A Real Options-based Framework for Valuing Business Relationships as Strategic Assets

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ABSTRACT

In recent years, considerable research has focused on understanding the value derived from market-based assets such as brands and consumer relationships with comparatively little attention being directed at business relationships. We address this gap in the literature by proposing a real options-based framework for valuing business relationships. The framework provides new insights into the role of uncertainty and commitment by demonstrating how, in many instances, greater uncertainty can increase the long-term value of a relationship while simultaneously decreasing commitment. The framework details the links between firm actions and long-term relationship value and is used to motivate a value-based typology of relationship forms that provides a finer grained understanding of how relationships are initiated and develop over time.
Over the last decade, increasingly competitive and mature markets have pressured managers to demonstrate how investments in marketing activities contribute to long-term profitability and, ultimately, shareholder value. In response to this pressure, many firms have turned to financial models to assess the value of their marketing assets such as brands and consumer relationships (Brady 2000; Srivastava, Shervani, and Fahey 1998). These models, which provide a mechanism to understand and communicate the association between marketing actions and shareholder value, have strengthened marketing’s voice in the corporate strategy dialogue and led to a richer understanding of the linkages between marketing actions and firm performance (Hogan, Lemon, and Rust 2002).

While the majority of research into the valuation of marketing assets has focused on brands and consumer relationships, comparatively little attention has been devoted to business-to-business relationships. This lack of research represents a significant gap in the literature because business markets comprise a significant sector of the global economy with revenues far exceeding those to consumers (Kotler 2000). Moreover, there are key differences between business and consumer markets that require unique approaches to understanding and measuring the value derived from a buyer or seller relationship.

Initial efforts to understand the value derived from business relationships have focused on select financial outcomes such as buyer costs (Cannon and Homburg 2001), seller costs (Kalwani and Narayandas 1995), and single period profits (Niraj, Gupta, and Narasimhan 2001). Financial measures such as these represent individual period outcomes consistent with a view of business relationships as a short-term revenue or expense. Yet there is a growing consensus among scholars and managers that recognizes these relationships as strategic assets capable of generating superior long-term returns (Barney 1991; Conner 1991; Hunt and Morgan 1995).
Under this resource-based perspective, investments in a buyer or seller relationship are evaluated on the ability to generate returns over multiple periods (Lusch and Harvey 1994; Srivastava, Shervani, and Fahey 1998). Given the strategic nature of these relationships and the pressure for financial accountability in marketing, there is a need for models of business relationship value that can help firms understand the complex tradeoffs between relationship investments, costs, and benefits.

The purpose of this research is to contribute to the business marketing literature by proposing a theoretically-grounded framework for valuing business relationships. We draw on the marketing, finance, and strategy literatures to model a relationship with a buyer or seller as an asset comprised of current and potential investments generating ongoing returns. Some of these investments, such as start up costs, can be valued appropriately using traditional capital budgeting techniques such as net present value (Day and Fahey 1988; Rappaport 1986; Srivastava, Shervani, and Fahey 1998). However, certain investments such as the decision to expand the scope of a relationship, change relationship partners, or discontinue a relationship have characteristics similar to financial options and require an alternative valuation approach (Amram and Kulatilaka 1999; Copeland and Antikarov 2001; Luehrman 1998a, 1998b).

Recognizing the option-like traits of business relationships can provide new insights into buyer-seller interactions by identifying heretofore unrecognized effects of uncertainty on relationship performance. Prior research has focused largely on how firms structure relationships to mitigate the negative effects of internal performance uncertainty (Heide 1994; Noordewier, John, and Nevin 1990; Williamson 1979) and external environmental uncertainty (Achrol, Reve, and Stern 1983; Stern and Reeve 1980). Using a real options-based framework, we show how, in many instances, uncertainty can have a positive effect on the value of a
relationship. This finding has important implications for understanding buyer-seller interactions
and provides the basis for the value-based typology of relationship forms presented later in the
article.

