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The Overpricing Problem: Moral Hazard and Franchises

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The Overpricing Problem: Moral Hazard and Franchises

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Abstract

We hypothesize that moral hazard is an important factor in explaining the under performance of firms, identified by Ritter (1991), following initial public offerings (IPOs). We test this hypothesis by comparing post-IPO returns of franchised and non-franchised firms. Franchised IPOs, whose franchise agreements mitigate the moral hazard problems that arise from the dilution of ownership following an IPO, outperform their non-franchised, matched counterpart IPOs over five years in the aftermarket.

Keywords: IPO, Moral Hazard, Overpricing, Franchises

JEL Codes: G02, G14

1. Introduction

The empirical finance literature has identified two interesting characteristics associated with the returns to firms involved in an initial public offering (IPO). The first characteristic is the tendency for almost all stock prices to rise above their offer prices once market trading begins. This is referred to as the underpricing problem. The second characteristic, referred to as the overpricing problem, identified that, when average IPO stock returns were compared to the average returns for a similar, matched, group of non-IPO firms in the three to five year after market, the IPO firms sustained systematically lower average returns (Ritter, 1991).

Broadly speaking, theories that attempt to explain these two characteristics fall into two categories, those based on the belief that markets can exhibit inefficiencies and those that believe markets are inherently efficient. The first category contains models dealing with bounded rationality (to be discussed in detail below) in which agents are optimizing but are cognitively constrained in some fashion so the overpricing and underpricing phenomena emerge as endogenous outcomes but require some sort of limited processing power on the part of agents. The second category is highlighted by the argument in Eckbo and Norli (2005) in which IPO and non-IPO firms have systematically different levels of risk suggesting an efficient market would naturally associate lower returns with lower risk. That is, IPOs have lower returns **because** they also have lower risk and thus, the difference in returns is a natural consequence of efficient market behaviour. Eckbo and

Norli (2005) offer compelling evidence in support of an efficient markets hypothesis as well as refutation of the need to use bounded rationality models as a way to explain the overpricing phenomenon. Nonetheless, we believe their evidence is incomplete because of the role played by moral hazard when firms initiate an IPO is not addressed directly.¹

Based on Jensen and Meckling (1976), the moral hazard explanation contained in the literature posits that the IPO moves ownership away from the individuals who operate and manage a firm, thereby diluting the owner-manager relationship and creating a moral hazard problem. Subsequent higher agency costs cause returns to be lower. If moral hazard matters and returns are lower because of this, everything else equal, then the debate over the efficient markets hypothesis is still open since the existence of moral hazard resulting from an IPO should signal to investors that returns will be lower and therefore the IPO stock should not be purchased. Since the IPO stocks are purchased, this suggests that bounded rationality models could be used to explain this choice. The problem of course is everything is not equal when the IPO occurs; risk factors are different across IPO and non-IPO firms and we need to identify the role of moral hazard for a given set of risk factors. This type of moral hazard issue is not addressed in Eckbo and Norli (2005) so we do not know if risk factors or moral hazard are more important in explaining returns.

In this paper, we argue that an IPO actually involves a double moral hazard

¹We do not mean to suggest that Eckbo and Norli (2005) claim to have provided a complete explanation.

problem. As ownership and management are separated, the actions of management become hidden from ownership and the actions of ownership become hidden from managers. If this is true, then organizational forms that mitigate both types of moral hazard should perform better. We argue that franchised firms display systematically lower levels of moral hazard than non-franchised firms since, in addition to offering a franchisee an ownership stake in the firm, a franchise agreement specifies the rights and obligations of the franchisor, such as advertising support and training.² In fact, the agreement acts as a third party enforceable commitment device tying ownership to specific actions regardless of the form of ownership. Thus, even though a franchised firm involved in an IPO will suffer from the first type of moral hazard in the same manner as a non-franchised firm undergoing an IPO, such is not the case for the second type of moral hazard. Thus, post-IPO moral hazard is mitigated more effectively in the franchised firm than in a non-franchised firm since post-IPO ownership is held accountable for value-enhancing activities. If moral hazard explains patterns in post-IPO returns, then franchise firms should out-perform comparable, non-franchise firms.³

We test this hypothesis by comparing the weighted average returns from franchised and non-franchised IPOs for a sample of American IPOs between 1981 and 2010. By considering only firms that have undergone an IPO, the risk factors identified by Eckbo and Norli (2005) as a key factor in explaining returns across

²Most franchise agreements specify the rights and obligations of the franchisee, specifying such things as territories; the duration of the franchise agreement; and, payments to be made by the two parties (Rubin, 1978).

