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Agency Costs of Outside Equity: Evidence from Start-Up Firms in Their First Two Years

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ABSTRACT

This paper investigates the agency costs associated with outside equity infusions into 4928 randomly selected firms surveyed annually during their first two years of business. Sources of outside equity include angel investors, venture capital or private equity, other companies, or government sources. Changes in outside equity levels are significantly and positively associated with changes in the number of perquisite programs available to employees. These results are robust to controls for observable firm characteristics such as firm size and profitability.

Keywords: Agency Costs, Capital Structure, Outside Equity, Private Equity, Venture Capital, Startup Firms**,** JEL Classification: G320, G340, M130

INTRODUCTION

Can managers be trusted to their own devices when handling other people's money? Agency theory suggests that the answer to that question is quite possibly no. In the ideal situation in which the entrepreneur manager owns 100% of her firm, investor and management interests are perfectly aligned, eliminating negative principal-agent issues, since the principal and agent are the same person. As outside investment is added, however, the situation becomes murkier because the manager no longer bears the entire cost of wasteful investment, inefficiencies and perquisite consumption. The more outside investment, the less cost the manager personally bears for wasteful self-serving spending. The effects of outside investment depend upon the form that it takes – debt and equity having different agency effects. This paper investigates the agency costs associated with infusions of outside equity into startup firms. Outside equity is defined in this paper as an ownership stake by any entity other than a member of the firm's management team. Sources of outside equity include angel investors, venture capital or private equity, other companies, or government sources. The data for this analysis comes from the Kauffman Firm Survey, which is a longitudinal survey of 4928 firms which first opened their doors for business in 2004. Consistent with agency theory, I find that even when controlling for company characteristics such as firm size, number of employees and profitability, increases in outside equity levels are positively and significantly associated with the addition of perquisite programs for full-time employees. I performed the same analysis for part-time employees (which do not benefit the manager directly) and found no relationship. This indicates that managers are willing to spend outside equity on benefit programs that they were not willing to implement when they themselves bore the full cost.

BACKGROUND AND RELATED LITERATURE

Agency theory predicts somewhat cynically that when entrepreneur managers are given the opportunity to personally benefit by extracting wealth from outside investors, they will

generally do so. Jensen and Meckling (1976) start with an idealized model where the entrepreneur owns and manages 100% of the firm. In this context, the manager's interests are fully aligned with the shareholders' interests, since they are one and the same person. Any decision of the manager to consume perquisites results in a dollar-for-dollar reduction in the value of the firm, which translates to a dollar-for-dollar reduction in the wealth of the manager (if we ignore tax implications). As outside equity is introduced, the full cost of perquisite consumption is no longer borne by the manager. If the manager owns only 50% of the cash flow rights of the firm, then each dollar of additional personal perquisite consumption will only decrease her personal wealth by fifty cents. Outside shareholders mitigate this situation by engaging in costly monitoring activities. In equilibrium, outside investors should pay for their shares exactly the proportional value of the firm minus these monitoring costs.

Ang, Cole, & Lin (2000) find empirical support for the existence of these agency costs. Using survey data from the National Survey of Small Business Finances (NSSBF), they find that agency costs decline as managerial ownership increases. They use two different proxies for agency costs. The first measure is direct agency costs which are calculated as the difference between costs for firms with and without significant managerial ownership. The idea behind this first measure is to quantify differences in perk expenses when management is more fully in control. The second measure attempts to quantify bad investment decisions that result in inefficient asset allocation, which is calculated as the efficiency ratio, or sales divided by assets. Again, firms with and without outside investment are compared. The authors find that agency costs are lower for firms that are fully owned by their manager(s).

Jensen (1986) offers a possible remedy to this principal-agent dilemma. If the firm takes on a significant amount of debt, then the interest service on that debt will reduce free cash flow and thus financially constrain managers that might use that might use that free cash flow irresponsibly on poor investments or perquisites. Thus, outside debt can impose discipline that outside equity cannot, because equity has too few strings attached. One of the predicted outcomes of this model is that acquisitions funded by cash or debt will outperform those done with exchange of stock. The merged firm will be positively constrained by the debt.

