New Public Stock Issues by Seasoned and Unseasoned Firms: a Comparative Analysis in a Turbulent Environment— the Case of Israel

RAN BARNIV

Department of Economics, Ben Gurion University of the Negev, Beer Sheva, Israel

and

SAMUEL B. BULMASH

Department of Finance, College of Business Administration, University of South Florida, Tampa, Florida, USA

This study presents and examines new evidence on the relationship between financial structure and ownership in New and Veteran Public firms (sometimes known as unseasoned or seasoned firms, respectively). The major findings are: (1) the cost of capital and the cost of equity increased with financial leverage, but at a different magnitude in new and veteran public firms reflecting different risk conceptions; and (2) management and administration costs for new public firms are indicated to be higher than for veteran public firms. Reasons for and implications of these findings are subsequently discussed.

INTRODUCTION

Numerous studies reported finding excess returns associated with new common stock issues of new (or 'unseasoned') public firms and attributed these initial excess returns to underpricing by underwriters (Neuberger and La Chapelle (hence, NLC), 1983; McDonald and Fisher, 1977; Ibbotson, 1975; Reilly, 1977; Neuberger and Hammond, 1979; Block and Stanley, 1980). The excess returns in those studies range from 3.3% (Block and Stanley) to 41.7% (Logue, 1973), with the more recent study (NLC) putting it at 33.6%.

Moreover, NLC found significant differences in the price appreciation associated with different tier investment banking firms. The lower tier underwriters tended to underprice deeper, thus enabling investors to realize greater price appreciation up to six months after the issuing date. The more prestigious underwriters priced the securities closer to the true market value, thus enabling a smaller price appreciation to investors. NLC adopted this tier stratifying approach from earlier works by Hayes (1971) and Logue (1973). There are several possible explanations for underpricing, such as:

(1) Information asymmetry: less prestigious investment bankers were underwriters for less known 'newcomers', whereas the more prestigious investment bankers were underwriting the stronger and better known 'newcomers'. The more prestigious underwriters were better equipped to ascertain the 'true' value of 'their' client firms. Thus, they *ex ante* priced the Initial Public Offering (IPO) closer to its after-issue market price. Consequently, stocks underwritten by them would have less room for appreciation (lesser underpricing).

(2) It could be that the deeper underpricing by the lower tier (less prestigious) underwriters reflects not necessarily lesser ability to properly approximate the true market value but the need to provide investors with a greater risk premium for undertaking greater risk in those less known 'newcomers'.

(3) Another explanation is that the smaller asset size that often characterizes new unseasoned firms which make their IPO, compared with the larger seasoned firms, could also reflect a 'small firm effect' that would suggest a higher required rate of return by the investors in IPO's of unseasoned firms[1] (Pettway, 1985). Kross (1985) recently suggested that this 'small firm effect' may actually be a reflection of the smaller marketability of new unseasoned stocks and their wider price fluctuations, coupled with market imperfections.

Most of the empirical studies mentioned earlier and the subsequent propositions that were associated with them were conducted in the US capital markets, which to some degree were quite different from capital markets in other countries. The upward and down-

ward swings in the stock market and the economic environment in the USA are 'moderate' when compared with some foreign markets, where triple-digit inflation and more volatile swings in stock price indices are found.

Indeed, one could wonder whether earlier empirical results were at least partially influenced by market structure effects unique to the USA and not prevalent elsewhere. For example, could NLC's (1983) results be confirmed in a market where all the issues, large and small, are underwritten by an undifferentiated group of investment bankers? Could investors become concerned more with bankruptcy costs than with tax benefits of debt when the economy becomes much more volatile than what US economists were used to? What implications would it have for seasoned and unseasoned firms offering new stock issues to the public, in highly volatile markets? The answers to these questions could have important implications for broadening the scope of understanding possible impacts of greater volatility in the US market.

The present study provides an opportunity to observe the behavior of new issues of unseasoned and seasoned firms in Israel, a small country with a much more volatile economy than that of the USA, and where the underwriters for all the new issues (seasoned and unseasoned) were basically non-differentiated. Here the differences in after-issue performance could be attributed directly to the underlying issues rather than to their investment bankers. Furthermore, the volatile Israeli economy (over 100% annual inflation during the underlying study period) and wide swings in stock indices provided an opportunity to validate the robustness of some hypothesis about the relevance of capital structure and performance of new issues, in a market more turbulent than the US one. No claims are made as to the generality of the findings to other countries, but similar studies could prove worthwhile for the New Issues behavior in highly turbulent environments.