³See Lafontaine, 1992; Brickley and Dark, 1987; and Norton, 1988

IPO and non-IPO firms are the same for our entire sample of firms, franchise and non-franchise alike. Figure 1 shows the equally weighted raw returns from using a buy and hold strategy from our sample of 81 franchised IPO firms and a sample of non-franchised IPO firms matched by the IPO date and market size. Although the initial returns for the non-franchised companies is slightly higher than the group of franchises, before the first year post-IPO, the returns to franchised firms rise significantly above those of the non-franchised firms, where they remain for the full five years post-IPO. As figure 1 suggests, we find evidence that the franchised group of firms sustains higher average returns than the matched, non-franchised group of firms. This difference in average returns supports the hypothesis that moral hazard is an important factor in explaining the performance of IPO firms in the three to five year aftermarket. Indeed, our regression results suggest that the franchise status of a firm has a statistically and economically significant effect on firm returns.

The importance of moral hazard in this sample, which holds constant the risk factors in Eckbo and Norli (2005), suggests that moral hazard could be important in explaining returns across IPO and non-IPO firms since only one group has sustained an increase in moral hazard resulting from an IPO.⁴ Thus, our results provide strong indirect evidence that moral hazard matters in an explanation of

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Jensen and Meckling (1976) suggest that managers deviate from the goal of shareholder wealth-maximization by consuming perquisites when they do not have ownership stake in the firm (Yang and Sheu,2006, pg.61).

the overpricing problem. In addition, our evidence suggests that the debate over the efficient markets hypothesis should remain open.

The remainder of the paper is organized as follows. In section 2, we present a review of the overpricing literature. Section 3 contains a discussion of our data and methodology. Section 4 presents our empirical findings and section 5 concludes the paper.

2. Literature Review

The overpricing problem was first identified by Ritter (1991) who found that, in the three to five year aftermarket, average returns to IPO firms appear lower than a control group, suggesting IPO firms consistently under perform when compared to the market in the three to five year aftermarket.⁵ This phenomenon is not confined to US IPOs. Kooli and Suret (2004) find in the Canadian market, firms undertaking IPOs between 1991 and 1998 generate returns that under perform in the aftermarket. Lee *et al.* (1996) find evidence in Australia of significant negative aftermarket performance of returns for firms involved in an IPO while Aggarwal *et al.* (1993), Cai and Wei (1997), and Keloharju (1993) find similar patterns in Brazil, Japan, and Finland, respectively.

Theoretical support for these findings is contained in models of bounded rationality. For example, Hong and Stein (1999) suppose agents vary according to their capacity to process publicly provided information and by systematically

⁵Loughran and Ritter (1995) also find evidence of underperformance in the US market.

limiting this processing power are able to derive both the underpricing and overpricing phenomena as endogenous outcomes. On the other hand, Ljungqvist *et al.* (2006) produce the two phenomena as endogenous outcomes by assuming a constant supply of "irrationally exuberant" agents for every IPO. Notice that this assumes that either agents never figure out that they are irrationally exuberant, or that new agents of this type continue to enter the market.

