

DEVELOPMENT COMMITMENTS, MANAGERIAL BIASES, AND VENTURE FAILURE:
EVIDENCE FROM INTERNATIONAL MASTER FRANCHISING CONTRACTS

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Abstract:

Many international master franchising contracts include “development commitments,” clauses specifying a number of units (e.g., restaurants, hotels) that master franchisees must develop in their assigned market (typically their entire home nation). In this paper, I analyze 142 contracts with development commitments signed by American fast-food franchisors and master franchisees. 87 of these ventures were complete failures, and a robust positive relationship exists between failure and development commitment size. In other words, a venture with a 50-unit development commitment where 12 are initially built is more likely to fail than a venture with a commitment of 15 units where 12 are built. This result is consistent with the possibility that franchisees sign contracts with large commitments due to overconfidence and overoptimism. These biases may generate suboptimal operating decisions and exacerbate conflicts between franchisor and franchisee, increasing the likelihood of venture failure.

JEL classifications: G31, L24

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1. Introduction

Over the last two decades, “master franchising” has become the most popular governance form for American franchisors in foreign markets (Zietlow and Hennart, 1996). An intriguing aspect of international master franchising contracts is that many contain a “development commitment,” that is, a clause specifying a number of units (e.g., restaurants, hotels) to be developed by the master franchisee in one or more countries within a certain time period. Despite substantial variation in the number of units specified, the commitments within these licensing contracts are usually quite large. The practitioner literature has stated that franchisors insist on large commitments to ensure that the master franchisee develops the market to its fullest potential (e.g., Bygrave, 1997: p. 384).

But what of the master franchisee, the party that must actually build the number of units specified in the development commitment? Few obvious profit-improving reasons exist for franchisees to prefer large development commitments. Franchisees may rationally (but grudgingly) accept large commitments because, even though suboptimal from their point of view, the venture with the franchisor may still represent an improvement over their reservation wage. Behavioral biases such as overconfidence and overoptimism may also lead master franchisees to sign contracts with large development commitments. Unlike a rational willingness to accept large commitments, biased decision-making by the franchisee may result in an increased likelihood of venture failure.

In this paper, I analyze 142 U.S. franchising ventures abroad governed by international master franchising contracts to assess a relationship between development commitment size and the likelihood of venture failure. In other words, I ask whether a venture with a 50-unit development commitment where 12 are initially built is more likely to fail than a venture with a commitment of 15 units where 12 are built. The development commitment offers a unique opportunity to observe the initial confidence

level of a venture's participants, and in particular, that of the franchisee. The firm turnover literature in economics has long argued that large initial size of a venture reflects managers' high level of confidence in the venture (Caves, 1998). However, as discussed by Caves (1998), an observed relationship between initial venture size and likelihood of failure cannot be attributed to confidence levels alone, because economies or diseconomies of scale may also be playing a role. An analysis of the development commitment (signed before any units are actually built) isolates the effects of confidence levels on failure, leaving the actual size (number of units initially built) to capture causal effects such as those arising from scale economies.

Researchers have analyzed theoretically the possible effects of overconfidence and related psychological biases on entry decisions (Gervais, Heaton, and Odean, 2003; Kahneman and Lovallo, 1993, Zajac and Bazerman, 1991), observed these effects experimentally (Camerer and Lovallo, 1999) as well as in surveys (Cooper, Woo and Dunkelberg, 1988; March and Shapira, 1987). Camerer and Lovallo (1999) even explicitly recommend franchising as a setting where overconfidence is likely to play a role in entry decisions. But empirical research using real-world archival data has ignored the role of biases in shaping market entry decisions in any context, franchising or otherwise. In this paper, I argue that entrepreneurs, managers, and even groups of managers making collective decisions may be overconfident and overoptimistic when embarking on new ventures, and ambitious but suboptimal market entry plans may result.

The remainder of the paper is organized as follows. Section 2 describes international master franchising contracts and discusses the franchisors' strategic motivations to insist on large commitments. Section 3 considers arguments why ventures with large development commitments may be more likely

to fail. Arguments assuming rational behavior are contrasted with those based on decision-making biases. Sections 4 and 5 discuss methods, data, results, and limitations. Section 6 concludes.

2. A description of international master franchising contracts

Franchising includes several types of contracts, some of which involve assignment of rights to an entire territory at once while others assign rights to operate only a single unit. Master franchising contracts are those that involve assignment of entire territories to a single franchisee for exclusive development. Some contracts specify that the master franchisee must operate all the units themselves while others allow them to sub-franchise. Master franchising contracts are the entry mode of choice of American franchisors for international markets. Zietlow and Hennart (1996) find that among 35 food franchisors they surveyed, the mode used for 227 of 333 foreign market entries was a master franchising contract. Master franchising is a far more popular mode for international entry than it is for domestic expansion efforts (Walker, 1989). Another major difference is that some international master franchisees are diversified corporations (my sample includes Suntory, Nissan Automobiles, Nissin Sugar, and Whitbread PLC as franchisees). Domestically, while franchisees can grow quite large in terms of the number of units they own, relatively few franchisees are large pre-existing corporations.

2.1. Terms of franchise contracts

What is common to all these types of contract is that the franchisee pays an upfront fee along with an ongoing royalty, typically between 2% and 8% of gross sales, for the use of a brand name (e.g., Domino's Pizza) owned by the franchisor. While the upfront fee to operate a single unit domestically is typically between \$10,000 and \$50,000 in the fast food industry, the fee for exclusive countrywide master franchising rights is larger, even for chains with unknown brand names. Indonesian firm PT Bina Bentala paid the little-known New York chain Pudgie's Chicken an upfront fee of \$150,000 (Dow

Jones News Service, 1996). The petroleum refiner Ihashi Corp. paid \$500,000 in 1987 for the right to sell Zack's Yogurt in Japan (Meitrodt, 1989), and Subway Sandwiches received an identical upfront fee in 1991 from the Motegi Company for the exclusive Japanese rights (Chaudhry, 1991). In a large majority of announced international master franchising contracts, including most of those in my sample, the actual fees paid are not made public.

