10/09/1995

Title: EQUITY AND RATE OF RETURN:

ARE SMALL MANUFACTURING FIRMS HANDICAPPED BY THEIR OWN SUCCESS?

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Abstract:

From a french pannel of manufacturing firm, this article aims to show that the terms of the debate on the capitalization of small manufacturing firms ought to be clarified.

These firms are often said to be undercapitalized, because in relative terms their capital spending is often similar, or even greater, than that of their larger competitors. This means that their earnings are depleted by the higher depreciation charges for maintaining their fixed assets. Undercapitalization is also due to the fact that firms in this category have poor access to capital markets.

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INTRODUCTION[1]

· A company can consolidate or increase its financial autonomy by calling on its shareholders and/or generating earnings, which can then be capitalized. This implies that the company has ready access to the capital market (or that its main shareholders are able to raise funds easily) and/or that its business and financial performances produce the necessary earnings. However, a firm's financial autonomy, as measured by its capitalization, is not synonymous with higher profits, and is therefore not wholly relevant in assessing the soundness of the company.

· In the early 1980s, the gross return on equity of small manufacturing firms, and especially that of the smallest companies, was superior to that of their larger competitors (Bardos M., Cordier J.; 1991). From 1986 on, the gap narrowed appreciably as large companies substantially improved their gross return on equity. This was done mainly by reducing the proportion of payroll costs in their value added (Vieille J.N.; 1992 and Artus P.; 1992). The smallest manufacturing firms achieved much less of an improvement, chiefly because of a less favourable division of value added and a higher level of debt[2]. However, smaller companies have been more effective in promoting employment.

· Even though the balance sheets of small companies may suggest that they are undercapitalized, an analysis of their business and financial behaviour shows that their return on capital invested and return on equity are comparable, or even superior, to those of large companies. In other words, the **potential** expected gain from a holding in a small manufacturing firm seems to be as high as that for a much larger company. However, the **realization** of this gain, and the capitalization of earnings, will depend firstly on the amount of capital spending, which determines the depreciation charges, and secondly on the dividend policy.

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1 Small manufacturing firms here are defined as companies with less than 500 employees and more than 20. This excludes companies in their start-up phase and companies with less than 20 employees.

2 See the feature "Crise, comment en sortir?" in l'Expansion of 4-17 March 1993, in particular the articles by Jean Boissonnat, Jacques Barraux and Michel Aglietta.

1. EQUITY GUARANTEES THE SOLVENCY OF A COMPANY BUT NOT ITS RATE OF RETURN...

The prime function of equity is to guarantee solvency. Equity constitutes an emergency "reserve" enabling a company and the economic agents dealing with it to meet any internal or external eventualities. For example, in an economic slowdown, companies with low debt have an advantage over companies that opted for debt rather than equity financing. Companies that use equity financing can spread the remuneration of the providers of external capital over a longer period of time, whereas the companies that use debt financing have to continue to meet set instalments. In other words, equity can be defined by three features (Manceau B.; 1992):

"- it does not have to be repaid,

- no fixed remuneration can be claimed,

- its ultimate function is to cover the risk faced by a company...".

While it seems vital for a company to hold a minimum level of equity, it is difficult to set out in absolute terms an optimal balance between equity and debt. In practice, each company will seek to optimize its recourse to external financing with regard to its specific business and commercial situation. A company will take into account the cost of such financing, the degree of autonomy that it wants or is able to retain and its development plans.

Each industrial strategy, whether aiming at organic growth or expansion through acquisitions, has a corresponding financial strategy that determines the mix of self-financing, debt and equity. The many possible ways of combining these various types of financing mean that firms behave in many different ways.

The question of the optimal level of equity has been a topic of discussion for the last thirty years, ever since the Modigliani-Miller[3] indifference theorem was published. This theorem states that the debt and equity structure of the balance sheet has no effect on the **market value** of a company. In fact, the theorem only works in perfectly functioning capital markets. In particular, investors must be able to switch freely between debt and equity securities. In this case, investment in fixed assets is only made if it increases the market value of the company. This value depends solely on the comparison between the yield on the firm's shares and the average cost of capital. The decision is therefore independent of financing choices (De Bandt O. and Jacquinot P.; 1991).