In response to these behavioural asset pricing models, Brav and Gompers (1997) provide empirical support for a difference in returns that does not require bounded rationality. They identify a similar pattern of post-issue returns in small growth and high growth stocks. With IPOs tending to be small growth stocks, the pattern of returns can be explained as a fundamental difference between small and high growth stocks rather than IPO and non-IPO firms. Eckbo and Norli (2005) attempt to identify the hidden risk factors implicit in the findings for Brav and Gompers (1997). They argue that both liquidity risk and leverage are lower for IPOs implying that returns would naturally be lower for IPO firms.⁶

Empirical tests of the moral hazard hypothesis in explaining the overpricing problem have focused on whether the degree of insider ownership or managerial ownership affects the values, returns, or survivability of an IPO firm.⁷ Jain and Kini (1994) find that IPO firms where owners retain higher ownership generally

⁶Spinelli *et al.* (2003) argue that franchised IPO firms outperform a group of matched, non-IPO firms that display similar average risk levels. However, their results do not hold for the final two years of their study. Nonetheless, these results are consistent with the indirect evidence provided by our study.

⁷The existence of moral hazard also can explain the underpricing problem if investors do not fully understand the moral hazard problem and purchase the stock based on pre-IPO information.

perform better in the aftermarket relative to other issuing firms.⁸ In a study of the Netherlands' market, Roosenboom and van der Goot (2005) find that management stock ownership, the proportion of independent directors and board monitoring by large non-management shareholders, reduce agency costs and increase IPO firm value while super-majority management stock ownership and takeover defence, increase agency costs and in turn have a negative effect on value. Their findings do not resolve the issue of the aftermarket performance of IPOs. Finally, Yang and Sheu (2006) find that survivability of Taiwanese IPO firms first decreases and then increases as insider ownership is increased.

3. Data and Methodology

3.1. Data

Our data set covers 81 publicly traded companies that went public between 1981 and 2005, franchised prior to their IPO, and for which the franchising was not simply a small component of a larger publicly traded company.⁹ Our list of franchised companies was compiled using Franchise Annual Handbooks, 1981 through 2006, and included firms that are traded on, or have previously traded on, one or

⁸Jain and Kini (1994) however, cannot determine whether the superior performance is due to the lower agency costs due to higher ownership retention, as a result of owners signalling high quality with ownership retention, or for other reasons.

⁹The sample begins in 1981 because we could find no publicly traded franchising companies with earlier issue dates that satisfied our franchise criteria and could be matched to another company.

more of the NYSE, AMEX, or the NASDAQ exchange.

Time Period	Number of IPOs	Total Market Value (<i>US\$</i> million, 2005)
1981 – 1985	16	1481.25
1986 – 1990	13	854.83
1996 – 2000	24	3607.03
2001 – 2005	16	4907.53
2006 – 2010	12	7098.35
Total	81	17948.99

Table1: Time Series Distribution of Franchised IPOs

Table 1 outlines the distribution of the number of franchising IPOs and the gross proceeds for each 5 year period. Almost 65% of the IPOs took place after 1990 and these IPOs represent 86% of the total market value.

Market Value (<i>MV US\$</i>)	Number of IPOs	Total <i>MV (US\$m, 2005)</i>
$MV < 100m$	39	2060.40
$100m < MV < 500m$	32	6757.50
$500m < MV < 1b$	7	4574.21
$1b < MV$	3	4556.89
Total	81	17948.99

Table 2: Distribution of Franchised IPOs by Size

m = millions; b = billions

In fact, while only 15% of franchised firms had an IPO after 2000, these firms represent 40% of total market value. Table 2 presents the distribution of the number of franchising IPOs and the gross proceeds by size. Small IPOs ($MV < US\$ 100$ million) represent 48% of our sample but only 11% of the total sample value, while large IPOs ($MV < US\$ 500$ million) make up 12% of our sample but represent 51% of the total value of our sample.

3.2. Methodology

We examine abnormal returns for franchised companies using the control firm approach.¹⁰ Our control firms are non-franchised companies with an IPO date within 3 months before or after the franchise company's IPO, a market capitalization between 70 and 130 percent of the issuing firm and are traded on the NYSE, AMEX or NASDAQ.¹¹ We examine returns for the 60 month period following the IPO date, where a month is defined as 21 consecutive trading days. The long run returns for all firms were calculated from daily returns in CRSP. If a firm delists before the end of the aftermarket period, the sample is truncated. As such, the number of firms being compared falls over the 60 month time series.

