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**THE IMPACT OF SALES GROWTH ABOVE A
SUSTAINABLE LEVEL ON THE FINANCING
CHOICE OF BELGIAN INDUSTRIAL SMEs**

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1. INTRODUCTION

A lot of Small and Medium-sized Enterprises (SMEs) are confronted with a limited access to additional funds. The difficulties relate both to the availability of finance and to the terms and conditions on which it is obtained by small enterprises. Consequently, these firms more rapidly suffer from financial difficulties when having operational liquidity problems.

Small enterprises face two critical periods of financial need. The first is at start-up and, if they survive that period, the second occurs when the enterprise needs to finance a rapid expansion in its activity. Crucial to the financial viability of a small enterprise is whether or not it can obtain long-term finance additional to that provided by the owner-manager. Many attempts have been made by various countries to implement schemes designed to overcome this "finance gap". (These issues are discussed in detail in various chapters of the book of McMahon *et al.* (1993)).

The financial management of growth enterprises is generally recognised to be problematic. In such firms, there is a complex relationship between investment, financing and profit distribution decisions which are made and the financial performance and rate of growth which are achieved. In the words of Olson *et al.* (1992, p.3):

"Growth represents a dynamic process where exogenous factors are commingled with the firm's capital budgeting, capital structure, and dividend policies."

Far from being seen as merely an ex post outcome of the many operating and financial decisions an owner-manager has taken, the rate of growth of a business enterprise should be considered as a strategic decision variable in the same sense that planned capital expenditures, target capital structure and desired profit distributions are ex ante decisions made in the light of an enterprise's strategic and financial goals.

The rate of growth in sales can be so high that the enterprise concerned is unable to fund the additional current and fixed assets which become necessary. If the expansion in sales continues, it is inevitable that a point will be reached where funding of further growth in current assets, and expenditures on fixed assets, require either that profit retentions be increased or that the enterprise seeks external financing. For an SME it is very realistic to assume that they have less financial funds available and also a more limited access to external funds (Chittenden *et al.*, 1996). Here, bankruptcy can become the consequence of outstanding sales success.

There have been a number of attempts in the literature to formalise understanding of the important relationship between investment, financing and profit distribution decisions, financial performance and the rate of enterprise growth. Although most of these works are principally concerned with large enterprises, more recent papers have focused on small firms. An overview of both groups is given in McMahon *et al.* (1993). All of these publications have strongly emphasised the strategic context of financial management, and collectively they have contributed to the development of a concept which has been referred to variously as the "sustainable", the "supportable", the "affordable" or the "attainable" growth.

In this paper we will look at the financing sources fast growing SMEs acquire. Fast growing companies are defined as companies having a sales growth figure above a sustainable level. We want to investigate also if there is some financing hierarchy followed by SMEs. In this paper we will try to find empirical evidence of the "Pecking order theory" (cfr. *infra*).

The paper is organized as follows: The next section discusses the concept of sustainable growth. In Section 3, discussing the financing choice of firms, our hypothesis is formulated. In Section 4 the composition of the sample is discussed. Section 5 presents results of the financing behavior of fast growing SMEs. In Section 6 the hypothesis is tested.¹

2. THE SUSTAINABLE GROWTH RATE (SUSG)

A. Definition and significance

The concept of SUSG can best be explained by a citation of Higgins (1977), probably the most referred version. He defines the notion and succinctly explains its significance for strategic and financial management as follows:

"To test the consistency of a company's growth objectives and its financial policies, a concept called sustainable growth is introduced. For those companies that want to maintain a target payout ratio and capital structure without issuing new equity, sustainable growth is defined as the annual percentage of increase in sales that is consistent with the firm's established financial policies. If sales expand at any greater rate, something in the company's constellation of financial objectives will have to give - usually to the detriment of financial soundness. Conversely, if sales grow at less than this rate, the firm will be able to increase its dividends, reduce its leverage or build up liquid assets. (Higgins, 1977, p.7)"

Financing problems caused by a growth rate in sales above a sustainable level (and given unchanged financing policies) seem to be not very problematic, because new debt can be borrowed or new equity can be raised. Several facts, however, do indicate that the management of the company try to avoid to issue new external finance, especially new equity capital (see Merikas et al., 1993).

