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A marketing-finance approach linking contracts in agricultural channels to shareholder value

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Paper prepared for presentation at the EAAE 2011 Congress
Change and Uncertainty
Challenges for Agriculture,
Food and Natural Resources

August 30 to September 2, 2011
ETH Zurich, Zurich, Switzerland

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Abstract

A conceptual marketing-finance framework is proposed which links channel contracting in agriculture and the use of financial facilitating services (e.g., financial derivatives) to (shareholder) value creation. The framework complements existing literature by explicitly including channel contract relationships as market-based assets that can be managed to reduce cash flow volatility and hence increase shareholder value. We show how financial facilitating services (e.g., derivatives) can be used to complement the cash flows components of channel contract relationships thereby further reducing the risk adjusted cost of capital and improving shareholder value. In a field study of producers, wholesalers, and processors, in the potato and meat industry the framework shows how shareholder value can be enhanced by using financial facilitating services, such as derivatives, to complement marketing channel relationships. Moreover, this study shows how producers and managers from agribusiness companies can use such financial services as conflict-solving tools in case of incongruent contract preferences between channel members.

Keywords: marketing-finance, agricultural marketing strategy, decision-making, channels.

1. Introduction

There is a rising and converging interest in agricultural economics as to how marketing activities relate to value creation (Srinivasan and Hanssens, 2009). Financial facilitating services, such as commodity futures, may be the link to establishing such a causal chain. Recognizing the important role that financial facilitating services can play in managing cash flow volatility, this paper develops a conceptual framework of risk and interdependence that shows how managerial focus on shareholder value relates to concrete behavior, such as the use of cash versus forward contracts to maintain relationships with channel members, even under asymmetric power conditions.

In so doing, this paper addresses the following research questions: How do financial derivatives interact with marketing management decisions? How is marketing management's use of financial derivatives related to an organizational focus on shareholder value? How can marketing activities, with the help of financial derivatives, reduce the risk adjusted cost of capital (and hence enhance shareholder value)? How can derivatives complement marketing channel contract behavior so that more optimal cash flow patterns can be achieved? How can derivatives solve channel conflicts caused by incongruent contract preferences amongst channel members?

The remainder of this paper is organized as follows. First hypotheses are developed concerning how the framework can be used to decrease cash flow volatility (and hence decrease in the risk adjusted cost of capital) and resolve channel conflicts. After that, an empirical study

involving a unique combination of accounting data and interviews with producers, wholesalers and processors is presented to illustrate the validity of the framework. In the managerial implications, the findings from this study are used to address a key question that has been repeatedly raised in interviews with industrial managers: How can a focus on shareholder value be translated into marketing decisions? The paper concludes with promising opportunities for future research.

2. A Conceptual Marketing-Finance Framework of Channel Contracts

In Figure 1, we present our conceptual framework which links channel contracting to shareholder value. It explicitly shows how the internal and external environment of a marketing manager relates to their contract preferences and, specifically, their use of financial facilitating services and how marketing may use financial facilitating services in channel contract relationships to directly reduce cash flow volatility and increase shareholder value. The conceptual framework demonstrates the complementing role that financial facilitating services can play in resolving channel conflict caused by incongruity in channel members' contract preferences. The different components of the conceptual framework are discussed in detail, starting with the relationship between shareholder value and (different types of) financial contracts.

(Insert Figure 1 about here)

2.1. How Shareholder Value Relates to Contracting

Shareholder value can be conceptualized as a forecasted cash flow, which is discounted by the risk-adjusted cost of capital (Leland, 1998).² Rappaport (1986) shows that shareholder value can be enhanced in four different ways: (1) by accelerating cash flows, (2) by increasing the level of cash flows, (3) by enhancing the residual value of cash flows, and (4) by reducing the vulnerability and volatility of cash flows. In this paper, we focus exclusively on cash flow volatility. A decrease in cash flow volatility cuts the firm's cost of capital, therewith enhancing its shareholder value. That is, more stable cash flows generate higher net present values, hence creating less systematic risk and, in turn, more shareholder value.

