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The Role of Decision Rights in Incomplete Contracts: Lessons from Automobile Franchising

This version, May 2008

Abstract

Automobile franchise contracts allocate between manufacturers and dealers the rights to choose future terms of trade. Independent of who is assigned these rights, manufacturers dictate performance standards, and dealers implement them in exchange for discounts on the wholesale price of cars, which manufacturers can change at will even after dealers have performed. These practices suggest formal decision rights are not instruments to efficiently divide surplus when contracting the terms of trade ex post, as implied by models in the property rights tradition. They suggest, instead, that contracting the terms of trade ex post is costly, and that manufacturers act as specialized decision-makers for the dealership network as a whole. In this context, formal decision rights may be a last resort against the manufacturers' temptation to impose opportunistic decisions and the dealers' temptation to reject efficient but costly ones.

Keywords: Incomplete contracts, Decision rights, Bargaining, Franchising.

JEL codes: D23; L14; L22

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1. Introduction

Recent empirical works have shown that long-term contracts between firms allocate the *rights to choose future terms of trade* in a variety of contexts, from technology alliances (Lerner and Merges (1998), Elfenbein and Lerner (2003)), to relationships between large retailers and suppliers (Arruñada (2000)), car dealerships (Arruñada *et al*. (2001, 2005), Zanarone (2007)) and business-format franchising (Hadfield (1990)). Some of these works have also found that the allocation of decision rights varies *systematically* with contract characteristics (Lerner and Merges (1998), Elfenbein and Lerner (2003), Arruñada, *et al*. (2001)) and the regulatory environment (Zanarone (2007)), which suggests decision rights play a role in incomplete contracts. What is such role?

This question has been addressed by two streams of theoretical literature. According to a "property rights" stream, contracts are ex ante incomplete, but can be efficiently renegotiated once uncertainty on the environment is resolved. By shifting bargaining power between the parties, decision rights affect the expected division of surplus from contract renegotiation and, through that channel, their incentives to invest in the relationship ex ante. Therefore, decision rights are allocated to optimize the parties' ex ante incentives to invest (Grossman and Hart (1986), Hart and Moore (1990), Aghion and Tirole (1994), Hart (1995), Baker *et al*. (2002)). According to an alternative stream of literature, bargaining and contracting costs prevent the parties from efficiently renegotiating the terms of trade ex post (Williamson (2000), Hart (2008)). In this environment, decision rights are not allocated to improve investment incentives but, rather, to minimize the ex post

inefficiencies (Simon (1951), Matouschek (2004), Baker *et al*. (2006), Hart and Moore (2008)).[1] Assessing the empirical relevance of the "ex ante" and "ex post" groups of theories—and of specific theories in each group—requires information the existing studies do not provide, regarding how, given the allocation of decision rights in a long-term contract, the parties adapt terms of trade and divide surplus in the course of their relationship.

This chapter aims to fill the gap, providing new data on automobile franchising in Italy. According to these data, franchise contracts evenly allocate between car manufacturers and dealers the rights to set standards—such as showroom design and advertising expenditures. Irrespective of who is assigned these decision rights, however, manufacturers do not bargain with dealers but, rather, *dictate* standards to them, offering in exchange discounts on the list price of cars. Moreover, manufacturers offer these discounts even when they have the right to impose standards—except when standards are essential to protect the brand, in which case manufacturers simply threaten to terminate non-compliant dealers. However, contrary to what one would expect if contracts over standards were fully enforceable in court, manufacturers retain the right to change the dealers' discounts even after standards have been implemented as required.