The inability or the unwillingness to attract new external equity, surely is applicable on the small firm as well. Although the concept SUSG has been developed for big companies, it is at least as important for the SMEs. For both groups it can be stated that, if the planned growth rate in sales exceeds that which appears sustainable and if raising new external equity capital is not a possibility, management must consider one or more of the following responses (Higgins, 1977):

- improving the financial performance of the enterprise's core operating activities so that its capacity to internally generate equity funding is expanded. This may be achieved by improving the enterprise's asset utilisation and by increasing its profit margin on sales.
- reducing planned profit distributions, so that more of the profits that are made can add to the enterprise's internal supply of equity finance.
- increasing the anticipated use of debt finance, given the enterprise's current financial position and its access to the capital market.
- restricting the rate of growth in sales planned for the enterprise to a level which is sustainable given the enterprise's resources.

In many studies attention is given to this research question (for an overview see McMahon *et al.*, 1993). Which of the identified responses to the financial stresses of growth are actually employed on the shorter-term will depend very much upon the particular circumstances of the enterprise concerned.

In large as well as in small firms the last response (i.e. restricting the rate of growth) is usually not considered because one is reluctant to give up market potential which may seem to exist for the enterprise's products and services.

B. Measurement of the sustainable growth

The best known formula, mostly used in scientific studies, is the following ² :

$$\text{SUSG} = \text{ROE} * (1 - \text{DPR}) \quad (1)$$

whereby: SUSG = the sustainable growth rate
 ROE = the return on equity
 DPR = the dividend payout ratio
 1-DPR = the retention rate

In the literature a lot of alternatives are available, all being extensions of this original model. Without giving a complete overview, four examples are mentioned. These models can differ a lot, depending on the information that is incorporated and the assumptions that are made. These alternatives require for instance a lot of data, very often not known by any outsider.

The first alternative is the one from Higgins (1977). He gives the following expression:

$$g^* = \frac{p (1 - d) (1 + L)}{t - p (1 - d) (1 + L)} \quad (2)$$

whereby: g^* = sustainable growth rate in sales
 p = the profit margin on new and existing sales after taxes
 d = the target dividend payout ratio

$1-d$ = the target retention ratio

L = the target total debt to equity ratio

t = the ratio of total assets to net sales on new and existing sales

Kyd (1981) gives another expression for estimating the sustainable rate of growth in sales for a business which does not intend to raise further equity finance externally:

$$g^* = \Delta S / S = (1 - D) (1 - t) [\text{ROTA} + L (\text{ROTA} - r)] \quad (3)$$

whereby: g^* = sustainable rate of growth in sales

ΔS = change in sales over the planning period

S = current level of sales

D = target proportion of profits to be distributed

t = average rate of income tax

ROTA = operating return on total assets

L = target ratio of total debt to total equity

r = average rate of interest on debt financing

Donaldson (1984) makes use of the following simple mathematical equation, that can be adapted to the individual needs of his sample firms:

$$g(S) = r [\text{RONA} + d (\text{RONA} - i)] \quad (4)$$

whereby: $g(S)$ = the company's growth rate of sales

RONA = the return on net assets

r = the earnings retention rate

d = the debt-to-equity ratio

i = the expected after-tax interest rate

Olson *et al.* (1992) develop what they refer to as an attainable growth model, cast in terms of cash-flow variables, which has the following form:

$$g^* = [(F' + D' + O' + X' + W' - E' + I' - S'_E) / (P') (R)] - 1 \quad (5)$$

whereby: g^* = attainable rate of growth in sales

F' = planned net addition to fixed assets

D' = planned profit distribution

O' = planned cash-flows from external investing activities

X' = planned change in cash and cash equivalents

W' = planned change in current assets other than cash

E' = planned non-cash expenses

I' = planned non-cash income

S'_E = planned net external sources of funds

P' = planned net profit margin on sales

R = sales in the previous period

A major influence on the sustainable growth not explicitly incorporated into any of the above equations is that of inflation. Nonetheless, the effect of inflation generally reduces real sustainable growth. Or as Higgins (1977) states:

