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An Empirical Analysis of the Financial Structure of Small and Large Australian Manufacturing Enterprises

**Scott Holmes
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The small business literature frequently refers to the concept of a “finance gap” in order to explain differences in the capital structures of small and large firms. However, little evidence, if any, exists to support this “finance gap” explanation. This paper, while canvassing the finance gap literature, offers an alternative explanation – Myers’ Pecking Order Framework. This framework focuses on management funding preferences as a major factor in the capital structure of firms. In order to test the applicability of this view, a mail survey was conducted for small and large firms operating in the Metal Trades sub-sector of the Australian Manufacturing sector. The responses provided detailed information on the types of debt used by small and large firms. While recognizing the limitations of mail surveys and the restricted information permissible in such surveys, the results provide a unique opportunity to compare the capital structures of small and large firms. Overall, the results support the proposition that capital structure is influenced by Myers’ Pecking Order Framework and that differences between small and large firms may be attributed to small firms operating under a “constrained” pecking order.

1. INTRODUCTION

Literature relating to the financial structure of the Australian small business sector suggests that small firms face significantly more problems than their larger counterparts in accessing finance and that the relative cost of debt is higher for small business (see Bird and Juttner [4]; Trewartha [30]; Renfrew [25]; Lambert [17]) which impacts on the capital structure of small firms. The problems experienced by small businesses in financing operations are normally attributed to the “small business finance gap.” This “gap” has been described as having two components:

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first, owner/managers have a limited level of knowledge of the availability of funds; and second, that the cost of financing is relatively higher. This acts as a deterrent to borrowing from financial and associated institutions. Myers [20] proposes an alternate view – The Pecking Order Framework (POF). Small unlisted firms do not normally have the option to issue equity. As such, Myers' [20] framework can be expressed in its simplest form: The firm prefers internal to external financing. This provides an alternative viewpoint to that of simply attributing the differences between the financial structures of small (unlisted) and large (listed) firms to a finance gap.

This paper reports the results of a large-scale mail survey of businesses operating in the metal trades sub-sector of the Australian manufacturing sector. The primary purpose of this research was to provide comparative data concerning the financial structure of small and large manufacturing operations, in order to investigate whether small and large firms, operating in the same industry sub-sector, have significantly different financial structures.

Section 2 of this paper provides a review of prior research in this area and develops several hypotheses to be tested. The survey method and results are detailed in Sections 3 and 4.

2. CAPITAL STRUCTURE

The small business literature relating to financial structure has primarily adopted the view that differences in the financial structure of small and large firms can be attributed to a "finance gap," which detrimentally impacts on small firms. This section reviews the literature advocating a "finance gap" and also canvasses an alternative – Myers [20] Pecking Order Framework (POF), which relates to managements' preferences for funding alternatives which may assist in explaining the financial structure of both small and large firms.

Prior research relating to differences in financial leverage (the extent debt funds are used to finance business activities) have reported mixed results. Remmers et al. [24] compared the ratio of debt/total assets for a sample of manufacturing firms operating in five countries (France, Japan, Netherlands, Norway, U.S.). The results indicated that size was not a determinant of debt ratios. Chen and Balke [10] reported a similar result. However, studies by Pettit and Singer [23], Brigham [6] and Walker [31] found that the leverage rate was significantly higher for small firms. In contrast, another large group of studies reported that small firms have lower levels of long-term debt to total assets, when compared to large firms (Bates [3]; Bolton [5]; Gupta [14]; Tamari [29]; Walker and Petty [32]; Wilson [33]; Burns [9]; Osteryoung et al. [22]). While the results concerning leverage are mixed, the empirical results are reasonably consistent in the view that small firms will hold significantly more short-term debt than large firms (see Hutchinson [15] for a summary of the relevant literature).

