FINANCING PREFERENCES AND FIRM GROWTH IN A SMALL OPEN ECONOMY

By

Winston Moore,
Roland Craigwell
and Chanelle Maxwell
Central Bank of Barbados

Financing Preferences and Firm Growth in a Small Open Economy

By

Winston Moore, Roland Craigwell and Chanelle Maxwell[1]
Research Department, Central Bank of Barbados,
PO Box 1016, Bridgetown, Barbados

ABSTRACT. This paper utilises data on all the listed companies in Barbados spanning the period 1990 to 2000 to examine the hypothesis that a firm's financing preferences has no influence on growth. Contrary to the previous literature, a model of firm growth is augmented with financing preference variables and estimated using instrumental variable panel data techniques. The results from this study suggest that the use of internal and external funds is inversely related to firm growth, while equity finance has a positive impact. Moreover, the strength of these relationships is enhanced for younger, smaller enterprises.

Proposed Running Headline: Financing Preferences and Firm Growth

3 September 2003

[1] *Moore*: Senior Economist, Research Department, Central Bank of Barbados, P.O. Box 1016, Bridgetown. Phone 1-246-4366870, Fax 1-246-4271431, E-mail wrmoore@centralbank.org.bb
Craigwell: Chief Economist, Research Department, Central Bank of Barbados, P.O. Box 1016, Bridgetown. Phone 1-246-4366870, Fax 1-246-4271431, E-mail rccraigwell@centralbank.org.bb
Maxwell: Economist, Research Department, Central Bank of Barbados, P.O. Box 1016, Bridgetown. Phone 1-246-4366870, Fax 1-246-4271431, E-mail ctmaxwell@centralbank.org.bb

Financing Preferences and Firm Growth in a Small Open Economy

1. Introduction

In 1958, Franco Modigliani and Merton Miller developed the hypothesis that a firm's financial structure will not affect its market value in frictionless capital markets. This result implies that only technological and product market opportunities should influence a firm's real variables, and by extension, its prospects for growth. However, a number of empirical studies have found evidence contrary to Modigliani and Miller's irrelevance result. Indeed, it is reported that when cash flow is added to a theoretically derived investment equation, this variable tends to improve the empirical fit of the model (see Hubbard, 1998, for a survey of this literature).

This paper advances the above-mentioned literature, by using instrumental variable econometric techniques to test the hypothesis of whether a firm's financing preferences in a small open economy, influences its future growth prospects. In particular, this study considers the importance of external financing, internal financing and equity finance on firm growth in Barbados. One implication of this paper is that if a link between a firm's financing decision and growth is found, it could provide evidence in favour of the credit view of the monetary transmission mechanism, which argues that monetary policy first impacts on borrowers' financial position (for example, cash flows) and then on investment (see Brunner and Meltzer, 1968; Bernanke and Blinder, 1992).

Instead of developing a theoretical model of investment behaviour, which is customary in the empirical literature, this study specifies and estimates a model of firm growth. Then the impact of financing decisions is examined by augmenting the model with financing decision variables. In addition, rather than splitting the sample, the paper uses interaction terms to determine whether the importance of the financing decision variables varies across firms depending on their age, size and cash flows. To the authors' knowledge, the entire approach adopted is one of the first conducted in the area.

The results agree with those authors who refute the Modiliani-Miller hypothesis and suggest that firms' financing decisions do impact on the growth prospects of publicly traded companies in Barbados. More importantly, however, it indicates that the use of internal and external funds are inversely related to firm growth, while employing equity finance has a positive influence on growth. Additionally, the impact of financing preferences on firm growth increases as firm size falls. These results are robust to a series of sensitivity tests, and therefore seem to imply that firms should be careful of being overly reliant on internal finance.

The remainder of the paper is as follows. Section II develops the empirical model. Section III discusses the data and examines the characteristics of the Barbadian corporate sector, while Section IV presents the econometric results. Section V concludes.