The franchisors rarely pay any of the expenses associated with building and maintaining the units or with promoting the product in the master franchisee's market. As the CEO of one small franchisor stated "Any money the company makes in Asia is gravy, given it is the responsibility of the licensees [franchisees] to pay for sites, equipment and other operating expenses" (Hicks, 1988). Because of the expenses that they will have to incur, the franchisees would likely prefer small development agreements that give them more flexibility in terms of the amounts they must spend.

2.2. Exclusivity

After receiving the upfront fee, the franchisor grants the franchisee exclusive rights to one (or occasionally more than one) country. Exclusivity is a common feature in licensing and franchising contracts—Anand and Khanna (2000) report that some type of exclusivity clause is present in 37% of licensing contracts across a variety of industries—and here it plays an important role in motivating the franchisee in the host country. In a domestic setting, Azoulay and Shane (2001) state that exclusive territories are beneficial as a guarantee to franchisees that the franchisor will not sell new licenses to others within their territory. Exclusive territories also reduce franchisee free-riding on the brand's reputation, because a greater share of the brand externality is internalized (Brickley, 1999). Franchisees abroad particularly need the exclusivity as an incentive to develop the franchisor's brand name, because the name usually has little value in the host country before any units exist there.

While strategic incentives (Baye, Crocker, and Ju, 1996) and informational benefits (Gupta and Romano, 1998) exist to license a market to multiple agents, multiple master franchisees within a country are observed surprisingly rarely in international franchising. In addition, while the practice of operating company-owned and franchised units within the same chain is very common domestically (see, e.g., Brickley and Dark, 1987), it is rarely observed abroad. While we do often observe many franchisees representing the same brand within a foreign market, these are usually the sub-franchisees of the single exclusive master franchisee.

2.3 Size of development commitments

International master franchising contracts often contain a development commitment, which requires the franchisee to develop a certain number of units before a specified deadline. If a franchisee does not fulfill the development commitment, they can be considered in breach of the contract (Said and Thomas, 1999: pp. 222-223). The development commitments range from a few restaurants to the thousands. For example, the international master franchising contract mentioned above between Zack's Yogurt and Ihashi petroleum called for the opening of 50 Japanese units (Meitrodt, 1989) while the contract signed by Subway and Motegi included a development commitment to build a minimum of 1000 units in Japan (Chaudhry, 1991).

The practitioner literature suggests that a large development commitment is a means for the franchisor to ensure full development of a territory (Bygrave, 1999: p. 384). When a franchisor gives a franchisee exclusive rights to develop a territory, the franchisor is justifiably concerned that the franchisee develops the market to its full potential (Azoulay and Shane, 2001). Franchisees may wish to develop fewer units in their markets than is optimal from the franchisor's point of view because of risk aversion (Bygrave, 1997: p. 384). In general, franchisees are more risk averse than franchisors, because

they are likely to have a larger proportion of their wealth invested in the venture (Brickley and Dark, 1987; Lafontaine and Bhattacharyya, 1995). Alternatively, franchisees may prefer fewer units than their franchisors because the franchisors receive an ongoing sales royalty rather than a profit royalty (Kaufmann and Rangan, 1990). Thus, the franchisor's incentives are similar to those of a wholesaler wishing to avoid double marginalization by a retailer. While economic theory implies that large upfront fixed fees can be used to avoid double marginalization, franchisors have not been found to use fees of the magnitude required for this purpose (Kaufmann and Lafontaine, 1994). The development commitment is likely a weaker alternative to reach similar ends.

Relatedly, franchisors may possibly be insisting on large development commitments for pre-emptive reasons. In Dixit's (1980) classic model of pre-emption, firms may overinvest to make the market share available to subsequent entrants too small to cover fixed expenses. Yet Dixit's model requires actual investment. It is not clear whether a mere contract could serve as a credible threat to intimidate a franchisor's competitors to stay out of a market.

3. Biases, Large Commitments, and Venture Failure

3.1 Franchisees' Acceptance of Large Development Commitments

As discussed above, franchisees should prefer smaller commitments than franchisors. As long as a large commitment yields a feasible venture and a profit higher than a franchisee's reservation wage, however, the franchisee will still (perhaps grudgingly) sign the contract. Further, noisy but unbiased estimates of a market's potential by boundedly rational franchisees may exacerbate their acceptance of large commitments, even those that are simply not feasible. Alternatively, some franchisors may plausibly give franchisees better financial terms in exchange for accepting a particularly large development

commitment. Thus, at least for the subset of franchisees that is not risk-averse, signing a contract with a large commitment may be the result of a rational risk-return trade-off.

Franchisees may also accept large development commitments because they are subject to decision-making biases. The tendency of managers to overinvest because they are overconfident in their abilities (Camerer and Lovo, 1999) or are overoptimistic about their environment (Arnold, 1986; March and Shapira, 1987) would lead to an acceptance of large commitments. Initial overestimates may also result from overoptimistic managers who conduct insufficient market analysis (Gervais, Heaton, and Odean, 2003) or because firms systematically underestimate the future market presence of their competitors (Zajac and Bazerman, 1991; Kahneman and Lovo, 1993). Further, because franchisors often concurrently consider proposals from multiple franchisees for a master license, and because some franchisors appear to award the master license to a party that agrees to the largest commitment (see, e.g., Chaudhry, 1991), a “winner’s curse” may result. Franchisees subject to biases are not only more likely to overestimate their ability to fulfill development commitments but are also more likely to be overconfident about their ability to judge a correct size for the venture. The “winner” will thus submit a bid larger than optimal, and be convinced of the accuracy of that bid. Some decision-making bias is required for the winner’s curse to manifest itself because boundedly rational bidders should adjust their bids downward to take the curse into account (e.g., Kagel and Levin, 1986; Thaler, 1992: p. 51).

