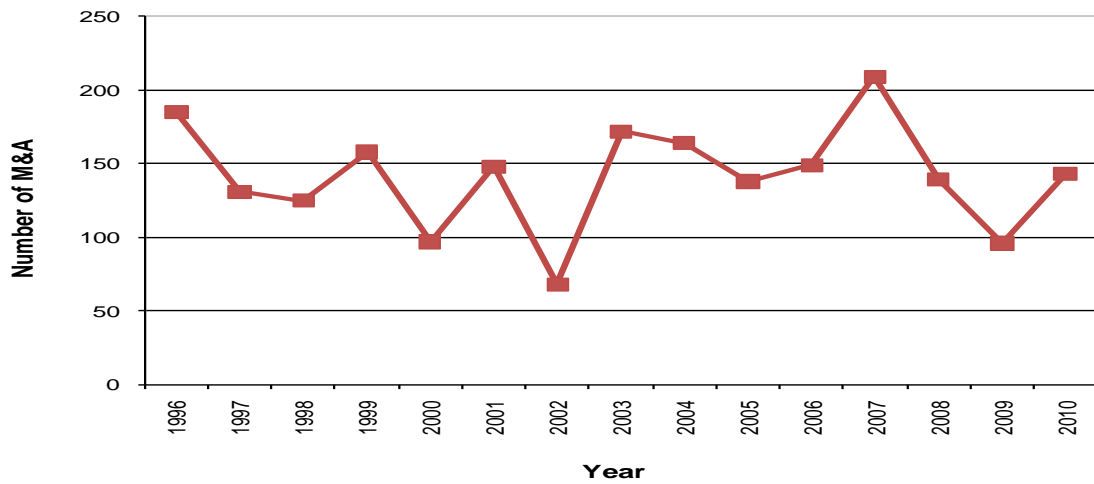
Figure 3. M&As involving French food enterprises from 1996 to 2010

4.2   Market multiples in the food industries

As shown in tables 1a and 1b on transactions in the food industry, empirical findings and the linear regression results converge to indicate the following points for the 2002-2009 period:

- EV / Sales is 1.3, meaning that the enterprise value is worth 1.3 times its total sales. This finding is consistent with a previous study for the 1996-2001 period (Declerck, 2003).

- EV / EBITDA is about 8.7. A food company is worth 8.7 times its EBITDA.

- EV / Net Profit is about 17.4. A food company is worth 17.4 times its net profit.

Table 1a.
Market multiples of transactions in the food industry from 2002 to 2009

FOOD INDUSTRY	EV / Sales	EV / EBITDA	EV / Net Profit
Number of observations	123	51	54
Median value	1.09	11.11	24.65
Mean value	1.66	15.29	38.98
Standard-deviation	2.37	20.9	64.02

Table 1b.
Regression on EV as a function of sales, EBITDA and net profit in the sample of French food industry targets from 2002 to 2009, based on the adjusted sample

EV = function of	Sales	EBITDA	Net Profit
Coefficient of the regressor	1.31	8.69	17.38
Significance of regression coefficient	Significant at more than 1%	Significant at more than 1%	Significant at more than 1%
Adjusted R^2	61%	87%	80%

4.3   . Market multiples in the food retail sector

Table 2 focuses on transactions in the food retail sector. Empirical findings show the following over the period 2002-2009:

- EV / Sales is just under 0.5, meaning that the value of a retail firm is worth slightly less than 0.5 times its total sales. This is lower than the 0.5 to 0.6 "EV / Sales" multiple found by Declerck (2003) for the period 1996-2001.

- EV / EBITDA is about 6.7. A retailer is worth 6.7 times its EBITDA.

- EV / Net Profit is about 37.6. A retailer is worth 37.6 times its net profit.

However, due to a very low number of transactions, no regression or significance can be inferred.

Table 2.
Market multiples of transactions in the food retail sector from 2002 to 2009

FOOD RETAIL	EV / Sales	EV / EBITDA	EV / Net Profit
Number of observations	3	3	3
Median value	0.47	6.67	37.56
Mean value	0.48	7.02	37.56
Standard-deviation	0.12	1.07	22.30

4.4 Market multiples in the wine and spirit industry

Tables 3a and 3b focus on transactions in the wine and spirit industry over the period 2002-2009. They show that:

- EV / Sales is 2.6, meaning that the value of a wine and spirit company is worth 2.6 times its total sales. This finding is similar to findings made over the period 1996-2001.

- EV / EBITDA is about 12.8.