“Inflationary growth therefore consumes limited financial resources almost as voraciously as does real growth, and neither the company nor the economy benefits.”

Higgins (1977, 1981) and Johnson (1981) present complex expressions for estimating sustainable growth in an inflationary environment, based on various assumptions about the effect of inflation on balance sheet items derived from both historical cost and general price level adjusted statements. Vickman (1981) gives further consideration to the effect of inflation on the financial management of small enterprise. However, in this study we opted to work in nominal terms, for growth figures as well as for the other variables.

3. THE FINANCING CHOICE

Following the M and M propositions (1963), firms should use as much debt as possible. In practice, firms do not follow this policy. The lack of the maximum use of debt is particularly apparent in small firms, with survey results showing that many small firms do not use any debt (Chittenden *et al.*, 1996). A response to this has been that this reflects shortcomings on the part of small firm owner-managers, but in recent years there have been attempts to provide explanations of their behavior which do not rely on assumptions of irrationality on their part (Gibson, 1992).

At the end of the 80s, some attempts were made to provide an explanation for this financing behavior (for an overview see e.g. Harris and Raviv (1991), Laveren (1991), Cools (1993)). Mostly, these explanations are applicable to small firms as well as to large firms. One of the changing perspectives concerning the established financing behavior of firms is provided by the “pecking order” approach. The “pecking order framework” (POF), proposed by Myers (1984), suggests that management uses internal funds or issues riskless debt before issuing risky debt and equity. Myers and Majluf (1984) provide theoretical support for this order of financing. Based on their model, and under an assumption of asymmetric information between firm management and investors, the issuance of equity to finance a positive NPV project may force management to abandon the project since investors assume the equity is overpriced at the time of the issue. Thus, an underinvestment problem would exist if the firm issued equity. The issuance of debt mitigates the information asymmetry and underinvestment problem in the Myers/Majluf model.

So the POF suggests that firms finance their needs in a hierarchical fashion, first using internally available funds, followed by debt, and finally external equity. Empirical evidence relative to the POF is inconclusive. A lot of studies can be mentioned that support the POF, but at the same time a lot of studies reject this approach (see e.g. Klein and Belt, 1994, Durinck *et al.*, 1996).

On base of a survey Durinck *et al.* (1997) concluded that the financing hierarchy - noticed with 106 examined Belgian enterprises - is completely conform to the one suggested by the POF. Also a former survey - held with 1000 Belgian SME owner-managers (Donckels *et al.*, 1993) - concluded that the internal equity plays the key role for financing the growth phase. Almost 63 % of the companies financed its growth mainly with equity. Only 3 % issued new capital. And about 53 % made use of debt financing.

For Belgian SMEs the POF has not been explicitly tested. Making use of the annual reports, we want to provide additional evidence on this problem by studying the sustainable growth issue and the associated financing decision. Thus, the null hypothesis for this study is:

H₀ : There is no systematic or preferred firm financing response to actual growth exceeding sustainable growth.

4. COMPOSITION OF THE SAMPLE

In this study, we focus on the Belgian industrial SMEs. A firm is defined as small when it employs between 10 and 49 people, and realizes a turnover of maximum 280 million BEF.³ The criteria for a medium-sized firm is a staff size of 50 to 249 people, and a turnover of maximum 1 600 million BEF. All of these firms belong to NACE 2, 3 and 4.