The remainder of the paper is organized as follows. First, we examine the theoretical
underpinnings of current models for valuing market-based assets and show how these models
can systematically underestimate asset value. Based on this review, we extend current valuation
approaches to propose a real options-based framework that overcomes this limitation. Next, we
apply the framework to business relationships and show how it provides a mechanism for linking
key relationship variables to long-term value. Using insights gained from the framework, we
derive a value-based typology of relationship forms and offer propositions for testing the
classification scheme. We conclude by describing a research agenda for developing and testing
the framework and the nomological network it suggests.

**VALUING MARKET-BASED ASSETS**

The purpose of financial valuation models is to help managers align their strategic
choices with the objectives of the firm’s shareholders. Recognizing the need for financial
criteria to guide marketing decisions, many firms rely on the net present value (NPV) framework
to estimate the value of strategies (Day and Fahey 1988), brands (Aaker 1991, 1995), end-
customer relationships (Blattberg, Getz, and Thomas 2001; Dwyer 1997; Rust, Lemon, and
Zeithaml 2001), and business relationships (Jackson 1985). In many cases, however, NPV has
been applied to marketing activities without due attention to the underlying theoretical
assumptions and their appropriateness to the application (Barwise, Marsh, and Wensley 1989;
Devinney and Stewart 1985; Hogan et. al 2002). Inevitably, the use of financial metrics involves
managing the tension between the simplifying assumptions of the model and the complexities of a dynamic market. To ensure that their use does not lead to substantial errors, managers must recognize the limitations of the valuation approach and make appropriate adjustments when possible.

**Applying Net Present Value to Market-based Assets**

The NPV framework represents the translation of the theory for valuing financial assets to the broader and less restrictive arena of non-financial assets. When valuing capital investments, the framework calls for adjusting future cash flows based on the opportunity cost of capital and the level of risk of the investment. The underlying theory for making these risk adjustments is derived from the Capital Asset Pricing Model (CAPM) introduced by Sharpe (1964) and Lintner (1965) for use in determining the expected return for a stock. Under the CAPM, the expected return of a stock is determined by systematic risk that cannot be diversified away and is captured by the well-known “Beta” coefficient representing the degree to which the returns from the stock co-vary with the returns of the market as a whole. As shown in equation [1], the Beta coefficient is then used to determine the expected return for a stock (r):

\[ r = r_f + \beta (r_m - r_f) \]

where \( r_f \) is the risk free rate of return, and \( r_m \) is the average market return. Under the NPV framework, the computed value of \( r \) is used to discount expected cash flows from typical investments in the firm’s non-financial assets (including, but not limited to market-based assets). If an investment has more or less risk than is typical for the firm, the methodology calls for identifying another stock with similar risk characteristics as the investment and then using its expected return to discount cash flows (Trigeorgis 1999). If such a stock cannot be identified (as
is usually the case), managerial judgment should be used to adjust the discount rate for investment-specific risk (Brealy and Myers 2000).

Given the dissimilar nature of financial and market-based assets it is not surprising that basic assumptions of the CAPM may be violated when applied to brands, consumer relationships, and business relationships to determine NPV. These gaps between the underlying theoretical assumptions of the valuation model and the characteristics of market-based assets can often be addressed by making adjustments to the NPV methodology (see Table 1). For example, the CAPM is a single period model that is not intended to adjust for risk over multiple periods. When applied to market-based assets (and other non-financial assets) this assumption is commonly relaxed by applying a constant risk-adjusted discount rate to cash flows from multiple periods (c.f. Berger and Nasr 1998; Dwyer 1997).