These facts suggest that, in contrast with the "ex ante" property rights theories, manufacturers and dealers do not renegotiate their contracts with dealers ex post and do not use decision rights as means to affect the division of surplus from renegotiations. Instead, manufacturers act as specialized decision makers for the dealership network, elaborating

[1] See Gibbons (2005) for an extensive discussion of the "ex post" and "ex ante" streams of literature on incomplete contracts.

standards, communicating them to dealers, and rewarding implementation through discounts. The discretionarity of these discounts also suggests the dealers' reward is not guaranteed by courts but, rather, by the manufacturers' concern for trading with dealers in the future and for keeping a good reputation in the market for franchises. In these *asymmetric relational contracts*, formal decision rights, and the threat of disciplinary termination they entail, seem to play the role of a last-resort penalty. When the dealers' temptation to reject efficient but costly standards is high, and the manufacturers' temptation to impose opportunistic ones is low, the right to terminate dealers substitutes the promise of discounts as a means to keep the relational contract within its "self-enforcing range" (Klein (1996, 2000), Baker *et al*. (2006)). This interpretation of decision rights seems consistent with previous works on automobile franchising, according to which decision rights are allocated to car manufacturers when dealers have greater incentives to free-ride on the brand (Arruñada *et al*. (2001), Zanarone (2007)).

The rest of this chapter is organized as follows. Section 2 develops an elemental property rights model of automobile franchising and derives its predictions on how manufacturers and dealers should define the terms of trade ex post. Section 3 describes the incomplete contracts between car manufacturers and dealers in Italy, and in what sense their features differ from the ones predicted by the property rights model. Section 4 discusses an alternative theoretical framework that can explain such features. Section 5 concludes.

2. Decision rights and ex post adaptation in a property rights model

This section develops a simple property rights model of automobile franchising and derives its predictions on how manufacturers and dealers should adapt the contract terms ex post, once uncertainty on the environment is resolved.[2] In the spot version of the model, manufacturers and dealers meet once and can only enforce explicit contracts. In the relational version, adapted from Baker *et al*. (2002), they meet repeatedly and, therefore, can also enforce implicit contracts. Although spot and relational property rights models—as well as spot models with different specifications (Whinston (2003))—predict different allocations of decision rights, the analysis presented here highlights that they yield similar predictions on how the contract terms are adapted ex post.

2.2. The environment

Consider a car manufacturer, M, who produces cars, which dealer D purchases and resells to final consumers. After observing the state of the world s, M and D must choose a local decision d—showroom design, advertising expenditure, and the like— which influences their gross profits from the relationship $\pi_M(d,s)$ and $\pi_D(d,s)$. As standard in property rights models, I assume d cannot be contracted before s is observed, but becomes costlessly contractible afterwards, and that $\pi_M(d,s)$ and $\pi_D(d,s)$ are both non-

[2] I define the model in terms of automobile franchising to facilitate comparison with the empirical section of this chapter. However, the model is fairly general and can be applied to different types of incomplete contract.

contractible. Before observing s and choosing d, M and D choose the non-contractible action vectors $\mathbf{a}_M$ —e.g., investments in monitoring technology and brand development— and $\mathbf{a}_D$ —e.g., efforts directed at acquiring knowledge of local customers—incurring private costs $c_M(\mathbf{a}_M)$ and $c_D(\mathbf{a}_D)$, respectively. For any state s, these actions affect the probability $q_s(\mathbf{a}_M, \mathbf{a}_D)$ that it will occur in the future. Before choosing $\mathbf{a}_M$ and $\mathbf{a}_D$, M and D write a contract $g \in \{M, D\}$, in which they allocate the *right to choose the decision d* to either M ($g = M$) or D ($g = D$).[3] The stage game can be thus summarized as follows:

1- Allocation of decision right $g \in \{M, D\}$ contracted

2- Non-contractible action vector $\mathbf{a}_i \in \mathbf{A}_i$ chosen by party $i \in \{M, D\}$ at cost $c_i(\mathbf{a}_i)$

3- State of the world $s \in S$ realized and observed by M and D

4- Contractible decision $d \in \Delta$ chosen

5- Non-contractible gross profit $\pi_i(d, s)$ received by party $i \in \{M, D\}$

2.3. Spot model

Assume M and D meet only once. Since d is ex post contractible, at stage 4, after observing the state of the world, M and D agree on the first best decision

[3] As explained in section 3, the terms of automobile franchise contracts are equal for all dealers of a given manufacturer, and they are usually negotiated between the manufacturer and a representative dealer association. Therefore, dealer D in the model can also be interpreted as the association of manufacturer M's dealers.