The firms to be retained in the final sample also have to be fast growing. Therefore, firms have to fulfil two necessary conditions:⁴

1. a positive SUSG
2. an actual growth exceeding the SUSG

For the calculation of both growth figures, the annual reports are used. The SUSG is calculated making use of formula (1). So as to integrate a period of boom and a period of recession, as well as to eliminate the domination of extreme years, the following calculations are made:

$$\text{SUSG} = \text{ROE} * (1 - \text{DPR})$$

whereby:

$$\text{ROE} = \frac{\sum_{t=89}^{91} \text{Profit (loss) of the book year}}{\sum_{t=89}^{91} \text{Equity}} \quad (6)$$

$$\text{DPR} = \frac{\sum_{t=89}^{91} \text{Dividends}}{\sum_{t=89}^{91} \text{Profit (loss) of the book year}} \quad (7)$$

The actual growth for the next period, 1991-1995 (ACTG), was calculated by the compounded growth rate. This led to the following calculation:

$$\text{ACTG} = (\text{Turnover}_{95} / \text{Turnover}_{91})^{1/4} - 1$$

All together the SUSG could be calculated for 2 589 firms. Of this global sample, 76 % shows a positive SUSG. As is shown in Table 1, only 370 of these firms fullfill the second condition as well, and are retained in our final sample.

TABLE 1: The growth profile of the global sample

	<i>Pos. SUSG</i>	<i>Neg. SUSG</i>
ACTG > SUSG	370 SMEs (=14.3 %)	
ACTG < SUSG	1 359 SMEs (=52.5 %)	620 SMEs (=24 %)
no ACTG	240 SMEs (=9.2 %)	

In Table 2, some summary statistics are given concerning the four calculated variables mentioned above. Because of the strong difference between the global and the final sample, both are indicated. It can be mentioned that analysis of the data shows that the differences between the six subsectors (cfr. small and medium-sized firms of three NACE sectors) are statistically significant at the highest level.

As could be expected, the final sample includes firms with a higher actual growth. The mean here is 16.9 %, compared with 2.7 % for the global sample. Also the SUSG is higher, as the result of a higher ROE and a higher DPR.

TABLE 2: Growth figures for the global and final sample

	Global sample Mean	Stand. deviation	Final sample Mean	Stand. deviation
SUSG	0.0495	0.2452	0.0626	0.1401
ROE	0.0820	0.2805	0.0951	0.2039
DPR	0.1788	0.5007	0.2233	0.3221
ACTG	0.0274	0.2403	0.1687	0.2821

N=2 501 (2 283)

N=370

5. THE FINANCING BEHAVIOR OF FAST GROWING SMEs

Table 2 shows that firms of the final sample are grown on an average with 17 % during the period 1991-1995, whilst only 6 % can be financed within the framework of the chosen dividend and leverage policies. So as to examine how firms finance this growth in turnover above the sustainable level, we calculate the changes in the sources of finance during this same period.

Relative to Higgins' list of possible methods for dealing with actual growth greater than sustainable growth, we consider four alternatives to obtain additional funds (cfr. Section 2):

1. RE: an increase in retained earnings, measured by:

$$\frac{(\text{Reserves} + \text{Retained Earnings})_{95} - (\text{Reserves} + \text{Retained Earnings})_{91}}{(\text{Reserves} + \text{Retained Earnings})_{91}} \quad (8)$$

2. TD: an increase in total debts, measured by:

$$\frac{(\text{Provisions} + \text{Debts})_{95} - (\text{Provisions} + \text{Debts})_{91}}{(\text{Provisions} + \text{Debts})_{91}} \quad (9)$$

3. ES: the sale of equity, measured by:

$$\frac{(\text{Capital})_{95} - (\text{Capital})_{91}}{(\text{Capital})_{91}} \quad (10)$$

4. DV: a reduction in the dividends, measured by:

$$\frac{\sum_{t=92}^{95} (\text{Dividends}_t - \text{Dividends}_{91})}{\text{Dividends}_{91}} \quad (11)$$

Out of Table 3, it can be seen that the category TD fills up 83.6 % of the financing needs of our final sample. Much smaller, and more or less equal, is the importance of

ES and RE. They have a portion of 11.6 % and 8.1 % respectively. The positive sign of DV indicates that dividend payments were increased relative to 1991, so that this use of funds is not reduced, and they are a net use of financing.