- EV / Net Profit is about 25.6.

Transaction market multiples are the largest multiples among the different sub-sectors in the food industry.

Table 3a.
Market multiples of transactions in the wine and spirits industry from 2002 to 2009

WINE & SPIRITS	EV / Sales	EV / EBITDA	EV / Net Profit
Number of observations	16	9	9
Median value	1.94	12.50	24.44
Mean value	2.93	14.49	29.48
Standard deviation	2.33	6.69	13.99

Table 3b.
Regression of EV as a function of sales, EBITDA and net profit in the wine and spirits industry from 2002 to 2009

EV = function of	Sales	EBITDA	Net Profit
Coefficient of the regressor	2.60	12.79	25.62
Significance of regressor coefficient	Significant at more than 1%	Significant at more than 1%	Significant at more than 1%
Adjusted R^2	96%	99%	99%

4.5 Market multiples in the dairy industry

Tables 4a and 4b are focused on transactions in the dairy industry over the 2002-2009 period. The results of the study show that:

- EV / Sales is 1.5, meaning that the value of a dairy company is worth 1.5 times its total sales.

- EV / EBITDA is about 8.3.

But even if the significant coefficient regressor is 13.4, results for the EV to net profit multiple show a wide spread, since mean and median values differ greatly: the mean value amounts to 52.84, more than twice the median value which is 21.56.

Table 4a.

Market multiples of transactions in the dairy industry from 2002 to 2009

DAIRY INDUSTRY	EV / Sales	EV / EBITDA	EV / Net Profit
Number of observations	16	5	9
Median value	1.08	8.34	21.56
Mean value	1.43	8.30	52.84
Standard deviation	1.09	1.95	67.30

Table 4b.

Regression of EV as a function of sales, EBITDA and net profit in the dairy industry from 2002 to 2009

EV = function of	Sales	EBITDA	Net Profit
Coefficient of the regressor	1.49	8.34	13.40
Significance of regressor coefficient	Significant at more than 1%	Significant at more than 1%	Significant at more than 1%
Adjusted R^2	99%	99%	98%

EV/EBITDA thus displays a smaller spread in results than EV/Sales or EV/net profit as found by Kaplan and Ruback (1995), Perman (1996 and 1997) and Liu et al. (2007).

4.6 Market multiples from year to year during the 2000s: changes during crisis periods

Table 5 and figure 4 exhibit market multiples for transactions that took place over the period 2002 to 2009. Due to the small sample size in 2008, regressions cannot be estimated for the dependant variables EV / Sales and EV / EBITDA.

Again due to lack of data, it is impossible to conduct tests for differences in the median and mean values of market multiples over time. It is, however, still possible to infer that market multiples are sensitive to economic crises, since they vary widely from year to year. Furthermore, they decreased more during the 2009 crisis than during the 2002 crisis:

- EV/ net profit amounted to 11.6 in 2009 and 15.6 in 2002.

- EV/ EBITDA was worth 5.65 in 2009 and 6 in 2002.

- EV/ Sales amounted to 0.84 in 2009 and 1.5 in 2002, which was comparable to the level in 2003.

Table 5.

Market multiples of transactions obtained from linear regressions, 2002 - 2009

	2002	2003	2004	2005	2006	2007	2008	2009
EV / Sales	1.5	1.05	1.05	1.34	1.49	1.23	1.36	0.84
Sample Size	17	10	21	19	14	22	11	8
EV / EBITDA	6	9	13	8	8.35	12.9	NC	5.65
Sample Size	3	3	9	8	8	11	2	5
EV / Net Profit	15.6	24	25	22	13.35	27.3	NC	11.63
Sample Size	8	8	11	9	6	13	1	5