In the section which follows, the underlying framework is presented. Empirical findings and their analysis follow thereafter.

UNDERLYING FRAMEWORK AND PROPOSITIONS

The empirical findings in the USA suggest that new issues are often underpriced and that the cost of capital of new firms is greater than that of older, more seasoned ones. The common explanations given for the findings are:

(1) The new firms are riskier (Ibbotson, 1975);
(2) 'Small firm effect' (Pettway, 1985);
(3) IPOs are frequently offered through less prestigious investment bankers who underprice them deeper (Neuberger and La Chapelle, 1983);
(4) Greater agency costs are anticipated by new inves-

tors in firms at the point when these convert from private to public status (Fama and Jensen, 1985).

Based on these explanations we did expect, therefore, to find also in Israel that the cost of capital and the cost of equity in New Public Firms (NPFs) would be higher than that of Veteran Public Firms (VPFs) when they make a new stock offering to the public. However, the unusually high inflation in Israel and the high cost of borrowing (due to the incorporation of inflationary expectations into nominal interest rates) could cause the bankruptcy costs to offset the tax benefits of debt. Since the NPFs were expected to raise relatively more equity (relative to their pre-issue capitalization) in the IPO, compared with the secondary public offering by a VPF, the debt to asset ratio (or financial leverage) for NPFs was expected by us to be lower than for VPFs. Similarly, we expected to find, *a priori*, that NPFs have more liquidity than VPFs. Consequently, it was *a priori* doubtful that NPFs' cost of capital would be higher than that of the VPFs', as implied by the US studies. We expected to find that the high bankruptcy costs in the turbulent economy of Israel would make the cost of equity rise rapidly with financial leverage, and it implied greater costs of capital and of equity of VPFs than for NPFs!

Several tests were then required: first, to verify whether NPFs had indeed a lower financial leverage than VPFs; second, whether financial leverage had a positive effect on cost of capital in general and cost of equity in particular; and finally, whether the costs of capital and costs of equity in VPFs were indeed higher than in NPFs to a statistically significant degree. These arguments were therefore translated into the following two propositions.

Proposition A: *Capital Structure*

Cost of capital and cost of equity (for the Israeli firms making new stock offerings) were increasing as financial leverage increases. Two subsequent hypothesis were that: (A. 1) NPFs had lower average financial leverage than VPFs, after the new offering, and (A. 2) the average cost of capital and cost of equity for NPFs were lower than those for VPFs, while the marginal risk premiums for leverage were expected to be higher in NPFs than in VPFs.

Proposition B: *Agency Effects*

Whereas the financial structure was hypothesized to have an impact on cost of funds to the Israeli firm in a manner that could be quite different from that of US firms because of the reactions to the hyperinflation and uncertainties of the Israel economy, the 'agency' effects were hypothesized to be not different from those in the USA. Namely, we hypothesized that agent–principal relations are 'universal' for any stock-owned firm and not related to a particular inflationary setting. Indeed, nothing in the 'agency' theory suggests that hyperinflation would make monitoring and bonding of agents less important to shareholders. Consequently, we expected to find in the Israeli firms the same agency
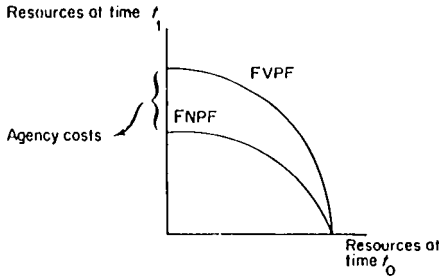
Figure 1. The transformation function of a VPF and a NPF.

relationships as predicted by Fama and Jensen (hence, FJ) (1985) for new and older public firms (FJ's discussion was related actually to *open* and *closed* firms but had broader implications relevant to our NPFs and VPFs). Thus, we expected to find that agency costs would be greater in NPFs than in those firms prior to their IPO, and also greater than for VPFs. The rationale for our expectation of this difference consisted of several arguments.

The NPF provides an opportunity for the entrepreneur to capitalize some of the human or intangible capital which he accumulated in the private firm prior to its going public. A greater cost and effort is required to convince new investors in *a* NPF about the true economic value of this formerly unmeasured intangible value. In a VPF, on the other hand, less costly information is available about the firm's true value prior to the new offering due to the previous market data and regular reports to shareholders. This would suggest that administration costs ratios (including monitoring, reporting and other procedures) in the NPF would have to quite substantial, perhaps even exceeding those of the VPF.