However, markets are not perfect. Information is asymmetric and risks, such as insolvency, arise when a company can no longer keep its debt under control. This may cause lenders to demand additional security, or ration their lending in terms of interest rates and/or amounts. Moreover, very few small manufacturing firms have access to these markets.

Under these conditions, the capitalization of business depends greatly on the amount of long-term savings in France (Icard A; 1991), and more importantly in the case of small manufacturing firms, on how easily those savings can be tapped. So, the capitalization of a given firm is closely connected to its return on equity (Paranque B.; 1992), since the profits generated can either be capitalized or used to pay an attractive yield to future shareholders.

However, no positive links have been shown between financial autonomy and corporate profits (Paranque B; 1994). On the other hand, capital spending decreases the financial autonomy of a company by increasing its financing needs.

Before analyzing the issue of autonomy, a brief review of the main economic and financial trends for large and small firms since 1985 is in order.

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[3] "The Cost of Capital, Corporate Finance and the Theory of Investment" American Economic Review, May 1958.

2. THE COST OF RENEWING FIXED ASSETS IS HIGHER FOR SMALL MANUFACTURING FIRMS[4]

Small manufacturing firms (SFs) are less capital intensive than large companies (LCs). However, between 1985 and 1991, their spending on increasing their fixed assets, as measured by the accumulation rate, was greater than that of their larger counterparts[5]. Admittedly, the level of their capital spending, expressed as a percentage of value added, was generally lower. It may be that these companies use their fixed assets more efficiently (see below), which means they need to draw less on value added.[6]

Average*	1985		1986		1987		1988		1989		1990		1991	
(%)	SFs	LCs	SFs	LCs	SFs	LCs	SFs	LCs	SFs	LCs	SFs	LCs	SFs	LCs
Accumulation rate**	14.0	13.5	14.6	13.4	15.7	13.5	16.2	13.8	16.4	14.3	17.1	15.1	15.0	13.5
Debt-to-equity ratio	79.1	67.0	73.8	63.2	74.8	54.4	75.7	51.5	74.9	51.0	73.5	52.3	69.2	48.7
Apparent interest rate	13.9	11.9	12.9	10.6	12.0	9.9	11.4	9.3	11.2	9.5	11.9	10.1	12.1	10.3

Source: Banque de France
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* Deviation statistically significant at 5% between small businesses and large companies, except as regards the 1985 accumulation rate.
** Investment in fixed assets/fixed assets

Small manufacturing firms always have to pay higher apparent interest rates, and technical problems as well as a lack of resources and time make it difficult for them to gain access to capital markets. This means that they have a higher debt-to-equity ratio (including intercompany and shareholder loans) than large companies. Their financial autonomy is not as great as that of their larger competitors. It has improved since 1985, but to a less so than for companies with more than 500 employees.

Average*	1985		1986		1987		1988		1989		1990		1991	
(%)	SFs	LCs	SFs	LCs	SFs	LCs	SFs	LCs	SFs	LCs	SFs	LCs	SFs	LCs
Efficiency of capital**	79.6	61.5	77.9	60.2	76.2	59.6	74.9	59.0	73.7	57.1	73.4	54.4	71.4	53.0
Gross surplus ratio***	23.0	23.1	24.1	24.8	24.3	25.6	25.2	27.6	26.1	28.5	26.3	29.2	25.2	28.5

Source: Banque de France
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* Deviation statistically significant at 5% between SFs and large companies, except as regards the 1985 margin rate.
SFs firms with fewer than 500 employees, LCs: companies with more than 500 employees
** value added/capital invested
*** total gross profit/total value added

The efficiency of capital invested also fell between 1985 and 1991[7], and there was a particularly marked recovery in gross surplus ratios for large companies, reflecting a shift in the

4 Manufacturing firms with fewer than 500 employees are compared with larger firms over the period between July 1991 and June 1993.

