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The Capital Structure and Investment Decisions of the Small Owner-Managed Firm: Some Exploratory Issues

Robert W Hutchinson

ABSTRACT. In the burgeoning literature on small firm financing, the problem of underidentification in respect to the supply of, and demand for, capital has not been fully resolved. In an attempt to progress this issue, the current paper looks at some of the issues influencing the demand for finance in small firms which are owner-managed. The paper is primarily exploratory in nature and argues that a greater emphasis might usefully be placed on the cost of capital dimension in future research into small business financing. In particular, it is suggested that where the objective of an owner-manager is to maintain control of the firm, interdependent investment and financing strategies may be chosen to control the small firms cost of capital. This in turn indicates that the tendency for some small firms to invest sub-optimally and exhibit slower than average growth may not be primarily determined by limitations on their supplies of finance. On the demand side, it may well be that in addition to equity aversion, a sub-optimal capital structure decision is made in the form of a reduced demand for debt. In other words, given the level of equity that an owner-manager chooses, debt may not be fully expanded to the capacity limit consistent with value maximisation.

1. Introduction

The main issues in the current debate on the financing of small firms centre on the limited use of equity finance and the costs involved in servicing the other main source of funds for small firms: debt capital provided by the banking system. The discussion on equity capital has two dimensions which at times are not sufficiently disentangled. The first is on the demand side where there is a possibility of equity aversion. Owner-managers supposedly reject the dilution of family control that would accompany the

diversification of ownership, induced by increasing the proportion of equity in the firm's capital structure. The second is supply side in nature and relates to the "equity gap" problem where, for apparently institutional reasons, there may be major barriers preventing an owner-manager's access to equity. Where debt capital is concerned, the core areas for debate relate to the interest rate levied, bank charges and the loan collateral that owner-managers must commit themselves to, to secure this source of funds. Again, however, difficulties of interpretation potentially arise from a failure to focus debt financing problems in either a demand side or a supply side framework.

While not attempting to minimise the practical problems of separately identifying demand and supply issues, there has been a tendency to simply abstract from demand considerations. Often there is an implicit assumption that owner managers act in a neo-classical manner, with a desire to invest in all available projects whose expected net cash flows, when discounted at the appropriately determined risk adjusted opportunity cost of funds, are positive. Consequently, imperfections in the supply of finance tend to be highlighted as a contributory cause of any small firm sector tendency to invest sub-optimally, exhibit slower than average growth and/or experience higher than average bankruptcy rates.

This paper puts forward the proposition that under certain circumstances financial explanations for these tendencies may be more closely associated with the characteristics of the owner-manager's demand for investment funds. It discusses some of the main factors which may inform the owner manager's capital structure and investment decisions. It also indicates that there may be a tendency for small firms, under this control

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system, to limit their demand for both debt and equity.

The paper proceeds, in Section 2, by examining the overall importance of risk in the small firm's decision environment. The roles of financial and operation leverage in controlling this risk are briefly discussed in Section 3. Sections 4 and 5 examine, respectively, how owner-managers of small firms might adapt their investment strategies and demand for equity capital to mitigate some of the anticipated effects of excessive debt financing. With a limited desire (scope) to expand the equity base and the small firm's consequent preference for (reliance on) debt capital, Section 6 assesses the use of the debt base, holding the equity decision constant. Further examination of debt policy, in the context of the small firm's asset mix, is presented in Section 7, before the conclusions of the paper, in Section 8.

2. The role of risk

The business environment in which any firm operates is subject to variability: systematic, in terms of the macroeconomic factors in the economies in which it operates and specific, in terms of microeconomic influences in its factor and product markets. These influences combine to determine the firm's business risk, that is the inherent variability in its earnings before interest and taxes. Most small firms which are owner-managed are exposed to total business risk (both systematic and specific) since the effects of investment portfolio diversification, which can remove specific risk factors, do not operate.

Expectations about the future variability in earnings before interest and taxes and how that variability will be influenced by potential new projects which the owner-manager wishes to undertake, largely determine the continuity of existing supplies of finance to the firm, the prospects for additional funding and the firm's component costs of capital. In essence, the higher the level of risk, the higher the cost of capital subject to an overall limit, determined by each capital supplier's risk tolerance level.¹

In terms of the two principal sources of long-term capital, debt has a more limited exposure to risk through bond indenture provisions (collateral commitments in the case of bank debt financing)

and is consequently offered at a lower cost than equity capital.