These results have led many researchers to argue that the differences reported are largely the consequence of a “finance gap.” Groves & Harrison [13] in summarizing the findings of the Committee of Enquiry on Small Firms (Bolton Report [5]) outlined the issues underlying the concept of a “finance gap”:

there are a set of difficulties which face a small company. Small companies were hit harder by taxation, face higher investigation costs for loans, are generally less well informed on sources of finance and are less able to satisfy loan requirements. (p. 228)

This viewpoint was more recently reiterated by Tamari [29] in an international review of the financial structure of small firms:

Small firms have limited access to the capital and money markets and therefore suffer from chronic undercapitalization. As a result, they are likely to have excessive recourse to expensive funds which act as a brake on their economic development. (p. 20)

The finance gap as described within the literature has two components:

1. **Knowledge Gap:** The apparent restricted use of debt is a direct consequence of a limited awareness of the appropriate sources of finance and the relative advantages and disadvantages of such sources.
2. **Supply Gap:** Funds are either unavailable to smaller businesses or more frequently the cost of debt to small firms exceeds the cost of debt to large firms (see Garvin [12]).

A number of Australian empirical studies have concentrated on a descriptive analysis of the financial structure of small Australian manufacturers. The manufacturing sector is an appropriate industry for research, as manufacturing businesses tend to have a higher level of capital investment than other sectors, such as retail trade and wholesale. Bird and Juttner [4] conducted a detailed inquiry into the financial structure of the Australian small manufacturing sector. The major source of initial finance (80%) was supplied by business owners. In the case of additional finance, many firms relied either predominantly or solely on equity funding (p. 392). Additional owner’s equity tended to come from the retention of business profits. Bank overdraft and trade credit were the predominant forms of debt finance. Funds supplied by trading banks were the most commonly accessed, leading to the restricted use of other avenues of funding, with the exception of finance company leasing facilities (see p. 395). The predominant reason for seeking additional funding after establishment was to facilitate expansion, to increase the level of current assets or to prevent a liquidity crisis.

Renfrew [25] presented a comparative summary of the results of a large-scale research project, which covered some 10,000 small businesses and spanned several

time points between 1968 to 1978. The overall results are consistent with the main findings of Bird and Juttner [4]. Particularly, the respondents relied heavily on a few main sources of finance. These were proprietors equity, retained profits and trading bank finance ([25], p. 111). Further, business expansion called mainly on additional funds provided by existing shareholders or partners, in the form of either additional equity or personal loans. The businesses surveyed had a desired preference for overdraft facilities, with approximately 80 percent of firms having access to an overdraft. As a consequence, long term investments tended to be funded using short/medium term financing, with relatively smaller firms less likely to have access to term loans than larger firms. It is interesting to note, that while most proprietors were aware of the range of financing alternatives, bank finance was preferred.

The Federal government has commissioned two enquiries into the Australian financial system (Campbell Committee [11]; Martin Committee [26]). Both enquiries fostered the concept of a finance gap. The committees reported that small business owner/managers are relatively more restricted than larger businesses in accessing equity finance:

... small businesses do not have equal access to financial markets when compared with large business. (Campbell Committee, [11]: Summarized in BIE [7], p. 78)

... small businesses must expect to face more difficult and more expensive access to finance, than larger, more established businesses because of the inherent riskiness, and the economies of scale which exist in the provision of finance. (Martin Committee, [26]: Summarized in BIE [8], p. 79)

These conclusions of the Campbell and Martin Committees have been supported by similar conclusions presented by both Renfrew [25] and Trewartha [30]. Evidence in support of the “knowledge gap” has also been provided by both the Bureau of Industry Economics (BIE,[7]) and the Small Business Advisory Council (SBAC,[28]):

Both the BIE (1981) and the Small Business Advisory Council (1980) have observed that there is inadequate knowledge of the sources of available finance as well as a lack of expertise in preparing comprehensive applications for finance. (BIE [7], p. 77)

This leads to:

Hypothesis 1: Small business owner/managers are largely unaware of the range and terms of debt finance available, when compared to the managers of large firms.

The findings of the “finance gap” studies (such as Renfrew [25]; Bird and Juttner [4]) are also consistent with an alternative view: Myers’ [20] POF. Myers’ [20] discussion of the POF related to listed companies, who can normally issue

additional shareholders equity as a funding option. However, the POF is equally applicable to small unlisted firms, who do not normally have the additional funding option of issuing equity.

The POF suggests that firms prefer internal funding. Where external funding is necessary, “firms issue the safest security first. That is, they start with debt” ([20], p. 581) and work down to the least preferred option – issue additional equity. This view is summarized by Myers [20] as follows:

In this story, there is no well-defined target debt-equity mix, because there are two kinds of equity, internal and external, one at the top of the pecking order and one at the bottom. (p. 581)

The applicability of this framework to the small business sector was recently discussed by Scherr et al. [27]:

Myers’ Pecking Order Hypothesis may be an appropriate description of the financing practices of small firms. In his view, firms finance their needs in hierarchical fashion, first using internal equity, followed by debt, and finally external equity. The Pecking Order Hypothesis is in keeping with the prior findings that debt is by far the largest source of external finance for small business.