5 Tests of the significance of the difference between means enable us to define when the deviation is statistically discernible.
The confidence interval presented is calculated at a 5% threshold. In order to ensure that the finding is not dependent on the normal distribution hypothesis, a distribution-free test was carried out on the median. It is only mentioned where it contradicts the previous result.

6 In effect, we can establish a link between the rate of investment, the accumulation rate and the efficiency of capital: $I/VA = I/C \times (VA/C)^{-1}$.

7 See *la lettre du Groupe de Recherche sur l'Efficacité des équipments Industriels (GREFI)* no. 5, November-December 1992. Measuring the efficiency of capital is a tricky matter. In a recent article in *Economie Appliquée* (volume XLVI, 1993, no. 1.), G. Cette compares different methods to show that "the efficiency of capital has not seen structural deterioration that is likely to harm the rate of return on companies...". We do not entirely share his view. In fact, his

allocation of value added in favour of return on capital. In this respect, labour management policies among small manufacturing firms were less unfavourable to employment (Paranque B.; 1994).

We looked at three measures of business and financial performance:

- total gross return on capital invested, which divides the total gross surplus (in other words gross operating profit plus extraordinary income and expenditure) by capital invested; this is used as an indicator of general rate of return,

- gross return on equity, which divides gross self-financing capacity by internal financing[8], which is an indicator of rate of return from the shareholder's point of view, leaving aside capital spending policy,

- return on equity net of the cost of maintaining fixed assets, which makes the previous indicator more accurate by taking capital spending policy into account, but excludes the effect of decisions on how much to remunerate the shareholders.

Average*	1985		1986		1987		1988		1989		1990		1991	
(%)	SFs	LCs	SFs	LCs	SFs	LCs	SFs	LCs	SFs	LCs	SFs	LCs	SFs	LCs
Gross return on capital invested	15.4	13.5	16.0	14.0	16.0	14.5	16.3	15.2	16.2	15.3	16.6	14.7	15.5	14.1
Gross return on equity	12.5	10.9	13.8	11.4	14.2	12.2	15.2	13.5	16.0	14.0	16.1	13.2	14.7	12.7
Net return on equity	1.6	2.4	2.9	2.4	3.1	3.9	3.4	4.8	4.0	5.6	3.5	4.8	2.3	4.2

Source: Banque de France
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* Deviation statistically significant at 5% between SFs and large companies.

Gross return on capital invested results from the efficiency of capital and the gross surplus ratio, and is therefore an indicator of business performance. This indicator improved markedly between 1985 and 1989 in large companies, but was still lower than the figure for small manufacturing firms.

Small manufacturing firms consistently generate higher gross return on equity than large companies. The figure for all firms increased up to and including 1989. In 1990, it dropped sharply in companies with more than 500 employees. In 1991, the decline continued and affected small manufacturing firms as well.

Between 1985 and 1988, in contrast to the situation for gross return on equity, net return on equity was generally[9] lower for small manufacturing firms than for large companies. From 1988 to 1991, this disparity tended to increase. The inversion of the rankings, depending on whether gross or net figures are taken, stems mainly from the small manufacturing firms' active capital investment, which made them subject to heavier[10] depreciation charges than large companies.

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corrections to the measurement of efficiency relate to the useful life of equipment, the extent of its use, and the depreciation charged. This gives a measure of the efficiency of the capital actually used, based on its technical characteristics (useful life, use, etc.), which may differ significantly from the efficiency of capital invested as such. However, the rate of return requirement relates to the capital invested , and not to capital actually used. In addition, it remains to be demonstrated that this requirement is not dependent on the useful life of the equipment (i.e. the period in which a return on the investment is made) and that it is not proportional to it. Given the development of the capital markets and the short-termist pressure which these markets exert on business itself, we might wonder how pertinent the corrections made to the measurement of the efficiency of capital are. See also J. Fayolle "Cycles et trends d'épargne et d'investissement dans une économie moyenne et ouverte: le cas de la France", *Observations et Diagnostics Economiques*, OFCE review no. 45, June 1993.