Stulz (1990) argues in a theoretical paper that the value of taking on debt has an upper limit for each firm. Although too little debt can lead to overinvestment, too much debt is also a problem, since the excessive debt servicing requirements can reduce free cash flow to the point that positive NPV projects cannot be pursued (underinvestment). Each firm, therefore, must have an optimal capital structure that reflects an equilibrium that characterizes neither overinvestment nor underinvestment. Lang, Stulz and Walkling (1991) test this free cash flow hypothesis by comparing firms that have good investment opportunities with those that do not. They do this using Tobin's *q* from a sample of winning tender offers where *q* is a proxy for good investment opportunities. Tobin's *q* (or the q ratio) is the market value of the firm divided by the replacement cost of its assets. The authors find that returns to low *q* bidders are negative (in relation to cash flow), but this relationship does not hold for bidders that are high *q*.

Other empirical papers have confirmed the negative association between high levels of firm investment activity and performance generally. [Titman, Wei and Xie (2004)] [Fairfield, Whisenant and Yohn (2003)] [Dechow, Richardson and Sloan (2005)]

Richardson (2006) also tests the free cash flow hypothesis using accounting-based measures for free cash flow and overinvestment. Overinvestment is calculated by teasing out new investment expenditure in negative NPV projects from total investment. Using a sample of 58,053 firm-years of data, the author finds that the association between positive cash flow and overinvestment is significantly positive. The paper proceeds as follows: Section 2 describes the methodology and predictions, Section 3 presents the empirical results, and Section 4 concludes.

METHODS

The primary data source is the Kauffman Firm Survey (KFS), which is funded by the Ewing Marion Kauffman Foundation. The KFS is a panel study of new businesses founded in 2004 and then tracked over the following years. KFS randomly sampled five thousand firms from the Dun & Bradstreet database. The survey data collected includes: nature of formation activities, strategy, employment patterns; employee benefits, sources of capital and other financial arrangements, and characteristics of the founders. A limitation of this study is that the KFS has discontinued their firm study and therefore more recent data is not available. All dollar-figure variables in the KFS are represented by a single digit numeric code, as shown in Figure 1. The analyses of this paper require year-to-year deltas for some of these variables, which is problematic because the raw numeric coding does not represent linear changes in dollar amounts. To address this, all currency variables are converted from single digit codes to the median dollar figure for the range that they represent. The variables affected in this way are inside equity, outside revenue and profit.

VALUE	RAW RANGE	CONVERTED VALUE
0	0	0
1	$500 OR LESS	250
2	$501 TO $1000	750
3	$1,001 TO $3,000	1,500
4	$3,001 TO $5,000	4,000
5	$5,001 TO $10,000	7,500
6	$10,001 TO $25,000	17,500
7	$25,001 TO $100,000	62,500
8	$100,001 TO $1,000,000	550,000
9	$1,000,001 OR MORE	1,000,001

Fig. 1. Dollar ranges in the KFS data

Two additional variables generated for this paper were: leverage ratio, defined as total debt divided by debt plus equity; and ownership slice, defined as the ownership of the entrepreneur divided by the cumulative ownership of the top five owners. The primary model at work in my paper is the following tobit model:

$$FTP_i = \alpha + \beta \Delta OE_i + \gamma \Delta FC_i + \varepsilon_i \text{ , (FTP is truncated at zero)}$$

where FTP represents the percentage of available full-time perquisite programs added during the current year, OE is the change in outside equity from the previous year, and FC represents the control variables for firm characteristics, such as the change in employee count and the

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change in profitability. Tobit is used instead of OLS because of the mass of zero values in the dependent variable. In fact, the majority of values for FTP are zero, since the typical firm does not add or remove any benefit programs during most years.

$$Profit_t = \alpha + \beta Perqs_{t-1} + \gamma FC_{t-1} + \varepsilon_i ,$$

A positive relationship between perqs added and infusion of outside equity does not necessarily imply an agency problem. Outside ownership in the form of institutional investment has been shown to be positively related to performance-based compensation programs (Hartzell and Starks, 2003). If the addition of perq programs is the rational desire of the outside investors (no agency problem), then we should see a positive relationship between the perqs in year t-1 and the profit in year t, according to the following model:

RESULTS

Table 1 contains summary statistics. It is interesting to note that although revenue and profit grew over the three years of the study, the average percentage of outside equity actually decreased.