Using a terminology similar to that of FJ we suggest a transformation function of present resources to future resources, and since the NPF is hypothesized in our paper to have higher current administrative costs associated with the public offering, fewer resources remain for transformation into future streams. Consequently, as demonstrated in Fig. 1, the transformation function F of a VPF would be higher than that of a NPF, for a given cost of capital. Assuming that agency costs are reflected in administration costs of the IPO, these 'agency' arguments can be rewritten into the following proposition:

Proposition B'

The administrative costs in an NPF are expected to be relatively higher than in the VPF (at a given time t_0).

Although the empirical test of this proposition is conducted on data regarding the Israeli firms, it seems *a priori* to be of a general nature not restricted to the Israeli market only. (It could be interesting if future research could follow this lead and verify or reject this proposition in other circumstances elsewhere.)

In general, these propositions do suggest that the underlying factors that affect investors' attitudes towards new public offerings of unseasoned companies in Israel could provide a deeper understanding of factors which affect firms in general.

EMPIRICAL TESTS

Data Base and Framework

A cross-section examination was applied to 83 industrial companies in Israel during the period 1980–83. All these firms still traded in the Tel Aviv Securities Exchange (TASE) in 1984 and 1985. The TASE is the single organized bond and stock exchange in Israel.

NPFs with available data which were trading in the TASE, were included in the sample. This group constituted 53 firms with 75 total annual observations based on market values. These NPFs are required by the TASE to issue prospectuses with the last two financial statements before going public. For 50 firms there were sufficient data. At least one annual statement after going public was required by us in order to be included in the sample. For about half of those firms we had two consecutive annual statements. A firm which had already issued three annual statements after going public was deleted from this NPF sample. From the VPFs traded on the TASE prior to 1980 we were able to obtain complete data sets for about half (or 30) firms. Our sample included 77 annual observations of VPFs based on market values. Although both market and accounting data for all the firms in the sample were collected and evaluated, the high inflation distorted considerably the accounting information, making its interpretation almost impossible. Thus, the major findings reported here refer to market information. Nevertheless, a reference to accounting data would be made later on.

Methodology

Cross-section simultaneous regressions and t tests were computed for 83 industrial firms. The hypotheses were tested empirically, employing the following procedures: the weighted average cost of capital ($WACC$) and the cost of equity (K_e) were regressed against the financial leverage, $L = D/V$, in the following equations:

$$WACC = \alpha_W + \beta_W L_m \qquad (1)$$
$$K_e = \alpha_K + \beta_K L_m \qquad (2)$$

were L_m denotes the financial leverage at market values, α and β are coefficients, K_e is cost of equity.

These equations were tested for the whole sample and then comparatively analyzed for the different groups of companies.[2] The previously discussed propositions were tested with the following expectations:

$$\beta_W(NPF) > \beta_W(VPF) > 0 \qquad (3)$$

Namely, NPFs were expected to have a stronger positive correlation of cost of capital with financial leverage than that of VPF (because of the former's

'novelty') and both groups' weighted average costs of capital were expected to react positively to leverage. Furthermore, both groups were hypothesized to exhibit a positive correlation between cost of equity and financial leverage, where again NPFs were expected to exhibit a greater marginal risk premium, namely:

$$\beta_K(NPF) > \beta_K(VPF) > 0 \qquad (4)$$

Finally, agency costs to the extent captured by administrative and management costs (AC) were expected to be greater (after standardizing for size of assets) in the NPF group than in the VPF group. Namely, the testable hypothesis was:

$$AC(NPF) > AC(VPF) \qquad (5)$$

EMPIRICAL RESULTS AND DISCUSSION

The empirical results concerning the relation between the cost of capital and financial structure are presented in Tables 1 and 2. The weighted average cost of capital after tax was found to increase with the financial leverage, when market values are considered. However, there was no downward slope as would be expected by tax considerations. The cost of equity, K_e, increased significantly as the financial leverage increased. The results are summarized in Table 1. Both the cost of debt and the cost of equity were found to be positively related to financial leverage, when market values were considered. This finding probably reflects the dominating impact of bankruptcy costs and the strong linkage of cost of borrowed funds to the cost of living in Israel. Indeed, a regression of the cost of borrowed funds i, on the degree of leverage L, produced as expected, a positive correlation as shown in Fig. 2.