Table 1
Applying the CAPM to Market-based Assets

Other theoretical assumptions are often ignored in marketing applications, however. For example, a basic assumption is that investors in financial markets are price takers who cannot influence the value of the asset in which they are investing. This is a reasonable assumption in the relatively efficient financial markets in which stocks are traded. In the imperfect world for market-based assets, however, the assumption implies that managers cannot affect future returns by increasing, decreasing, or abandoning ongoing investments as they learn, over time, about the likely success or failure of such investments. In fact, when investments are staged over time, managers do have an opportunity to learn from previous investment outcomes, using that knowledge to make more effective decisions. This ability to learn from experience before
making investments can be quite valuable to the firm, yet the NPV framework does not capture the value of that learning. A considerable body of empirical research has demonstrated that the error that occurs when NPV is applied to situations in which managers have the flexibility to alter ongoing investments can be substantial (see Schwartz and Trigeorgis 2001 for a synthesis of this literature). This suggests that NPV systematically \textit{undervalues} assets such as business relationships for which managers have flexibility in determining the timing and magnitude of ongoing investments (Amram and Kulatilaka 1999; Dixit and Pindyck 1994).

To illustrate the value of managerial flexibility in the context of a business relationship we use a simple involving a buyer that is preparing to initiate a single-source supply arrangement for each of its 10 manufacturing facilities. Single sourcing is expected to reduce future purchasing costs by a total of $1 million per plant if the supplier meets performance expectations. However, if the single-source supplier fails to meet expectations with regard to price and quality, the customer could lose a total of $1 million per plant. Based on experience with other suppliers, the customer estimates the probability of a single-source supplier performing well is 70%.

The buyer is considering two alternative strategies for pursuing the single sourcing relationship (see Figure 1). Strategy A implements the program at all 10 plants simultaneously while strategy B involves a one-year trial at a single plant, with the option to expand the program to the other plants after one year. Consider the value of strategy A. There is a 70% chance that the supplier will perform well yielding $10 million in profit, and a 30% chance the supplier will fail yielding a $10 million loss. The NPV of strategy A equals $3.64 million (using 10% discount rate).
Now consider the value of strategy B, which contains an option to expand the relationship. If the supplier performs well in the trial plant, the customer will exercise its growth option to include the remaining plants. The value of future growth is $9 million. However, if the supplier fails, the customer will abandon the option by discontinuing the program, resulting in a loss of $1 million. The NPV of strategy B equals $5.57 million. The $1.93 million dollar difference between strategies A and B represents the value of managerial flexibility to defer part of the initial investment. In this highly stylized example, the customer created an opportunity to learn about future outcomes with the supplier before committing to full implementation. As this example illustrates, the value of such learning can be considerable.

In order to appropriately value market-based assets in general and business relationships in particular, it is necessary to extend the NPV framework to account for the managerial flexibility to actively manage ongoing investments. Fortunately, recent advances in financial theory provide marketers with an approach that overcomes the limitation of NPV (Slater, Reddy, and Zwerlein 1998). This approach, known as real options analysis, explicitly accounts for the value of managerial flexibility to alter future investments in an asset (Amram and Kulatilaka 1999; Dixit and Pindyck 1994; Trigeorgis 1999).

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1 It is important to note that this represents an approximation of the value of flexibility and is only intended for expository purposes. Accurate valuation of the option would require using one of several estimation methods such as binomial modeling, finite difference methods, or simulations.
**Augmenting NPV with Real Options Analysis**

Real options are analogous to financial options that confer the *right*, but not the *obligation*, to make future investments in an asset (Dixit and Pindyck 1994). This analogy between flexible investments in real assets and financial options is the basis for an emerging real options literature (c.f., Brennan and Trigeorgis 1999; Schwartz and Trigeorgis 2001; McGrath 1997, 1999). Real options analysis, similar to the NPV framework, represents an extension of the theory for valuing financial assets to the problem of valuing non-financial, or real, assets (i.e., technology, customer relationships, etc).