Table 1: Summary Statistics

	2004	2005	2006
Mean			
Outside Equity Ratio	5.8%	3.4%	2.7%
Employees	1.50	2.02	1.96
Profit	$ (5,657)	$ 12,815	$ 24,569
Leverage Ratio	35.2%	52.4%	60.0%
Revenue	$ 106,048	$ 157,302	$ 161,533
Count of Firms			
Health	675	803	754
Retirement	229	334	381
Stock	243	218	170
Bonus	511	618	608
Tuition	198	233	224
Vacation	802	952	910
Sick Leave	706	789	739
Flex Time	998	1008	856
Other	174	201	166
Out of Business			
Sold		30	36
Merged		11	6
Temporary Stop		59	64
Permanent Stop		165	174
Other		15	12

Note: The data set consists of 4928 firms from the Kaufmann Firm Survey (KFS). KFS randomly selected 5000 firms that commenced operations in 2004 from the Dun & Bradstreet database. These firms agreed to fill out survey forms each year that contain information regarding the nature of their formation activities, strategy,

employment patterns, employee benefits, sources of capital, financial arrangements, and characteristics of the founders.

Table 2 contains the results of the Tobit analyses. A clear relationship can be seen between the infusion of outside equity and the addition of full-time perquisites. Outside equity and employee count (which proxies for firm size) are the most significant determinants of whether or not new benefits programs are added by the firm. Both coefficients are positive and significant at the 1% level. I also generated marginal effects for this analysis, but there are not reported in Table 2 because they were nearly identical

Table 2: Tobit Analyses for Available Benefits Added During Follow-up Years

	2005 Perqs Added		2006 Perqs Added	
	Coeff	p-value	Coeff	p-value
Δ Outside Equity 04-05	0.0000002	0.005		
Δ Employees 04-05	0.0344409	0.000		
Δ Profit 04-05	0.0000000	0.040		
Δ Leverage 04-05	0.0211098	0.371		
Intercept	-0.2322661	0.000		
Δ Outside Equity 05-06			0.0000003	0.004
Δ Employees 05-06			0.0183887	0.000
Δ Profit 05-06			0.0000001	0.027
Δ Leverage 05-06			0.0130937	0.672
Intercept			-0.2518500	0.000

Note: This table reports results from tobit regressions with the percentage of available-to-be-added (previously not implemented) perquisite programs that were added during the year in question as the dependent variable. For example, since there are nine possible benefit programs, if a firm with zero benefits in 2004 added one benefit in 2005, then the percentage of available benefits added would be 11.1%. Now there are only 8 perqs remaining to be added. So, if this same firm added one more benefit in 2006, that would represent an addition of 12.5%. Explanatory variable is the change in outside equity (dollars) from year to year. Control variables include the change in number of employees, change in profit (dollars) and the change in leverage ratio (debt/ (debt + equity)).

to the tobit coefficients. These results are consistent with the hypothesis that the infusion of outside equity carries agency costs by incentivizing managers to add benefits programs that they would not otherwise implement if they were using only their own money.

Alternative Explanations

It could be argued that perhaps this is not an agency cost because it is the outside investors themselves that are insisting on the addition of these benefits packages. It is not uncommon for institutional investors to become involved in executive compensation issues (Hartzell and Starks, 2003). In this scenario, the investors are rationally trying to "sweeten the pot" in order to prevent attrition, and that this approach will ultimately result in higher profits. Since we cannot test the ex-ante beliefs of the outside equity investors, we must do the next best thing

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and test the ex-post results. Does the addition of perq programs lead to higher profits? To test this, we regress (OLS) profits against lagged perq levels, while controlling for employee levels, leverage, and a dummy for outside control (>50% outsiders).

Table 3 contains the results of the OLS regressions with profit as the dependent variable. The results are not consistent with the hypothesis that higher benefit levels increase profitability. Although the relationship is indeed nominally positive in both 2005 and 2006, in neither year does the relationship differ from zero in a statistically significant way.

Table 3: Determinants of Annual Profit based on Lagged Firm Characteristics

	2005 Profit		2006 Profit	
	Coeff	p-value	Coeff	p-value
Perqs 04	2327.233	0.215		
Employees 04	-297.641	0.718		
Leverage Ratio 04	10877.220	0.202		
Outsider Cntrl 04	-98075.350	0.000		
Intercept	15698.910	0.000		
Perqs 05			2757.591	0.235
Employees 05			2000.130	0.028
Leverage Ratio 05			43648.430	0.000
Outsider Cntrl 05			-129949.400	0.000
Intercept			-1154.196	0.873

Note: This table reports results of standard OLS regressions with annual profit as the dependent variable and lagged perquisite programs implemented as the independent variable. Controls for firm characteristics such as number of employees, leverage ratio and outsider control (defined as at least 50% outsider ownership).