To date, no study in agricultural economics *empirically* examines how marketing managers can use contracting behavior and derivatives to manage cash flow volatility and enhance shareholder value. In line with this thinking on cash flow consequences, there are two broad classes of contracts of most interest for this study: cash contracts and forward contracts.

2.2. Cash versus Forward Contracts

A cash contract (also referred to as a spot transaction) defines the price at the time of the transaction (time $t+1$), and is based on the spot market, instead of the time when the contract is initiated (time t). This contract is an agreement between two parties to exchange a good or service immediately at a particular price. Examples include the sales of used cars, cattle, or items

² The risk-adjusted cost of capital is the risk-free-rate plus a risk premium that is based on an analysis of the risk characteristics of the cash flow stream (e.g., cash flow volatility).

in Wal-Mart. Cash flows resulting from such contracts are uncertain at the moment of initiating the contract (time t).

In contrast to cash contracts, forward contracts fix the price at the time of initiation (time t). As a result, the cash flow generated at the time of actual delivery is certain (time $t+1$). Thus, forward contracts reduce the volatility of cash flows between companies and, as a consequence, enhance shareholder value. Indeed, in practice managers have been shown to dislike cash flow volatility (Graham et al., 2005) and the benefits of reducing cash flow volatility are well understood in the financial literature.

3. Hypotheses

To investigate the framework presented in Figure 1, we focus on the contract preferences of marketing managers by making a distinction between the relevant internal and external environment *to the manager*. A firm's shareholders form the relevant external environment to managers, while the internal environment is reflected by the risk attitudes and risk perceptions of a firm's manager.³ Both external and internal environments have been associated with contract preferences (Engelbrecht-Wiggans, 1987), and Figure 1 illustrates their conceptual relationship.

3.1. Contract Relationship Preferences

Since marketing managers can use cash or forward contracts as tools to manage shareholder value, their individual preferences should be influenced by their focus on shareholder value. We expect managers in firms with a high focus on shareholder value to generally prefer forward contract relationships over cash contract relationships. This is because forward contract relationships reduce the firm's cash flow volatility, hence enhancing shareholder value.

H₁: Marketing managers with a high focus on shareholder value prefer forward contract relationships over cash contract relationships.

Along with the external environment, the internal environment also influences a marketing manager's contract preference. Two important drivers of contract preferences are risk attitudes and risk perceptions (Pennings and Smidts, 2000). Pennings and Smidts (2000) empirically show the important role of risk attitude and risk perception in the formation of contract preferences. In their study, risk-averse managers prefer forward contracts over cash contracts in situations they perceive as risky.

H₂: Risk aversion and risk perception are positively related to the marketing manager's preference for a forward contract relationship over a cash contract relationship.

3.2. Preferred Contracts versus Realized (Actual) Contracts

³ The managers' risk attitudes are composed of their own intrinsic risk attitude and risk-taking incentives (e.g., compensation structure) (Pennings and Wansink, 2004).

Whether a marketing manager's preferred contract relationship will also be the realized (actual) contract relationship depends on the other manager's (partner company) contract preference. According to Pfeffer and Salancik (1978: 40), "interdependence exists whenever one actor does not entirely control all of the conditions necessary for the achievement of an action or for obtaining the outcome desired from the action." Contract disagreement between highly interdependent companies might result in conflict, increasing the probability of relationship termination. This becomes even more probable when there is interdependence asymmetry.

In many contexts, interdependence asymmetry results in a situation in which the stronger (less dependent) company forces its contract preference on the weaker (more dependent) company. However, this use of power may result in a tense relationship, conflict, and ultimately relationship termination.⁴

Yet, oddly enough, thousands of these relationships thrive. Consider the relationships between wholesalers of raw food products (such as meat and produce) and their processors. The marketing channel of raw foods is often characterized by the presence of a large number of wholesalers or intermediaries (relatively small operations) and by a small number of processors (relatively large operations) (Keith et al., 1990). In a wholesale operation, the manager is usually the owner, whereas the large processors are usually publicly held. These structural differences might cause differences in focus on shareholder value and make contract relationships difficult to establish. Yet, because services are available to complement the cash flow consequences of a contract, even in such situations contract relationships can be established.

