

Corporate Investment and Cash Flow in the U.S. Restaurant Industry

Bo-Bae Min
College of Hotel and Tourism Management
Kyung Hee University, Seoul, Rep. of Korea

and

Yeo-Jin Shin
College of Hotel and Tourism Management
Kyung Hee University, Seoul, Rep. of Korea

ABSTRACT

In this paper, we investigate the investment sensitivity to internal cash flow of U.S. restaurant companies. Using 53 sampled restaurant companies for the period of 1999-2009, we find that (i) both franchise and non-franchise companies exhibit a significant investment sensitivity to internal cash flow and that (ii) non-franchise companies exhibit a higher investment sensitivity to internal cash flow by more than 50% than franchise companies. This finding is robust to the inclusion of the lagged sales growth variable, which reduces the problems due to measurement errors in our proxy for Tobin's Q . Our empirical findings suggest that the resource scarcity theory of franchise does not explain the corporate investment behavior of already well-established franchise restaurant companies.

Keywords: restaurant, franchise, investment, cash flow, sensitivity.

INTRODUCTION

This study investigates the relationship between internally generated cash flow and firm investment in the restaurant industry. Our focus is particularly on the difference of the investment-cash flow sensitivity between franchise and non-franchise restaurant companies.

Finding investment projects that maximize firm value and making decisions on how to finance those projects are important determinants of a firm's growth and success. When capital markets are perfect, a firm should not face a gap in financing projects between using internally and externally raised funds. However, when a firm faces capital market imperfections, which may be the result of a variety of agency and asymmetric information problems, it is forced to pay a premium for externally raised over internally raised funds (Fazzari, Hubbard, and Petersen 1988, 2000). A conventional wisdom has it that the more a firm is financially constrained, the less it invests. For the restaurant industry, investment and financing decisions are of particular importance since the industry generally exhibits a higher ratio of fixed assets to total assets, which leads to a higher operating risk—a risk that comes from the higher ratio of fixed assets to total assets which increases the volatility of operating profit margin—than other retail and manufacturing industries (Skalpe 2003). In addition, the resource scarcity theory (Oxenfeldt and Kelly 1969; Combs and Ketchen 1999) explaining reasons to franchise predicts that franchise restaurant companies are likely to be more financially constrained than non-franchise ones and

thus to exhibit a higher sensitivity of investment to internally generated funds. To our knowledge, no prior studies have examined the relationship between financial constraints that a hospitality firm faces and its investment decisions.

RELATED LITERATURE

Tobin's Q investment theory

The Tobin's Q investment theory in finance predicts that a firm's optimal investment amount is the function of only its Q value, which is usually proxied by the ratio of market value to replacement value of a firm's total asset (Tobin 1969; Hayashi 1982). Empirically, the theory predicts that in the following regression

$$I_{i,t}/K_{i,t-1} = a + bQ_{i,t-1} + c(\text{other variables}_{i,t-1}) + \epsilon_{i,t}$$

other variables after controlling for Tobin's Q should not have significance explaining a firm's investments (I). Here, the subscript 'i' represents the ith firm and the variable I represents investments in fixed assets, and the variable K represents the beginning-of-period net fixed assets.

However, when a firm faces capital market imperfections, the cost of using externally raised funds, such as funds generated by issuing stocks and bonds, is much higher than that of using internally raised funds such as retained earnings. Fazzari, Hubbard, and Petersen (1988) is the first to show empirically that a firm's investment is also dependent on the internally generated funds beyond the Tobin's Q and the investment-cash flow sensitivity is higher for a firm that faces more financial constraints. Using the dividend payout ratio as a proxy for the inverse of financial constraints, they show that firms having a lower payout ratio, which they assume to be more financially constrained because such firms, they hypothesize, tend to retain earnings for future investment opportunities, exhibit a stronger sensitivity to internally generated cash flow. That is, they show that the coefficient estimate c in the following regression

