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What sources of finance are firms least likely to use?

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ABSTRACT

The financing of firms has attracted much attention in capital structure and life-cycle theories. However, the counterpart to these theories is the 'contentment hypothesis' which suggests that non-engagement with capital markets is a rational choice for most firms, and only those that desire growth engage with the market. In this paper we examine the extent to which firms use thirteen alternative sources of external financing using a large UK dataset. Our findings show that 99.5 % never use bonds, 96.8 % P2P, 93.6 % external equity, and 92.7 % factoring. When firms do use external finance, it is largely short-term forms of debt. This suggests that capital structure and life-cycle theories are too expansive and do not reflect the true nature of firms' engagement with capital markets.

1. Introduction

The pecking order theory (POT) was derived from the seminal Myers (1984) paper and argues that due to information problems in signalling firm quality firms will follow a particular 'pecking order' of finance. Broadly, firms will use retained earnings as their preferred and first-best option as it is the lowest cost form of finance, then resort to debt, and only when their debt capacity has been reached external equity. Other forms of insider finance such as owner equity or director's loans are also considered to be early in the pecking order if firms have insufficient retained earnings. Empirical tests of the POT on small firm samples have generally been supportive of a clear pecking order (Serrasqueiro, and Caetano, 2015; Lopez-Garcia and Sogorb-Mira, 2008; Mac an Bhaird and Lucey, 2010) whilst tests of large firm samples have been less conclusive (Frank and Goyal, 2003).

The second major development was a detailed description of the financial life-cycle of the firm by Berger and Udell (1998). This life-cycle approach broadened out the sources of capital that were available to firms at different stages in their life-cycle but had at its heart the problem of firms having positive net present value projects available to them but being unable to raise external finance due to issues of financiers not having perfect information to easily verify the underlying quality of the opportunity. This is the adverse selection problem which is an ex-ante concern that precedes the second major issue of moral hazard which relates to firms' ex post behaviour and the potential to divert funds to alternative projects.

The financial life-cycle theory focuses on the use of different sources of finance as the firm becomes larger and older. Briefly, they begin their lives (young and small) using owner's equity and business angel finance. When very old and large, they would use public equity, commercial paper, public placement, and public debt. At intermediate stages, firms would replace angel equity with venture capital, and begin to use trade credit and short-term loans, which they would then substitute for medium-term loans and mezzanine finance. Importantly, use of owner equity ceases once firms move beyond being very young and very small.

The 'contentment hypothesis' of small business financing (Vos et al., 2007) takes a very different pathway in explaining why small

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firms do not naturally gravitate towards using external financing. Rather than using internal finance sources as a mechanism for accessing lower cost finance and avoiding information asymmetries and problems with adverse selection and moral hazard, their hypothesis simply argues that most firms do not desire growth and hence have no need for external capital. Thus, they are happy and content in their no growth - no external finance equilibrium where their utility is maximised. Importantly, rapid growth is viewed as being a threat to the sustainability of a business. However, they do also find that firms that do desire substantial growth do deviate from this low engagement state with capital markets and use more sources of external capital to achieve this objective.

Thus we have some common threads that tie the POT and life-cycle theories together, not least that problems in external capital markets often mean that internal capital reserves are lower cost and more easily accessible, but we also have a divergent hypothesis that states that apart from exceptional circumstances where a firm desires rapid growth, there is little consideration of external capital market issues such as credit rationing as they are irrelevant to the small firm that has low (or no) growth ambitions and is content simply financing their daily operations from internal reserves. Further, the life-cycle theory of finance assumes that at some point in their lives firms will use the full range of sources of external capital.

In this paper we use a rich UK data set to examine the extent to which firms do engage, or not, with a wide range of different sources of finance at some point in their lives as an empirical test of these three different theories. Our specific focus here is on the permanent level of non-use of alternative sources of finance including overdrafts, mortgages, credit cards, external equity, factoring, grants, loan guarantee schemes, hire purchase, bank loans, family loans, directors loans, P2P, and bonds.

The rest of the paper is organised as follows: In Section 2 we describe the dataset we have available for analysis and reports the sample statistics, and Section 3 the econometric models for each of our thirteen sources of finance. We conclude in Section 4.

Table 1
Sample statistics.