3.3. Resolving Contract Conflict with Financial Facilitating Services

Contracts between companies can be complemented by services purchased by one or both companies in order to improve the outcome of the contract. One such service is a quality check of the product by a third party, which ensures that the buyer receives the correct product and that the seller avoids a breach-of-contract suit.

One of the potentially most influential services that can influence shareholder value are the financial facilitating services that complement the cash flow consequences of a contract.⁵ Upper management's preferred cash flow outcome should be represented in the combination of contracts and the use of financial facilitating services by marketing managers. Financial facilitating services can include price volatility reduction services provided by financial institutions such as banks and exchanges. Such services reduce the price volatility inherent in a particular contract relationship, and they are frequently used at the centrally-traded London- and Chicago-based exchanges, as well as in over-the counter trading by large processors and banks.

3.4. Conflicting Contract Relationship Preferences: an Example

Suppose Company A is a wholesaler of a food raw material and Company B is a processor of that same food raw material. Assume further that the market for this raw material is highly volatile and price fluctuations are large and unpredictable. The two companies know each other well and

⁴ In this context, channel conflict represents the level of tension, frustration, and disagreement in the channel relationship (Frazier et al., 1989).

⁵ Financial facilitating services include all exchange-traded contracts, and off-exchange contracts; their primary function being price discovery and risk management, not actual delivery. In this paper, we use futures contracts as an example.

know what to expect as seller and buyer. Furthermore, both companies are physically close, so delivery is a simple matter for both. In this scenario, it would be valuable for both to build a close relationship and exchange the raw material. This relationship might then be formalized by a contract that defines when, where, how much, and of what quality the wholesaler will deliver to the processor.

Yet one element would still need further definition: the cash flow consequences of the contract. Should a cash or a forward contract relationship be established? Suppose that the wholesaler prefers a cash contract relationship that enables him or her to adapt to price changes of the raw material. However, the processor may feel that a cash contract would lead to undesirable cash flow volatility that interferes with generating optimal shareholder value. The above situation might lead both companies away from an exchange and the establishment of a contract relationship, even though all the other elements of the exchange process (place, time, quantity, and quality) are highly favorable to both.

3.5. Conflicting Contract Relationship Preferences: Financial Facilitating Services as a Solution

Financial facilitating services can complement the cash flow consequences of the contract. As a result, they can make a contract amenable to both companies by solving the dilemma outlined above. For example, the processor might use the hedging services offered by one of the Chicago exchanges to complement the cash contract relationship preferred by the wholesaler.⁶ A hedging service is a service through which the processor is offered the opportunity to buy products forward at a fixed price, thereby not restricting the processor to engage in a cash contract relationship with the wholesaler.⁷ In the raw food industry, hedging services are commonly used to facilitate contract relationships between companies. The major commodity exchanges accomplish this by organizing markets in which futures contracts are traded.⁸ Exchanges make it possible for those who want to manage price volatility – “hedgers” – to transfer this price volatility (through the hedging service of the exchange) to speculators willing to accept it (through the speculation service of the exchange).

Suppose the previously mentioned processor wants to initiate a cash contract (not a forward contract) according to the wholesaler’s contract preferences. At the time the contract is signed (t) the processor then uses an exchange’s hedging service to buy the same product in the futures market for delivery at $t+1$ for a price agreed upon at t . The processor’s cash contract with the wholesaler, combined with the hedging service, yields a cash flow equal to that of a forward contract. Thus, the processor succeeds in fixing the price in advance, without demanding this from the wholesaler in their cash contract. Hence, marketing managers may resolve conflicts resulting from incongruent contract preferences by using financial facilitating services that complement the cash flow consequences of contracts.

⁶ Hedging is the practice of offsetting the price volatility inherent in any cash contract relationship (i.e., cash market position) by taking an equal but opposite position in the futures market. Futures contracts are standardized with respect to characteristics of the product covered by the contract, time and place of delivery of the product, and they are traded under the rules of an organized exchange.

⁷ In general terms, a hedging service can be defined as “a service through which a channel member is offered the opportunity to buy or sell products forward at a fixed price, thereby not restricting the channel member to engage in a cash contract relationship”.

⁸ The futures contract serves as the medium through which the hedging service is delivered.