$$I_{i,t}/K_{i,t-1} = a + bQ_{i,t-1} + c(CF_{i,t}/K_{i,t-1}) + \epsilon_{i,t}$$

is larger and generally more significant for the group of firms that pay lower dividends. Since Fazzari, Hubbard, and Petersen (1988), there has been voluminous research that investigates the relation by considering other proxies for financial constraints that a firm faces such as firm size, bank-firm relationship, and sales growth (Hoshi, Kashyap, and Scharfstein 1991; Schaller 1993). Although some challenge the view of Fazzari et al. (1988), including Kaplan and Zingales (1997) and Cleary (1999), generally it is believed that the more a firm is financially constrained, the less it invests and the higher its investment-cash flow sensitivity.

Resource scarcity theory of franchise

Our particular interest in the difference of the investment-cash flow sensitivity between franchise and non-franchise restaurant companies is based on the resource scarcity theory of franchise (Oxenfeldt and Kelly 1969; Combs and Ketchen 1999), which is one of the two major theories explaining reasons to franchise; the other is based on agency theory (Norton, 1988; Bradach, 1997). The resource scarcity theory proposes that firms franchise in order to access scarce resources, particularly capital and managerial resources, when they face difficulty raising capital through traditional financial markets, for example, through issuing stocks and bonds.

Hence, we expect that franchise restaurant companies are likely to be more financially constrained than non-franchise ones, and exhibit a higher sensitivity of investment to internally generated funds.

EMPIRICAL RESULTS

Data and descriptive summary

Our data set consists of stock price and accounting data of 53 United States restaurant companies for the period of 1999 -2009. Of the 53 companies, 35 are franchise companies and the remaining 18 are non-franchise companies. The sample consists of 493 unbalanced, firm-year observations. Three key variables of interest in our analysis are a firm's capital investment, cash flow, and Tobin's Q. Following the literature, we use capital expenditure for capital investment and income before extraordinary item (IB in Compustat) plus depreciation and amortization expenses for cash flow. Tobin's Q is computed following Chung and Pruitt (1994). To control for possible heteroskedasticities due to differences in firm size, we divide both capital investment and cash flow by the beginning-of-period net fixed assets. We denote the resulting variables by I/K and CF/K, respectively.

Table 1
Descriptive Statistics for Variables Used

Except for investment (I) and cash flow (CF), all variables are computed using 1-year lagged accounting information. Each variable is truncated at 1% and 99% percentiles. SD represents standard deviation and Med represents median.

	<i>All Restaurants</i>				<i>Franchise Restaurants</i>				<i>Non-franchise Restaurants</i>			
	N	Mean	SD	Med	N	Mean	SD	Med	N	Mean	SD	Med
Total Asset	488	903	2504	274	315	1087	3045	325	173	569	807	222
Net Fixed	488	616	1880	171	315	713	2293	178	173	439	607	158
Sales (\$M)	488	1140	2221	381	315	1314	2581	441	173	825	1287	318
I/K	493	0.221	0.166	0.183	320	0.229	0.161	0.201	173	0.206	0.175	0.157
CF/K (cash	493	0.192	0.250	0.183	320	0.232	0.284	0.219	173	0.118	0.143	0.137
Q (Tobin's	493	1.604	0.977	1.325	320	1.722	1.016	1.474	173	1.386	0.861	1.131
Sales	493	0.129	0.443	0.078	320	0.092	0.375	0.074	173	0.195	0.542	0.086
Leverage	442	0.310	0.273	0.242	282	0.327	0.293	0.251	160	0.282	0.231	0.230
Payout	492	0.039	0.838	0.000	319	0.030	1.021	0.000	173	0.054	0.275	0.000
ROE	485	0.025	0.513	0.093	316	0.060	0.341	0.110	169	-0.039	0.731	0.071