TABLE 3: The four financing sources for the final sample (1 000 BEF)

	Absolute amount	Portion
RE	1 713 201	0.081
TD	17 620 409	0.836
ES	2 441 837	0.116
DV	691 906	-0.032

N=370

	Mean	Median	Standarddeviation
RE	4 630	2 101	53 873
TD	47 622	20 562	110 079
ES	6 599	0	40 041
DV	1 870	0	38 615

N=370

These numbers give an idea about the amount that is made available by the four financing types. However, since most SMEs make use of more than one alternative, the question can be posed which source is the most important one for how many SMEs. Since, for instance, the median for ES is 0, it can be expected that this category is less used, but when used important amounts are involved. Therefore, each firm is assigned to the category that provides the greatest absolute amount of financing over the 1991-1995 period.

As shown in Table 4, for 64 firms out of 370 firms in the sample, an increase in retained earnings was the primary source of financing, an increase in total debt was the primary source for 252 firms, a net increase in stock sales was the primary source for 27 firms, and a decrease in dividends was the primary source for 11 firms. Thus, a statistically significant number of firms in the sample finance their growth primarily with debt. For 16 firms, no conclusion was possible.⁵

TABLE 4: The category with the greatest absolute amount of financing (number of firms)

	CAT 1: RE	CAT. 2: TD	CAT. 3: ES	CAT. 4: DV	no verdict
NACE2KL	10	25	--	1	1
NACE2MI	7	21	1	2	1
NACE3KL	12	50	7	1	3
NACE3MI	4	32	5	--	1
NACE4KL	17	60	5	4	6
NACE4MI	14	64	9	3	4
TOTAAL	64	252	27	11	16

N=370

As mentioned, most SMEs do not limit themselves to one source of financing. Of the 370 firms, 88 firms used only 1 source, 176 firms used two sources, 84 firms used three sources and 6 firms used all four sources. Based on median observations of the different forms of financing, there are distinct differences within each category. ⁶

6. TESTING THE PECKING ORDER HYPOTHESIS

Another intention of this research is to examine whether our null hypothesis — stating there is no preferred firm financing response when actual growth exceeds sustainable growth — can be rejected or not. In analogy with Klein & Belt (1994), this hypothesis is tested in two ways, making use of the mxn contingency tables and making use of the logistic regression.

A. Making use of mxn contingency tables

The first method to test the hypothesis is to use mxn contingency tables, in conjunction with a chi-square test for independence between two variables. The chi-square test only indicates whether two variables are independent of, or dependent on each other. This statistic does not give an explicit indication of the strength of their association. For this reason, we also calculate Goodman & Kruskal's tau.

The hypothesis is tested on basis of the difference between the actual and the sustainable growth. When slow growers make more use of internal means, and the fast

growers make more use of external means, acceptance of the POF is justified. This establishment indeed suggests that the internal available funds are used first, followed by debts (and by external equity).

Thus, for each firm, the difference in actual growth rate and the sustainable growth rate is calculated. The quartiles for this variable for the entire sample are given in Table 5. The median of the differences is used to categorize the SMEs into “faster” (above median growth) and “slower” (below median growth) growing companies. Table 5 clearly shows this last group effectively does not grow much more than the sustainable level.