8 Internal financing is shareholders' equity plus accumulated depreciation.

9 The expression "generally" indicates that despite a deviation that is not always statistically discernible, there is a valid difference in a large number of cases for small manufacturing firms.

10 Measured here by the depreciation charges divided by internal financing (called Depreciation/IF

Average*	1985		1986		1987		1988		1989		1990		1991	
(%)	SFs	LCs	SFs	LCs	SFs	LCs	SFs	LCs	SFs	LCs	SFs	LCs	SFs	LCs
Depreciation/IF	9.9	8.4	9.8	8.7	10.0	7.9	10.4	8.3	10.7	7.9	11.3	8.3	11.1	8.4

Source: Banque de France
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* Deviation statistically significant at 5% between SFs and large companies.

3. SMALL MANUFACTURING FIRMS HAVE LESS FINANCIAL AUTONOMY THAN LARGE COMPANIES, BUT A SIMILAR, OR EVEN HIGHER, RATE OF RETURN

This section gives some results for the 1992 financial year, and draws the reader's attention to the need for consistency between the objectives of the analysis and the indicators developed for it. This consistency is essential for clear identification of the various levels of possible interpretation, and for relevant diagnosis of the financial position of companies.

Financial autonomy measures how independent a company is from its financial environment. Two indicators are calculated.

- The first is a gross figure derived from the methodology of the Balance Sheet Data Centre at the Banque de France. It is the ratio of internal financing to capital invested. This is found by adding the shareholders' equity reported on the corporate tax return to the accumulated depreciation, which constitutes the self-financing reserves, and then dividing the resulting figure by capital invested (internal financing plus debt, including intercompany and shareholder loans).

- the net figure, which is more widely used divides shareholders' equity by the balance sheet total.

(as %)

1992	SFs			LCs		
	Lower limit	Average	Upper limit	Lower limit	Average	Upper limit
Internal financing/capital invested	68.3	68.7	69.2	73.9	75.6	77.3
Shareholders' equity/balance sheet	31.5	32.1	32.6	33.8	36.0	38.2

Source: Banque de France
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* For each average, we have used a confidence interval of 5%; this is defined by a lower limit and an upper limit to either side of the average.

In gross figures, in other words taking into account accumulated depreciation, small manufacturing firms have less financial autonomy than large companies. However, we have shown (Paranque B.; 1992) that over the 1980s, this autonomy was relatively stable, with the position of small manufacturing firms relative to large companies deteriorating because of the marked reduction in the latter's debt.

The disparity in financial autonomy is mainly due to differences in spending on renewing fixed assets, as measured by the accumulation rate (see section 2), with small manufacturing firms spending proportionally more than large companies. Moreover, given the relationship of small manufacturing firms to large companies, and the specific nature of their role in the production system, companies with fewer than 500 employees have higher working capital needs than their larger competitors, and this increases their financing requirements. In other words, the lower autonomy of small manufacturing firms is partly due to the fact that they have greater financial requirements and need more external financing.

Small manufacturing firms are also more likely to use debt financing because it is harder for them to gain access to the capital markets to raise equity financing. This handicap becomes apparent when we evaluate their autonomy as a net figure, using the ratio of shareholders' equity to the balance sheet total: the figure is still lower than that of larger firms.

The specific dynamics of small manufacturing firms' capital spending patterns influence their business and financial performance.

1992	SFs			LCs		
	Lower limit	Average	Upper limit	Lower limit	Average	Upper limit
Gross return on capital invested*	13.2	13.5	13.7	11.6	12.6	13.5
Gross return on equity*	11.7	12.0	12.3	9.8	11.0	12.2
Net return on equity	-0.2	0.2	0.6	1.5	3.0	4.6

Source: Banque de France
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* The test on the median indicates a statistically significant deviation, with 50.5% of small manufacturing firms having a ratio above the median for the whole sample, against 41.8% of large companies

Reduced financial autonomy has not prevented small manufacturing firms from generating a gross return on capital invested that is usually higher than that of large companies. These performances are largely due to the fact that small manufacturing firms make more efficient use of their capital than large companies. This greater efficiency, more than offsets a somewhat lower gross surplus ratio[11]. This discrepancy is also reflected in gross return on equity (see section 2 above).