H₃: Conflict caused by contract preference incongruence increases the probability of marketing managers' use of financial facilitating services.

4. An Empirical Study of Contract Relationships

To illustrate the empirical validity of the conceptual framework, we use data from a field study of vertically-aligned companies that differ in both their external and internal environments. Since the objective of the study is to examine the influence of external environments (the focus on shareholder value) and internal environments (managerial risk attitudes and perceptions) on the use of financial facilitating services in contracting, we need to investigate industries where both financial records of performance and complete records of contracting behavior are available.

One context which fits these difficult criteria can be found with producers, wholesalers, and processors in the potato and meat industry in the Netherlands. Both industries are well organized and are important export industries in the Dutch economy (the Netherlands is the world's third-largest exporter of agricultural produce). The industry associations for these staples provided accounting data and helped organize the computer-guided interviews with a random sample of their members working as (marketing) manager within this industry.

4.1. Study Design

A personal computer-guided interview was developed, and 20 test interviews were conducted at the manager's enterprise to ensure correct interpretation of the questions. By combining accounting data with survey data, we are able to relate measures on the attitude and intention level (managerial focus on shareholder value, risk attitudes and perceptions) with revealed market behavior (their contract relationships and use of financial facilitating services).

4.2. Measures

Manager's risk attitude was measured by adapting existing scales that were relevant for this context to the domain of the managers and resembles the items from Pennings and Smidts (2000). The risk perception measure reflects managers' interpretations of the odds of being exposed to a volatile market environment (cf. Pennings and Wansink, 2004). Managers' contract preferences were measured by asking respondents to indicate whether they would prefer a cash contract or forward contract for their main trading partner. The realized contract relationships were determined by looking at the past behavior of companies, as registered in their accounting data. Whether the manager experienced a conflict with respect to the contract preferences was objectively determined by comparing each member's contract preference with the actually realized contract relationship. Whenever the actual contract relationship did not match the contract preference as indicated by the manager, it was considered a contract conflict. Managers' use of financial facilitating services is gauged by investigating accounting data registering whether or not they used services that complemented the pricing element of the contract relationship. Examples of such services are the hedging services provided by derivatives exchanges and banks, as well as over-the-counter contracts offered by large (raw food) companies. Because we focus on the pricing element of contracts, we only included financial

facilitating services that deal with pricing. Managers' focus on shareholder value was measured by direct responses on three seven-point items (1 = strongly disagree, 7 = strongly agree) conceptually consistent with prior work in the financial literature on ownership structure of the firm (e.g., Kahn and Winton, 1998).

5. Results of Empirical Study

Since the two dependent variables – the firm's contract preference and the use of financial facilitating services – are binary, we test our hypotheses using logistic regression. For the independent variables measured by scales – such as managers' risk attitudes and risk perceptions – the average sum score was used in the logistic regression. The logistic regression estimates the parameters such that the likelihood of the choice data given the model is maximized. The parameters can be interpreted as the change in the log odds associated with one unit change of the independent variable.

In this case, the odds are defined as the ratio between the probability that a manager prefers a forward contract and the probability that he or she prefers a cash contract (H_1 and H_2), versus the ratio between the probability that a manager uses a financial facilitating service and the probability that he or she does not (H_3). The logistic regression model produces the likelihood ratio statistics and Wald statistics (the square of the parameter estimate divided by the standard error), both of which closely follow a χ^2 distribution under the null hypothesis that the parameter being tested is zero.

We consider two goodness-of-fit statistics to examine the substantive significance of the variables in the model: Nagelkerke's R^2 , which is similar to the R^2 in linear regression (Hair et al., 2005), and the proportional reduction of prediction error (PRPE) (cf. Sharma, 1996). The latter statistic indicates the improvement in predictive power compared to a null model that does not include the predictor variables. The PRPE statistic will get closer to one, the more the model improves the null model in terms of predictive power (Hosmer and Lemeshow, 1989). Table 1 displays the estimation results of the logistic regression.