$d^{FB}(s) = \arg\max_{d} \left\{ \sum_{i} \pi_i (d, s) \right\}$ and on a price $p^g(s) \in \mathbb{R}$ that M pays to D. Assuming Nash bargaining, this price is equal to

$$(1) \qquad p^g(s) = \frac{1}{2}\left[\pi_M \left(d^{FB}(s), s \right) - \pi_M \left(d^g(s), s \right) + \pi_D \left(d^g(s), s \right) - \pi_D \left(d^{FB}(s), s \right) \right]$$

where $d^g(s) = \arg\max_{d} \left\{ \pi_g (d, s) \right\}$ is the decision the party who has been assigned the decision right at stage 1 would choose if bargaining failed.

Anticipating the bargaining outcome, M and D choose, at stage 2, the actions

$$(2) \qquad \begin{aligned} \mathbf{a}_M^g &= \arg\max_{\mathbf{a}_M} \left\{ M = \sum_s q_s \left(\mathbf{a}_M, \mathbf{a}_D^g \right) \left[\pi_M \left(d^{FB}(s), s \right) - p^g(s) \right] - c_M \left(\mathbf{a}_M \right) \right\} \\ \mathbf{a}_D^g &= \arg\max_{\mathbf{a}_D} \left\{ D = \sum_s q_s \left(\mathbf{a}_M^g, \mathbf{a}_D \right) \left[\pi_D \left(d^{FB}(s), s \right) + p^g(s) \right] - c_D \left(\mathbf{a}_D \right) \right\} \end{aligned}$$

which yield expected profits $M\left(\mathbf{a}_M^g, \mathbf{a}_D^g \right)$ and $D\left(\mathbf{a}_M^g, \mathbf{a}_D^g \right)$. At stage 1, M and D choose the allocation of decision rights that optimizes both parties' stage 2 actions, which is given by $g^{SP} = \arg\max_{g} \left\{ S\left(\mathbf{a}_M^g, \mathbf{a}_D^g \right) = M\left(\mathbf{a}_M^g, \mathbf{a}_D^g \right) + D\left(\mathbf{a}_M^g, \mathbf{a}_D^g \right) \right\}$. As a result, M and D earn expected profits $M^{SP} = M\left(\mathbf{a}_M^{g^{SP}}, \mathbf{a}_D^{g^{SP}} \right)$ and $D^{SP} = D\left(\mathbf{a}_M^{g^{SP}}, \mathbf{a}_D^{g^{SP}} \right)$, and the expected surplus is $S^{SP} = M^{SP} + D^{SP}$.

This model has two testable implications on the structure of ex post bargaining, which are summarized in the following

Proposition 1: (i) For any state *s*, the party who is assigned the decision right *receives* a price for agreeing on the efficient decision $d^{FB}(s)$; (ii) the decision $d^{FB}(s)$ and the price $p^g(s)$ are specified in a *contract* at stage 4.

Proof: in appendix.

The intuition behind Proposition 1 is straightforward. If decision rights are "bargaining chips", as assumed by the property rights model, they should increase a party's share of the surplus. Moreover, since the model is spot and does not allow for implicit contracts sustained by concerns for future trade, M and D should formalize their agreement in a contract to make it enforceable.

2.4. Relational model

Suppose M and D repeat the spot game forever. Given the allocation of decision rights *g*, and for any realized state *s*, M and D implicitly agree to replace the bargaining price $p^g(s)$ with a price $\tau^g(s) \in \mathbb{R}$, which gives them more efficient incentives to choose the non-contractible actions at stage 2. Baker *et al*. (2002) show that, in this relational property rights model, the optimal *ex ante contract* allocates decision rights to minimize the parties' temptation to reject $\tau^g(s)$ in states in which it is unfavorable and insist on the spot bargaining price $p^g(s)$. This section complements their analysis, showing that the optimal

ex post contract should also be chosen to minimize the parties' temptation to renege on the implicit agreement.[4]