Equity is the most expensive because it is most exposed to the effects of the firm's business risk operating through the variability of the earnings available to the owners of the firm. Here, other things being equal, it is the firm's underlying probability distribution of sales which is the most important component determining the probability distribution of owner's earnings. As is explained below, however, the effect of the sales variation on equity earnings is partly determined by capital structure (financial leverage) and the flexibility the firm has in choosing the proportion of fixed to variable operating costs (its operating leverage). To the extent that an owner-manager has choices in these latter two areas, interdependent financing and investment policies will be used to move towards the owner-manager's desired exposure to risk and, given a positive risk-return relationship, his desired return on equity investment.

As Knight (1965) and Kilstrom and Laffont (1979) argue, it is the willingness to be exposed to risk which has a critical bearing on the size and development of small firms. For many, but not all, the owner-manager's initial motivation in start-up situations – a desire for independence and a type of Hicksian quiet life – may imply a strongly risk averse attitude. It is this attitude, when combined with an ability to choose the levels of operating and financial leverage, which may form a significant part of any explanation of the tendency for small firms to limit their investment and, consequently, not fully exploit both the debt and equity capital which is available.

To develop these issues it is initially assumed, from a capital structure point of view, that the owner-manager's primary focus is on debt financing. Before examining the possible reaction to adverse debt effects – by limiting debt capacity and/or in terms of equity financing and investment responses – a brief outline of the impact that operating and financial leverage have on equity earnings is presented.

3. Financial and operating leverage

From the ownership position, it is the relationship between the expected level and variability in equity earnings which helps to determine the

firm's capital structure, assuming tax and other market imperfections prevent the operation of Modigliani and Miller's (1958) capital structure propositions. Other things being equal, while the inclusion of debt capital benefits owners by raising the expected level of equity earnings, it raises the variability of these earnings about their means. Thus, with relatively high levels of debt in the capital structure, increases in sales in an expansionary phase of the business cycle can have a strong positive effect on earnings but in recessions, with down-turns in sales, high levels of debt increase the probability that equity earnings will be negative.

In more general terms, financial leverage has a positive effect on the firm's return on equity provided that the earnings power of the firms assets (the ratio of earnings before interest and taxes to total assets) exceeds the average interest cost of debt to the firm. Thus, the extent to which a firm's earnings' power is likely to remain above the breakeven point and the potential speed or flexibility with which it can adjust its debt usage, if its earnings' power falls below average interest costs, should help to determine the level of debt that the firm is willing to commit itself to at a given point in time.²

Exposure to overall business risk can also be influenced by the degree of operating leverage in the firm, which is a positive function of the extent to which a firm builds fixed costs into its operations. High operating leverage amplifies the effect of changes in sales on earnings before interest and taxes and, subsequently, the variability in the earnings available to owners. Thus, in an attempt to limit exposure to risk there is a tendency for firm's with high fixed operating costs to have a higher propensity for equity financing, relative to debt capital. Conversely, where variable costs represent a significant proportion of their operations, firms have a tendency to expose themselves to debt with its prospective benefits of lower financing costs, relative to equity.

In the case of owner-managed small firms there will be a tendency to adopt labour intensive techniques and thus, from a optimal financing point of view, place a greater reliance on debt capital. Support for the adoption of low operating leverage, with an implication of reliance on debt financing, is found in Mills and Schumann (1985).

They argue that small scale labour intensive operations give the same firm greater flexibility in adapting to unexpected demand changes, with the cost advantages achieved in this regard compensating for cost advantages which are lost through not exploiting economies of scale.

For most owner-managed small firms, there is an additional emphasis on the need to finance expansion through debt capital provided by banks because the use of equity in the early stages of development is limited to an individual and/or his family's contributions. If small firms use a level of debt which takes account of the need for a flexible response to unanticipated changes in the expected earnings-power, interest-cost differential, agency costs will not be significant enough to warrant excessive interest rate premiums over base rates or excessive collateral requirements.

4. Mitigating the effects of debt: the investment strategy response

Owner-managers of small firms may, however, have to contemplate high debt-equity ratios especially in crisis situations. Thus, it is the probability that the firm may experience financial distress which produces the significant agency costs. Indeed, if there is limited access to equity (whether supply side or demand side induced) and major reliance on debt with associated high collateral levels, a type of "double jeopardy" arises where collateral, in the form of personal assets, places limits on the ability to raise additional debt capital and squeezes the personal equity base.