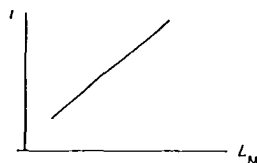Table 1 illuminates some additional significant findings.[3] First, the cost of total capital ($WACC$) and

Figure 2. The cost of debt (i) versus financial leverage (L_m). Slope: 0.42; $R = 0.355$, significant at 0.01.

cost of equity (K_e) are positively and significantly related to leverage in each one of the groups NPF and VPF. Interestingly, the slope or degree of change is steeper for NPFs than for VPFs, namely:

$$\left.\frac{d(WACC)}{d(L)}\right|(NPF) > \left.\frac{d(WACC)}{d(L)}\right|(VPF) \qquad (6)$$

and

$$\left.\frac{d(K_e)}{d(L)}\right|(NPF) > \left.\frac{dK_e}{dL}\right|(VPF) \qquad (7)$$

suggesting that the risk premium that investors demanded when financial leverage increased was accelerating faster in the NPFs than in the VPFs, probably due to the perceived marginal riskiness of the former. This aspect does conform to what one would expect about NPFs and VPFs in the USA, for example. However, the absolute average level of financial leverage ratios was much lower in the NPFs than in the VPFs, as reported in Table 2 (0.267 for NPFs compared with 0.500 for VPFs). Thus, the strong positive correlation between costs of funds and leverage caused the absolute level of average cost of capital ($WACC$) and of cost of equity (K_e) in NPFs to be significantly lower than for their respective VPFs, as seen in Table 2 Indeed the results presented in Table 2 indicate that NPFs have lower financial leverage and also lower average cost of capital and cost of equity.[4]

Table 1. Regression Results: Cost of Capital and Cost of Equity Versus Financial Leverage

Group	Observations		Market values (financial leverage. $L = D_-/D_m + E_-$)	R	R^2	F	DW
(A)	152	WACC	0.0102 + 0.11644 L	0.561	0.315	69.0	1.66
(NPF)	75		0.0055 + 0.1261 L	0.514	0.265	26.3	1.68
(VPF)	77		0.0153 + 0.0966 L	0.475	0.226	21.9	1.55
(A)	152	K_e	− 0.0039 + 0.2084 L	0.419	0.175	31.9	1.98
(NPF)	75		− 0.0308 + 0.2600 L	0.403	0.162	14.1	2.01
(VPF)	77		+ 0.0209 + 0.1197 L	0.316	0.100	8.32	1.62

Explanations: A: All the firms.
WACC: Weighted average cost of capital.
K_e: Cost of equity.
Group NPF: New Public Firms.
Group VPF: Veteran Public Firms.
L: Financial leverage = debt D/total capitalization (debt D + equity E)
DW: Durbin–Watson indicator.
R: Regression correlation.
F: F statistics.
D_m: Debt (market value).
E_m: Equity (market value).

Table 2. A Comparison of Means and Variances and Administrative Costs

Measures	New Public Firms (NPF)	T-test (non-parametric) diff.	Veteran Firms (VPF)
Market Based			
WACC	0.041 (0.032)	3.76	0.069 (0.055)
Ke	0.053 (0.061)	2.58	0.099 (0.145)
$L_m = D_m/(D_m + E_m)$	0.267 (0.160)	7.39	0.500 (0.225)
Other			
OWE (Ownership by major controlling group)	68.4%	1.3[a]	71.7%
AC (Administration costs ratio to revenues)	0.163 (0.088)	2.8	0.128 (0.078)
Quick Ratio	1.033	3.2	0.787

Explanations: WACC: Weighted average cost of capital.
K_e: Cost of equity.
L_m: Financial leverage = debt/total capitalization (debt D + equity E).
(.): Standard deviation.
t test: Non-parametric Mann–Whitney test.
[a] Not significant statistically.
OWE: Ownership share of the major controlling groups of shareholders.
AC: Ratio of overall administration and management costs to total revenues (obtained from financial statements).
Quick Ratio: Total current assets minus inventory, divided by current liabilities.

Table 2 reports that NPFs had greater net liquidity, as measured by the quick ratio, than that of VPFs: 1.033 versus 0.787 (other liquidity tests provided a similar conclusion). The increased liquidity of NPFs during an inflationary period could partially account for their greater returns. (For an excellent discussion on the relation between liquidity and stock returns during inflation, see Stulz, 1986, and Geske and Roll, 1983.) Our test suggested a mildly positive but statistically insignificant correlation between returns and liquidity.