3.2. Development commitments and venture failure

This section focuses on the relationship between development commitments and venture failure that is caused by biases. An initial large development commitment size alone, even an unfeasibly large one arising from a franchisee’s possible preference for high risk and high return, or from a franchisee’s noisy estimation, is likely insufficient to have a causal effect on the likelihood of complete venture failure.

The logic that I use to support this claim is that if an initial commitment is infeasibly large, a rational franchisee could always negotiate a reduction in the commitment's size once information regarding the commitment's infeasible nature becomes available. Indeed, even a franchisor bent on aggressive market development would likely prefer a smaller development commitment to complete failure by the master franchisee. In addition, I note that a rational willingness to engage in a high risk/high return venture would seem unlikely for at least those franchisees that are risk-averse because a large part of their wealth is tied up in the venture (e.g., Brickley and Dark, 1987; Lafontaine and Bhattacharyya, 1995).

As mentioned above, biased franchisees may agree to large commitments due to their overconfidence, perhaps in the form of the winner's curse, or a systematic neglect of competitors. If these franchisees then exhibit a similar level of bias across multiple operating decisions, their ventures may be the most likely to fail because their marketing projections (Gervais, Heaton and Odean, 2003), competitor analyses (Zajac and Bazerman, 1991; Kahneman and Lovallo, 1993), etc., have been permeated by these biases and their decisions are consistently inappropriate. I note that this argument predicts a relationship between development commitment size and venture failure, but it is not a causal argument. An underlying and persistent bias in decision-making by the franchisee may cause both the large size of the commitment and the subsequent higher likelihood of venture failure.

Causal arguments based on the presence of biases also exist for why initially large development commitments could more likely lead to failure, regardless of the reason for the original overestimate. First, according to Tversky and Kahneman (1974), initial market estimates such those reflected in a development commitment act as an "anchor," and subsequent adjustments will be smaller than optimal. Daniel, Hirshleifer and Subrahmanyam (1998) observed that the anchor effect arises from managers' overconfidence in the accuracy of their initial estimates. For these reasons, given a large development

commitment, the presence of biases may cause a stubborn and ongoing insistence to operate at an inefficiently large scale, which in turn may cause venture failure.

A second causal relationship may arise from a bias known as the “fundamental attribution error” that may sour the relationship between franchisor and franchisee. Managers within the franchisor organization are likely to view franchisee managers as an “outgroup” and vice versa. Unforeseen problems within an outgroup’s realm of responsibility are too often interpreted as the result of opportunism or incompetence even when they are in fact caused by unavoidable external shocks (Howard and Rothbart, 1980). Thus, as the inappropriateness of a large development commitment becomes clear, the two parties may blame each other and terminate the entire venture rather than simply reducing their expectations and operations.

While biases directly affect the decisions of individual managers, their effects are likely to persist and even grow in settings such as franchisee and franchisor organizations where decisions are often made by or must be approved by groups of managers. While groups may make more accurate judgments than individuals (Hastie, 1986), substantial evidence exists in social psychology suggesting that groups exacerbate individual level biases (Burnstein and Vinokur, 1977; Davis, 1992; Whyte, 1993). Further, Janis (1972: p. 407) identified cases of groupthink, which he defines as “the mode of thinking that persons engage in when concurrence seeking becomes so dominant in a cohesive ingroup that it tends to override realistic appraisal of alternative courses of action.” If key group members begin with an upwardly biased appraisal of the number of units that their country can sustain, groupthink will prevent managers with less optimistic views from influencing the decision. Finally, psychologists have presented extensive evidence supporting the “risky shift” group-level bias in which managers often choose riskier alternatives collectively than they would as individuals (Stoner, 1968; Isenberg, 1986).

The risky shift is particularly pronounced when some group members initially possess biased positions. For these reasons, the effects of biases are likely to be as influential for firm-level decisions, much like the investment clubs studied by Barber, Heaton, and Odean (2003), as they are for the individual investors studied by Odean (1999) and Barber and Odean (2000).

Estimating the relative magnitude of various biases—anchor effects relative to the fundamental attribution error, for example—is very difficult in an archival study of survival. At best, I can gain suggestive evidence regarding the likelihood of both biases by analyzing separately two types of failure. I distinguish failure where some units were built and subsequently closed from failure where initial fees were paid but no units were ever built. Anchor effects regarding operational decisions are more likely to occur once units are built, while the fundamental attribution error could cause a collapse of the relationship between franchisor and franchisee at any time, even before any units are built. This distinction is discussed in detail further below.

4. Data and methodology

4.1. Data Source

My data consist of press releases, newspaper articles, and trade journal articles that announce international franchising ventures collected from the *Dow Jones News Retrieval* and the *ASAP General Business File* databases. Announcements collected from *Dow Jones News Retrieval* are commonly used as data for academic studies of international expansion (e.g., Morck and Yeung, 1991, 1992). After an exhaustive search of information between 1980 and 1999, I was able to collect 142 announcements that stated an explicit development commitment size with a deadline before 2004. Most of these agreements did not make public the actual fees paid. I excluded from the dataset some

announcements that stated the franchisee could develop “up to” a certain number of units, or announcements that stated the contracts had not yet been signed.

4.2. Possible Reporting Biases

Data collected from news reports may be subject to reporting biases. Despite the high level of failure found here, a sample based on public news reports is likely to be biased against failure, because firms are likely to publicize ventures they believe will be successful and to ignore the initiation of ventures likely to fail. Thus, the population failure rate may be higher than that found here. An additional reporting bias exists, however: contracts with large commitments may be more likely to receive press attention, implying that they are likely to be oversampled. And some franchisors may consistently push for large commitments to receive press attention. To eliminate any confounding effects that may be caused by such franchisor-specific reporting biases, the empirical analysis below includes regressions with franchisor fixed effects.