In an effort to anticipate and/or ease such a situation the small firm may attempt to reduce the probability of financial distress by reducing business risk. Effectively, this lowers the interest and/or collateral costs of debt financing and, with a lower overall component cost of debt, expands the potential capacity for debt financing in future crises situations. The result may manifest itself in an investment policy exhibiting low levels of innovation and a propensity to operate in relatively well-established but slow growing markets.

5. Mitigating the effects of debt: the limited equity response

Along with, or as an alternative to, changes in its investment policy the owner-manager can adapt financial strategy by attempting to increase the small firm's equity base. This can facilitate a reduction in the debt: equity ratio or, assuming that the ratio is close to its equilibrium level, other things being equal, accommodate a complementary proportionate expansion in bank financing.

Chamberlin and Gordon (1989 and 1991) argue, however, that if the desire is to expand on the equity base the small firm may take the opportunity to adopt a conservative, sub-optimal, debt: equity ratio, as dictated by the owner-manager's need to balance his probability of long-run survival against the current market value of the firm.³

Chamberlin and Gordon suggest that the maximisation of the current market value of the firm is only an appropriate objective for shareholders who are portfolio investors with relatively small stakes in individual companies. For those who are in control of a small firm, either as "proprietor" where "ownership and control are completely joined" or as "inside" shareholders, the need to pursue a long-run survival objective results in a lower debt: equity ratio than can be expected under market value maximisation. By developing Chamberlin and Gordon's analysis, in the context of the owner-manager's need to control his equity cost of capital, the arguments, both for limiting debt usage and for pursuing a low-risk investment strategy are reinforced.

Proprietorship

In the case of the proprietorship, the problem the owner-manager confronts is that once he has contributed the proportion of his wealth in firm equity, including earnings retention, that he considers optimal, additional partners can only be attracted into the business by offering them a higher return (raising the cost of equity capital) than would be available from investing in publicly traded shares. This arises because extra compensation to new partners is necessary to accommodate conflicting objectives and in recognition of the difficulties involved should they subsequently seek to sell

their partnerships. Without an active secondary market they will be involved in search costs for buyers, if they decide to sell their partnerships, made more stringent by special conditions that may have been written into the partnership agreement.

In other words, as Amihud and Mendelson (1988) argue, there is an illiquidity problem in respect to trading claims in a small firm proprietorship. This tends to be compounded since customised claims which may have been suitable for the original investors may not suit subsequent investors.

In addition, signalling and agency problems linked to moral hazard apply to privately owned small firms as well as publicly quoted companies. Signalling models suggest that publicly quoted companies are averse to issuing new equity since the market, in the presence of information asymmetries, interprets a new issue as forecasting an increase in business risk. This in turn, can increase the probability of financial distress and thus compound associated agency costs. The result is a depression in the price at which new shares can be issued and a consequent increase in the cost of equity capital. For small firms these agency and information issues are still present even when equity is being supplied by family and/or friends. Family and friends will experience problems in understanding the nature of the business and consequently have difficulties with monitoring investments. In some senses these difficulties can be more acute when subjective personal relationships are involved.

From the small firm founder's point of view, therefore, expanding the equity base in this manner induces a rise in the equity cost of capital, potentially restricting the pool of partners. The small firm may attempt to off-set this cost by, again, altering its investment strategy to lower its business risk.

Jointly, or as an alternative strategy, the small firm may decide not to increase its debt capital in line with the optimal capital structure which would maximise market value. That is, the small firm may move towards a more conservative debt: equity ratio which reduces the effects of financial risk on the variability of earnings available to its owners and hence the cost of equity capital.

Thus the objective of the small firm propri-

etorship can cause small firms not only to avoid high risk projects but, at each level of equity, engage in levels of borrowing which are significantly below its debt capacity.

Inside shareholders

Obtaining equity via a market listing which would expose the firm to outside shareholders, while leaving managerial control to a group of inside shareholders, can also raise the same issues. A premium on the return on equity, in the form of a discount on the price of the share issue which facilitates listing, may be required to take account of agency costs. These costs may be exacerbated since, as Shapiro (1992) argues, the willingness of these managers to work hard and take risks in launching new products will fall as their proportion of equity ownership in the firm declines.

Anticipation of these equity costs – either in terms of proprietorship or a market listing – may of course simply reinforce the owner-manager's aversion to new equity capital, stemming initially from the a desire to remain independent and in control of his company. Thus, any apparent failure of small firms in the equity capital market may be ultimately demand induced.