But which benefits, in particular, are driving the tobit results in Table 2? To understand this better, I do a series of individual probit analyses, with each benefit program assessed individually as the binary dependent variable. This way it can be demonstrated how outside equity impacts each of these benefits alone. There are nine available perq programs, and Table 4 shows the results of probit analyses that show which of them are most sensitive to outside equity. Nearly all of them are insignificant. In 2005, one perq was significant at the 10% level and in 2006, two were significant at the 5% level.

Table 4: Individual Perquisite Program Adoption

Independent Variables

	Δ Outside Equity 04-05		Δ Employees 04-05		Δ Profit 04-05		Δ Leverage 04-05		Intercept	
	Coeff	p-value	Coeff	p-value	Coeff	p-value	Coeff	p-value	Coeff	p-value
2005 Perqs										
Health	-2.32E-07	0.247	0.087	0.000	1.41E-07	0.314	0.165	0.024	-0.866	0.000
Retirement	-3.33E-07	0.168	0.060	0.000	3.87E-07	0.018	0.075	0.413	-1.450	0.000
Stock	3.83E-07	0.137	0.022	0.022	-4.85E-07	0.009	-0.132	0.186	-1.514	0.000
Bonus	-1.86E-08	0.932	0.096	0.000	1.53E-07	0.302	0.152	0.048	-1.048	0.000
Tuition	4.76E-07	0.093	0.058	0.000	1.52E-07	0.390	0.064	0.523	-1.577	0.000
Vacation	7.27E-08	0.712	0.099	0.000	1.42E-07	0.312	0.081	0.250	-0.716	0.000
Sick Leave	-9.24E-08	0.645	0.094	0.000	2.03E-08	0.887	0.042	0.562	-0.861	0.000
Flex Time	8.68E-08	0.667	0.069	0.000	2.54E-08	0.856	0.003	0.966	-0.587	0.000
Other	-5.88E-08	0.848	0.039	0.000	2.14E-07	0.255	0.093	0.367	-1.640	0.000
	Δ Outside Equity 04-05		Δ Employees 04-05		Δ Profit 04-05		Δ Leverage 04-05		Intercept	
	Coeff	p-value	Coeff	p-value	Coeff	p-value	Coeff	p-value	Coeff	p-value
2006 Perqs										
Health	4.83E-08	0.817	0.069	0.000	3.98E-07	0.004	0.0874	0.237	-0.907	0.000
Retirement	3.47E-08	0.889	0.056	0.000	5.24E-07	0.001	0.0588	0.504	-1.363	0.000
Stock	2.76E-07	0.302	0.033	0.002	-7.17E-07	0.001	-0.272	0.016	-1.666	0.000
Bonus	-5.21E-08	0.821	0.077	0.000	4.07E-07	0.006	0.0934	0.236	-1.100	0.000
Tuition	4.03E-07	0.184	0.055	0.000	2.98E-07	0.116	-0.068	0.514	-1.639	0.000
Vacation	-1.09E-08	0.957	0.080	0.000	2.65E-07	0.058	0.069	0.333	-0.767	0.000
Sick Leave	2.22E-07	0.292	0.071	0.000	2.56E-07	0.070	-0.015	0.840	-0.903	0.000
Flex Time	1.19E-07	0.579	0.049	0.000	1.15E-07	0.423	0.0987	0.167	-0.773	0.000
Other	-1.54E-07	0.639	0.036	0.000	1.95E-07	0.355	0.1532	0.170	-1.754	0.000
	Δ Outside Equity 05-06		Δ Employees 05-06		Δ Profit 05-06		Δ Leverage 05-06		Intercept	
	Coeff	p-value	Coeff	p-value	Coeff	p-value	Coeff	p-value	Coeff	p-value
2006 Perqs										
Health	-5.01E-07	0.049	0.042	0.000	2.83E-07	0.057	0.046	0.593	-0.633	0.000
Retirement	-6.01E-07	0.041	0.014	0.252	4.79E-07	0.005	0.068	0.507	-1.173	0.000
Stock	-1.61E-07	0.561	0.016	0.267	1.90E-07	0.350	0.025	0.841	-1.526	0.000
Bonus	-1.26E-07	0.635	0.047	0.000	5.96E-07	0.000	0.106	0.241	-0.830	0.000
Tuition	-7.40E-07	0.025	0.031	0.017	4.40E-07	0.021	0.098	0.427	-1.504	0.000
Vacation	-2.42E-07	0.335	0.047	0.000	3.81E-07	0.010	0.201	0.017	-0.492	0.000
Sick Leave	-2.68E-07	0.279	0.019	0.066	2.77E-07	0.063	0.208	0.017	-0.649	0.000
Flex Time	2.87E-08	0.911	0.026	0.013	3.27E-07	0.031	0.031	0.716	-0.542	0.000
Other	5.22E-07	0.181	0.034	0.014	2.26E-07	0.287	-0.110	0.389	-1.549	0.000