2. Empirical Model

2.1 Theory

The starting point of the analysis is to specify a model of firm growth, and then augment this equation with financing variables to identify whether they significantly affect growth. If one assumes that firms maximise the expected discounted value of dividends (D_t), then the firm's inter-temporal maximisation problem is as follows:

$$V_t(K_t, \xi_t) = \max_{\{I_{t+s}\}_{s=0}^{\infty}} D_t + E_t\left[\sum_{s=1}^{\infty} \beta_{t+s-1} D_{t+s}\right] \tag{1}$$

subject to:

$$D_t = \pi(K_t, \xi_t) - C(I_t, K_t) - I_t \tag{2}$$

$$K_{t+1} = (1-\delta)K_t + I_t \tag{3}$$

where t represents the current time period, s are incremental periods to t, K_t is the capital stock, ξ_t is a productivity shock, $E[.]$ is the expectations operator, β represents the discount factor, π is the profit function, C is the adjustment cost function, I_t is investment and δ_t is the rate of depreciation for capital.

Hubbard (1998) shows that one can derive the following reduced form investment equation:

$$I_t^* = \phi_0 + \phi_1 q_{it}, \quad \phi_1 > 0 \tag{4}$$

where I_t^* is the firm's investment in fixed capital (as a fraction of the current fixed capital input) and q_{it} is Tobin's q ratio. Equation (4) is quite similar to the results derived by Modigliani and Miller (1958), and shows that a firm's financial policy (for example, the choice between debt and equity) should not impact on real variables. In this instance, investment is only influenced by Tobin's *q*, which is a proxy for the increase in the value of the firm that would result from an additional unit of investment, and is thus, positively related to investment.

Assuming the firm's log-linearised Cobb-Douglas production function is of the form:

$$y_{it} = \alpha l_{it} + (1-\alpha)k_{it} \tag{5}$$

Then taking the first difference of Equation (5) and substituting Equation (4) while noting that $\Delta k_{it} \cong I_{it}^*$, one obtains the following growth equation:

$$\Delta y_{it} = \alpha_0^* + \alpha_1^* \Delta l_{it} + \alpha_2^* q_{it} \tag{6}$$

Equation (6) indicates that firm growth should be positively associated with changes in the amount of labour input utilised and Tobin's *q*. This equation can be augmented with the term, F_{it}, which captures the financing decisions of firms, that is:

$$\Delta y_{it} = \alpha_0^* + \alpha_1^* \Delta l_{it} + \alpha_2^* q_{it} + \alpha_3^* F_{it} \tag{7}$$

Thus, if the firm's financial policy has no impact on growth then $\alpha_3^* = 0$ in Equation (7).

The firms examined can be divided into various sub-samples according to some measure of financial preferences (see Hoshi, Kashyap and Scharfstein, 1991; Fazzari, Hubbard and Peterson, 1985; Whited, 1992), to test whether the above-proposed relationship differs between sub-samples. This approach can lead to degrees of freedom problems and, alternatively, the financing variables can be interacted with the variables of interest, for example, size. In this case, Equation (7) becomes:

$$\Delta y_{it} = \alpha_0^* + \alpha_1^* \Delta l_{it} + \alpha_2^* q_{it} + \alpha_3^* F_{it} + \alpha_4^* F_{it} \times Size \tag{8}$$

Thus, α_4^* tells the researcher whether the choice of the type of finance used for investment varies between firms of differing sizes. The same procedure can be done for age and a proxy for financing constraints.

2.2 Econometric Approach

Equation (8) is usually estimated using panel data techniques (that is, the pooled, fixed effects or random effects models). However, many of the variables in the equation are likely to be simultaneously determined with the dependent variable or the other explanatory variables. For example, those firms with relatively faster rates of growth are likely to have greater cash and may find it more advantageous to employ internal finance to purchase new investments. Similarly, the greater use of labour inputs, ceteris paribus, should lead to an increase in output. However, an expansion in output could also cause the firm to utilise more labour inputs. In these instances, the parameter estimates from the usual panel data techniques are inconsistent. Therefore, this study utilises instrumental variable methods (three-stage least squares). The presence of heteroskedastic residuals could be a problem for Equation (8), given that the study employs company-level data, as a result, White heteroskedastic consistent standard errors are utilised in all regressions.