	Mean	Std Dev
Firm Size Class (%)		
Micro	86.45	
Small	11.36	
Medium and Large	2.20	
Age Class (%)		
0–3 years	3.65	
4–10 years	10.91	
11–20 years	33.27	
>20 years	52.17	
Investment Opportunity [0,1]	0.4614	0.4986
Firm Risk Scale (1–5)	3.162	1.244
Cash Reserve [0,1]	0.2947	0.4560
Industry Sector (%)		
A – Agriculture, Forestry & Fishing	4.14	
B,D,E – Mining & Quarrying, Utilities	0.35	
C – Manufacturing	6.48	
F – Construction	13.65	
G– Wholesale & Retail, Repair of Motor Vehicles	15.61	
H – Transportation & Storage	4.97	
I– Accommodation & Food Service Activities	6.37	
J – Information & Communication	5.74	
K – Financial & Insurance Activities	3.74	
L – Real Estate Activities	2.83	
M – Professional, Scientific & Technical Services	7.74	
N – Administrative & Support Services	3.60	
P – Public Administration & Defence	0.30	
Q – Education	3.14	
R – Arts, Entertainment & Recreation	6.97	
S – Other Service Activities	14.37	
Region (%)		
East	11.94	
East Midlands	8.17	
London	14.58	
North East	2.86	
North West	9.50	
Northern Ireland	1.45	
Scotland	4.68	
South East	17.77	
South West	10.37	
Wales	4.01	
West Midlands	7.30	
Yorkshire and The Humber	7.36	

2. Data set

The data available for analysis is derived from a UK survey from 2023 commissioned by the Bank of England and the Department for Business and Trade. The survey collected detailed information from 2850 firms across all size and age classes, industry sectors and geographies on their financing and investment behaviours. To ensure representativeness a size and industry weight was constructed from the known UK business population and applied to the data.

2.1. Descriptive statistics

In this section we report the basic descriptive statistics in respect of our thirteen alternative sources of finance and the extent to which firms have never used each source (permanent non-users). First, we present the aggregate statistics in Table 1 and then we consider how these aggregates vary by firm size and age classes.

Fig. 1, which shows how many firms have never used each of our thirteen specific forms of finance, highlights that the capital market, as far as firms are concerned, can be broadly split into three groups. The low use category includes bonds, P2P, external equity, and factoring. The intermediate use category includes family loans, mortgages, bank loans, grants, and director's loans. The high use category includes hire purchase, loan guarantee schemes, overdrafts, and credit cards. In this respect, more complex sources of finance, and those that imply a loss of control, have little attraction for firms, whilst easy access, short-term debt, alongside loan guarantee scheme loans, are more prevalent as sources of finance relevant to firms.

Compared to the Berger and Udell (1998) life-cycle theory of finance, our evidence suggests that there is a truncated set of financing sources that firms use and that the vast majority of firms never undergo this seamless transition to higher order sources of finance. The fact that directors' loans are in the intermediate use category and behind a number of sources of short-term debt also challenges the assumptions of Myers and Majluf (1984) pecking order theory of finance. Overall, our basic empirical evidence suggests that firms are, for the most part, seeking to smooth short-term variations in their cash flows in and out, apart from in crisis periods when loan guarantee schemes become more prevalent in their use.

From Table 2, we are able to observe that five specific sources of finance become more used (less unused) as firms increase in size. These include credit cards which diminish in non-use from 42.9 % in micro firms to 20.2 % in medium and large sized firms, external equity where non-use declines respectively from 94.2 % to 89.7 %, grants, 69.1 % to 37.9 %, hire purchase, 60.7 % to 23.2 %, bank loans, 73.9 % to 64.2 % between micro and medium to large firms. Only directors' loans were found to increase in their permanent non-use in medium to large firms compared to micro firms.

From Table 3, we observe that only three sources of finance have rates of permanent non-use that change consistently over firm age classes. In respect of credit cards, non-use is diminishing from 54.5 % in very young firms (0–3 years old) to only 36.4 % in very old firms (>20 years old). Non-use of overdrafts is also relatively high in young firms at 73.8 % and relatively low in very old firms at 52.2 %. For family loans, the opposite pattern is found with very young firms having relatively low levels of non-use at 77.6 % and very old firms having relatively high levels of non-use at 85.7 %.