The results in Table 2 provide interesting evidence on the relations between Administrative and Management Cost (AC) and ownership control. These results are presented in Fig. 3. When a linear regression is applied, we get a negative slope of 0.137 and correlation of $R = 0.249$, significant at 0.01. The evidence, including all VPFs and NPFs, exhibits a significant negative correlation between AC and the share in the firm of the major controlling group of shareholders. Moreover, as shown in Appendix 2, the ACs' ratios in the NPFs are 0.163, significantly higher than the 0.133 in the year prior to becoming public, when they still were Private Firms (PFs) (the information was obtained from the prospectus which each firm has to submit to the TASE when it applies to register a new public offering). Table 2 also shows that NPFs were found to have higher AC (after becoming public) when compared with VPFs, thus validating Proposition B'. These results strongly support Jensen and Meckling's
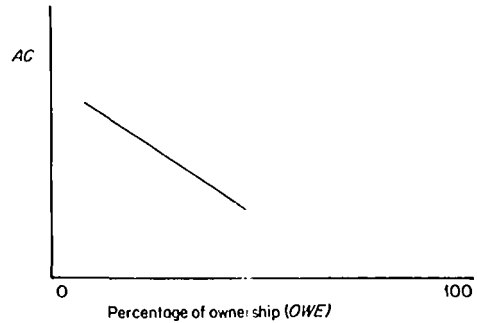

Figure 3. The relationship between administrative and management cost (AC) and ownership control (OWE). $R = 0.249$, significant at 0.01.

(1976) agency theory. Actually, these results may have three explanations: 'agency effect', 'information effect' and 'issuing effect', which are interrelated.

(1) The 'agency effect' explanation. When the owner–managers of a private (non-public) firm sell a portion of their ownership to new shareholders, they potentially can transfer wealth from these new shareholders to themselves. Most often, this transfer of wealth occurs via increasing management perquisites and expenses. Ibbotson (1975) noted that new issues are often offered at lower prices than those obtained shortly thereafter in the secondary market. If the owner–managers increase their perquisites as implied by our results, it is possible that those agency costs are discounted by the new shareholders. After some time, when regular monitoring is established, this effect wears off, and management expenses as well as share prices return to 'normal', as was found in our sample by the lack of differences between AC of the NPFs before they became public firms and of VPFs (see Appendix 2).

(2) 'Asymmetric information' effect. This effect is related to the first explanation. Management is assumed to have superior information relative to shareholders. The asymmetry in information could be more severe in unseasoned issues than in seasoned firms which have already established some information records with the public. Consequently, investors would discount this information asymmetry at the issue point, forcing the issuers to underprice unseasoned stocks more than seasoned stocks. (For further discussion on stock prices and asymmetric information, see Leland and Pyle, 1977, and Krasker, 1986.)

(3) An alternative explanation is that administrative expenses are also related to public offering (legal, auditing and other expenses). These expenses may be relatively larger for the NPFs that are riskier for the underwriters and also require more investigation and promotion work than for already established VPFs.

The value of the firm, V, measured in market values, was found to be significantly related to ownership status dummy, Q, ownership share OWE (of the major controlling shareholders groups) and financial leverage, L_M, in the following regression equation (where

the dummies for Q are 1, 2 for NPFs and VPFs, respectively):

$$V = 3158275 + 1932506(Q)$$
$$+ 40897(OWE)2666801(L_m) \qquad (6)$$
$$F = 10.3, \text{significant at } 0.001$$

All the coefficients were statistically significant. Thus, the results indicate that ownership has a positive relationship to the market value of the firm, while that market value is affected negatively by financial leverage. (When accounting data were considered it was found that the accounting financial leverage ratio had little effect on total capitalization values, but these results are questionable due to the distortions that inflation causes to the firm's book values.)

These findings support the expectations which were discussed earlier in this paper, namely that indexed financial leverage was considered quite risky and required an increasing risk premium on capital, and that ownership was a detriment to 'overhead' expenses.

In summary, the important findings are that both the $WACC$ and the cost of equity, K_e, increase with financial leverage. Indexation, bankruptcy costs and agency costs may explain this phenomenon for high leverage where the high and indexed cost of debt is probably the main reason. As seen from Table 2, the $WACC$ and K_e were lower among NPFs than among VPFs. The NPFs also maintain a low financial leverage compared with VPFs.