3. Data

This paper uses published financial statement data for all Barbadian firms traded on the local stock exchange over the period 1990 to 2000 to examine corporate growth. The firms in the database account for 8% of total private sector employment in Barbados, and generate $3.1 billion in sales, or approximately 60% of gross domestic product at market prices. Firms included in the database are drawn from virtually every major industry in the domestic economy (distribution; finance, insurance and real estate; manufacturing; transport, storage and communications; electricity, gas and water, and; tourism). One shortcoming of the database, however, is that it does not include a large number of small enterprises.

Tables 1 and 2 present aggregate statistics on corporate performance in Barbados over the period 1990 to 2000. The tables show that firm growth is highly pro-cyclical, with the only period of decline recorded in 1992 when Barbados was in the midst of an economic recession. As a result, average firm growth over the period was estimated at 6.1%. The best performing firms were those in the finance, insurance and real estate industry, with an average annual rate of expansion of 14.7%. Firms engaged in distribution, transport, storage and communications and tourism activities also registered credible rates of growth of between 4 and 6% per year. Unsurprisingly, those enterprises in manufacturing increased, on average, by less than one percent per year over the sample period.

Table 1 also provides statistics on the total investment as a percent of net assets. It reveals that firms' invest on average 17% of net assets in any given year. Entities in distribution (17.9%) and transport, storage and communications (31.4%) had the greatest investment to asset ratios over the period, while the investment to asset ratio for manufacturing establishments was 16.4%, probably indicating why product obsolescence and trade liberalisation has forced many of these enterprises out of operation (Lewis-Bynoe, Griffith and Moore, 2002).

Most of the financing for these new investment activities came primarily from company (internal) sources. Between 1990 and 2000, internal financing represented, on average, 12.3% of net assets, four percent greater than the ratio for external financing and significantly higher than that obtained from equity finance, which accounted for less than one percent of net assets. Also noteworthy is that internal financing was quite significant during the period of economic decline (between 1990 and 1993), when it represented 15.9% of net assets, almost twice the amount obtained from external sources. In contrast, during the post recession period, internal financing declined to 11% of net assets while external finance rose marginally. Equity financing was the least used source of financing investment activities during the review period, with the highest ratio to net assets of 3.7% recorded in 1997. This latter finding is surprising given that domestic interest rate spreads tend to be wide and exceed those in most Caribbean and developed economies (Moore and Craigwell, 2002). However, if firms benefit from relationship lending this could explain why they chose this source of financing over equity. Partial evidence of this phenomenon is reported by Moore and Craigwell (2003), who argue that interest rates on large loans (over $500,000) tend to be almost two percentage points lower than those obtained on smaller loans. In addition, the relatively undeveloped capital market and the bias of the tax system towards debt finance are important factors as well.

The pervasive use of internal financing also has ramifications for firm stability, since financing investments through internal sources, reduces the resources available to buffer against shocks arising from economic downturns. The utilisation of internal finance is especially prevalent in manufacturing enterprises, where internal finance usually represents 20.7% of total assets in any given year. Additionally, firms engaged in transport, storage and communications (19.5%) and finance, insurance and real estate (12.9%) had relatively high internal finance to asset ratios. On the other hand, firms in distribution tend to depend primarily on loans and overdrafts to finance their activities, with external finance averaging 10.3% of net assets. Tourism (13.9%) and transport, storage and communications (17.6%) enterprises also had relatively high external financing to equity ratios. Only firms in the finance, insurance and real estate industry had any significant levels of equity finance, with average equity to asset ratios of 6.6% reported, while all the other industries recorded equity finance to asset ratios of less than 1%.

As a preliminary analysis of the possible impact that firms' financing decisions can have on growth, Figure 1 plots the rate of expansion for those firms which depend – to a large extent – on internal finance and external finance. The figure shows that there does not appear to exist any significant difference in the rate of growth between the two groups of firms. Over the sample period considered, the average rate of increase for those firms which have a relatively greater reliance on internal finance was approximately 6% per year, or two percentage points higher than those that depended primarily on external finance. This difference, however, seems to have occurred since those firms which depend on external debt to finance a larger proportion of their investment purchases had a somewhat greater variance in their rate of expansion. Thus, the hypothesis that firm's financing decisions influences firm growth seems to have been rejected by a graphical analysis of the data. This simple graphical analysis, however, does not allow for differences in the future profitability between firms as suggested by the model presented in Section 2. In addition, an analysis of share equity could not be undertaken since firms did not issue equity in every year for the sample period considered. Therefore, more formal statistical techniques than those reported above are employed in the following section.