If Myers’ Pecking Order Hypothesis holds for small firms, external equity will be extremely disadvantaged, and debt financing will be the preferred method of obtaining external funds. Indeed, firms may curtail potentially profitable projects rather than sell equity. (pp. 10–11).

This POF fits well with the small business sector, as managers tend to be the business owners and they do not normally want to dilute their ownership claim. As such, the admission of additional owners would be very low in the owner/manager’s pecking order. Further, owner/managers will prefer internal funds (retained profits), as this form of funding ensures the maintenance of control over operations and assets. Where debt funding becomes necessary, debt will be sought that doesn’t constrain management. Therefore, owner/managers will favor short-term debt, which doesn’t tend to involve debt covenants and security over specific operating assets. Even though the POF is applicable to both small and large firms, differences between the capital structures of the two groups have been detailed in prior empirical research. These differences may be explained in terms of the POF, in that the POF of small firms is constrained by two factors:

1. Small firms usually do not have the option of issuing additional equity to the public; and
2. Owner/managers are strongly adverse to any dilution of their ownership interest and control (which are normally one and the same). Unlike, the managers of large firms who usually only have a limited degree of control

and often have limited, if any, ownership interest, and are therefore prepared to recognize a broader range of funding options.

The following three hypotheses will assist in testing the validity of this viewpoint:

Hypothesis 2: The initial capital source for small Australian manufacturing businesses is primarily owners equity.

Hypothesis 3: Additional funding, subsequent to establishment, primarily comes from retained earnings or from existing owners of small manufacturing enterprises.

Hypothesis 4: Short term debt, namely trading bank overdrafts and trade credit, are the predominant forms of debt finance utilized by small manufacturers.

3. RESEARCH METHOD

A sample of firms was selected from the *1988 Yearbook of the Metal and Engineering Industry (MTIA)*. According to the *MTIA Yearbook*, as of 30 June 1985, for the total Australian manufacturing sector, the metal and engineering industry comprised 42 percent of establishments, 45 percent of the workforce, 47 percent of wages/salaries paid and 48.5 percent of fixed capital expenditure, (the manufacturing sector as a whole represented 55 percent of total capital expenditure within the private sector for the year ended 30 September, 1989 (ABS, Cat. No. 5626.0. January, 1990).

A pilot test of the survey instrument was conducted for 200 small manufacturing firms operating in Brisbane. The questionnaire was refined to remove any possible bias associated with questions which appeared to be ambiguous after analyzing the pilot survey. A sample for 2,896 firms were selected, consisting of 2,061 small and 835 large firms. After eliminating "dead listings" the net sample size was 2,553. Usable questionnaires were returned by 391 firms, representing a response rate of 15.3 percent. The response rate may have been restricted by the confidential nature of several questions contained in the survey. However, the response rate represented a viable sample for hypothesis testing.

Two weeks after the initial mail-out, a follow-up letter was sent to non-respondents. Questionnaires received after the follow-up letter were held separately. This facilitated testing for material differences between the answers of "early" as opposed to "late" responders, using a chi-square test proposed by Oppenheim [21]. The results of the test failed to indicate any significant difference between the two groups (at the 95% confidence level).

Table 1
Sources of Debt Currently Used

| Source | ←———Percentage of Responses (%)———→ | | |
|-------------------------|-------------------------------------|-------------------|-----------------------------|
| | <20 Employees | >100 Employees | Total* (All Respondents) |
| Trade (Supplier Credit) | 28 | 31 | 29 |
| Trading Bank — | | | |
| Overdraft | 67 | 74 | 69 |
| Term Loan | 29 | 23 | 29 |
| Lease | 15 | 20 | 18 |
| Finance Company — | | | |
| Term Loan | 9** | 1** | 7 |
| Lease | 23 | 27 | 24 |
| Other | 3 | 3 | 3 |
| Merchant Bank — | | | |
| Overdraft | 1 | — | 1 |
| Term Loan | 2** | 11** | 4 |
| Lease | — | 3 | 1 |
| Other | — | 3 | 1 |
| Other Source | 10** | 26** | 12 |

Note: *Percentages do not total to 100% as more than one response for each category was possible. A chi-square test was conducted upon the responses. A ** next to a response indicates a significant χ^2 statistic.