These findings are different from what would be suggested by Modigliani and Miller (1963). The 'agency'-related findings support the Jensen and Meckling (1976) theory, since a negative relation was found between management costs, AC and ownership share. Indeed, AC were significantly higher among NPFs (compared both with their level prior to the IPO *and* to

the level of verteran public firms), as shown in Appendix 2. Thus, the owner–managers were found to increase management perquisites and expenses after selling a portion of their ownership holdings in the firm and restrain those costs later, perhaps because of the potential threat of losing control or because of other reasons. Finally, the value of the firm was found to be significantly related to ownership status (of NPFs before and after the IPO, and the VPFs), ownership-controlling percentage and financial leverage.

CONCLUSIONS

Most earlier empirical studies on the association between cost of capital and capital structure of seasoned and unseasoned firms were conducted in the relatively stable American economy. The highly turbulent Israeli economy during the period 1980–83 provided a unique opportunity to examine the application of some capital structure theorems and the Jensen and Meckling agency theorem, under volatile economic conditions. The 'agency' effects were found to operate in the same direction in Israel as in the USA, whereas financial leverage was found to have a positive correlation with weighted average cost of capital and cost of equity due to the perceived greater risk premium associated with bankruptcy costs in a turbulent economy. Since NPFs were found to have lower financial leverage than VPFs in the year following a new public offering, their average costs of funds were quite surprisingly lower than those of VPFs. Further studies in other countries are needed before generalized conclusions could be made. Our findings suggest that such furhter studies could indeed be worthwhile.

APPENDIX 1 (to Table 1)

Cost of Capital and Cost of Equity versus Financial Leverage, Book Values

Book values (financial leverage, $L = D/D + E = D/A$)

Group	Observation	Cost of funds		R	R'	F	DW
(A)	245	$AWACC$	$0.0672 + 0.0596\ L$	0.173	0.030	7.52	1.41[a]
(1)	75		$0.0993 + 0.0566\ L$	0.123	0.015	1.14	1.59
(2)	87		$0.0799 + 0.0232\ L$	0.059	0.003	0.29[a]	1.46[a]
(3)	83		$0.0808 + 0.00879\ L$	0.030	0.001	0.07[a]	1.81
(A)		K_{e3}	$-0.2177 + 0.7814\ L$	0.225	0.051	12.99	1.80
(1)			$-1.2502 + 2.4996\ L$	0.366	0.134	11.30	1.78
(2)			a	a	-0.010		a	—
(3)			$0.2224 - 0.1528\ L$	0.121	0.015	1.20[a]	1.80

Notes: (A): All sample.
(1): Non-Public (Private) (NP) (namely, the VPFs one year prior to their IPO, based on this prospectus).
(2): New Public (NPF).
(3): Veteran Public (VPF).
—: The sample included 256 observations, but 11 observations with negative equity (book value) are excluded. For 18 observations complete values were not available.
[a] Not significant.
$AWACC$: Accounting Value of Average Cost of Capital.
K_{e3}: Accounting Value of Average Cost of Equity.
DW: Durbin–Watson statistic.

A Comparison of Mean and Variances for Some Financial Measurement in Book Values

Accounting measures	PF (Private firms)	t-test (Non par.) diff. 1	NPF	t-test (Non par.) diff. 2	VPF	t-test PF vs VPF	The entire sample	A joint test
$AWACC$	0.141 (0.076)	5.21	0.085 (0.957)	1.29*	0.098 (0.058)	4.17		
Kea	0.573 (1.13)	3.38	0.143 (0.249)	1.55*	0.198 (0.212)	2.85		
$L = D/A$	0.724 (0.174)	6.91	0.520 (0.197)	7.60	0.722 (0.147)	0.1*		
EBT/Revenue	0.133 (0.161)	2.4 [2.6]	0.208 (0.230)	4.2 [4.9]	0.094 (.152)	2.1	0.140 (0.190)	13.6 [26.6]
NOE/A	0.292 (0.157)	5.2	0.180 (0.119)	1.1*	0.198 (0.120)	4.4 [4.2]	0.221 (0.140)	16.7 [29.2]
Quick ratio	0.755 (0.339)	3.3 [3.3]	1.033 0.652	3.2 [3.0]	0.787 0.311	0.6* [0.7]*	0.854 (0.474)	8.5 [13.1]
X_{dr}	0.759 (1.151)	0.1* [11.6]*	0.770 (0.557)	0.1 [0.1]*	0.759 (0.535)	0* [1.8]*	0.762 0.783	0.1 (4.0)
X_m	22.8 (83.1)	1.0* [3.3]	12.2 (55.4)	0.7* [1.4]*	7.8 (18.8)	1.7* [2.7]	13.9 (57.4)	1.6 [12.1]
Ownership (%) (OWE)			68.4%	1.3*	71.7%			
AC (Admin. costs)	0.133 (0.074)	2.2	0.163 (0.088)	2.8	0.128 (0.078)	0.6*		