We measure performance using buy and hold abnormal returns ($BHAR$), defined as

¹⁰Studies that use the control firm approach include, Kooli and Suret (2004), Barber and Lyon (1997), and Barber *et al.* (1999).

¹¹We do not match on the basis of book-to-market value because of the lack of book value data for a number of the franchising IPOs. We chose not to match the firms by industry because controlling for industry effects reduces the ability to identify abnormal performance (Loughran and Ritter (1995)).

$$BHAR_{i,T} = \left[\prod_{t=1}^T (1 + r_{i,t}) - 1 \right] - \left[\prod_{t=1}^T (1 + r_{m,t}) - 1 \right], \quad (3.1)$$

where t is the time period, $r_{i,t}$ is the return of the franchised firm i in period t , $r_{m,t}$ is the return of the non-franchised (control) firm m in period t . We use *BHAR* rather than Cumulative Abnormal Returns (*CAR*) as our metric for two reasons. First, using the control firm approach rather than a reference portfolio approach eliminates both the new listing and rebalancing biases and by matching firms according to the date of their IPO, the skewness bias is expected to be small. Second, testing for abnormal returns using *BHAR* and *CAR* tests two very distinct hypotheses. The hypothesis tested with *BHAR* is the return from buying and holding the franchised firm for 60 months is equal to that from buying and holding the non-franchised firm. On the other hand, the hypothesis tested with *CAR* is in each month, the returns from holding the two companies are different. For our purposes, the *BHAR* hypothesis is of greater interest.¹²

4. Results

On an equally-weighted basis, the set of franchised IPOs depicted in figure 1 has a marginally positive return of 0.3% after the first month, while the non-franchised firms see a slightly higher return of 2.5%. The franchised IPOs experience consistently increasing returns until 4 years post-IPO, at which point the return is 71.3%. The average return to the franchised IPOs falls over the last 12 months.

¹²See Lyon and Barber (1997) for a discussion.

In contrast, the average returns to the control group begin to fall after 3 months post-IPO, fluctuating around 0 until 28 months and between 0 and 10% for the remainder of the 5 year sample. At the end of the five year aftermarket period, while the franchised IPOs experience an average return of 51.7%, the non-franchised firms experience average returns of 9.8%.

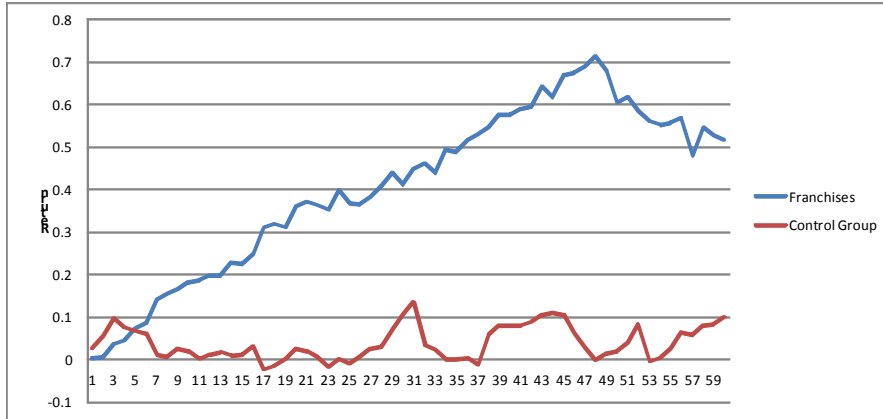


Figure 1: Monthly Equally-Weighted Average Returns, Franchises and Control Group

In figure two, on a value-weighted basis, we see a larger difference between the franchised firms and their matches, save the very end of the 60 month period. The franchised group again has a marginally positive return of 0.5% after the first month, which increases to 45.8% at 24 months post-IPO. The average returns then fall over the last 3 years, to 9.5% at the end of 5 years. The returns to the control group are -3.2% after 1 month, and after a few months of growth, the returns fall and remain negative until the last few months of the sample. The return to the control group is 3.5% at the end of 60 months.