4.3. Highlights from the Data

Tables 1 and 2 tabulate the countries and franchisors, respectively, with the most contracts in the sample. Table 1 shows, for example, that 19 contracts were signed for the exclusive rights to Japan, and that 16 of those were failures. The last row of Table 1 shows that, consistent with other studies on foreign market entry (Mitchell, Shaver, and Yeung, 1994), a majority of ventures sampled here have in fact failed. Of the 142 international franchising ventures in this study, 87 (61%) were failures. The remaining columns of the table split the contracts by development commitment size in millions of dollars. The unit counts in the development commitments were converted to dollars to standardize the commitments across the various types of fast food. The average costs per unit for all brands (constant across countries) were collected from the *Bond's Franchise Guide* (1985-1999) and the *Franchise*

Annual (1987-1999). The cost ranged from a low of \$100,000 per unit for sandwich shops such as Subway and Blimpie to \$1.5 million for full-service restaurants such as Chili's and TGI Friday's.

[Insert Tables 1 and 2 about here]

I note three interesting facts not presented in the tables. First, even among ongoing ventures, the development commitments are rarely completely fulfilled. The commitments of only six of the 55 ventures ongoing at the end of the commitment period were completely fulfilled. Second, franchisees of 122 of the 142 ventures were local firms, 12 were American firms, and 8 were neither native nor American. Access to local knowledge has long been acknowledged as a motivation to seek a local joint venture partner when entering a new market (e.g., Gomes-Casseres, 1989). Notably, ten of the twelve ventures with American franchisees were failures. Third, three cases exist in the sample where the same franchisor entered the same country twice sequentially with different franchisees. Subway and Arby's entered Japan twice, while Pizza Inn entered Korea twice. In all three cases, the second development commitment was smaller than the first. Nonetheless, only Subway succeeded the second time around.

4.4. Failure as the dependent variable

Ventures where all units of the franchisor's brand affiliated with the master franchisee had ceased to operate before the development deadline specified in the contract (or none were ever built in the first place) were considered failures. Ventures were not considered failures any time some operations were ongoing, even if the development commitment was not completely fulfilled. Even with this conservative definition of failure, 87 of 142 observations (61%) failed. I determined that ongoing operations had ceased when a trade journal reported a termination, or if at the end of the development period, no units of the franchisor's brand remained in the country.

While the main analysis below treats all failures as identical events, I present additional analyses that distinguish between different types of failure. In 66 of the 87 cases, units were actually built and then shut down. In the remaining 21, the agreement was signed and initial fees were paid, but no units were ever in operation. In 61 of the 66 cases, insufficient demand appeared to cause the failure of existing units, while in five, litigation between franchisor and franchisee appeared to cause the end of the venture. Only in two cases were the master franchisee's units in operation sold intact to another party. Pizza Hut in Brazil and Wendy's in Argentina purchased and attempted to operate the holdings of failed master franchisees as company owned units, but they failed in this endeavor as well.

4.5. Definitions of independent variables

The independent variable of theoretical interest is the development commitment's size. As mentioned above, commitment sizes were normalized in constant dollar terms, based on the costs of the various types of restaurant. The smallest commitment was for three Domino's Pizza units (\$450K total) in Iceland, while the largest commitment was that by Boston Market to open 600 restaurants (\$480M total) in China. The most important control variable is the venture's actual initial size. The actual initial size is defined as the number of units (normalized in dollars) open at some point between six and eighteen months after the venture's commencement (if multiple data points existed for a venture, the point closest to one year was used). I acknowledge that this is not a spontaneous initial size. Nevertheless, the size after approximately one year remains a valid control variable to ensure that effects of actual initial size are not being misinterpreted as effects of the development commitment.

Three control variables are included for franchisor attributes. These are the size of USA operations, the size of foreign operations, and the number of years in business, all measured at the time each contract was signed. Because these variables vary across time, they can be included in regressions

with franchisor fixed effects. The operational size variables were gathered from the *Bond's Franchise Guide*, the *Nation's Restaurant News* "Top 50 International Chains" Issues (1990-1999), and the *Hotels and Restaurants International* "Top 30" Issues (1985-1989). These three variables at least partially capture effects of otherwise unobservable franchisor quality, along with effects of reputation, experience, and scale economies. Descriptive statistics for all variables are presented in Table 3.

[Insert Table 3 about here]

The "Experienced Franchisee" variable is binary; the variable is set to one if the franchisee company had previous foodservice experience or experience as a franchisee. About half of the franchisees are large conglomerates, most with a food service division. 14 franchisees had previous experience with either a different American franchisor in the same country (10 cases), or with the same franchisor in a different country (4 cases). In 25 cases, names of individuals (15 cases) or the term "local investors" (10 cases) were the only information listed in the announcements of the contracts. These franchisees are treated as inexperienced. A related "diversified franchisee" variable is not used as an independent variable in the regressions, but is used to split the sample. I have no direct measure of a franchisee's asset holdings, but I split the sample based on news reports of the franchisee's existing assets. Any franchisee for which diversified assets are reported (e.g., the franchisee owns a chain of food stores, imports heavy machinery, holds real estate) is considered unlikely to be risk averse. Others, such as the cases where the franchisee is listed as an individual manager, are likely to have a large portion of their wealth invested in the venture and are thus particularly likely to be risk averse. This latter group would be unlikely to accept large commitments as a rational risk-return tradeoff.