Explanation: (.): Standard deviation.
The joint test is ANOVA, F; [X^2] = Kruskal–Wallis non-parametric test.
[.]Z: Mann–Whitney test; results are recorded when statistical assumptions for the t-test are partly not va
*Not significant.
WACC: Weighted average cost of capital.
Ke: Cost of equity.
L: Financial leverage (debt D/total assets A)
ENT/Revenue: Ratio of earnings before tax to total revenues.
NOE/A: Net operating earnings to ratio to total assets (as a gross proxy for profitability of assets).
Quick ratio: current assets (minus inventory)/current liabilities.
X_{dr}: Debt to total revenue ratio (a group proxy of debt financing of total sales).
X_m: Maturity structure of debt (ratio of short-term liability to long-term debt).
diff. 1: PF vs. NPF.
diff. 2: NPF vs. VPF.

APPENDEX 3: OTHER COMMENTS

(1) The sample includes over half of the industrial firms traded on the TASE. All the new unseasoned issues with available data are included in the sample.

(2) A 1982 tax law change particularly favored firms with high-equity-funded-assets rather than those with high financial leverage. These considerations became relevant mostly in the second half of 1983. This law was abolished recently.

(3) During the period 1980–83 there were frequent changes in monetary and fiscal policy in Israel, as well as several changes at the level of Ministry of Finance, and subsequent sharp changes in the inflation rate, exchange rate of the Israeli shekel, the tax regulations, etc. Incorporating exogenous factors into this work would have forced a complex macro project beyond the scope intended here.

(4) In our context, it could be argued that Ibbotson's (1975) findings—that new issues are initially under-valued by the market—provide additional support for our argument (Fig. 1) about the transformation function of NPFs and VPFs.

(5) A recent study in the USA suggests that new issues are actually overvalued rather than undervalued (see, for example, Stern and Bornstein, 1985). That study, however, acknowledges that immediately following the new offering, share prices of un-seasoned firms do indeed go up, whereas those of seasoned issues go down due to a dilution effect. After the first period, that study argues that prices ultimately fall, yielding a poorer performance rela-tive to the SP index. Our findings on Israeli firms, however, do not agree with Stern and Bornstein's findings, but rather support the earlier findings, such as those of Ibbotson (1975) and Neuberger and La Chapelle 1983).

Acknowledgements

NOTES

1. It should be noted that some studies do in fact argue that IPOs are actually overpriced rather than underpriced, at least when a longer-term perspective is considered. However, they do concede that immediately following the IPO the stock does appreciate considerably before falling back (see, for example, Stern and Bornstein, 1985).

2. Accounting profitability measures and the proxy book measures for the weighted average cost of capital and the cost of equity were also regressed against the financial leverage, liquidity ratios and debt maturity structure, measured by book values. This was done in order to examine whether any meaningful relationship could be extracted from the accounting information and also to provide a benchmark against which the market-based results were evaluated in order to gain better economic insight.

3. The accounting measures provided somewhat different findings, as reported in Appendix 1. The weighted average cost of capital and the cost of equity were positively and significantly related to financial leverage except for VPFs. However, the impact of inflation on book values, especially the values of fixed assets and therefore equity, is significant: inflation makes fixed asset (and equity) considerably undervalued compared with market values. Thus, the accounting returns on book assets or on equity could be less reliable due to the undervalued denomination.