4. RESULTS

The initial sample was selected on the basis of firms with less than twenty and more than 100 employees. However, the responses contained firms with more than twenty, but less than 100 employees. Basically, 259 respondents employed less than twenty persons, 63 employed between 20-100 persons and 70 more than 100. The tables presented in this section usually provide comparative percentages for respondents in the small (< 20 employees) and large (> 100 employees) groups. Most tables also report a total percentages column, which includes all responses.

Hypothesis 1 proposed that small business owner/managers are largely unaware of the range of debt finance available, particularly when compared to the managers of large firms. The responses to the question concerning types of debt currently used indicated a restricted range of perceived financing alternatives (Table 1). This lends *prima facie* support for Hypothesis 1. However, such debt structures may be a matter of personal preference (Myers [20]). Lambert [17] in a summary article of the finance gap literature, supports this view, and reiterated the comments of Renfrew [25], in that the restriction of debt funds to particular somewhat narrow categories, is a consequence of personal choice on the part of small business owner/managers. Therefore, the respondents were asked to identify the forms of debt currently available to their business. The majority of respondents from both groups identified historical forms of debt, such as trade credit, trading bank short and medium term funds and finance company lease, as being available

Table 2
Sources of Additional Funding

| <i>Type</i> | ←—Percentage of Responses (%)*—→ | | |
|-------------------------|----------------------------------|------------------------------|------------------------------------|
| | <i><20 Employees</i> | <i>>100 Employees</i> | <i>Total (All Respondents)</i> |
| Trade (Supplier Credit) | 75 | 76 | 76 |
| Trading Bank — | | | |
| Overdraft | 86 | 89 | 87 |
| Term Loan | 53 | 57 | 54 |
| Lease | 46 | 57 | 49 |
| Finance Company — | | | |
| Term Loan | 27 | 26 | 28 |
| Lease | 45 | 50 | 46 |
| Other | 9 | 16 | 11 |
| Merchant Bank — | | | |
| Overdraft | 9** | 21** | 12 |
| Term Loan | 9** | 31** | 14 |
| Lease | 9** | 26** | 13 |
| Other | 4** | 14** | 8 |
| Other Source | 7* | 30** | 14 |

Note: *Percentages do not total to 100%, as more than one response possible. A chi-square test was conducted upon the responses. A ** next to a response indicates a significant χ^2 statistic.

to their business. However, there was a limited level of awareness of more recent forms of funding relating to the merchant banking sector and the more traditional finance company term loan. The chi-square tests conducted upon the responses indicated that significantly more respondents from large firms were aware of the range of debt available from the merchant banking sector (see Table 2). However, some merchant banks have minimum lending levels which may exclude some small business applications. Merchant banks primarily entered the Australian market in

Table 3
Primary Source of Start-up Funds

| <i>Type</i> | ←—Percentage of Responses (%)*—→ | | |
|---------------------------------|----------------------------------|------------------------------|------------------------------------|
| | <i><20 Employees</i> | <i>>100 Employees</i> | <i>Total (All Respondents)</i> |
| Personal Funds of Owners | 74 | 50 | 68 |
| Borrowings from Trading Bank | 19 | 21 | 20 |
| Borrowings from Finance Company | 1 | — | — |
| Borrowings from Merchant Bank | — | 3 | 1 |
| Other-Borrowings | 2 | 3 | 2 |
| Other-Owners Equity | 1 | 21 | 5 |
| No Answers | 3 | 2 | 3 |
| | 100 | 100 | 100 |

1984, subsequent to “de-regulation” of the financial system. These banks offer a diverse range of funding opportunities. This is in contrast to the trading banks which operated in the system prior to 1984, and who concentrate on providing short and long term debt, representing a limited range of funding options and a reluctance to take projects perceived as “high risk.” However, this is reflected in relatively lower interest rates and less restrictive debt covenants.