(Insert Table 1 about here)

5.1. H1: Managerial focus on shareholder value and contract preferences

Recall that H_1 asserts that managers who focus on shareholder value are more likely to use forward contracts. As shown in Table 1, a managerial focus on shareholder value significantly predicts a manager's contract preference ($p = 0.005$), such that a high focus on shareholder value leads to a preference for forward contracts. The correctly classified choices of 82.9% (PRPE = 0.80) and a Nagelkerke's R^2 of 0.284 show the good fit of the model. This result confirms H_1 and shows the important role of the manager's external environment, as reflected by the shareholders, on channel contract behavior.

The previous results illustrate that shareholders can be thought of as a factor that becomes increasingly important in shaping channel structure and marketing decisions. That is, shareholders do not only influence the company on abstract levels (such as providing the company with the financial means to grow by acquisitions), but they also influence concrete

marketing activities, such as the way in which a company organizes its channel structure. That is, shareholders can influence decisions both on a strategic and tactical level.

5.2. H2: Risk attitude, risk perception and contract preferences

In addition to the focus on shareholder value, it is hypothesized that the risk attitudes and perceptions of managers influence contract preferences (H_2). In particular, a manager's risk aversion and risk perception are expected to be positively related to his or her preference for a forward contract over a cash contract.

The risk management framework of Pratt (1964) implies that behavior is influenced not only by the main effects of risk perception and risk attitude but also by their interaction. This interaction causes risk-averse decision-makers to prefer forward contracts over cash contracts, and this preference to become more extreme as the manager perceives more risk (Pennings and Smidts, 2000).

Table 1 shows that risk attitude and risk perception significantly influence contract preferences in the hypothesized direction (p 's < 0.01). That is, the more managers are both risk-averse and have high risk perceptions, the more likely they are to prefer a forward contract over a cash contract. This interaction between risk attitude and risk perception is significantly related to managers' contract preferences, thereby confirming the work by Pratt, while adding increased face validity to our findings. The logistic regression model has a good fit, with 78.2% of the choices correctly classified (PRPE = 0.80) and a Nagelkerke's R^2 of 0.218. These results indicate that in order to understand managers' contracting behavior, we need to consider the main effects of risk attitude and risk perception along with their interaction. This interaction between risk attitude and risk perception may be thought of as an intention to cope with the risks inherent in the channel and the risks that their actions generate.

We next estimated the simultaneous influence of the external environment (H_1) and internal environment (H_2) on contract preferences.⁹ Consistent with our hypotheses, the full model (including risk attitude, risk perception, their interaction, and managerial focus on shareholder value) shows a significant relation between how the internal environment and external environment relate to managers' contract preferences (p 's < 0.01). Consistent with our conceptual framework, the full model has a better fit than the models that measure the influence of the internal and external environment on managers' contract preferences separately. Furthermore, we estimate the full model, as well as the separate models, for each of the wholesalers and processors (unfortunately we had too few producers ($n = 15$) to estimate the full model for this group). The results for these two groups are similar to the results found for the entire sample, showing that our results can be generalized across different managers.

5.3. H3: Incongruent contract preferences and the use of financial facilitating services

Consistent with H_3 , we find that conflict increases the use of financial facilitating services ($p = 0.004$). The data fit the model well, with 87.2% of the choices correctly classified (PRPE = 0.90) and a Nagelkerke's R^2 of 0.305. Whenever a manager's contract preference did not match the actually realized contract relationship (i.e., a contract conflict), he or she was likely to use financial facilitating services to complement the cash flow generated by the non-preferred

⁹ The estimation results can be obtained from the authors upon request.

contract. Despite disagreement about contract preferences and despite asymmetric interdependence, these results indicate that a successful relationship is still possible with third-party help (such as a financial institution which provides facilitating services).

In cases of increasing asymmetry of interdependence trust and commitment decline, while inter-firm conflict increases. The use of financial facilitating services can prevent this. Using financial facilitating services can re-balance the interdependence structure in the channel, as they may mitigate the power advantage of one partner and help increase the performance evaluations of exchange partners. Hence, these services can be seen as a conflict resolution tool.