Overall, our findings suggest that firm size effects are much more apparent than firm age effects in terms of permanent non-use of specific sources of finance. The nature of these financing patterns is also different with credit cards being the exception with both size and age found to diminish permanent non-use by firms. That aside, size differences were apparent for external equity, grants, hire purchase, bank loans, and directors loans whereas age differences were apparent for overdrafts and family loans. Thus, our findings in respect of insider finance sources in respect of family loans are consistent with POT and life-cycle theories, but more so in respect of

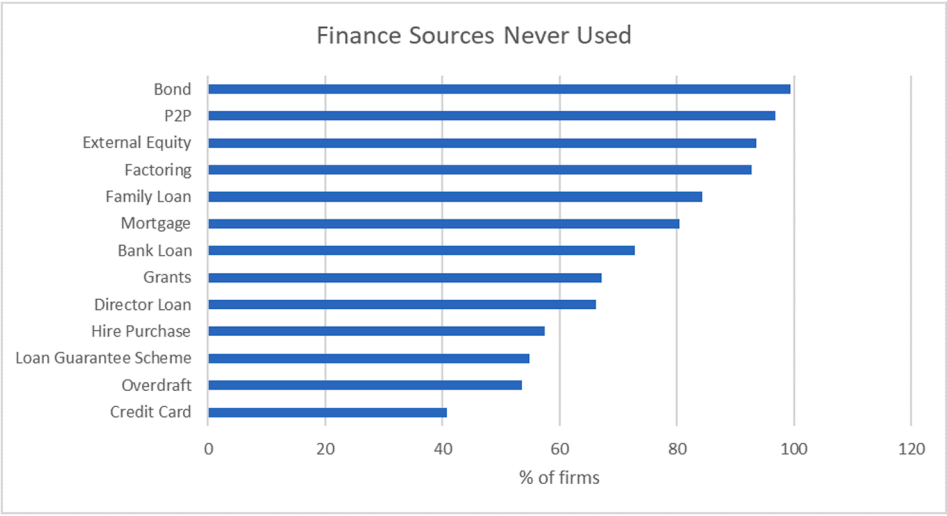

Fig. 1. Financing sources never used by firms.

Table 2
Financing sources never used by firm size classes.

Finance Source	Micro	Small	Medium/Large
Overdraft	53.75	51.03	60.13
Mortgage	82.20	68.46	77.57
Credit Card	42.88	29.42	20.17
External Equity	94.21	90.01	89.74
Factoring	93.84	85.72	85.15
Grant	69.12	58.07	37.85
Loan Guarantee Scheme	55.60	48.14	62.12
Hire Purchase	60.68	39.28	23.20
Bank Loan	73.88	66.99	64.23
Family Loan	84.11	83.97	96.75
Director Loan	65.08	70.58	84.68
P2P	96.91	95.74	98.11
Bond	99.53	99.40	97.51

Table 3
Financing sources never used by firm age classes.

Finance Source	'0–3 years	'4–10 years	'11–20 years	'>20 years
Overdraft	77.76	57.63	52.16	52.22
Mortgage	85.55	77.20	82.90	79.36
Credit Card	54.51	49.33	43.48	36.44
External Equity	94.06	92.50	95.40	92.73
Factoring	89.90	94.62	92.41	92.75
Grant	76.60	59.54	65.42	69.28
Loan Guarantee Scheme	74.40	47.78	51.77	57.02
Hire Purchase	71.41	58.52	59.72	54.73
Bank Loan	78.82	72.18	73.50	72.22
Family Loan	77.55	78.74	84.89	85.69
Director Loan	65.40	64.14	68.30	65.22
P2P	96.41	96.84	96.29	97.16
Bond	100.00	99.72	99.19	99.56

firm age, and for external equity for firm size. In relation to debt, which is predicted to be the second preference to internal finance, our results are largely inconsistent with POT and life-cycle theories. On the 'contentment hypothesis', there do appear to be some supportive findings. On firm size, we find that micro firms appear to strongly dislike bonds, P2P, external equity, and factoring, small firms only bonds, P2P, and external equity, and medium and large firms only bonds and family loans. In this sense, the contentment hypothesis is driven by different attitudes that are specific to particular sources of finance across firms of different size classes. In contrast, there is more 'contentment' generality across firm age classes with an apparent contentment for avoiding the use of external equity, P2P, and bonds.

3. Regression results

Here we report on our regression model for permanent non-use of each specific source of finance (Table 4). As permanent non-use in each case is coded 1 if a firm is a permanent non-user of a specific source of finance and 0 otherwise, we use thirteen individual probit models with firm size and age classes as our key explanatory variables, and industry sector and geographic region as our control variables. For ease of interpretation, we report the marginal effects to highlight the difference in the probability of being a permanent non-user as we progress through the size and age classes.