Assume the best price schedule sustainable under allocation *g* generates ex ante actions $\mathbf{a}_M^{Rg}, \mathbf{a}_D^{Rg}$ and per period profits $M^{Rg} = M\left(\mathbf{a}_M^{Rg}, \mathbf{a}_D^{Rg}\right)$ and $D^{Rg} = D\left(\mathbf{a}_M^{Rg}, \mathbf{a}_D^{Rg}\right)$, such that $M^{Rg} + D^{Rg} = S^{Rg} \geq S^{SP}$. Also, assume that, if either M or D reneges on the relational contract, both parties revert to the optimal spot governance structure g^{SP} forever after and that, to distribute surplus, M pays D, at stage 1 of each period, a fixed transfer $w^g \in \mathbb{R}$ (Levin (2003)). Then, the optimal ex post contract (i.e., the one that minimizes the parties' reneging temptation) is defined by the following

Proposition 2: For any allocation of the decision right $g \in \{M, D\}$, the efficient implicit agreement requires M and D to sign an explicit contract, at stage 4, according to which, if $d^{FB}(s)$ is chosen, M pays $\tau^g(s)$ to D.

Proof: in appendix.

Intuitively, if M and D specify, ex post, the desired decision and payment in a contract, the party without decision right will gain less from rejecting such payment in states in which it is unfavorable because, even if she does so, she has to bargain with the other party and pay a price in order to obtain the desired decision. A testable implication of this result is that, *in the relational property rights model, as in the spot one, we should observe the parties agreeing ex post on a decision and a price, and formalizing their agreement in a*

[4] Ex post contracts are feasible because the decision *d* is contractible once *s* is realized.

contract—although the price $\tau^g(s)$ in the relational model is different, in general, from the price $p^g(s)$ in the spot model.

3. Decision rights and ex post adaptation in automobile franchising

In this section, I analyze the interplay between decision rights and the ex post adaptation of terms of trade in automobile franchising, and I compare it with predictions of the property rights model.

Automobile franchise contracts are fundamentally *incomplete* in that, instead of defining specific *terms of trade*, they allocate between car manufacturers and dealers the rights to choose them in the future. Contracts are negotiated by manufacturers and dealer associations at the outset and modified only after major shocks, like network restructuring or regulatory changes.[5] Due to European regulatory provisions, the same contract applies to all the dealers of a given manufacturer. Table 1 summarizes the allocation of decision rights in the franchise contracts currently used by 19 manufacturers selling their products in Italy.[6] These manufacturers realized, in 2004, 85% of new car sales in Italy (83% in the whole European Union) and, therefore, are largely representative of the industry.[7]

[5] Each distribution network has a dealer association, and, in turn, the network-level associations are federated into a larger association, FEDERAICPA, which acts as a national coordinator.
[6] The contracts in this study represent the following brands: Ford, Opel (i.e., General Motors), Toyota, Mitsubishi, Mazda, Mercedes, BMW, Volkswagen, Audi, Peugeot, Citroen, Renault, Volvo, Jaguar, Land Rover, Seat, Fiat, Alfa Romeo and Lancia. Although some manufacturers are owned by the same group, that typically use different dealership contracts. For instance, the Jaguar and Land Rover contracts are different from the Ford contract, and the Alfa Romeo contract is different from the Fiat contract.
[7] The source of this data is the GMAP European Car Distribution Handbook, 2005 edition.

Many of the managers who accepted to hand me the contracts reported that, due to the existence of a common antitrust regulator, manufacturers actually use the same dealership contract all over the European Union. However, since I could not confirm this information for all 19 contracts, I will conservatively refer to Italy when analyzing the data. Table 1 indicates that decision rights are allocated quite evenly in these contracts, the average decision right being assigned to the manufacturer in 50% of the contracts, and to the dealers in the other 50%.