Interestingly, the financial literature has never looked at derivatives (or other financial facilitating services) as conflict-solving instruments. Until recently, portfolio theory provided the dominant view on the use of financial facilitating services in finance . Only recently has financial research begun to view financial facilitating services in a manner that is increasingly consistent with the empirical findings reported here (e.g., Froot et al., 1993; Pennings and Leuthold, 2001). Such research has argued that if external sources of finance are more costly to corporations than internally generated funds, there will typically be a motivation for using financial facilitating services. That is, the use of financial facilitating services adds value to the extent that it helps a company ensure the sufficient availability of internal funds to take advantage of attractive opportunities and to better manage relationships with other companies. The result is a convergence of marketing and finance research. Both areas are moving towards models that integrate the findings of the contracting literature and the findings of the financial literature on derivatives markets.

6. Discussion and Conclusion

Our empirical study confirms the hypotheses that managers in the agri-food industry increasingly judge marketing strategies based on their potential to enhance shareholder value and to influence the magnitude, speed, and volatility of cash flows. The basic philosophy upper management has about shareholder value can be translated into contract relationship management to reduce cash flow volatility on line-management level. Because of this, channel contract relationships can be a valuable market-based asset for companies.

From the perspective of a line-manager, we show the important role of financial facilitating services as conflict-solving instruments. These services can help establish satisfying channel relationships, even if partner companies start from different contract relationship preferences. In sum, a firm's focus on shareholder value and contract relationship management can be used to influence the decisions of line-managers in a way that helps to manage cash flow volatility and contribute to shareholder value.

6.1. Managerial Implications

Four focus groups and a series of individual interviews with industrial managers revealed consistent concerns about how marketing decisions can enhance shareholder value. Based on the developed framework and on our empirical findings, we provide highly actionable suggestions for these managers and address the key question: How can a focus on shareholder value be translated into marketing decisions?

Shareholder value deals with cash flow levels and the volatility of these cash flows. A reduction in cash flow volatility means an increase in shareholder value due to a lower cost of capital and the released working capital effect. Cash flows are evidenced in the chain of contracts that a marketer manages. Cash contracts define the price at the moment of the transaction, based on the spot market. The cash flows resulting from such contracts are volatile. Forward contracts, on the other hand, specify the price at the moment that the contract is initiated, and the cash flows resulting from such contracts are fixed. By choosing the type of contract relationship that will best facilitate channel interactions, a marketing manager can have a direct impact on a firm's financial performance.

Financial facilitating services can complement the cash flow component of contracts. For example, the cash flow resulting from a cash contract can be transformed to reflect the cash flow pattern of a forward contract. This is accomplished by complementing the cash contract with the hedging services offered by derivatives exchanges. Financial facilitating services allow companies to have successful contract relationships, even with seemingly incompatible contract preferences. Therefore, disagreement on contract preferences does not have to result in conflict. It can be resolved by financial facilitating services.

These financial facilitating services become even more important when there is interdependence asymmetry. For instance, if a less dependent company were to use its power to obtain the preferred contract relationship, it could lead to a tense relationship with the less powerful trading partner (Frazier et al., 1989). An alternative would be for the stronger (less dependent) company to use financial facilitating services as a means of managing the relationship with the less powerful (more dependent) company. By not forcing its preferences upon the other party, the powerful company shows a kind of leadership that may decrease conflict and increase total interdependence.

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Table 1. Determinants of contract preferences and use of financial facilitating services

Hypotheses	Parameter estimate	p-value	Correctly classified choices	PRPE	Nagelkerke R ²
<u>Hypothesis 1</u>					
<i>Dependent variable:</i>					
Managers' contract preferences (0 = cash contract, 1 = forward contract)					
<i>Independent variable:</i>					
Managerial focus on shareholder value	1.299	0.005	82.9%	0.8	0.284
<u>Hypothesis 2</u>					
<i>Dependent variable:</i>					
Managers' contract preferences (0 = cash contract, 1 = forward contract)					
<i>Independent variables:</i>					
Risk attitude	2.894	0.010			
Risk perception	3.238	0.005			
Interaction between risk attitude and risk perception	0.237	0.006	78.2%	0.8	0.218
<u>Hypothesis 3</u>					
<i>Dependent variable:</i>					
Managers' use of financial facilitating services (0 = not using, 1 = using)					
<i>Independent variable</i>					
Conflict	1.192	0.004	87.2%	0.9	0.305

Figure 1. Linking channel contracting to shareholder value