In general, we find that firm size classes generate more significant results than firm age classes which suggests that the age elements of the life-cycle of firm finance are much weaker than the size effects. Or put another way, firms financing choices are more directly influenced by their size than their age. Where we find evidence of a consistent POT across firm size classes is in respect of credit cards, external equity, factoring, grants, hire purchase, and bank loans as non-use is diminishing in firm size class. With the exception of external equity, these effects are inconsistent with POT and financial life-cycle theory. Thus, as firms get larger, they use more of these financial sources. In respect of firm age classes, we find that non-use of grants and loan guarantee schemes are diminishing which is inconsistent with both POT and financial life-cycle theories as the youngest firms should face the most acute credit rationing and need public interventions in capital markets to access capital. The youngest firms also appear to be relatively content not to use overdrafts as a source of finance.

Augmented models that include a firm's identification of new investment opportunities as a proxy for growth show that all sources of finance are diminishing in the probability of permanent non-use apart from factoring and invoice discounting and bonds. The biggest reductions in the probability of permanent non-use are for loan guarantee schemes, −13.22 %, hire purchase, −10.62 %, and director's loans, −10.20 %. Thus, the contentment hypothesis becomes less relevant in explaining the financing of firms with new

Table 4
Marginal probability of permanent non-use of finance.

Dependent Variables:	Overdraft	Mortgage	Credit Card	External Equity	Factoring	Grants	Loan Guarantee Scheme	Hire Purchase	Bank Loan	Family Loan	Director Loan	P2P	Bond
Key Firm Characteristics													
Size class (base: Micro)													
Small	−0.0376	−0.1205***	−0.1362***	−0.0489***	−0.1149***	−0.0868***	−0.0739***	−0.2423***	−0.0714***	0.0034	0.0386*	−0.0193**	−0.0012
	(0.0247)	(0.0220)	(0.0216)	(0.0151)	(0.0188)	(0.0247)	(0.0247)	(0.0232)	(0.0234)	(0.0162)	(0.0223)	(0.0098)	(0.0019)
Medium	−0.0035	−0.1136***	−0.2509***	−0.1080***	−0.1795***	−0.1812***	−0.0008	−0.3999***	−0.1788***	0.1084***	0.1388***	0.0057	−0.0265***
	(0.0320)	(0.0295)	(0.0229)	(0.0242)	(0.0281)	(0.0322)	(0.0317)	(0.0241)	(0.0318)	(0.0144)	(0.0257)	(0.0104)	(0.0097)
Age Class (base: 0–3)													
4–10	−0.1938***	−0.1185**	−0.0265	−0.0354	0.0299	−0.2154***	−0.3005***	−0.1016	−0.0699	−0.0098	−0.0435	0.0045	−0.9420***
	(0.0607)	(0.0636)	(0.0555)	(0.0386)	(0.0241)	(0.0666)	(0.0549)	(0.0626)	(0.0609)	(0.0385)	(0.0576)	(0.0160)	(0.0311)
11–20	−0.2374***	−0.0750	−0.0639	0.0132	0.0293	−0.1849***	−0.2802***	−0.1084*	−0.0554	0.0444	0.0159	−0.0004	−0.7236***
	(0.0569)	(0.0525)	(0.0509)	(0.0265)	(0.0257)	(0.0605)	(0.0558)	(0.0583)	(0.0540)	(0.0316)	(0.0508)	(0.0170)	(0.0372)
>20	−0.2315***	−0.1212***	−0.1394***	−0.0036	0.0352	−0.1522***	−0.2338***	−0.1403**	−0.0816	0.0538	0.0084	0.0075	−0.2095***
	(0.0558)	(0.0461)	(0.0513)	(0.0274)	(0.0289)	(0.0562)	(0.0555)	(0.0570)	(0.0508)	(0.0347)	(0.0505)	(0.0167)	(0.0427)
Industry control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. obs	2859	2861	2875	2839	2768	2838	2851	2870	2844	2858	2855	2850	2383
Prob > χ^2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0125	0.0012
Pseudo R2	0.027	0.0614	0.0532	0.0527	0.0936	0.0644	0.0229	0.0951	0.0430	0.0318	0.0261	0.0473	0.1756

Note: *** indicates significance at 1 % level, ** indicates significance at 5 % level, and * indicates significance at 10 % level. Figures in parentheses are standard errors.

Table 5
Marginal probability of permanent non-use of finance – investment opportunity.