<TABLE 1 HERE>

While decision rights are assigned in advance, the specific performance required from dealers—sales targets, standards for outlet maintenance and customer relationship management, and the like—and the monetary transfers between the parties—wholesale prices and incentives—are frequently revised and adapted to market conditions, some every year (sales targets), some others every one or two years (showroom design). When these terms of trade are modified, they are usually reported in annexes to the franchise contract, although, on fewer occasions, they are recorded in private letters and e-mails. To analyze how manufacturers and dealers adapt the terms of trade ex post, I have conducted, in the winter of 2007, a series of in-depth interviews with managers of car manufacturers, dealers and dealer associations, as well as with a reputed field lawyer, who assisted several manufacturers and dealers in court and prepared dealership contracts for numerous brands.[8] While networks for which interview responses and contracts are available do not perfectly match, the managers' answers are remarkably consistent, strongly suggesting that the

[8] The managers who participated in the survey represent the Italian networks of Peugeot, Citroen, Renault, Volkswagen, Audi, Skoda, Jaguar, Porsche, Nissan, Honda, Fiat, Alfa Romeo, Lancia and Volvo.

automobile industry has *common practices* for adapting the terms of dealership contracts. Managers explicitly confirmed this, reporting that identical practices emerge from their periodic meetings with colleagues in the industry.

3.2. The ex ante and ex post structure of dealership contracts

Following European competition law, *all 19 franchise contracts* in the survey require that, every year, dealers agree with the manufacturer on a minimum number of cars they must sell (the sales target). In case of disagreement, the dispute is deferred to an independent arbitrator, whose decision cannot be appealed (Table 1).[9] During interviews, managers of both manufacturers and dealers explained that, despite this mandatory negotiation and arbitration procedure, sales targets are computed every year according to a *formula prepared and periodically revised by manufacturers*. This formula typically determines a dealer's sales target as a weighted average of the brand's local and national market shares, it applies to the whole distribution network, and is normally accepted by individual dealers without bargaining or invoking arbitration.

As shown in Table 1, franchise contracts allocate among manufacturers and dealers the *rights to choose* future performance standards other than sales targets, which are not regulated by European law. For instance, 15% contracts in the sample assign to manufacturers the right to impose a minimum advertising budget on dealers, implying that, in the networks governed by those contracts (and only in those), manufacturers can sue or

[9] See EC Regulation 1400/2002. The contracts also require that manufacturers and dealers agree on the arbitrator's name and, in case of disagreement, defer its choice to the local Chamber of Commerce.

terminate dealers for failure to spend in advertising as much as they ask.[10] A similar interpretation applies to the other decision rights. During interviews, managers consistently reported that standards are, in fact, elaborated by manufacturers, who *dictate* them to dealers via *unilateral letters* and *e-mails* that do not require signature or counterproposals. In the manufacturers' words, "standards are non-negotiable," "setting standards is a prerogative of the manufacturer" and "not negotiating standards is part of the manufacturer's corporate identity"; in the dealers' words, "standards are unilateral," and "standards are not negotiated, but imposed". Manufacturers fix standards unilaterally even when the franchise contract does not explicitly assign them the right to do so, in which case dealers could reject their decisions without risking to be sued for damages or terminated. In support of this statement, several dealers showed me "intra-network" letters and operating manuals with requirements that, according to the franchise contract, manufacturers had no right to impose, such as increasing the amount of fuel injected in cars prior to delivery, committing to deliver cars to customers within 5 days from announced date, or owning, rather than renting, the machinery and tools in repair workshops.

Dealers who comply with standards receive from the manufacturer a discount on the list price of each car they purchase, which is revised every year and reported in an annex to the franchise contract. Performance discounts are granted even when the manufacturer has a contractual right to impose standards, except when these are considered *essential* to protect the brand, as in the case of signs that carry the manufacturer's trademark or fundamental

[10] EU competition law limits the freedom of car manufacturers to terminate dealers at will, requiring a two years advance notice (see EC Reg. 1400/2002). By exerting decision rights, however, manufacturers can impose on dealers an obligation to adopt their decisions, which gives them a cause to terminate the contract with immediate effect in case of non-compliance.

showroom features. For these "essential" standards, manufacturers do not offer a discount, relying, instead, on the power to terminate non-performing dealers, which is embedded in their decision rights, to insure compliance. In *all the contract annexes* in force during 2002, discounts were defined as *percentages of the list price of cars*, which, according to the franchise contracts, manufacturers have the right to modify at will and without advance notice (Table 1). Managers confirmed, in the course of our interviews, that defining performance incentives this way is a common practice in the industry.