To control for country-level effects, I use each nation's GDP per capita in the year that the contract was signed, collected from the *Euromonitor* database, as well as country fixed-effects (in

some regressions). I collected other country-level variables that would be more specific to the demand for and supply of fast food restaurants, but these were highly correlated with the simple GDP variable. For example, *Investext* provided a report on per capita spending at restaurants that included numbers for 25 of the countries in the sample, and this was correlated 0.91 with simple GDP per capita. The country fixed-effects eliminate the possibility that static attributes of each nation (such as cultural distance from the USA) are influencing the coefficients of theoretical interest. To a large extent, the country fixed effects also remove the influence macro-shocks driving the underperformance of ventures in certain countries. I note that the Asian financial crisis occurred during the period of this study as did the dramatic slowdown of the Japanese economy. Because a large majority of the ventures in Asia began before 1997 (e.g., 17 of 19 Japanese ventures, all 8 Korean ventures), the Asian financial crisis affected them similarly, allowing the fixed effects to remove most crisis-related influences on the coefficient of the development commitment variable. As the Japanese slowdown occurred throughout the decade, its influence, too, could be largely eliminated via country fixed effects.

5. Results

5.1. Results of analyses treating all failures as identical

Table 4 contains the results of four logit regressions with a dependent variable of venture failure. The first column presents a regression using the full sample, the second uses a subsample incorporating country-specific fixed effects, the third uses a subsample incorporating franchisor-specific fixed effects, and the final column includes only franchisees that do not appear to possess diversified assets. The number of usable observations is reduced to 114 when including country fixed effects because seven observations are the sole observation for a country, and 21 observations are from seven countries with only successes or only failures. Similarly, only 91 observations are usable when including franchisor

fixed effects because 21 franchisors only have one observation in the sample, and 30 observations are from 11 franchisors that experienced only successes or only failures. Five of the six observations with the largest development commitments were omitted from the franchisor fixed effects regression because the associated franchisor only had one contract in the sample. Country and franchisor fixed effects could not be included simultaneously because only 52 observations are associated with countries that have failures and successes and with franchisors that have failures and successes. This regression would require 35 fixed effects, leaving insufficient degrees of freedom.

[Insert Table 4 about here]

As shown in Table 4, the size of the development commitment is consistently and positively related to probability of failure. This result is robust to the inclusion of country or franchisor effects. The country fixed effects ensure that country-specific conditions (e.g., cultural distance from the USA, the 1990s economic slowdown in Japan) are not confounded with the effects of the development commitment. The franchisor fixed effects ensure that franchisor-specific performance variation or reporting biases are not driving results, leaving franchisee biases as a primary explanation for the higher likelihood of failure. The 4th column includes the subset of ventures with franchisees that do not possess diversified assets. The results show that development commitment size increases venture failure at a marginally significant level for the franchisees without assets. I conclude from this analysis that the higher failure rate is not likely the result of a rational risk-return tradeoff.

To confirm that the statistically significant effect of development commitment size on failure is economically significant as well, I used the coefficients from the first column of Table 4 to estimate the probabilities of failure of hypothetical ventures. For these ventures, all variables were held at their means other than the development commitment size variable. With a development commitment size at the 25th

percentile of those in the data (\$8.2M), the probability of failure is 51%. With a commitment size at the 50th percentile (\$19.6M), the probability goes up to 58%, and further increases to 67% with a development commitment at the 75th percentile (\$40M). I conclude that the development commitment has an economically meaningful effect on failure, even between frequently observed commitment sizes such as the 25th and 75th percentile.

Surprisingly, the GDP Per Capita variable is the only other statistically significant variable. Its effect on failure is positive. From anecdotal accounts, many chains encounter problems in developed nations from extensive local competition—suggestive of reference group neglect. The USA and international operations of the franchisor do not significantly decrease failure. Large, successful, and internationally experienced franchisors such as Wendy’s, Pizza Hut and Dunkin Donuts have a surprisingly high count of failures—a trend that is also confirmed by the information in Table 2.

5.2. Results of analyses distinguishing the two types of failure

Table 5 presents three multinomial logit regressions that analyze simultaneously but separately the effect of independent variables on the two types of failure discussed in detail in Section 4.4: the likelihood of failure after some units are built and subsequently closed and the likelihood of failure after the contract is signed and the fees are paid but no units are ever built. Successful ventures are the base case relative to which both types of failure are compared. The results of each regression span two columns, because the multinomial logit model provides a separate coefficient for each type of failure relative to the base case (Greene, 2000: p. 860). The first column for each regression presents coefficients of the independent variables on failure where some units were built, relative to venture success, and the second column of each regression presents coefficients for failures where no units were ever built, again relative to venture success. The three regressions are analogous to the first three

columns of Table 4. The regression spanning the first two columns analyzes the full sample, the second regression includes country fixed effects, and the third regression includes franchisor fixed effects.

[Insert Table 5 about here]

The significance of development commitment size in the first column of each regression (the effect on failures where some units were built) suggests that a large commitment size activates biases such as the anchor effect that can lead to overambitious operational decisions, as discussed in Section 3.2. The significance of the development commitment size variable in the second column of the Full Sample and Country Fixed Effects regressions (the effect on failures where no units were built) suggests that the large commitment size causes biases that lead to conflicts between franchisor and franchisee, possibly through the mechanism of the fundamental attribution error. Because no units were ever actually built, poor operating decisions are unlikely to explain this latter result.

5.3. Robustness tests

I conducted many additional tests to assess robustness of the findings. First, regarding the dependent variable, four ventures resulted in only a single unit in operation at the end of the development commitment period. Because it is likely that their franchisor and franchisee were disappointed by their performance, additional regressions were estimated that counted these ventures as failures and that excluded them from the analysis. Results in Tables 4 and 5 all remained at the same significance levels as those presented above. In addition, litigation caused the end of five ventures with existing units. While these ventures did not appear to be performing well, it is possible that this represents a different type of failure than that where units are closed due to poor operations. But regressions that removed these five observations yielded the same results as those in Table 4. In the equivalent of Table 5, the coefficients of the development commitment variable remained significant as well, although some only at $p < 0.10$.