It would appear from the analysis of this hypothesis that the level of awareness of traditional forms of funding is reasonably high. However, this awareness level declines significantly with respect to more recent forms of funding, particularly from the merchant banking sector. This pattern was evident for all respondents, except that significantly more large firm respondents were aware of funding opportunities from merchant banks. Analysis of Table 2 lends support for the view that the level of awareness is reasonably high for trade credit, trading bank debt and finance company leasing. However, for all other forms of debt the level of awareness among the small firm respondents was low. At face value, this would support the concept of a “knowledge gap.” However, it must be kept in mind that there are costs involved in being informed of such a range of debt options and that the traditional forms of debt may be sufficient to fulfill debt requirements, and hence there are limited incentives (if any) to incur such costs.

The apparently constrained level of awareness may also be a function of the delimited POF of smaller firms. Owner/managers only invest in learning about the historical forms of debt identified, as they have no preference for other forms of funding and therefore perceive no need to incur the associated awareness (search) costs. However, large firm managers have a POF which extends across a more diverse range of funding options and may incur search costs so as to be aware of these options.

Table 4
Sources of Additional Funding

| <i>Source</i> | <i>← Percentage of Responses (%) →</i> | | |
|---------------------------------------|--|------------------------------------|--|
| | <i><20</i> <i>Employees</i> | <i>>100</i> <i>Employees</i> | <i>Total</i> <i>(All Respondents)</i> |
| Additional Funds Provided by Owner(s) | 45 | 36 | 42 |
| Borrowings from Trading Bank | 39 | 41 | 40 |
| Borrowings from Finance Company | 2 | 1 | 2 |
| Borrowings from Merchant Bank | — | 7 | 2 |
| Other | 2 | 7 | 3 |
| Not Applicable | 9 | 6 | 8 |
| No Answer | 3 | 2 | 3 |
| | 100 | 100 | 100 |

Table 5
Reasons for Seeking Additional Funds

| <i>Reason</i> | <i>← Percentage of Responses(%) →</i> | | |
|---|---------------------------------------|------------------------------|------------------------------------|
| | <i><20 Employees</i> | <i>>100 Employees</i> | <i>Total (All Respondents)</i> |
| Purchase Fixed Assets for Expansion Purposes | 64 | 79 | 67 |
| Purchase Fixed Assets for Diversification Purposes | 3 | — | 3 |
| Replacement of Existing Assets | 5 | 1 | 4 |
| Prevention of a Liquidity Problem | 14 | 9 | 12 |
| Other Reasons | 2 | 1 | 2 |
| No Answer | 12 | 10 | 12 |
| | 100 | 100 | 100 |

Hypothesis 2 proposed that the initial source of capital for small Australian manufacturing businesses is primarily owners equity. In order to test this hypothesis the respondents were asked to identify the primary source of funds used to commence operations. The results support the hypothesis, in that 74 percent of the small manufacturing firms commenced operations with funding primarily from the personal funds of owners. The only other significant source of funding was trading bank loans, representing 19 percent of respondents (see Table 3). A comparison of responses between small and large firms indicates that significantly fewer large firms commenced with the personal funds of owners. Approximately 21 percent of large firm respondents cited "Owners equity—other" as a primary source of establishment funds. This relates to share issues, which is a common form of fund raising associated with the establishment of relatively large (public) firms. These significant differences in responses, reported in Table 1, between small and large firms is supported by a chi-square (χ^2) statistic of $\chi^2_7 = 55.41$. Since $P[\chi^2_7 > 14.07] = 0.05$, it is implied that a significant difference exists between the two sets of responses (< 20 employees; > 100 employees).

These results support the POF Hypothesis, and the argument presented in this paper that differences in the capital structures of small and large firms may be attributable, to some extent, by the constrained nature of the POF for small firms. This is evident from Table 3, where significantly fewer large firms started with the funds of the founders, but with "additional equity" from a public share issue. Only 1 percent of small firms sought such a dilution of ownership in order to raise funds. Support is also found for the POF in that after owners funds, for both small and large firms, trading bank debt was most frequently used to establish operations. This is in line with Myers [20] view that firms will seek "safer" debt, which is also supported by the very low usage of other (less safe) forms of debt. Table 3 establishes a clear pecking order, consistent with Myers' [20] POF.