3.3. Dealership contracts and the property rights model

Table 2 summarizes the practices described so far and compares them with the predictions of the property rights model discussed in Section 2. According to such model, the terms of trade are ex post contractible. Therefore, manufacturers and dealers should bargain over sales targets and standards and, after reaching an agreement, should formalize it in a court-enforceable contract, together with the payments each party is entitled to. Moreover, payments should flow from the party who does not have the decision right (and, therefore, has less bargaining power) to the party who does.

<TABLE 2 HERE>

The data do not seem to support these predictions. First, while manufacturers and dealers, represented by their associations, bargain ex ante over the allocation of decision rights, they *do not bargain ex post over the decisions*. Instead, manufacturers define sales targets, service standards and discounts unilaterally, and dictate them to dealers without

asking for their approval or counterproposal, which suggests the relationship between the parties is strongly asymmetric. Moreover, manufacturers unilaterally adapt the terms of trade *even when dealers are assigned decision rights* in the franchise contract, suggesting decision rights do not modify the asymmetry between the parties. Second, the payments dealers receive for adopting standards seem *discretionary*, rather than obligatory: while discounts are formalized in contract annexes, they are defined as percentages of the list price of cars, which manufacturers can change at will even after dealers have implemented the required standards. However, if standards were contracted ex post, as in the property rights model, we would not expect manufacturers to be free to renege on compensation. Finally, manufacturers often grant discounts to dealers for adopting standards they have a contractual right to choose, in which case they could ask dealers to pay for "soft" standards, or impose their preferred ones without compensation.

4. An alternative hypothesis: decision rights as last resorts in asymmetric relational contracts

The data suggest that, in contrast with a basic assumption of the property rights model, manufacturers and dealers behave as if the terms of trade were *ex post non-contractible*, and delegate the task of designing and enforcing them to the manufacturers, who are better informed on the long-term benefits of different standards and, therefore, are in the position to serve as specialized decision-makers for the network as a whole.[11] The fact that manufacturers invariantly dictate standards to dealers despite the even split of decision

[11] Aghion and Tirole (1997) formally analyze asymmetric business relationships in which the uninformed party must rely on the informed one to initiate decisions.

rights in franchise contracts also suggests such delegation is *informal*, rather than formal (Baker *et al*. (1999)): dealers focus on sales, relying on manufacturers to set efficient standards and fairly distribute their benefits, and manufacturers focus on standard elaboration, relying on dealers to implement them without frictions (Hadfield (1990)). Consistent with this hypothesis, even when they are assigned decision rights, manufacturers offer discounts to dealers for implementing several types of standards. This creates a stream of quasi-rents that persuades dealers to accept the manufacturers' decisions. However, to guarantee that manufacturers also have long-term gains from the relationship with dealers, discounts are not offered for standards that strongly benefit dealers by promoting the common brand (the so called "essential" standards). In these cases, manufacturers simply threaten disciplinary termination if dealers do not comply.

In these asymmetric, relational contracts, decision rights can be understood as last legal resorts against the dealers' non-compliance (Klein (1996, 2000), Baker *et al*. (2008)). When the standards required by manufacturers are particularly complex and burdensome, dealers may refuse to implement them despite the promised stream of discounts. To limit the dealers' reneging temptation, manufacturers can use the power of disciplinary termination embedded in their decision rights, imposing an immediate penalty against non-compliance. While reducing the dealers' reneging temptation to reject costly standards, however, decision rights give manufacturers a temptation to represent standards as essential when they are not and to enforce them under the threat of termination. Any reputational loss opportunistic manufacturers may suffer would come with a lag, giving them a short-run temptation to abuse their discretion. If this is the case, one would expect manufacturers to

be assigned the right to set standards when dealers and their associations are sophisticated enough to detect opportunism and harm the manufacturers' reputation in the market for franchises—that is, when the manufacturer's reneging temptation is small—and when standards generate low benefits/high costs for dealers in the short run—that is, when the dealers' reneging temptation is large. While the data in this chapter do not permit to verify this hypothesis, previous empirical works on automobile franchising seem to support it, as they find that decision rights are allocated to car manufacturers when dealers gain more from freeriding on the network's common standards due to intra-brand competition (Arruñada *et al*. (2001)) and "pro-dealer" regulations (Zanarone (2007)).