Dependent Variables:	Overdraft	Mortgage	Credit Card	External Equity	Factoring	Grants	Loan Guarantee Scheme	Hire Purchase	Bank Loan	Family Loan	Director Loan	P2P	Bond
Key Firm Characteristics													
Size class (base: Micro)													
Small	−0.0085	−0.1067***	−0.1278***	−0.0278**	−0.0962***	−0.0796***	−0.0493*	−0.2169***	−0.0600**	0.0032	0.0671***	−0.0151*	0.00002
	(0.0270)	(0.0234)	(0.0250)	(0.0132)	(0.0178)	(0.0266)	(0.0271)	(0.0266)	(0.0251)	(0.0190)	(0.0242)	(0.0093)	(0.0006)
Medium	0.0411	−0.0759**	−0.2212***	−0.0529***	−0.1273***	−0.1988***	0.0686*	−0.3921***	−0.1071***	0.1279***	0.2097***	0.0086	−0.0164***
	(0.0406)	(0.0352)	(0.0332)	(0.0223)	(0.0324)	(0.0416)	(0.0402)	(0.0336)	(0.0406)	(0.0129)	(0.0264)	(0.0091)	(0.0084)
Age Class (base: 0–3)													
4–10	−0.1771***	−0.1103*	−0.0291	−0.0136	0.0389*	−0.1915***	−0.2894***	−0.1131*	−0.0832	0.0046	−0.0230	0.0057	−0.7465***
	(0.0650)	(0.0642)	(0.0619)	(0.0332)	(0.0175)	(0.0708)	(0.0610)	(0.0675)	(0.0641)	(0.0412)	(0.0615)	(0.0152)	(0.0345)
11–20	−0.2419***	−0.0869*	−0.0786	0.0122	0.0229	−0.1704***	−0.2896***	−0.1124*	−0.0911*	0.0480	0.0256	−0.0008	−0.5390***
	(0.0602)	(0.0525)	(0.0567)	(0.0254)	(0.0237)	(0.0632)	(0.0606)	(0.0618)	(0.0562)	(0.0362)	(0.0548)	(0.0171)	(0.0808)
>20	−0.2326***	−0.1233***	−0.1459**	−0.0089	0.0329	−0.1267**	−0.2297***	−0.1562***	−0.0995*	0.0589	−0.0023	0.0074	−0.1539***
	(0.0594)	(0.0461)	(0.0565)	(0.0262)	(0.0262)	(0.0588)	(0.0609)	(0.0593)	(0.0518)	(0.0387)	(0.0545)	(0.0168)	(0.0418)
Investment	−0.0801***	−0.0653***	−0.0356*	−0.0443***	0.0021	−0.0922***	−0.1322***	−0.1062***	−0.0904***	−0.0413***	−0.1020***	−0.0154**	−0.0002
Opportunity	(0.0215)	(0.0166)	(0.0213)	(0.0101)	(0.0100)	(0.0204)	(0.0214)	(0.0215)	(0.0193)	(0.0156)	(0.0205)	(0.0067)	(0.0004)
Industry control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. obs	2844	2843	2856	2821	2751	2820	2832	2851	2826	2840	2837	2832	2372
Prob > χ^2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0029	0.0012
Pseudo R2	0.0314	0.0701	0.0316	0.0502	0.0626	0.0557	0.0335	0.0627	0.0439	0.0201	0.0279	0.0551	0.1386

Note: *** indicates significance at 1 % level, ** indicates significance at 5 % level, and * indicates significance at 10 % level. Figures in parentheses are standard errors.

investment and growth opportunities (Table 5).

4. Conclusion

We set out to compare and contrast three different theories of why firms of different size and ages had a generally low use of external finance and often a high state of permanent disengagement from capital markets. Using a rich UK data set, we initially found that firms had a strong and permanent level of non-use of bonds, P2P, external equity and factoring. In contrast, their use of short-term debt was relatively high. We also found that firm size was more consistent with POT and financial life-cycle theories than firm age. But in general, where we did find evidence of a pecking order or life-cycle effects it was not the smooth transition depicted in these theories from internal finance, to debt, through to more complex sources of finance. In fact, our evidence shows that in reality there is a much more truncated variety of finance sources used by firms and levels of permanent non-use is high. Credit cards appear to be a popular way of financing for many firms despite its high cost.

CRediT authorship contribution statement

Marc Cowling: Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Huan Yang:** Writing – review & editing, Writing – original draft, Visualization, Validation, Investigation, Formal analysis.

Declaration of competing interest

No competing interests.

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Data availability

The authors do not have permission to share data.

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