I have also investigated the possibility that outliers (observations with particularly large development commitments) are driving these results. The regression with franchisor-specific fixed effects eliminates this issue to a large degree. As noted above, five of the six observations with the largest development commitments had to be omitted from the franchisor fixed effects regression because the associated franchisor only had one contract in the sample. As shown in the third column of Table 4, marginal significance remains. To further evaluate the role of outliers, I estimated regressions that removed the twelve contracts with the largest commitments, those larger than one standard deviation above the mean. Marginal significance remained for the equivalent of columns 1, 2 and 4 in Table 4 and the first four columns of Table 5, even though a substantial amount of data was removed. Significance disappears only for the regression with franchisor fixed effects, but I note that the removal of these 12 observations leaves only 79 usable observations for the franchisor fixed effects analysis. Thus, the loss of significance is not surprising because almost half the sample had to be discarded.

The removal of any combination of the variables shown in Tables 4 and 5 from the logit regressions never eliminated the significance of the development commitment's coefficient, though in some cases the significance was reduced to $p < 0.10$. The development commitment variable was robust to the natural log transformation, while adding a quadratic term did not in any way alter results. The control variables were also measured in a variety of ways, none of which were significant or changed the significance levels of the main result. Results were estimated using only franchised USA operations in place of total (franchised and company-owned) USA operations. The number of countries in which a franchisor operated at the time of signing each contract was used as an alternative measure of international operations. The GDP variable was split into two variables: GDP per capita and population. A time-trend variable was insignificant and altered none of the main findings.

Finally, I note that the interaction of the development commitment size with other independent variables did not yield any significant results. Large and experienced franchisors did not have any better results with large development commitments than did small or young franchisors. Similarly, franchisees with food service experience did not have better luck with large commitments than their inexperienced counterparts. Thus, the analysis here provides no evidence that experience diminishes biases.

5.4. Analysis of choice of development commitment size

While not presented, I regressed development commitment size on franchisor, franchisee, and country characteristics (all measured at the time each contract was signed). Some regressions included country and franchisor fixed effects. Of the variables shown in Tables 4 and 5, none were statistically significant. On one hand, the lack of significance was disappointing. On the other hand, the lack of significance reduces the possibility that only certain types of franchisors are selecting to insist on large commitments or that only certain types of franchisees are willing to accept them. Thus, the findings do not appear confounded by endogeneity bias (see, e.g., Shaver, 1998). Further, I note that the remedy suggested by Shaver (1998) and others, the Heckman correction, is not necessary for this analysis because the important independent variable—the development commitment size—is continuous.

5.5. Caveats

The conclusions of this paper are based on a sample of 142 ventures from one industry, leading to legitimate questions about generalization. Yet, the sample size and significance levels ($p < 0.05$ for the full sample and some subsamples, $p < 0.10$ for the remaining subsamples) are consistent with those used by other important studies to make causal inferences about contracts and performance (e.g., Banerjee and Duflo, 2000; Lerner, Shane and Tsai, 2003). Further, the results regarding decision-making biases may well generalize across industries, because decision-making biases take place at an individual or a

group level. Of course, evidence from other industries would be welcome because each industry has some idiosyncrasies that could possibly confound the interpretation of observed effects.

I also note that a complete analysis of contract terms could not be conducted because the unavailability of information about upfront fees and royalty rates. These terms are likely negotiated just as hard as development commitments and are likely important in determining ex post effort. While the royalties may well be the same that the franchisors use in the USA (as found by Lafontaine and Oxley, 2004, for the case of Mexico), upfront fees vary. For this reason, I cannot rule out the possibility that large development commitments are a substitute for fees; indeed, either one could reduce the double marginalization problem.

6. Conclusions

In this paper, I have presented evidence that the development commitment size increases the probability of international master franchising venture failure even when controlling for the venture's actual initial size. In other words, a venture with a 50-unit development commitment where 12 are initially built is more likely to fail than a venture with a commitment of 15 units where 12 are built. This result is robust to the inclusion of country fixed effects as well as franchisor fixed effects, indicating that unobservables constant within countries and franchisors are not driving results. Further, a large development commitment size significantly increases not only the likelihood of venture failure after some units are built but also the likelihood of failure before any units are built at all.

This result makes an important contribution because it strongly suggests the presence of biased decision-making on the part of the franchisee. While the franchisors may insist on large development commitments for strategic reasons, franchisees would have very little reason to accept large failure-inducing commitments if they were not overconfident and overoptimistic. The one alternative possibility,

that franchisees accept large agreements with high failure rates as a rational risk-return preference, is unlikely because many franchisees are likely to be risk averse. Indeed, the analyses showed a positive effect of development commitment size on failure for the subsample of franchisees possessing no diversified assets (particularly likely to be risk averse). Further, rational franchisees and franchisors should both be willing and able to renegotiate downward a development commitment that is infeasibly large ex post. Biases provide one explanation why parties do not conduct Pareto-improving renegotiations that would make the initial development commitment size irrelevant to the likelihood of venture failure.

While an archival study of failure rates such as this one cannot decisively pinpoint the presence of particular biases, the fact that large development commitments separately increase failures where no units are ever opened and failures where units open and close suggests the presence of two types of biases. Ongoing biased operating decisions resulting from an anchor effect (overconfidence in the initial estimate of the development commitment) could yield the failure of existing units. Other biases such as the fundamental attribution error could harm the relationship between the franchisor and franchisee even before any units have been built. Even suggestive evidence such as that presented here is valuable because of the scarcity of studies of biases using archival data about actual economic decisions where substantial resources are at stake (existing studies in this vein have been limited to investor behavior—e.g., Odean, 1999; Barber and Odean, 2000). The results here confirm the intuition of theoretical work (e.g., Kahneman and Lovallo, 1993; Gervais, Heaton, and Odean, 2003) and the results of experimental work (Camerer and Lovallo, 1999) in this area.