4. Econometric Findings

4.1 Baseline Results

Column 2 of Table 3 presents the basic growth model for firms in Barbados. Although the study focuses on the instrumental variable results, due to possible simultaneity problems, OLS estimates are also provided for comparison purposes. In accordance with *a priori* reasoning, the basic growth model shows that growth is positively related to changes in the labour inputs used and Tobin's q ratio. It is noteworthy that the signs and magnitudes of these two explanatory variables did not change appreciable in any of the three regressions estimated.

The final column in the Table augments the basic growth model with variables, which capture the financing preferences of firms in the sample. Contrary to the Modigliani and Miller irrelevance result, the financial preference variables do significantly influence the growth prospects of Barbadian firms. The coefficient estimates reveal that those firms, with a greater preference for using internal finance and debt, experience lower rates of growth than their peers. The negative coefficient on the debt variable could reflect a number of factors. For instance, one can argue that debt causes the firm to utilise a fixed proportion of its earnings every period to repay the interest and principle on the debt. This reduces the ability of the firm to absorb the impact of shocks on the demand for the enterprise's goods or services (see Bernanke and Campbell, 1988; Cantor, 1990; Freidman, 1990). Moreover, if the return on the investment is not greater than the rate of interest, then the overall value of the firm, and by extension its rate of growth, could decline over time.

The difference in the size of the coefficient estimates show that the preference for financing investment purchases with retained earnings had the greatest negative influence on firm growth. More specifically, the study finds that for every dollar in retained earnings the firm uses to finance investment purchases, it looses thirteen cents in terms of possible asset growth. As in the case of debt, the large negative impact of firm preferences for internal finance could imply that financial institutions have more restrictive standards on financing investment projects than firms. Thus, those projects the bank refuses to finance either have to be abandoned or financed from internal sources. It is noted that this argument runs contrary to the financing hierarchy framework for businesses tested by Oliner and Rudebusch (1996), which argues that firms tend to finance most investment from retained earnings given the cost related to external finance, but could hold for fringe projects. However, one could think about projects, which are highly valued by the firm, or its executives, but does not have a high enough rate of return to be financed by contracting debt (for example, a more luxurious car for the chief executive officer).

In contrast, the coefficient on the equity variable is the only one of the finance preference indicators that is positively related to firm growth. Moreover, the coefficient estimates suggest that for every dollar in new investment financed through equity, the firm's assets rise by one dollar and thirty-eight cents. This large and positive coefficient on the equity variable implies that firms tend to only finance those projects with a relatively high return on investment.

4.2 Non-Linear Results

As mentioned in Section II there exists a large amount of literature, which indicates that the financing prospects of small firms differ from those of large entities. As a result, this paper interacts a size dummy with the financing variables to test the impact on corporate growth between different sizes of firms (see Table 4). Column 3 of the table reveals that the interaction term with external finance is positive and significantly related to firm growth. This finding seems to reflect the long held view that large firms tend to benefit from financial economies of scale, both in terms of access to finance and interest rates. In addition, the magnitude of the coefficient suggests that for every dollar invested (financed through external sources), larger firms earn about thirty cents more than their smaller counterparts.

In order to further investigate the impact of firm's financing decisions on growth, the authors interact an age dummy with the finance variables. The coefficient estimates provide some interesting conclusions. First, all the age interaction terms are significant, and therefore suggest that age has a significant influence on the financing preferences-growth nexus. Second, the decision to use retained earnings and/or debt has a greater negative impact on the growth prospects for younger firms relative to their older peers. However, younger firms that issue equity to finance investment purchases have greater growth prospects than older entities. Third, the negative effect of external finance on growth is larger than that for young firms using internal financing sources. This outcome can also be due in part to young firms depending more on debt in their early stages of growth, since in the initial years of business development cash flows are usually negative. This finding justifies the use of special financing schemes for start-ups as a means of developing a corporate culture.