5. Conclusion

As shown in previous empirical works, automobile franchise contracts assign the rights to choose future terms of trade to car manufacturers when dealers have more incentives to freeride on the network's common standards (Arruñada *et al*. (2001), Zanarone (2007)). Do they do so to protect the manufacturers' ex ante investments in the brand—as property rights models of incomplete contracts would suggest—or to neutralize contractual hazards that prevent efficient standards from being chosen ex post? In this chapter, I have addressed this question empirically. Using contractual data and in-depth interviews with managers, I have found that, independent of who is assigned decision rights, dealers adopt the standards dictated by manufacturers and receive, in exchange, a discount on the wholesale price of cars, which manufacturers can change at will even after the required standards are implemented. These practices suggest that, in contrast with the property rights model, manufacturers and dealers do not negotiate the terms of trade ex post. Instead, dealers

informally delegate the manufacturers to serve as specialized decision-makers for the whole distribution network, to set standards and to reward their adoption through discounts. In these asymmetric relational contracts, a balanced allocation of formal decision rights between manufacturers and dealers creates a last-resort safeguard against the dealers' temptation to reject efficient but costly standards, and the manufacturers' temptation to impose opportunistic ones, helping to keep both parties within their "self-enforcing range" (Klein (1996, 2000), Baker *et al*. (2008)).

Appendix A: Proof of Proposition 1

Part (i): Since each party earns a (weakly) greater profit if her preferred decision, rather than the first best decision is chosen, (1) implies that

$$(3) \qquad \begin{aligned} p^g(s) &\geq 0 \text{ if } g = D \\ p^g(s) &\leq 0 \text{ if } g = M \end{aligned}$$

That is, M (D) pays D (M) when D (M) has the decision right.

Part (ii): suppose that, at stage 4, M and D do not formalize their agreement in a contract. If D (M) chooses $d^{FB}(s)$ before M (D) pays, M's (D's) best response is to pay nothing. Anticipating this, D (M) chooses $d^D(s)$ ($d^M(s)$) instead of $d^{FB}(s)$. Similarly, if M (D) pays $p^D(s)$ ($p^M(s)$) before D (M) chooses *d*, D's (M's) best response is to choose $d^D(s)$ ($d^M(s)$) instead of $d^{FB}(s)$. In either case, the ex post surplus is $\sum_i \pi_i\left(d^D(s), s\right) < \sum_i \pi_i\left(d^{FB}(s), s\right)$ when D has the decision right and $\sum_i \pi_i\left(d^M(s), s\right) < \sum_i \pi_i\left(d^{FB}(s), s\right)$ when M has the decision right, which is inefficient. QED.

Appendix B: Proof of Proposition 2

Suppose, first, that the implicit agreement requires M and D to sign a contract at stage 4. This agreement is self-enforcing if, and only if M (D) is better off paying (accepting) $\tau^g(s)$ and earning the continuation payoff forever after than bargaining for $p^g(s)$ and earning the spot payoff forever after, that is, iff

$$-\tau^g(s)+\frac{1}{r}\left[M^{Rg}-w^g\right]\geq -p^g(s)+\frac{1}{r}M^{SP} \tag{4}$$

$$\tau^g(s)+\frac{1}{r}\left[D^{Rg}+w^g\right]\geq p^g(s)+\frac{1}{r}D^{SP} \tag{5}$$

for every $s\in S$. Conditions (4) and (5) are satisfied in every state only if they are satisfied in the state in which they are tightest. Summing up (4) and (5) for such state and rearranging yields the unique necessary conditions

$$\underset{s}{Max}\left\{\tau^M(s)-p^M(s)\right\}-\underset{s}{Min}\left\{\tau^M(s)-p^M(s)\right\}\leq\frac{1}{r}\left(S^{RM}-S^{SP}\right) \tag{6}$$

$$\underset{s}{Max}\left\{\tau^D(s)-p^D(s)\right\}-\underset{s}{Min}\left\{\tau^D(s)-p^D(s)\right\}\leq\frac{1}{r}\left(S^{RD}-S^{SP}\right) \tag{7}$$

depending on whether M (condition (6)) or D (condition (7)) has the decision right, respectively. These conditions are also sufficient for self-enforcement because, if they hold, one can use the fixed transfer w^g to insure that both parties' individual self-enforcement constraints hold as well (Baker *et al*. (2002), Levin (2003)).