Other empirical papers on alliance contracts ascribe sub-optimal performance to misallocation of control rights between rational parties (e.g., Lerner, Shane, and Tsai, 2003), while this paper

suggests that contracts eliciting inefficient behavior are written because of behavioral biases. This is a promising avenue for further investigation, because the attributes of franchisors and franchisees make international master franchising contracts unlikely candidates for sub-optimal performance due to a misallocation of control rights. Aghion and Tirole (1994)—the theoretical basis used by Lerner et al. (2003)—demonstrate that an efficient allocation of control rights is obtainable as long as the upstream R&D firm (analogous to the franchisor) has bargaining power over a downstream customer (such as a franchisee) that commercializes the product. In the international master franchising context, the franchisor typically does have bargaining power (see Shane, 1996, for a theoretical discussion, and Chaudhry, 1991, for anecdotal support), unlike the small cash-starved R&D outfits in biotech that Aghion and Tirole (1994) had in mind. In their model, only when the downstream commercializing firm has the bargaining power (unlikely in franchising) and when the R&D firm is capital constrained (sometimes true in franchising) would misallocation occur.

These results also inform the well-established empirical regularity of the firm turnover literature that a venture's actual initial size is negatively related to its likelihood of failure (see Caves, 1998; Geroski, 1995, for extensive reviews). Because the development commitment size captures the franchisee's level of confidence, this study was able to separate two previously confounded explanations—confidence and scale economies—discussed by Caves (1998) for this empirical regularity. The positive relationship of development commitment size and venture failure found in this paper suggests that confidence and ability are not positively correlated as the turnover literature has assumed. Large-scale market entry may in fact represent harmful overconfidence and overoptimism.

Finally, I note that there have been no academic studies of determinants of failure among international franchising ventures. By studying failure, this paper complements a growing literature that

has examined the franchisor's choice of whether to expand internationally (Shane, 1996), choice of entry mode for each venture into a new country (Fladmoe-Lindquist and Jacque, 1995; Zietlow and Hennart, 1996) and how the international contracts differ from those used domestically (Lafontaine and Oxley, 2004). Interestingly, the failure rate of domestic franchised units (individual restaurants) appears far lower than the 61% failure rate of international master franchising ventures found here. For example, Kalnins and Mayer (2004) found that 28% of franchised pizza restaurants that were open at any point during the 1990s failed by the year 2000. This is not a direct comparison, because those authors analyzed unit-level failure, but it does appear that the risks of international master franchising are far higher than those of its domestic counterpart (though they are consistent with FDI failure rates found by, e.g., Mitchell, Shaver and Yeung, 1994). A comparative analysis of domestic and international franchising would be a valuable topic for future research.

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TABLE 1: ELEVEN COUNTRIES WITH THE MOST CONTRACTS IN THE SAMPLE

The 142 international master franchising contracts are broken out by host country. Statistics regarding venture failure and the size of the development commitment are included for each country. The size of the development commitment is the total dollar cost to build the number of units specified.

Country	total	failures	Size of Development Commitments (In \$ Millions)				
			< \$10	\$10-\$20	\$20-\$40	\$40-\$100	>= \$100
Japan	19	16	1	6	4	4	3
Saudi Arabia	10	3	2	2	3	3	0
South Korea	8	5	2	2	3	1	0
Malaysia	7	2	3	1	1	1	1
Mexico	7	2	1	1	3	2	0
Thailand	6	5	4	0	1	2	0
Australia	6	5	0	1	2	2	1
Brazil	6	5	2	1	1	2	0
Benelux	5	2	2	2	1	0	0
Spain	5	4	2	1	1	1	0
UK	5	3	0	0	5	0	0
Total of Top 11	84	52	19	17	25	17	6
Other	58	35	22	13	9	13	1
Total of Sample	142	87	41	30	34	30	7

TABLE 2: TWELVE FRANCHISORS WITH THE MOST CONTRACTS IN THE SAMPLE

Identical information to that of Table 1, except broken out by franchisor.

Franchisor	total	failures	Size of Development Commitments (In \$ Millions)				
			< \$10	\$10-\$20	\$20-\$40	\$40-\$100	>= \$100
Domino's	12	4	5	4	2	1	0
Arby's	9	7	2	1	4	0	0
Wendy's	8	5	1	2	4	1	0
TGI Friday's	7	1	2	2	2	1	0
Burger King	6	1	0	2	1	3	0
Popeye's	5	1	1	0	1	3	0
Chili's	5	3	1	2	1	1	0
Dunkin Donuts	5	3	5	0	0	0	0
Pizza Hut	5	2	1	2	1	1	0
TCBY	5	3	3	1	0	1	0
Cinnabon	4	1	2	2	0	0	0
Pizza Inn	4	4	0	0	3	1	0
Total of Top 12	74	34	22	18	19	13	0
Other	68	53	19	12	15	17	7
Total	142	87	41	30	34	30	7

TABLE 3: DESCRIPTIVE STATISTICS AND CORRELATIONS FOR 142 INTERNATIONAL MASTER FRANCHISING CONTRACTS

Development Commitment and Initial Size variables in \$ Millions; USA and International Operations in \$100 Millions

		<i>Mean</i>	<i>SDev</i>	<i>Min</i>	<i>Max</i>	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1)	Failure of Venture	0.61	0.49	0	1	1.00						
(2)	Development Commitment	34.97	57.86	0.45	480	0.19	1.00					
(3)	Initial Size	2.41	2.90	0	15	-0.10	0.17	1.00				
(4)	International Operations	2.03	4.356	0	23.91	-0.04	-0.08	0.17	1.00			
(5)	USA Operations	10.69	13.57	.045	49.14	-0.15	-0.08	0.37	0.70	1.00		
(6)	Years in Operation	27.86	13.27	2	66	0.01	-0.23	-0.12	0.22	0.15	1.00	
(7)	Experienced Franchisee	0.55	0.50	0	1	-0.08	0.11	0.20	-0.02	0.10	-0.16	1.00
(8)	GDP Per Capita	8.67	8.99	0.13	32.5	0.21	0.12	-0.03	-0.21	-0.26	-0.15	0.12

TABLE 4: LOGIT REGRESSIONS PREDICTING FAILURE OF INTERNATIONAL MASTER FRANCHISING VENTURES

The “Development Commitment” variable refers to the size in dollars of the commitment signed by the franchisor and franchisee before initiating each venture. The positive and significant effect of this variable indicates that contracts with large commitments are more likely to fail, which is suggestive of the negative effects of decision-making biases.