4.3 Sensitivity Analysis

This section of the study discusses the robustness of the key results reported above. Table 5 summarises the tests and to conserve space, only the coefficient estimates on the relevant financing variables are reported. Evans (1987) and Hall (1987) both found that firm growth should be specified as a function of firm size and age. They base this posture, for the most part, on Jovanovic's (1982) learning model of firm growth. The framework assumes that firms have an initial distribution of efficiency, which is unknown to them before they enter the industry. However, after entering the industry firms obtain information about their cost through production, with the most efficient firms more likely to survive and grow, and the inefficient enterprises having a greater probability of failure. The model, therefore, yields the prediction that small firms should have higher but more variable rates of growth and therefore size should be inversely related to growth.

In contrast, the learning-by-doing literature proposes that firm growth should be positively related to size. This concept was first elucidated by Wright (1936), who puts forward the idea that the average cost of production decreases with the past accumulation of output. Since small firms' accumulated past output is lower than that for larger enterprises, one should expect that large corporations should expand at a faster rate than smaller entities. One would also anticipate that larger firms are able to benefit from economies of scale in production and finance, since large corporations, given their superior asset base, are more likely to benefit from reduced borrowing cost. In contrast to the two theories above, Gibrat's law argues that plant size should be independent of growth. This hypothesis is based on the assumption that the distribution of plant sizes is log normal, as a result, in the growth model size should be an insignificant determinant of growth.

A number of definitions of the size variable are examined: (1) size demarcated using a dummy variable, where large firms are defined as those employing more than 500 persons; (2) size measured by the natural logarithm of the total number of employees, and; (3) size proxied by the natural logarithm of total assets (column 2 of Table 5). In all instances, size is positively related to firm growth in Barbados – in accordance with the learning by doing literature – but more importantly, the main conclusions regarding the impact of financing preferences are unchanged.

Jovanovic's (1982) theory of firm growth also proposes that age and growth should be inversely related based on the assumption that firms learn their efficiencies over time. As a result, the output of corporations of various ages should converge in the long run. In addition, since older entities are probably closer to convergence, their rates of economic expansion are likely to be lower. The augmented baseline econometric equations reveal that age is an insignificant determinant of the firm growth, and shows that the signs and magnitudes of the financing variables are unchanged.

Finally, the growth model is augmented with the variable average cash as a ratio to total assets. This variable is employed to allow for the effect of financial constraints on firm growth and investment (see Devereux and Schiantarelli, 1989). The inclusion of this variable would also allow for the influence of financial constraints on firms financing preferences. The inferences derived from the signs and significance of the financing variables is unchanged.

5. Conclusions

Conventional economic theory postulates that firms' financing choices should have no influence on real variables such as investment or growth. This paper examines this hypothesis by testing the significance of financing variables in a model of corporate growth using a panel of Barbadian enterprises over the period 1990 to 2000. The econometric results suggest that financing preferences do have a significant influence on the growth prospects of corporations over the short-term. The findings indicate that the use of internal and external finance is inversely related to growth, while equity finance is positively related to growth. However, the negative influence of external finance on growth is reduced for larger enterprises. This finding could be reflective of financial economies of scale or relationship lending, a characteristic, which may be prevalent in the Barbadian financial system (Moore and Craigwell, 2003). However, the negative impact of internal and external financing is magnified for smaller enterprises, while the use of equity financing by small firms is positively related to growth. A series of sensitivity tests confirm the robustness of these results.

The findings articulated in this study have a number of policy implications. First, the taxation system in Barbados should be reformed to eliminate the bias against utilising equity finance. Currently, interest costs related to contracting debt can be written-off for tax purposes, however, the cost of issuing new shares does not benefit from similar exemptions. Thus, the accounting cost of issuing new equity is greater. The finding that the use of retained earnings to finance investment has the greatest negative impact on growth suggest that policymakers need to continue to focus on encouraging firms, especially start-ups, to utilise other forms of investment finance. Finally, efforts to develop the local and regional stock exchanges should be encouraged.

References

Baltagi, B.H., 2001, *Econometric Analysis of Panel Data,* England: John Wiley and Sons Ltd.

Bernanke, B.S. and J.Y. Campbell, 1988, 'Is There a Corporate Debt Crisis?' *Brookings Papers on Economic Activity* **1**, 83-139.

Bernanke, B.S. and A.S. Blinder, 1992, 'Federal Funds Rate and the Channels of Monetary Transmission', *American Economic Review* **82**, 901-921.