Table 1 reports basic descriptive statistics of our sample. With the exception of two variables, investment (I) and cash flow (CF), all variables are computed with using 1-year lagged accounting information. Leverage is the ratio of the long-term debts plus debts in current liabilities to total assets. Payout ratio (dividend payout ratio) is dividends paid to common stockholders divided by operating income after depreciation. Return on equity (ROE) is the ratio of net income to stockholders' equities. All variables are truncated at the 1st and 99th percentiles to prevent outliers from influencing our empirical results. A few points are noteworthy from the table. First, reported Tobin's Q values, both mean and median, show that markets value franchise companies more than they do non-franchise ones. Second, the mean and median ROEs are also larger for franchise companies than for non-franchise ones. Third, results for three firm-size related variables total assets, net fixed assets, and sales indicate that franchise restaurants are generally bigger than non-franchise ones. Fourth, the I/K and CF/K values show that generally franchise restaurants invest more in fixed assets and generate more cash flow than non-franchise

ones. Fifth, the U.S. restaurant companies' leverage is around 30 percent and about 75 percent of restaurant companies do not pay dividends.

Regression results

The basic regression model to examine the investment-cash-flow sensitivity is as follows:

$$I_{i,t}/K_{i,t-1} = a + bQ_{i,t-1} + c(CF_{i,t}/K_{i,t-1}) + \epsilon_{i,t}$$

Panel A of Table 2 reports the estimated coefficients from this basic regression model. In all of our reported regressions, we estimate a model using a panel regression model with both firm and time fixed effects. It shows that both Tobin's Q and CF/K are significant across all three different groups. However, the results strongly indicate that against the prediction of Tobin (1969), Tobin's Q does not capture entire factors affecting a firm's decision on I/K and rather cash flow influences more on a firm's investment decisions. In addition, more importantly, the results suggest that the investment-cash-flow sensitivity is much larger for non-franchise restaurants companies than franchise ones.

Table 2
Regression Results

Fixed-effect panel regression models are applied with both firm and time fixed effects. Each variable is truncated at 1% and 99% percentiles. The symbols *, **, and *** indicate statistical significant at the 10%, 5%, and 1% levels (two-sided), respectively.

A. $I/K = a + bQ + c(CF/K) + \epsilon$									
	All Restaurants			Franchise Restaurants			Non-franchise Restaurants		
Variable	Estimate	t Value	Pr > t	Estimate	t Value	Pr > t	Estimate	t Value	Pr > t
Constant	-0.078	-1.580	(0.115)	-0.066	-1.220	(0.223)	-0.032	-0.660	(0.510)
CF/K	0.182***	6.330	(0.000)	0.167***	5.510	(0.000)	0.288***	2.660	(0.009)
Q	0.061***	6.110	(0.000)	0.053***	4.360	(0.000)	0.085***	4.310	(0.000)
B. $I/K = a + bQ + c(CF/K) + d(SalesGrowth) + \epsilon$									
Variable	Estimate	t Value	Pr > t	Estimate	t Value	Pr > t	Estimate	t Value	Pr > t
Constant	-0.081	-1.640	(0.102)	-0.069	-1.280	(0.201)	-0.034	-0.690	(0.492)
CF/K	0.182***	6.330	(0.000)	0.167***	5.530	(0.000)	0.285***	2.620	(0.010)
Q	0.062***	6.200	(0.000)	0.054***	4.440	(0.000)	0.086***	4.290	(0.000)
Sales G	-0.017	-1.200	(0.232)	-0.026	-1.200	(0.230)	-0.007	-0.350	(0.726)

Recently, Erickson and Whited (2000) raised a concern that measurement errors in the proxy of Tobin's Q could contaminate the investment-cash-flow sensitivity, leading to erroneous conclusion. To address this concern, we add lagged sales growth variables as an additional explanatory variable in the basic model to capture investment opportunities that our proxy for Tobin's Q may not capture. Panel B of Table 2 reports the results. It shows that the inclusion of the sales growth as an additional explanatory variable does not affect the regression results at all. The lagged sales growth variable has no additional explanatory power beyond CF/K and Tobin's Q in explaining variations in I/K.