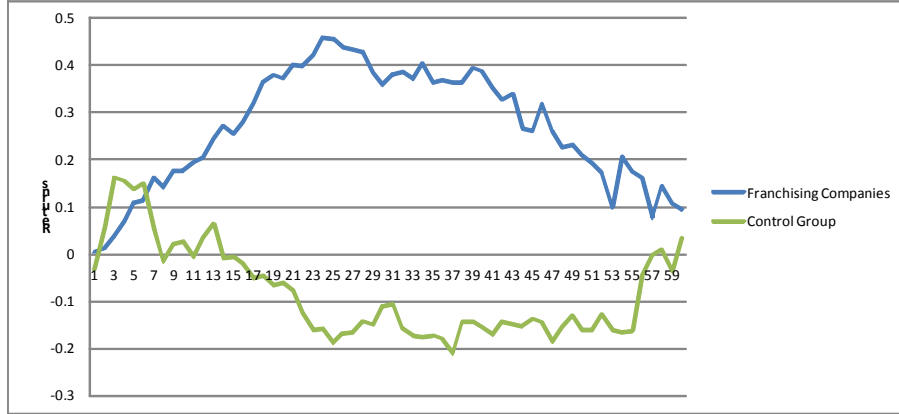


Figure 2: Monthly Value-Weighted Average Returns, Franchises and Control Group

The test statistic used to test the null hypotheses that $BHAR = 0$ at the end of each post-IPO year is the standard $t - stat$

$$t_{bhar} = \overline{BHAR}_t / (\sigma(BHAR_t) / \sqrt{n}), \quad (4.1)$$

where \overline{BHAR}_t is the sample average and $\sigma(BHAR_t)$ is the sample standard deviation of abnormal returns for the sample of n firms. The statistic is based on the the assumption of equal variances across the two groups, which could not be rejected at a reasonable level of significance by an $F - test$ for equal variances.

Table 3 shows the $BHARs$ at the end of each post-IPO year and indicates the level of significance at which we can reject the null $BHAR = 0$; * denotes

significance at 10%, ** at 5%, and *** at 1%.

Period	Equally Weighted $BHAR$	Value Weighted $BHAR$
12	18.8*	17.6
24	44.0***	64.7***
36	53.1***	50.3***
48	77.7***	31.7
60	50.6**	9.9

Table 3: Buy and Hold Abnormal Returns, Control Group

Null hypothesis $BHAR = 0$

We reject the null hypotheses at all period lengths for the equally weighted $BHAR$ with an abnormal return of 18.8% at 12 months, growing to 77.7% at 48 months, and ending at 50.6% at the end of 5 years. However, we can only reject the null hypotheses at 24 and 36 months for the value weighted $BHAR$.¹³ In this case, the returns are 17.6% after 1 year, 64.7% and 50.3% after 2 and 3 years, but only 9.9% after 5 years.

4.1. Regression Analysis

In this section, we examine further the returns for franchising companies relative to our control firms by estimating firm level returns at the end of each year as a

¹³The insignificance of the test statistics reflects, in part, the low power of the test. For example, Figure 2 suggests that the weighted average returns for the two groups are quite different after 4 years. See Gur-Gershgoren *et al.* (2008) for a discussion.

function of an indicator of whether it is a franchise and a number of covariates. This allows us to identify the effect of franchise status controlling for industry and other possible covariates. As well, it might suggest differences in returns that the weak *BHAR* test misses. Our sample includes our franchising companies and our control firms. We estimate the following equation for each $T \in \{24, 36, 48, 60\}$:

$$\begin{aligned} \ln R_{i,T} = & \beta_0 + \beta_1 Franchise_{i,T} + \beta_2 Value + \beta_3 Industry_{i,T} & (4.2) \\ & + \beta_4 Exchange_{i,T} + \beta_5 Year_{i,T} + \varepsilon_{i,T}, \end{aligned}$$