Brunner, K. and A.H. Meltzer, 1968, 'Liquidity Traps for Money, Bank Credit, and Interest Rates', *Journal of Political Economy* **76**, 951-977.

Cantor, R., 1990, 'Effects of Leverage on Corporate Investment and Hiring Decisions', *Federal Reserve Bank of New York Quarterly Review* (Summer), 31-41.

Devereux, M. and F. Schiantarelli, 1989, *Investment, Financial Factors and Cash Flows: Evidence from UK Panel Data*, NBER Working Paper No. 3116, MA.

Evans, D.S., 1987, 'Tests of Alternative Theories of Firm Growth', *Journal of Political Economy* **95**, 657-674.

Fazzari, S.M., R.G. Hubbard and B.C. Peterson, 1988, 'Financing Constraints and Corporate Investment', *Brookings Paper on Economic Activity* **1,** 141-195.

Freidman, B., 1990, *Implications of Increasing Corporate Indebtedness for Monetary Policy*, Occasional Papers Nos. 29, Group of Thirty, New York.

Hall, B.H., 1987, 'The Relationship Between Firm Size and Firm Growth in the U.S. Manufacturing Sector', *Journal of Industrial Economics* **35,** 583-606.

Hausman, J.A., 1978, 'Specification Tests in Econometrics', *Econometrica* **46,** 1251-1271.

Hoshi, T., Kashyap, A. and D. Scharfstein, 1991, 'Corporate Structure, Liquidity, and Investment: Evidence from Japanese Panel Data', *Quarterly Journal of Economics* **106**, 53-75.

Hubbard, G.R., 1998, 'Capital-Market Imperfections and Investment', *Journal of Economic Literature* **36**, 193-225.

Jovanovic, B., 1982, 'Selection and Evolution of Industry', *Econometrica* **50**, 649-670.

Lewis-Bynoe, D., Griffith, J. and W. Moore, 2002, 'Trade Liberalisation and the Manufacturing Sector: The Case of a Small Developing Country', *Contemporary Economic Policy* **20**, 272-287.

Mercer, L.J. and W.D. Morgan, 1972, 'Internal Funds and Automobile Industry Investment: An Evaluation of the Seltzer Hypothesis', *Journal of Economic History* **32**, 682-690.

Modigliani, F. and M.H. Miller, 1958, 'The Cost of Capital, Corporation Finance, and the Theory of Investment', *American Economic Review* **48**, 261-297.

Moore, W. and R. Craigwell, 2002, 'Market Power and Interest Rate Spreads in the Caribbean', *International Review of Applied Economics* **16**, 391-405.

Moore, W. and R. Craigwell, 2003, 'The Relationship Between Commercial Banks' Interest Rates and Loan Sizes: Evidence from a Small Open Economy', *Applied Financial Economics* **13**, 257-266.

Oliner, S.D. and G. Rudebusch, 1996, 'Is There a Broad Credit Channel for Monetary Policy?' *Federal Reserve Bank San Francisco Economic Review* **1**, 3-13.

Whited, T.M., 1992, 'Debt, Liquidity Constraints, and Corporate Investment: Evidence from Panel Data', *Journal of Finance* **47**, 1425-1460.

Wright, T.P., 1936, 'Factors Affecting the Cost of Airplanes', *Journal of Aerospace Science* **3**, 122-128.

TABLE 1: Corporate Performance in Barbados 1990-2000

	Growth in Nominal GDP (%)	Growth in Company Net Assets (%)	Age (years)	Growth in Employment (%)	Total Investment (% of Net Assets)	External Financing (% of Net Assets)	New Share Issues (% of Net Assets)	Internal Financing (% of Net Assets)
1990	0.376	2.251	47.522	1.006	20.966	5.873	0.043	18.476
1991	-1.349	10.305	48.522	-8.915	18.174	8.331	0.646	11.513
1992	-6.406	-2.653	49.522	-6.840	16.208	9.715	1.092	17.645
1993	4.175	4.330	51.500	10.051	17.085	11.556	0.042	8.668
1994	5.325	2.766	51.522	1.074	16.903	5.298	0.289	12.391
1995	7.383	6.857	52.522	-0.462	16.703	4.796	0.088	13.101
1996	6.744	15.164	53.522	10.247	24.491	10.720	2.116	12.278
1997	10.459	7.240	54.522	9.312	14.816	12.294	3.693	11.827
1998	7.562	11.208	55.522	-6.444	11.578	6.045	0.064	7.684
1999	4.601	7.401	56.522	1.650	18.431	9.406	0.881	11.948
2000	4.389	2.607	57.522	-2.472	13.240	4.045	0.054	9.788
Average	3.933	6.134	52.611	0.746	17.145	8.007	0.819	12.302