DISCUSSIONS OF RESULTS

Our empirical findings tell us two points: (i) for U.S. restaurant companies, a company's investment decision is influenced by the internal cash flow beyond and more than by Tobin's Q; and (ii) the investment-cash-flow sensitivity is larger for non-franchise restaurants than for franchise ones. Taken together, then can our empirical results be interpreted as evidence against the prediction of resource scarcity theory of franchise (Oxenfeldt and Kelly 1969)? Although

resource scarcity theory claims that one major reason why a firm franchise is to access scarce resources, the theory can be tested only by comparing a firm's pre- and post-franchise investment-cash-flow sensitivity. That is, we need to conduct a kind of event study. Unfortunately, however, of the 38 franchise restaurant companies in our sample, only one company, O'Charley's Inc., changed from non-franchise to franchise companies during our sample period 1999-2009, which makes us impossible to test the resource scarcity theory directly. In addition, in the U.S., franchise is a business model that already well-established local companies use as a business expansion strategy. In expanding their business, such well-established local company does not face serious investment constraints. For example, it is hard to imagine that such popular franchise companies as McDonald's Corp. and Yum Brands Inc. would face more investment constraints due to incomplete financial markets than non-franchise ones. Rather, the converse would be more understandable, and this is exactly what we found with our sample.

REFERENCES

- Bradach, J. (1997), "Using the Plural Form in Management of Restaurant Chains," *Administrative Science Quarterly* 42, 276-303.
- Chung, K.H. and S.W. Pruitt (1994), "A Simple Approximation of Tobin's q ," *Financial Management* 23, 70-74.
- Cleary, S. (1999), "The relationship between firm investment and financial status," *Journal of Finance* 54, 674-692.
- Combs, J. and D. Ketchen (2003), "Why Do Firms Use Franchising As an Entrepreneurial Strategy?: A Meta-Analysis," *Journal of Management* 29, 443-465.
- Erickson, T., and T. Whited. (2000) "Measurement Error and the Relationship between Investment and Q ," *Journal of Political Economy* 108, 1027-1057.
- Fazzari, S.M., R.G. Hubbard, and B.C. Petersen (1988), "Financing constraints and corporate investment," *Brookings Papers on Economic Activity* 1, 141-206.
- Fazzari, S.M., R.G. Hubbard, and B.C. Petersen (2000), "Investment-cash flow sensitivities are useful: A comment on Kaplan and Zingales," *Quarterly Journal of Economics* 115, 695-705.
- Hayashi, F. (1982), "Tobin's Marginal q and Average q : A Neoclassical Interpretation," *Econometrica* 50, 213-224.
- Hoshi, T., A. Kashyap, and D. Scharfstein (1991), "Corporate Structure, Liquidity, and Investment: Evidence from Japanese Industrial Groups," *Quarterly Journal of Economics* 106, 33-60.
- Kaplan, S.N. and L. Zingales (1997), "Do investment-cash flow sensitivities provide useful measures of financing constraints?" *Quarterly Journal of Economics* 112, 169-215.
- Norton, S.W. (1988), "Franchising, Brand Name Capital, and the Entrepreneurial Capacity Problem," *Strategic Management Journal* 9, 105-114.
- Oxenfeldt, A. and A. Kelly (1969), "Will Successful Franchise Systems Ultimately Become Wholly-Owned Chains?" *Journal of Retailing* 44, 69-83.
- Skalpe, O. (2003), "Hotels and restaurants—are the risks rewarded? Evidence from Norway," *Tourism Management* 24, 623-634.
- Tobin, J. (1969), "A General Equilibrium Approach to Monetary Theory," *Journal of Money, Credit and Banking* 1, 15-29.