This finding is robust to the cases, shown in the 2nd and 3rd columns, where fixed country and franchisor effects are included. The country fixed effects ensure that country-specific failure rates are not confounded with the effects of the development commitment. The franchisor fixed effects eliminate the possibility that performance variation across franchisors is driving the results, suggesting franchisee biases as a prime explanation for the higher likelihood of failure.

The 4th column analyzes the subset of franchisees that are not diversified corporations and are thus likely to be risk averse. These franchisees were unlikely to have chosen large development commitments as a rational risk-return tradeoff. They should be less likely to make commitments that would hurt their venture’s viability, due to their risk aversion.

The significance levels of the likelihood functions refer to a chi-squared comparison against a regression with only a constant (columns 1 and 4) or with only fixed effects (columns 2 and 3)

	<i>Full Sample</i>	<i>22 Country Fixed Effects</i>	<i>18 Franchisor Fixed Effects</i>	<i>Undiversified Franchisees</i>
Development Commitment	0.019* (0.009)	0.027* (0.012)	0.027+ (0.015)	0.027+ (0.017)
Initial Size	-0.082 (0.079)	-0.138 (0.098)	-0.015 (0.103)	-0.101 (0.141)
International Operations	0.066 (0.064)	0.059 (0.079)	0.291 (0.316)	0.109 (0.122)
USA Operations	-0.026 (0.022)	-0.029 (0.029)	-0.220 (0.204)	-0.012 (0.043)
Years in Operation	0.014 (0.011)	-0.003 (0.019)	0.036 (0.086)	0.006 (0.012)
Experienced Franchisee	-0.390 (0.394)	-0.139 (0.478)	-0.229 (0.552)	
GDP Per Capita	0.052* (0.025)	-0.135 (0.113)	0.005 (0.030)	0.050 (0.041)
Number of Observations	142	114	91	71
Number of Failures	87	67	43	47
Log Likelihood	-84.0*	-37.9+	-33.7+	-40.2*

*: $p < 0.05$; +: $p < 0.10$; two-tailed tests

TABLE 5: MULTINOMIAL LOGIT REGRESSIONS WITH TWO TYPES OF FAILURE

Table 5 presents three multinomial logit regressions that analyze separately but simultaneously the effect of independent variables on the likelihood of failure where some units are built and subsequently closed and on the likelihood of failure where the fees are paid but no units are ever built. Successful ventures are the base case relative to which both types of failure are compared. The results of each regression span two columns. The first column of each regression presents the coefficients of the independent variables on failure where some units were built, relative to venture success, and the second column presents coefficient effects on failures where no units were ever built, again relative to venture success. The three regressions are analogous to the first three columns of Table 4. The regression spanning the first two columns analyzes the full sample, the second regression includes country fixed effects, and the third regression includes franchisor fixed effects.

The significance of the Development Commitment size variable in the first column of each regression suggests that the large commitment size causes biases that lead to sub-optimal operational decisions. The significance of the Development Commitment size variable in the second column of the Full Sample and Country Fixed Effects regressions suggests that the large commitment size causes biases that lead to conflicts between the franchisor and franchisee. Because no units were ever actually built, poor operating decisions or franchisee capital constraints are unlikely to explain this result. The second column of the Franchisor Fixed Effect regression contains no significant variables, likely because of the small number (6) of failures present.

The significance levels of the likelihood functions refer to a chi-squared comparison against a regression with only a constant (columns 1-2) or with only fixed effects (columns 3-6).

	<i>Full Sample</i>		<i>22 Country Fixed Effects</i>		<i>18 Franchisor Fixed Effs.</i>	
	<i>Failure after some units built</i>	<i>Failure before any units built</i>	<i>Failure after some units built</i>	<i>Failure before any units built</i>	<i>Failure after some units built</i>	<i>Failure before any units built</i>
Development Commitment	0.015+ (0.008)	0.018* (0.009)	0.026* (0.012)	0.025* (0.013)	0.038* (0.017)	0.023 (0.023)
International Operations	0.066 (0.063)	0.260 (0.193)	0.085 (0.096)	0.249 (0.309)	0.379 (0.355)	-1.40 (6.30)
USA Operations	-0.019 (0.021)	-0.266* (0.110)	-0.045 (0.032)	-0.329* (0.146)	-0.293 (0.225)	2.310 (2.240)
Years in Operation	0.017 (0.013)	0.016 (0.020)	0.000 (0.022)	0.020 (0.027)	0.036 (0.093)	-0.463 (0.342)
Experienced Franchisee	-0.518 (0.413)	0.072 (0.589)	-0.360 (0.564)	-0.064 (0.760)	-0.420 (0.641)	1.430 (1.602)
GDP Per Capita	0.064* (0.026)	0.010 (0.035)	-0.105 (0.122)	-0.345 (0.234)	0.005 (0.037)	0.012 (0.057)
Number of Failures	66	21	50	17	37	6
Number of Observations	142		114		91	
Log Likelihood	-124.1**		-80.9*		-59.9*	

** : p < 0.01; * : p < 0.05; + : p < 0.10; two-tailed tests