Options models for financial markets are differentiated from CAPM (and hence NPV) by the assumption that the value of an asset follows an identifiable stochastic process over time. This assumption enables managers to anticipate future investment decisions based on the evolution of asset value. For future periods in which the asset increases in value, the decision might lead to increased investment, whereas future periods in which the asset decreases in value might lead to reduced investment or abandonment. Using a stochastic model of asset value enables firms to incorporate flexibility to expand, contract, or abandon investments into the valuation metric. The discrete version of the commonly applied stochastic model is given by:

\[ S_{t+1} = S_t + \sigma \Delta z \]

The intuition behind [2] is straightforward. At time $t+1$, the value of an asset ($S_{t+1}$) is determined by two factors: the value of the asset in the previous period ($S_t$) and a random component ($\sigma \Delta z$) where $\Delta z$ is a normally distributed random variable and $\sigma$ describes the magnitude of future fluctuations in value that represents future risk (Dixit and Pindyck 1994; Hull 1999). This process is the basis for the well-known “random walk” model of stock prices
and has been applied successfully to describe the value of a wide variety of non-financial assets (Schwartz and Trigeorgis 2001). Using equation [2], the future value of the asset is specified by estimating two variables, the value derived from the current period \( (S_t) \) and the expected variance of future returns \( (\sigma) \) that represent the degree of uncertainty about future outcomes. It is important to note that in the absence of managerial flexibility, the value derived from an option model will be equivalent to traditional NPV. Indeed, the emerging consensus among financial scholars is that a complete assessment of asset value should include both NPV and option value (Trigeorgis 1999). Consistent with this view, we propose an extended approach to value market-based assets:

\[
\text{Market-based Asset Value} = \text{NPV} + \text{Option Value}
\]

There are numerous approaches for assessing the value of options (see Trigeorgis 1999 for an excellent discussion). Perhaps the most widely recognized approach is the model developed by Black and Scholes (1973) and Merton (1973) that represents the solution to the differential equation describing the continuous version of the stochastic model in equation 2 for a specific set of boundary conditions. An important contribution of the Black-Scholes model is that it identifies the five determinants of option value and specifies the directional effects of each variable on asset value. These determinants of financial option value are presented in Table 2 where they are matched with corresponding variables for a real option.

\begin{table}[h]
\centering
\caption{Relating Financial Options to Real Options}
\begin{tabular}{|c|c|}
\hline
\hline
\end{tabular}
\end{table}

\footnote{The Black-Scholes equation estimates the value of an option as:}

\[
V(t, S, t, E) = SN(d_1) - Ee^{-rt} N(d_2)
\]

where: \[d_1 = \frac{\ln(S/E) + (r + 1/2 \sigma^2)T}{\sigma(T)^{1/2}}\]

and: \[d_2 = d_1 - \sigma(T)^{1/2}\]
The Black-Scholes model illustrates that the value of an option increases with the uncertainty of future returns and the time to expiration. The positive association between uncertainty and value may seem counter-intuitive because higher uncertainty leads to reduced value in the traditional NPV approach. However, the value of an option resides in the flexibility of the holder to invest only when it is profitable to do so. Thus, greater outcome uncertainty increases the possibility that the option will be profitable at some future point. Similarly, a longer investment window increases the likelihood that favorable investment conditions will eventually occur. Moreover, the effects of uncertainty and time to expiration are interrelated. If there is no uncertainty in the returns, then the time to expiration is irrelevant. Correspondingly, as the time to expiration approaches zero, the benefits of uncertainty dissipate.

Some of the boundary conditions used to derive the basic Black-Scholes model are not consistent with the broad range of business relationship types, although the directional effects of each variable in the model are valid. In order to estimate option value of a business relationship, it is necessary to adjust the boundary conditions to solve the option model analytically, or use numerical methods such as the binominal model, finite difference methods, or simulations. Because our focus is on the theoretical insights obtained by applying real options to business relationships, we do not provide an in-depth treatment of estimation methodologies (interested readers are referred to detailed texts on the subject such as Copeland and Antikarov 2000; Dixit and Pindyck 1994; Hull 1999; Mun 2002; Trigeorgis 1999). However, an extensive literature on the subject has shown that real options can be successfully applied to many complex problems such as the value of global supply networks (Kogut and Kulatilaka 1994), new product development programs such as the Gillette Mach 3 razor (Herath and Park 1999), joint ventures
(Kogut 1991), and flexible manufacturing systems (Kulatilaka and Trigeorgis 1999). The wide variety of situations for which real options analysis has been applied suggests that it can be readily applied to business relationships to estimate option value.