Net return on equity[12] is lower for small manufacturing firms than for larger companies. This is the result of proportionally higher capital spending, which generates a higher depreciation charge as a proportion of internal financing[13] (11.6%, against 7.8% for large companies).

If we deduct dividends paid from gross self-financing capacity, we obtain a figure for self-financing. If we express this as a percentage of internal financing, we arrive at an indicator of the rate of return after remunerating the shareholders, and therefore an estimate of the earnings capitalization capacity of the company, before taking into account capital spending policy.

1992	SFs			LCs		
	Lower limit	Average	Upper limit	Lower limit	Average	Upper limit
Self-financing/internal financing*	9.9	10.3	10.6	7.3	8.7	10.2
Net self-financing/internal financing	-1.0	-0.7	-0.3	-0.6	0.8	2.2

Source: Banque de France
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* The test on the median indicates a statistically significant deviation at 5% in favour of small manufacturing firms; 50.7% of small manufacturing firms have a ratio above the median for the sample, against 38.6% for large companies.

After paying dividends to shareholders, small manufacturing firms are still more profitable than large companies. This discrepancy even increases somewhat when we move from gross return to equity to the ratio of self-financing to internal financing (from 1 point to 1.6 points). The percentage of dividends is higher in large companies than in small manufacturing firms (respectively 2.5% of internal financing, against 1.7% and 18.5% of gross self-financing capacity, against 11%).

11 In other words, the allocation of value-added is more favourable to remunerating capital in large companies than in small manufacturing firms , which is consistent with the fact that the latter are less capital-intensive.

12 If we calculate the ratio of net self-financing as a percentage of shareholders' equity rather than of internal financing (which is gross), the result is similar.

13 Depreciation represents 51% of internal financing in small manufacturing firms and 42.5% in companies with over 500 employees.

However, after deducting the cost of maintaining fixed assets, and therefore looking at the net figure, small manufacturing firms and large companies are in a similar position (or even one which is more favourable to small manufacturing firms in terms of the "net self-financing/shareholders' equity" ratio[14]).

In other words, small manufacturing firms' depreciation charges are proportionally higher, while their dividends are proportionally lower. The pattern is the other way round for large companies.

This finding illustrates two different business approaches, one is more industrial and the other is more financial. There is indeed a specific constraint on large firms to produce returns for shareholders. This constraint arises from large companies' dependence on capital markets

1992	SFs			LCs		
	Lower limit	Average	Upper limit	Lower limit	Average	Upper limit
Dividends/shareholders' equity	3.0	3.1	3.3	4.2	4.7	5.3

Source: Banque de France

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The fact that shareholders in large companies receive more remuneration than shareholders in small manufacturing firms reinforces the distinction between companies on the grounds of size, and reinforces the need for small manufacturing firms to offer lenders a higher rate of return.

14 According to the test on the median.

CONCLUSION

On the whole, lenders, and investors in general, regard small manufacturing firms as being riskier than large companies. All too often this assessment is made simply on the grounds of undercapitalization It is mainly justified by the greater risks incurred by small manufacturing firms, as seen in their proportionally higher spending on renewing fixed assets than large companies.

The risk incurred by lenders to large companies is of a different kind: it relates more to the total sum of capital raised than to the intrinsic risk of an individual project. The larger the company is, the more information is available to lenders.

Small manufacturing firms are therefore not suffering from an inability to generate the resources necessary to meet their financial commitments. On the other hand, they may be being handicapped by the fact that their future is hard to read, in other words, that they do not provide enough information about their plans and their capacity to ensure their own long-term survival.

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