TABLE 2: Description of Variables

Variable	Description	Mean	St. Dev.	Obs.
Growth	Logarithm of net assets in period *t* less the logarithm of net assets in period *t-1*	6.207	12.346	171
l	Logarithm of the total number of employees	5.817	1.042	171
q	Logarithm of the value of equity plus total debt, in *t-1,* divided by the book value of the firm's net assets in *t-1*	0.134	0.463	171
Intfin	Total value of investment finance from internal sources divided by total assets	11.170	11.804	171
Sharefin	Total value of investment finance from new equity divided by total assets	0.589	3.315	171
Exfin	Total value of investment finance from external sources divided by total assets	8.594	15.306	171
Large	Logarithm of net assets	10.508	1.399	171
Age	Dummy variable which takes the value 1 for firms which are older than the sample mean and zero otherwise	-	-	171

TABLE 3: Basic Regression Results

Dependent variable: Growth	OLS	IV	IV
Δl	0.115	0.077	0.087
	(0.054)*	(0.014)**	(0.011)**
q	0.029	0.033	0.022
	(0.021)	(0.003)**	(0.003)**
Exfin	-	-	-0.101
			(0.015)**
Intfin	-	-	-0.137
			(0.025)**
Sharefin	-	-	1.381
			(0.093)**
Intercept	0.058	0.057	0.073
	(0.010)**	(0.001)**	(0.002)**
R^2	0.037	0.036	0.144
Observations	171	171	171

Note: (1) White standard errors are reported in parentheses.
(2) **, * indicates significance at the 1, 5 percent levels, respectively.

TABLE 4: Non-Linear Regression Results

Dependent variable: Growth	IV	IV	IV
Δl	0.087	0.105	0.050
	(0.011)**	(0.039)**	(0.011)**
q	0.022	0.012	0.034
	(0.003)**	(0.011)	(0.004)**
Exfin	-0.101	-0.033	-0.004
	(0.015)**	(0.074)	(0.023)
Intfin	-0.137	0.002	-0.228
	(0.025)**	(0.092)	(0.031)**
Sharefin	1.381	1.109	-0.050
	(0.093)**	(0.359)**	(0.490)
Exfin $\times$ Large	-	0.289	-
		(0.129)*	
Intfin $\times$ Large	-	-0.219	-
		(0.165)	
Sharefin $\times$ Large	-	-0.363	-
		(0.923)	
Exfin $\times$ Young	-	-	-0.179
			(0.042)**
Intfin $\times$ Young	-	-	-0.088
			(0.036)*
Sharefin $\times$ Young	-	-	1.108
			(0.518)*
Intercept	0.073	0.054	0.088
	(0.002)**	(0.011)**	(0.004)**
R^2	0.144	0.081	0.186
Observations	171	171	171

Note: (1) White standard errors are reported in parentheses.
(2) **, * indicates significance at the 1, 5 percent levels, respectively.

TABLE 5: Sensitivity Analysis

Dependent variable: Growth	IV – with size as an explanatory variable	IV – with age as an explanatory variable	IV – with cashflow as an explanatory variable
Exfin	-0.094 (0.018)**	-0.073 (0.017)**	-0.054 (0.015)**
Intfin	-0.270 (0.024)**	-0.268 (0.024)**	-0.264 (0.022)**
Sharefin	0.909 (0.146)**	1.020 (0.125)**	1.036 (0.128)**

Note: (1) White standard errors are reported in parentheses.
(2) **, * indicates significance at the 1, 5 percent levels, respectively.

FIGURE 1: Firm Growth
(Disaggregated by Major Source of Investment Finance)