Note: This table reports individual probit analyses with each of the nine possible perq programs as the dependent binary variable. Independent variables are change in outside equity, change in employees, change in profit and change in leverage.

This begs the question of whether there are any interesting interactions between any of the benefit programs themselves. Table 5 contains the results of bivariate probit analyses which

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show the correlations between each two-way combination of perq programs when they are paired as the co-dependent variables. For the sake of space, I do not report the coefficients in Table 5, just the actual correlation (rho) between the dependent binary variables. The benefits that stand out as the most highly correlated with each other are: Vacation and Sick leave (0.976), Vacation and Bonus (0.819), and Bonus and Sick Leave (0.769). It is indeed striking, though, how generally high are the correlations between *all* of these perq programs.

Table 5: Bivariate Probit Correlations between Perquisite Programs

	Health	Retire	Stock	Bonus	Tuition	Vaca	Sick	Flex
Health								
Retirement	0.733							
Stock	0.513	0.507						
Bonus	0.709	0.607	0.473					
Tuition	0.471	0.515	0.348	0.643				
Vacation	0.687	0.682	0.504	0.819	0.651			
Sick Leave	0.646	0.649	0.555	0.769	0.611	0.976		
Flex Time	0.424	0.538	0.474	0.616	0.583	0.684	0.682	
Other	0.342	0.391	0.281	0.529	0.366	0.526	0.445	0.475

Note: This table reports the results from 81 bivariate probit analyses with each possible combination pair of perq programs in 2006 as the dependent binary variables. Coefficients are not reported. The table presents only the correlation coefficients (rho) in order to demonstrate potential interactions between the perqs.

DISCUSSION & CONCLUSION

This study implies that managers may indeed modify their behavior regarding employee benefits when there is an infusion of outside capital. This is not necessarily a bad thing. Improvement of benefits and perquisites may result in better performance and increased employee retention, which could be in the best interest of the investors. The salient point is not whether or not the changes are good, but rather that the managers did not implement them with their own money. The managers waited until it could be done with someone else's money. This change in behavior belies a potential misalignment of interests.

Agency theory tells us that care must be taken when the interests of managers and owners are not perfectly aligned. Infusion of outside equity into a startup firm is a good example of an incremental increase in the misalignment of manager and owner interest. This paper tests the hypothesis that this misalignment will manifest itself as additional perquisites (in the form of benefits) which not only benefit the other full-time employees, but also directly benefit the manager herself. These are benefits that the manager did not offer previously when she personally bore a greater portion of the cost.

The empirical results are consistent with this hypothesis. Managers appear to be more willing to add benefits when there is an infusion of outside equity investment. These results are robust to the inclusion of relevant control variables and to the testing of alternative explanations.

References

Ang, J. S., Cole, R. A., & Lin, J. W. (2000). Agency Costs and Ownership Structure. *The Journal of Finance, 55*(1), 81-106.

Hartzell, J. C. & Starks, L. T. (2003). Institutional investors and executive compensation, *Journal of Finance 58*, 2351-2374.

Jensen, M. C. (1986). Agency costs of free cash flow, corporate finance, and takeovers, *American Economic Review 76*, 323-329.

Jensen, M. C. & Meckling, W. H. (1976). Theory of the firm: managerial behavior, agency costs and ownership structure, *Journal of Financial Economics 3*, 305-360.

Lang, L. H., Stulz, R., & Walkling, R. A. (1991). A test of the free cash flow hypothesis: The case of bidder returns. *Journal of financial economics*, 29(2), 315-335.

Stulz, R. M. (1990). Managerial discretion and optimal financing policies, *Journal of Financial Economics 26*, 3-27.