4. Accounting measures corresponding to Table 2 are presented in Appendix 2, for the entire sample. It can be seen there that profitability measures vary among groups of firms. However, the proxy measures of cost of capital and cost of equity were significantly lower for NPFs compared with their ratios one year prior to becoming public and also moderately lower for NPFs compared to VPF (not significant). The financial leverage was significantly lower in the NPFs, as was expected due to the relatively more massive increase in equity after the new public offering. Liquidity position was also significantly higher among NPFs due to the same reason. It appears that NPFs were unable or unwilling to utilize most of capital inflow for some time. Finally, the ratio of debt to revenue and the maturity debt structure were about the same for all groups, which is reassuring since there was no particular reason to expect any 'ownership'-related differences there.

REFERENCES

E. Altman (1976). Default risk and the Modigliani–Miller theorem: a Synthesis. *American Economic Review* March, 204–12.

D. P. Baron (1974). Default risk, homemade leverage and the Modigliani–Miller theory. *American Economic Review* March, 176–82.

N. Baxter (1967). Leverage, risk of ruin and the cost of capital. *Journal of Finance* September.

A. Barnea, R. A. Haugen and L. M. Senbet (1981). An equilibrium analysis of debt financing under costly tax arbitrage and agency problems. *Journal of Finance* June.

A. Barnia, R. A. Haugen and L. M. Senbet (1981b). Market imperfections, agency problems and capital structure: a review. *Financial Management* **10**, Summer, 7–22.

S. Block and M. Stanley (1980). Financial characteristics and price movement patterns of companies approaching the unseasoned securities market in the late 1970's. *Financial Management* Winter, 30–36.

D. Downes and R. Heinkel (1982). Signaling and the value of unseasoned new issue. *Journal of Finance* March, 1–10.

A. H. Chen and H. Kim (1979). Theory of corporate debt policy: a synthesis. *Journal of Finance* May, 371–84.

E. F. Fama and M. C. Jensen (1985). Organizational forms and investments decisions. *Journal of Financial Economics* March, 101–19.

I. Friend (1967). *Investment Banking and the New Issues Market*, Cleveland, Ohio: World Publishing Company (particularly Chapter 8, co-authored with J. R. Longstreet).

R. Geske and R. Roll (1983). The fiscal and monetary linkage between stock returns and inflation. *Journal of Finance* March, 1–33.

S. L. Hayes (1971). Investment banking: power structure in flux. *Harvard Business Review* 136–52.

R. Ibbotson (1975). Price performance of common stock issues. *Journal of Financial Economics* September, 235–72.

M. C. Jensen and W. H. Meckling (1976). Theory of the firm: managerial behavior, agency costs and ownership structure. *Journal of Financial Economics* October, 305–60.

W. S. Krasker (1986). Stock price movement In response to stock issues under asymmetric information. *Journal of Finance* March, 93–105.

W. Kross (1985). The size effect is primarily a price effect. *Journal of Financial Research* Fall, 169–80.

H. Leland and D. Pyle (1977). Informational asymmetries, financial structure and financial intermediation. *Journal of Finance* May, 371–88.

D. E. Logue (1973). On the pricing of unseasoned equity issues. *Journal of Financial and Quantitative Analysis* 91–104.

R. W. Masulis (1980). The effects of capital structure change on security prices. *Journal of Financial Economics* **8**, 139–78.

M. H. Miller and F. Modigliani (1966). Some estimates on the cost of capital to the electric utility industry 1954–1957. *American Economic Review* June, 333–48.

F. Modigliani and M. H. Miller (1963) Corporate income taxes and the cost of capital—a correction. *American Economic Review* June, 433–43.

S. C. Myers (1977). Determinants of corporate borrowing. *Journal of Financial Economics* November, 147–75.

J. G. McDonald and A. K. Fisher (1977). New issue price behavior. *Journal of Finance* 1977, 1141–1168.

B. M. Neuberger and C. A. La Chapelle (1983). Unseasoned new issue price performance for three tiers: 1975–1980. *Financial Management* Autum, 23–8.

B. M. Neuberger and C. T. Hammond (1979). A study of underwriters' experience with unseasoned new issues. *Journal of Financial and Quantitative Analysis* 165–77.

R. H. Pettway (1985). Correspondence and discussions with the author on an earlier draft of this paper, October.

R. C. Radcliff (1985). Impact of new equity sales upon electric utility shares prices. *Financial Management* Spring, 16–25.

F. K. Reilly (1977). New issues revisited. *Financial Management* Winter, 28–42.

R. L. Stern and P. Bornstein (1985). Why new issues are lousy investments *Forbes* 2, December 152–90.

R. M. Stulz (1986). Asset pricing and expected pricing. *Journal of Finance* March, 209–23.