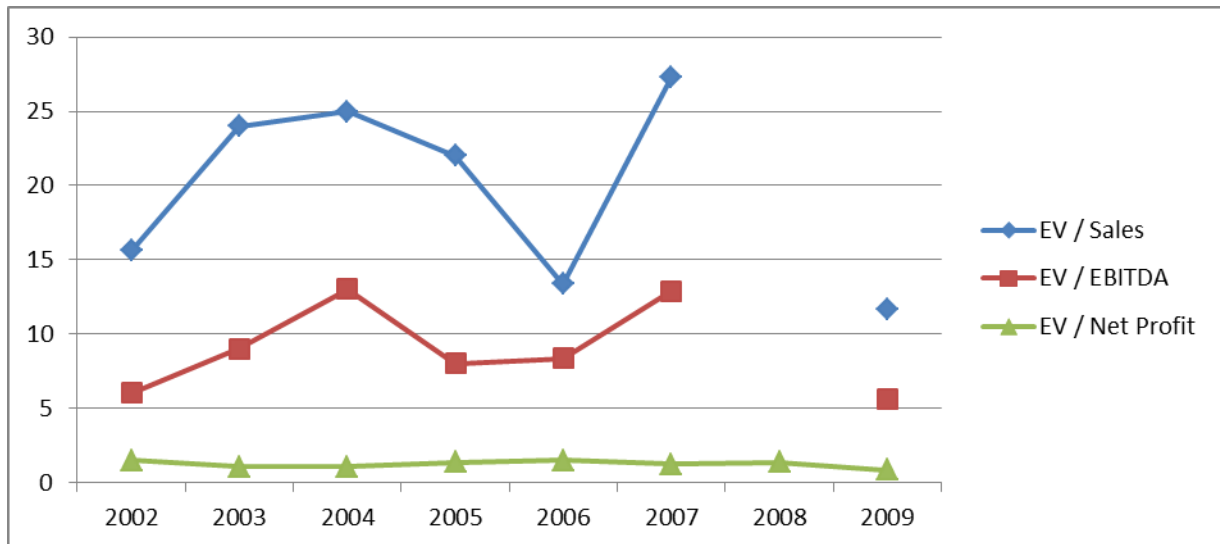NC: "not computed to due the small size of the sample"

Figure 4. Market multiples of transactions obtained from linear regressions, 2002 – 2009

5   Conclusion and Recommendations

This research focuses on financial performance expressed as transaction market multiples of sales, E BITDA and net profit for the period 2002-2009 with four types of findings:

- Firstly, even though the number of transactions declined much more in 2002 than in 2008-2009, the 2008-2009 economic crisis had a greater impact on the valuation of food companies than the 2002 crisis. EV/Sales, EV/EBITDA and EV/Net profit declined much more in 2009 than in 2002 and 2003. This is surprising in view of the expectations stated by Hofthausen and Zmijeski (2012). As a consequence transaction multiples would be more accurate in mentioning the time of their evaluation with regard to economic cycles.

- Secondly, over the period 2002-2009, the results from econometric tests showed that a food company was worth about 1.3 times its total sales, 8.7 times its EBITDA and 17.4 times its net profit. These results are very similar to previous figures found for the 1996-2001 period by Declerck (2003), which was to be expected since the food industries are relatively immune to business cycle swings, as Berman and Pfleeger (1997) have demonstrated.

- Thirdly, EV/EBITDA provides a smaller spread in results than EV/Sales or EV/net profit as found by Kaplan and Ruback (1995), Perman (1996 and 1997) and Liu *et al.* (2007).

- Fourthly, multiple ratios are sensitive to the type of sub-sector. Hence, valuations in the dairy industry are very similar to those for the whole food industry. A dairy processing company is worth about 1 to 1.4 times its total sales, and 8.3 times its EBITDA. But results for the EV to net profit multiple show a wide spread.

Valuations in the wine and spirit sector are significantly higher than valuations in the other food sub-sectors. A wine and spirit company is worth about 2.6 times its total sales, 12.8 times its EBITDA and 25.6 times its net profit. In contrast, a retail company is worth only 0.5 times its total sales, 6.7 to 7 times its EBITDA and 37.6 times its net profit.

Further research is needed to improve knowledge of the influence of business cycles on transaction market multiples.

Future research could be enlarged to the EU food and drink industry. So with more data future research could also focus on the features the market multiples applied to different large food subsectors such as the meat processing industry, the grain processing industry, the vegetable processing industry… Such a unique tool would help all stakeholders concerned by corporate transactions.

Transaction market multiples are widely used as benchmarks in negotiations between buyers and sellers. Buyers may get more information in order to avoid overpaying some target. Often, target shareholders reject tender offers by potential acquirers on the grounds that the price is too low. Sellers

Sellers are better informed so they may forecast the expected proceeds of their sales better.

Stakeholders are also concerned by the results. Advisors are keen on using them to provide more accurate expertise to corporate managers. Bankers and other financial investors may pay more attention to such figures that are specific to the food and drink sector in order to avoid over-lending money to acquirers. This is even more relevant in case of price wars between multiple potential acquirers.

Transaction market multiples are used as a focal point in negotiations: therefore, the use of multiples in M&A is inevitable. The findings will provide more accurate tools to all stakeholders.

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