The third hypothesis focused on the sources of capital accessed subsequent to establishment. This hypothesis followed the same underlying assumption as Hypothesis 2. That is, additional funding (subsequent to establishment) primarily comes from retained earnings or the contributions of existing owners. For small firms, the two primary sources of additional funding were “additional funds provided by owners” (45%) and “borrowings from trading bank” (39%), as shown in Table 4. A chi-square test between the two groups of responses listed in Table 4, results in a test statistics of $\chi_7^2 = 20.1$. Since $P[\chi_7^2 > 12.6] = 0.05$, it is implied that a significant difference exists in the responses of small compared to large firms. Basically, significantly more small firms than large used additional contributions by owners as the primary source of additional funding. It is also interesting to note, that even under a largely deregulated financial system and with the growing number of financial institutions and government assistance schemes available, that the majority of expansion funds, for all firms, came from owners’ funds or the trading bank sector. This result is supported by the fact that, on average, respondents have retained 30 percent of annual after tax profits, over the past three years.

As a follow-up to the additional funding question, respondents were asked to detail the reasons for seeking additional funding. The majority of respondents sought funding to “facilitate expansion” (67%), with significantly more large firms (15%) than small, stating this purpose, while 12 percent of respondents sought to “prevent a liquidity problem” (see Table 5).

This result provides strong support for both the Myers’ POF and for the view expressed in Section 2, that small firms operate under a constrained POF. Table 4 makes this ordering clear. Where additional funds are sought, the popular forms of funding are as suggested by Myers’ POF: “Additional funds provided by owners” and “Borrowings from trading banks.” The stronger preference for additional owners contributions by small firms is indicative of the constrained pecking order. Where additional funds are sought, the primary purpose is to invest in operating assets. Given the funding preferences of owners, the results lend weight to Myers’ argument that under such a POF, projects with positive NPV may be declined, rather than finance the project with funds low on the pecking order.

Prior studies of the small business sector have indicated that short term debt is the predominant form of debt financing utilized by small manufacturers. Hypothesis 4 proposed that this form of debt, namely trading bank overdrafts and trade credit remain the most frequently used forms of debt among small manufacturing businesses. The respondents were asked to complete a debt schedule which required information relating to type of debt, the interest rate currently charged for each type of debt identified and the term of the loan. In testing Hypothesis 4, the relevant information relates to the first column of this schedule: “Type of debt currently used” (see Table 1). The common forms of debt funding were trading bank overdraft (69%) and supplier credit (29%).

As this was a very detailed question, the amount of information required from respondents had to be kept to a minimum. As such, information concerning the

actual amounts of debt, which would facilitate the calculation of the relative importance of each form of debt as a component of total debt, was not collected. Further, the security required over debt was not enquired. This restricted analysis of Hypothesis 4. However, the information available indicates support for the basic proposition that the primary source of debt among manufacturers is short term. This result is consistent with the results of prior studies, detailed in Section 2.

In comparing the difference in responses between small and large firms there are some significant differences in the type of debt utilized. Significant differences were noted in Table 1 with respect to "Finance company term loan," "Merchant bank term loan" and "Other source." These forms of debt were more frequently used by large firms. This result is also supportive of the constrained POF for small firms, indicating a strong preference for "safer debt," which is normally less restrictive on the decision-making process of owner/managers. That is, short-term debt does not normally carry the restrictive debt covenants of long-term debt.

5. CONCLUSION

The literature review in Section 2 of this paper outlined the view commonly presented within the empirical literature that a "finance gap" explains the differences in the capital structures of small as opposed to large firms. It is extremely difficult to provide data which supports or refutes this "finance gap" explanation. Basically, the capital structures of small firms have been consistently reported as different to large firms. In order to explain this difference many small firm researchers have argued that the capital market discriminates against small firms (for example, see Meredith [18]). This paper has sought to offer an alternative explanation based on Myers' [20] POF. Hypotheses were therefore proposed which aimed to cover the finance gap and POF views. The data collected cannot be used to support or detract from the finance gap concept. However, in testing the hypotheses, strong support is found for Myers' POF. Differences in the capital structures of small and large firms were attributed to a fundamental difference in the POF of small and large firms. The results reported support the view that small firms operate under a constrained POF, which appears to be a plausible explanation of the differences between the small and large firms sampled. In order to test this view further, research should be undertaken which directly investigates the funding preferences of small and large firm owners and managers.

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