TABLE 5: The quartiles concerning ACTG minus SUSG for the entire sample

Minimum	4.13E-05
Quartile 1	0.020676
Median	0.048083
Quartile 3	0.113152
Maximum	3.758849

N=354

Table 6 shows the results for testing the relationship between the rate of growth above sustainable and the type of financing method chosen. The chi-square value for the 3x2 contingency table is significant at the 0.003 nominal level of significance, indicating dependence between the two variables. In addition, Goodman & Kruskal's tau is significant at the highest level. Consequently, the results indicate that when companies grow much faster than sustainable, the use of debt financing increases and the use of retained earnings decreases. With respect to the other two categories, differences are small. Thus, based on the totals of Table 6 and the statistical results, it is reasonable to conclude that companies in the faster growing category use up available internal financing and need to go to outside markets to raise additional funds to finance their rapid growth. And when this happens, most companies choose debt financing.

TABLE 6: Type of financing method versus rate of growth above sustainable

		Median ACTG-SUSG		
		Above	Below	Total
Financing type	Increase in RE	20	44	64
	Increase in TD	141	111	252
	Increase in ES	12	15	27
	Decrease of DV	4	7	11
	Total	177	177	354
chi-square value: 13.723 ($p = 0.003$) Goodman & Kruskal's tau: 0.026 ($p = 0.000$)				

The question can be raised whether these findings are confirmed while controlling for the size of the company. Size can be established in various ways. The first alternative we consider, concerns our division until now, being small and medium-sized firms as defined in Section 4. The median for the first group is 0.0561, the median for the second group is 0.0408. Notice that in testing this relationship, the category DV is eliminated since it occurs infrequently for this sample. Any observations that were placed in this category are reassigned to one of the other three categories based on which method provides the next greatest amount of financing.

The results are given in Table 7. Based on observation of the totals, we are inclined to conclude that the same financing behavior is established after this grouping. However, the results of the statistical analysis show that the finding is only significant for the medium-sized firms.

As a second alternative, the companies were split into two size groups, based on the form of the annual reports to be submitted.⁷ Although not shown in tabular form here, results are similar. Regardless of the form of the submitted annual report, the results indicate that the faster firms grow, the more likely the firm is to use debt financing. However, once again, the two statistical measures are only significant for the group with the largest SMEs (i.e., firms with a complete schedule). For the smaller SMEs (i.e., firms with an abbreviated schedule), they are statistically insignificant, indicating independence between the method of financing and the rate of growth above sustainable.

TABLE 7: Type of financing method versus rate of growth above sustainable, while controlling for firm size

A. Small enterprises		Median ACTG-SUSG		
		Above	Below	Total
Financing type	Increase in RE	15	27	42
	Increase in TD	74	63	137
	Increase in ES	7	5	12
	Total	96	95	191
chi-square value: 4.640 ($p = 0.098$) Goodman & Kruskal's tau: 0.016 ($p = 0.045$)				
B. Medium-sized enterprises		Median ACTG-SUSG		
		Above	Below	Total
Financing type	Increase in RE	8	20	28
	Increase in TD	68	50	118
	Increase in ES	5	10	15
	Total	81	80	161
chi-square value: 9.549 ($p = 0.008$) Goodman & Kruskal's tau: 0.043 ($p = 0.001$)				

Next, we want to investigate whether the results of the POF are valid when the companies are segregated by the different industrial sectors. Former research (e.g., Claggett, 1991; Klein & Belt, 1994) suggests some industry influence on the choice of financing type. Thus, we split up the entire sample in NACE 2 (median = 0.0352), NACE3 (median = 0.0466) and NACE 4 (median = 0.0528).

Where, before, the DV category is eliminated given the small number of observations relying on that financing type, the ES category is eliminated for NACE 2 for the same reason, and the observations were reassigned to one of the two remaining types of financing. The results are shown in Table 8.