This point is reinforced by Burke's (1992) adaptation of Evans and Jovanovic's (1989) entrepreneurial choice model. As Burke argues, there is an important distinction to be made between voluntary and involuntary capital constraints faced by small firms. Agency costs combined with the high fixed costs of flotation can prevent small firms taking the direct market listing route, leading to the conclusion that they face an involuntary capital constraint. Recognition that merger and acquisition represents a viable alternative that has been rejected, could simply imply, as Burke argues, "that many small firms may be voluntarily capital constrained" preferring to trade-off independence against capital availability.⁴

Retained earnings

The small firm owner has yet another alternative facility to expand the equity base: internally, through profit retention. Here, of course, equity capital still has an opportunity cost. The owner-manager will only be willing to pursue this route

in line with his own attitude to risk, which if risk averse will result in a combination of investment and debt policy which produces relatively low risk and hence a low return on equity. While this tendency to earn low profits will narrow the base from which retained earnings can be supplied, there is a possible off-setting effect. As Pratten (1991) argues, owner-managers, whose human, and consequently intangible, capital investment can represent a substantial part of a small firm's assets, do not require a competitive return on this component. It is as You (1992) suggests one element giving small firms a cost advantage over large firms. On the other hand, as Fama and Jensen (1985) and Hughes (1992) imply, risk aversion may be reinforced by the owner-manager's reliance on his own human capital as well as his personal financial capital. This may further reduce the owner-manager's required rate of return on equity, once again limiting the potential pool of retained earnings from which investment can be internally financed.

6. Using the debt base

The above has argued that risk aversion and ownership objectives have a direct impact on the small firm's demand for equity but also, to the extent that debt policy is adapted in the light of equity considerations, an indirect impact on the demand for debt. The owner-manager's desire to avoid any use of equity capital which would move the small firm away from its proprietorship governance structure, helps to explain the small firms reliance on debt capital as the principal source of external funding. It is therefore appropriate to make an assessment, independent of the equity decision, of the small firm's willingness and ability to employ debt and of any consequent influences on its investment policy.

Looking in general terms at the debt decision, holding the equity base constant; the nexus of the argument is that there is a positive incentive to increase the amount of debt in a firm's capital structure when interest costs are tax deductible. At some point, however, the present value of these potential benefits will be matched, primarily, by the potential costs associated with financial distress and, to a lesser extent, by the potential costs associated with actual bankruptcy.

In the presence of information asymmetries and moral hazard, difficulties associated with monitoring investments cause debt holders to seek compensation for the potential costs of financial distress, by raising the cost of debt financing. Part of the monitoring problem can be solved by tailoring restrictive covenants (increasing collateral requirements in the case of bank financing) when debt contracts are first negotiated. Some higher interest charges, however, combined with the problems of renegotiating "tight" debt restrictions, if the environment becomes economically unfavourable, mean that the overall costs that firms face in periods of financial distress are still significantly raised.

Suppliers of debt capital respond in this manner because of the problems of asset substitution and underinvestment. In the former case, when raising debt finance, firms have a tendency to shift from what appear to be the intended projects, to higher risk investments. This creates profit gains to owners, if the substituted projects are successful but insignificant losses if the projects fail. Debt holders, potentially bear the brunt of the problems if the projects fail but, with fixed interest payments, receive no additional benefits if they are successful. Thus owner-managers are mainly concerned with the upper half of the probability distribution of potential project outcomes while, as Leibowitz et al (1990) argue, debt holders are concerned with outcomes in the lower half of the distribution.

The under-investment problem arises where "good", low risk, projects with positive but low net present values, which would normally be undertaken by all equity financed firms, are rejected. In potentially difficult trading situations the pay-offs from these projects would go largely to debt holders, at the expense of owners. As Emery and Finnerty (1992) argue, this is

in some sense the reverse of the asset substitution problem. Where the asset substitution problem involves a predisposition on the part of (owners) in favour of high risk projects, the underinvestment problem involves a predisposition against low risk projects.

With debt holders (modeled as principles) needing to protect their interests against small firm owners (modeled as agents), the agency costs of debt are a positive function of the risk faced by the firm

and the growth opportunities available to it, since these factors increase the incentives for asset substitution and underinvestment. In capital structure terms, the implication is that the debt: equity ratio is negatively related to risk and growth opportunities.