where $R_{i,T} = (1 + r_{i,T})$ is the return of the i^{th} firm in post-IPO period T .¹⁴ *Franchise* = 1 if the company is classified as a franchise and *Value* is *its* real market value at the IPO, in millions of *US*\$. *Industry* is a vector of dummy variables that controls for the industry in which the company operates, specifically *transport*, *wholesale*, *retail*, *financial*, and *services*, with manufacturing excluded. *Exchange* is a vector of dummy variables that identifies the stock exchange upon which the company's stock was trading and includes NYSE and NASDAQ, with AMEX being the control. *Year* is the year in which firm *its* IPO was performed, with 1981 being excluded. i indicates the number of months the stock has been trading. $\varepsilon_{i,T}$ is a random disturbance term. Table 4 presents a

¹⁴We do not report our results for $T = 12$ because the model was not jointly significant.

summary of the regression results and robust standard errors for each T .

T (months)	24 ($N = 159$)	36 ($N = 152$)	48 ($N = 144$)	60 ($N = 134$)
Franchise	**0.49(0.19)	**0.58(0.23)	**0.45(0.18)	**0.48(0.23)
Market Value	-0.21(0.33)	-0.51(0.44)	***-0.60(0.22)	-0.57(0.57)
Transportation	0.32(0.46)	*0.71(0.35)	**0.64(0.30)	0.49(0.52)
Wholesale	-0.40(0.37)	-0.31(0.38)	-0.33(0.43)	-0.93(0.73)
Retail	-0.04(0.24)	0.16(0.26)	0.15(0.22)	0.08(0.30)
Finance	0.23(0.23)	0.38(0.31)	***0.64(0.23)	0.60(0.28)
Service	-0.24(0.25)	-0.33(0.35)	-0.22(0.26)	-0.42(0.33)
NYSE	0.17(0.41)	0.54(0.48)	0.24(0.41)	0.45(0.56)
NASDAQ	-0.39(0.33)	-0.25(0.27)	*-0.65(0.35)	-0.58(0.49)
Year	*-0.03(0.01)	*-0.03(0.02)	-0.02(0.01)	*-0.03(0.02)
Constant	*52.81(26.94)	*68.04(34.70)	46.40(28.07)	*60.47(35.87)
R-squared	0.1105	0.1619	0.2014	0.1735

Table 4: OLS Results (Coefficient; standard errors)

* denotes significance at 10%, ** at 5% and *** at 1%

For all period lengths, *Franchise* is positive and significantly different from 0 at 5% suggesting that franchises earn a higher post-IPO return, controlling for other factors. Although most of the coefficients on individual industry dummies are not significant, we can reject the null hypothesis that they are jointly equal to zero at 5% for $T \in \{48, 60\}$. Likewise, we can reject the null hypothesis that the

coefficients on NYSE and NASDAQ are jointly equal to 0 at 10% for $T = 36$ and at 1% for $T \in \{48, 60\}$. Finally, our results suggest returns fall as the IPO year increases, although the effect is only significant for $T \in \{24, 36\}$.

5. Conclusions

The goal of this paper was to determine whether agency costs have an effect on the long run aftermarket performance of initial public offerings. Theoretically, franchising should mitigate the moral hazard problem that arises from the dilution of ownership after issuing stock to the public. If our theory is correct, we should be able to identify evidence from the IPOs of firms that engage in franchising as their main form of business that should not suffer the same poor aftermarket performance that has historically been noted to plague initial public offerings of stocks. In our study, we find strong evidence that franchised firms undergoing an IPO outperform the issues of firms that do not engage in franchising.

The key innovation in our paper was to find a way to separate out the effects of moral hazard on returns from the effects of different risk factors on returns identified in Eckbo and Norli (2005). We did this by examining only IPO firms and then identifying a plausible variation in moral hazard across firms within this group.

While the evidence seems to suggest that agency theory is a plausible contributor to the poor long run aftermarket performance of IPOs, we have not examined whether other risk factors, not yet identified within the group of franchised IPO

firms versus nonfranchised IPO firms can contribute to an explanation of the differences in returns.

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