Suppose, now, that the implicit agreement simply requires M (D) to pay (accept) $\tau^g(s)$ if $d^{FB}(s)$ is implemented, without need to sign a contract at stage 4. In this case, the party without decision right still has an opportunity to renege on the payment $\tau^g(s)$ once $d^{FB}(s)$ has been implemented, that is, between stage 4 and stage 5. When M has the decision right, this implicit agreement is self-enforcing if, and only if

$$-\tau^M(s)+\frac{1}{r}\left[M^{RM}-w^M\right]\geq -p^M(s)+\frac{1}{r}M^{SP} \tag{8}$$

$$\tau^M(s)+\frac{1}{r}\left[D^{RM}+w^M\right]\geq \frac{1}{r}D^{SP} \tag{9}$$

which yields the unique condition

$$\underset{s}{Max}\left\{\tau^M(s)-p^M(s)\right\}-\underset{s}{Min}\left\{\tau^M(s)\right\}\leq\frac{1}{r}\left(S^{RM}-S^{SP}\right) \tag{10}$$

When D has the decision right, the implicit agreement is self-enforcing if, and only if

$$-\tau^D(s)+\frac{1}{r}\left[M^{RD}-w^D\right]\geq\frac{1}{r}M^{SP} \tag{11}$$

$$\tau^D(s)+\frac{1}{r}\left[D^{RD}+w^D\right]\geq p^D(s)+\frac{1}{r}D^{SP} \tag{12}$$

which yields the unique condition

$$\underset{s}{Max}\left\{\tau^D(s)\right\}-\underset{s}{Min}\left\{\tau^D(s)-p^D(s)\right\}\leq\frac{1}{r}\left(S^{RD}-S^{SP}\right) \tag{13}$$

Condition (10) is tighter than (6), implying that, when M has the decision right, an implicit agreement that requires M and D to contract $\tau^M(s)$ and $d^{FB}(s)$ at stage 4

generates less reneging temptation than an implicit agreement that does not. Similarly, condition (13) is tighter than (7), implying that, when D has the decision right, an implicit agreement that requires M and D to contract $\tau^D(s)$ and $d^{FB}(s)$ at stage 4 generates less reneging temptation than an implicit agreement that does not. QED.

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Table 1. Decision rights and procedure to define sales targets in car dealership contracts

Clause assigning to manufacturer right to impose:	Proportion of clause in contracts
Wholesale price	1
Showroom design	0.73
Advertising contribution	0.52
Advertising quality	0.52
Advertising budget	0.15
Size of personnel	0.47
Qualification of personnel	0.36
Mandatory training of personnel	0.73
Minimum operating capital	0.36
Customer satisfaction programs	0.47
Customer satisfaction targets	0.52
Dealers' working hours	0.15
General duty to respect standards	0.63
Clause requiring negotiation and arbitration to define sales target	1
Number of contracts	19

Table 2. Ex ante decision rights and ex post decisions in automobile franchising: Data versus predictions of property rights model

	Who makes decisions ex post?		Which party is compensated ex post?		How is dealer's compensation defined ex post?	
Decision right assigned ex ante to	*Property rights model*	*Data* (100% interviews)	*Property rights model*	*Data* (100% interviews & annexes)	*Property rights model*	*Data* (100% interviews & annexes)
Manufacturer	Both parties, by agreement	Manufacturer	Manufacturer	Dealer	Contracted before performance (obligatory)	Fixed by manufacturer after performance (discretionary)
Dealer	Both parties, by agreement	Manufacturer	Dealer	Dealer	Contracted before performance (obligatory)	Fixed by manufacturer after performance (discretionary)