For small firms who are heavily reliant on debt capital, a reduction in the opportunity cost of debt financing (including collateral commitments) can be achieved by creating conditions which would signal to debt suppliers, banks, that the asset substitution and underinvestment problems would be minimised. Conditions conducive to this are: the avoidance of major growth opportunities and the maintenance of an investment strategy which exposes the firm to only moderate levels of business risk. In other words, actively demonstrating that high risk projects are being rejected (avoiding the asset substitution problem) and actively demonstrating that low risk projects are being undertaken (avoiding the underinvestment problem).

7. Debt policy and asset mix

The key issue in adopting this investment strategy is convincing debt suppliers that these problems are being avoided. The demonstration effect is partly linked to the mix of tangible and intangible assets, and to the speed with which intangible assets can be transformed into tangible assets. Myers (1984) points out that where firms are using intangible assets, monitoring difficulties are more acute. Once financial distress is encountered, it is the intangible assets, closely linked to potential growth opportunities, whose values become most problematic. On the other hand, tangible assets have reasonably active secondary markets. Their value is less uncertain in distress situations and indeed, as Long and Malitz (1992) argue, debt covenants, which help mitigate some of the agency problems, are written in terms of tangible assets and often specifically exclude intangibles.

For the small, owner-managed, firm a significant proportion of its investment is in the owner-manager's intangible human capital so that although owner-managers may not, as Pratten argues, require a competitive return on this component; its presence raises the cost of debt capital,

the very source of funds on which the small firm is heavily reliant. In addition, banks in securing their small firm loan portfolios will formulate their collateral requirements in terms of tangible assets. Thus for small firms especially those which, as Brewer and Grenay (1994) argue, are newly established in trade and service industries and tend to have high ratios of intangible assets, there will be a further rationale for avoiding risky projects with significant growth potential.

Risky projects with growth potential often involve investment which initially increases the proportion of intangible assets in the total asset base. As Leibowitz and Kogelman (1992) argue, this initially increases franchise value, that is the value of the firm associated with *potential* pay-offs from investment opportunities which earn returns above the firm's cost of capital. As potential investments are realised, the franchise value is transformed into tangible assets.

By the nature of their risk and growth orientation, there can be a significant time lag in the process of transforming projects with substantial growth opportunities into tangible assets. Consequently, owner-managers may elect to pursue investment in relatively safe and non-innovative projects which can be demonstrated to have relatively short transformation processes. This, once again, will permit the small firm to limit the cost of debt financing and additionally, potentially expand its debt financing capacity. By concentrating on projects which are transformed into tangible assets in a relatively short period of time, the firm's collateral, and by inference its debt capacity, is expanded.

While, in general, asset intangibility will tend to limit the debt capacity of the firm, recent work suggests that there are aspects of firm specific assets which can be considered as quasi-tangible, thus off-setting some of the negative impact on debt: equity ratios suggested above. Balakrishnan and Fox (1993) argue that there is a link between business strategy, in respect to competition in product markets, and investment in intangible assets. In the case of large firms, part of this investment may become realised as reputational assets, such as brand names. Through signalling models (see for example, Shapiro (1983)) sustained investments in reputational assets demonstrate to capital markets a continued commitment

to maintaining competitive advantage and are interpreted by debt holders as a guarantee.

In the case of the small firm, the equivalent factor is the development of the banker-client relationship which enables a small firm to establish its credibility (See, for example, Petersen and Rajan (1994) for a recent review, and development, of empirical work in this area). Thus, the reliance on bank financing by small firms does not simply arise from what Shapiro (1992) suggests as lower bank monitoring costs, relative to bond holders. It is integrally bound up with the ability it gives the small firm through inter-personal contact, to demonstrate the proportion of its intangible assets which have a reputational base. As well, there are advantages to being able to tailor and renegotiate terms and conditions in a face to face situation.

Further possibilities exist for reducing the cost of debt financing by using short-term maturities. These advantages are partly due to the upward sloping (for most time periods) term structure of interest rates which implies (contrary to the pure expectations hypothesis) that the interest costs of short-term debt financing are lower than those of long-term debt financing. In addition, however, by using short-term debt the small firm is provided with an environment where there is, as Myers (1977) argues, "a setting for the continuous and gradual renegotiation" of the terms and conditions between borrowers and lenders. This implies that the owner-manager can be more efficient and flexible in exploiting any improvements, through time, in the small firm's reputational asset base. The use of medium to long-term debt results in greater rigidities and negotiating costs, if attempts are made to alter existing debt contracts.