TABLE 8: Type of financing method versus rate of growth above sustainable, while controlling for industrial sector

A. NACE 2		Median ACTG-SUSG		
		Above	Below	Total
Financing type	Increase in RE	8	11	19
	Increase in TD	25	22	47
	Total	33	33	66
chi-square value: 0.665 ($p = 0.415$) Goodman & Kruskal's tau: 0.010 ($p = 0.418$)				
B. NACE 3		Median ACTG-SUSG		
		Above	Below	Total
Financing type	Increase in RE	7	10	17
	Increase in TD	43	39	82
	Increase in ES	5	7	12
	Total	55	56	111
chi-square value: 1.049 ($p = 0.592$) Goodman & Kruskal's tau: 0.007 ($p = 0.483$)				
C. NACE 4		Median ACTG-SUSG		
		Above	Below	Total
Financing type	Increase in RE	9	26	35
	Increase in TD	72	54	126
	Increase in ES	6	8	14
	Total	87	88	175
chi-square value: 11.109 ($p = 0.004$) Goodman & Kruskal's tau: 0.048 ($p = 0.000$)				

Although the totals of the three contingency tables seem to give affirmation of the POF theory, the differences for NACE 2 and NACE 3 are not big enough to be statistically significant. Only for NACE 4 we find on a significant level that the faster SMEs grow, the more they can be found in the category TD.

B. Making use of the logistic regression analysis

The results of the above tests provide indirect evidence for the POF theory: When SMEs are growing faster than sustainable, debt is the major source of financing after the firm uses up available internal financing. However, this aggregate result may hide important differences across companies. Therefore, we consider certain company characteristics that may indicate which type of financing method a firm is more likely to employ. This vector of independent variables includes variables that are intended to capture operational and financial characteristics of the firm as well as measure the degree of asymmetric information that may exist between management and investors.

More specifically, the financing choice is assumed to be a function of the following variables:

$$1. \text{ TAT: the total asset turnover, measured by:} \\ \text{total assets}_{91} / \text{turnover}_{91} \quad (12)$$

$$2. \text{ GRO: the rate of growth above sustainable, measured by:} \\ \text{ACTG minus SUSG} \quad (13)$$

$$3. \text{ LEV: the leverage, measured by:} \\ \text{total debt}_{91} / \text{book value of equity}_{91} \quad (14)$$

$$4. \text{ IAS: the information asymmetry, measured by:} \\ \text{the natural log of sales}_{91} \quad (15)$$

These variables are not only selected by Klein & Belt (1994), but collectively they have been used previously in research by Mackie-Mason (1990), Johnson (1981), amongst others. A difference with our study is that Klein & Belt use three separate measures to capture the degree of information asymmetry: the one we use, the relative number of shares traded for the firm, and the number of shareholders for the firm's stock.

The logistic regression analysis is performed to test for the probability that a firm will choose 1) internal or external financing, and, if external 2) debt or new equity financing. Thus, logit model # 1 considers the probability that a firm will choose internal financing (internal=1, external=0), while logit model # 2 considers the probability that a firm will choose debt financing over new equity financing (debt=1, equity=0). The studies mentioned also specify the influence to be expected of the independent variables on this financing choice.

Without going into detail into this argumentation, the following hypotheses can be made:

- TAT: no a priori relation with p(internal)
a negative relation with p(debt)
- GRO: a negative relation with p(internal)
no a priori relation with p(debt)
- LEV: a positive relation with p(internal)
a negative relation with p(debt)
- IAS: no a priori relation with p(internal)
no a priori relation with p(debt)

Table 9 presents the results for logit model # 1, which tests the relationship between the variables described above and p(internal). The log-likelihood of this model is -169.27, being highly significant. In Table 9, it becomes clear the regression results in two significant and two insignificant relationships.

TABLE 9: Logit model # 1: choice of internal versus external financing

Variable	Coefficient	T-statistic	Probability
Intercept	1.8641	1.2346	0.2178
TAT	0.1954	1.5794	0.1152
GRO	- 7.6790	- 3.4780	0.0006
LEV	- 0.0885	- 1.3680	0.1722
IAS	- 0.2199	- 1.7941	0.0737

N=348

The most significant variable in this model is GRO. As expected, the parameter estimate is negative, indicating that faster growing firms use up the available retained earnings more quickly, and need to rely on external financing. On the lowest level of significance we find a negative relation between p(internal) and IAS. This negative influence indicates that larger companies may have more news disseminated about them, lowering the degree of information asymmetry. Therefore, larger firms are more likely to use external financing as opposed to relying primarily on retained earnings.