There is also, according to Myers, a desire to match the maturity structure of assets and liabilities, in an attempt to reduce the agency costs of debt arising from the underinvestment problem. Assuming that small firms have, on the asset side, a preference for low risk projects with short gestation/transformation periods, the propensity to exploit short-term, relative to long-term, financing possibilities is again enhanced.

There are, naturally, off-setting costs associated with short-term financing. In periods of tight money, when the term-structure of interest rates becomes downward sloping, the interest costs of short-term debt can become prohibitive. Also in

recessionary periods the attempt to roll-over short-term debt contracts may become increasingly difficult. Banks may perceive a steeper increase in the risks of financing small firms. Where these rise beyond banks' risk tolerance levels, consistent with their overriding responsibilities to their risk-averse depositors, there is a rationale, as Hutchinson and McKillop (1992^b) argue, for refusing to supply extra finance or, in some cases, for refusing to renew existing commitments when their term expires.

8. Conclusions

This paper has attempted to tackle some of the confusion surrounding the small firm capital structure decision by suggesting how attitudes to risk may interact with investment and financing decisions. The paper has been exploratory in nature, in the hope of pointing to some of the subtler issues which may prove amenable to further development in future research into the small firm finance function. A key objective has been to illustrate that where small firms appear to experience under-funding in terms of equity, and indeed debt capital, a significant part of the explanation may be traced to decisions made by owner-managers of small firms. That is, factors limiting the demand for finance have often been neglected by an over-reliance on arguments which attempt to explain small firm financing problems solely in terms of a lack of access to the supply of equity and debt.

On the demand side, when the owner-manager's attitude is risk averse and is accompanied by a desire to retain control of the firm in some form, he may actively place limits on the use and growth of equity, not only in the small firm's early, but in its later, phases of development. Where there is a desire and an ability to maintain production cost flexibility in the face of unanticipated demand changes, relatively low levels of operating leverage may be adopted which enhance a preference for increased reliance on debt capital.

Given this reliance on debt funding, agency problems, which tend to be reinforced by a relatively high ratio of intangible to tangible assets, may induce small firms to control the opportunity cost of debt financing by choosing low risk projects and avoiding product market opportunities with high growth potential. This will reinforce

the small firm's propensity for short-term debt financing.

Assuming that agency problems are anticipated by the suppliers of debt capital, it is the small firm owners who experience the negative wealth effects in translating their demand for debt. To the extent, however, that agency costs result in higher bank debt financing charges – in terms of interest rate premiums, collateral requirements and loan handling charges – the small firm may attempt to reduce its cost of capital by adopting interdependent investment and debt financing policies which are crucial to the establishment and development of banker-client relationships. In effect, this is not an attempt to cope with explicit imperfections in the supply of finance, but with distortions created by inefficiencies in the information flows between borrowers and lenders.

Even allowing for the small firms' reliance on debt financing, its underlying attitude to its return on equity may imply that the level of debt consistent with market value maximisation is not reached. That is, for any given level of equity that the small firm chooses, the debt: equity ratio may be on the conservative side.

In summary, owner-managers of small firms may have a tendency to choose to underuse both equity and, other than in crisis situations, debt and may choose to adopt interdependent investment and financing strategies which do not fully exploit their firm's economic potential.

Notes

¹ In the case of small firms and bank financing, given a positive risk-rate of return trade-off, Hutchinson and McKillop (1989, 1992^a and 1992^b) discuss the main issues associated with the supply of finance to small firms and identify a bank's overriding responsibility to its risk averse depositors as the main factor limiting its ability to lend beyond a certain risk level. These and other factors are discussed in Hughes (1992) and Keasey and Watson (1993).

² A simple mathematical form to this relationship is presented by Fuller and Farrell (1987) as

$$ROE = (1 - T) [i + L(EP - i)],$$

where ROE is the return on equity; T is the firm's average tax rate; i is the average interest rate on the firm's debt; L is the leverage ratio, defined as the book value of assets: common equity; and EP is the earning's power of the firms assets, defined as the ratio of earnings between interest and taxes to assets.

³ For the small privately owned firm the current market value would be largely determined by the current value of its tangible assets.

⁴ It is important to note that the main thrust of the arguments on voluntary capital constraints is not that there are no supply-side problems but that, to the extent that the voluntary capital constraint has been ignored, these may have been overestimated.

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