Of the 348 observations of model # 1, there are 273 firms that prefer external above internal financing, and so can be considered for logit model # 2. This model tests the relationship between the variables discussed above and p(debt). The log-likelihood is -

64.11, thus the regression as a whole is less significant. Only 19 observations prefer new external equity above debt. As can be seen in Table 10, we have two significant and two insignificant relationships here as well, all showing a negative sign.

TABLE 10: Logit model # 2: choice of debt versus external equity financing

Variable	Coefficient	T-statistic	Probability
Intercept	9.2585	2.9732	0.0032
TAT	-0.1179	- 0.8313	0.4065
GRO	- 1.0092	- 1.1483	0.2519
LEV	- 0.1182	- 2.3986	0.0171
IAS	- 0.5045	- 2.0645	0.0399

N=273

Similar to model # 1, IAS is significant, even at a higher level. And once again there is a negative sign, indicating that low information asymmetry firms are more likely to issue new equity instead of debt. Another negative significant relation is the one between $p(\text{debt})$ and LEV. This finding affirms that highly leveraged firms also use up their debt capacity.

CONCLUSION

The results of this paper indicate that the level of growth has a statistical significant influence on the choice of financing. The faster the growth, the less firms use retained earnings as their most important source of finance and the more firms use external financing. These results are indirect evidence in support of the pecking order hypothesis.

However, we should mention that the above results are not statistically confirmed for differences between industry (except for NACE 4) or for differences in size (except for larger SMEs). The last conclusion is confirmed by the logistic regression analysis. The larger SMEs are more inclined to use debt financing.

The regression analysis also confirms our earlier results that the growth level determines the choice internal versus external financing. Firms having a higher debt ratio at the beginning of the growth period, generally use more equity financing.

NOTES

1. We also investigated the influence of some firm characteristics on the choice of financing type, making use of mxn contingency tables. More specifically, we examined the leverage, the degree of independence, the profitability and different size measures. However, since none of these variables seemed to have a significant influence, the results are not mentioned in this paper. Notice that leverage and size are integrated in the logistic regression analysis.
2. The assumptions of the model (a.o. conserving a constant debt ratio and using no external equity) are discussed in detail by e.g. Higgins, 1992 and Ross *et al.*, 1995.
3. 1 ECU = about 40 BEF
4. These criteria for fast growing firms are similar to those presumed by Klein & Belt (1994), as is the choice of the variables.
5. The situation of "no conclusion" took place in those cases where there seemed to be no financing source at all. For instance, for 12 SMEs the first two categories (RE and TD) were negative, whilst the last two categories (ES and DV) were zero.
6. For instance, for those firms placed in the RE category (N=64), the median increase in RE is 12 313 BEF, while the median for TD represents a net use (namely -1 168 BEF) and the median increase in ES and DV is 0. For the firms placed in the TD category (N=252), the median for TD is 38 935 BEF, whilst this value is 1 344 BEF for RE, and 0 for ES and DV. For the firms placed in the ES category (N=27), the median increase is 33 000 BEF, to compare with a median of -572 BEF for RE, -1 803 BEF for TD and 0 for DV. For the firms placed in the DV category (N=11), the median value for DV is -12 000 BEF, while the median increase in RE is 1 956 BEF, the median decrease in TD is -10 115 BEF and the median is 0 for ES.
7. The National Bank of Belgium defines a firm as big when the average staff size is more than 100, or when they exceed minimum two of the following three criteria: a staff size = 50, a turnover (excl. VAT) = 170 million BEF and a balance total = 85 million BEF. In this case, the firm has to submit an annual report according to the complete schedule.

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