A REAL OPTIONS-BASED FRAMEWORK FOR VALUING BUSINESS RELATIONSHIPS

As we have outlined, financial theory indicates that extending NPV with real options analysis can provide a more complete understanding of the value derived from a relationship, especially with regard to the role of uncertainty and future investments. We now build upon this foundation to propose a framework that identifies the major types of embedded options in business relationships and describe the determinants of value for each. It is important to note that what we propose is a framework detailing the sources of value in a business relationship that can serve as a precursor to specific models using one of many available estimation techniques. As such, our focus is on understanding how key variables (e.g., commitment, trust) contribute to relationship value by explicating the link between firm actions and long-term financial performance. Given the breadth of relationship types, the framework is understandably broad in scope. Yet we have attempted to provide sufficiently detailed illustrations of its application to motivate future research and contribute to the delineation of a value-based nomological network. Toward this end, we use the framework to motivate a value-based typology of relationship forms and suggest several initial research propositions.

Consistent with a resource-based view (Barney 1991; Morgan and Hunt 1995), we conceptualize a relationship (either buyer or seller) as an asset comprised of three components: core benefits, growth options, and switching options (see Figure 2). Firm actions are linked to
overall relationship value through the determinants of value for each of these components that we now discuss in detail.

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**Figure 2**

**Conceptual Framework for Valuing Business Relationships**

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**Core Benefits**

Core benefits represent the foundation of the relationship and take a variety of forms such as cost savings, product margins, or quality improvements. The identifying characteristic of core benefits is that they are derived from past or unavoidable future investments that leave the firm no flexibility to defer or adjust. Often, core benefits are derived from sunk investments such as a customer’s investments of time and capital to select a supplier and initiate the relationship (Dwyer, Schurr, and Oh 1987). In return for these investments, the customer expects to receive lower prices or higher quality than that offered by the next best alternative supplier. The seller makes similar investments for which it obtains ongoing benefits such as higher margins, increased volume, or lower cost-to-serve. The lack of flexibility to alter or defer investments associated with core benefits suggests they can be appropriately valued using NPV as suggested by Jackson (1985).

**Options**

When buyers and sellers initiate a relationship, they obtain two types of options that represent the opportunity to make or to avoid future investments to change the current state of the relationship. In some cases, the change involves opportunities to expand the relationship
beyond its current scope -- a growth option. In others, the change involves the opportunity to switch from one relationship to another or terminate it altogether -- a switching option.

**Growth options.** A growth option enables the firm to assess future investments of time or capital to expand a relationship beyond its current scope. Typically, a firm holds multiple growth options with each representing a potential project such as an early supplier involvement or new product development program. A firm rarely opts to invest in all of its growth options, however. Indeed, a key insight of the options-based approach is that it affords the opportunity to resolve some uncertainty about a project’s outcomes before investing and thereby reduce some of the risk. As the firm learns more about partner capabilities and intentions or resolves uncertainties in the business environment, the firm will choose to invest (i.e., exercise its option) only for projects that are relatively certain to enhance the value of the relationship.

**Switching Option.** The switching option provides a means to understand the value that a firm derives from the flexibility to switch its relationship to an alternative partner that might yield a higher long-term return. A key contribution of the switching option is that it provides a metric to compare an uncertain choice between the potential benefits of customer (seller) A and customer (seller) B in a rigorous fashion. In addition, it provides a mechanism for understanding how uncertainty about partner alternatives will affect firm behavior. High switching option value means that firms benefit by maintaining flexibility and avoiding long-term commitments. For the buyer, a switching option creates value by limiting the downside risk inherent in continuing to purchase from a particular seller. This risk stems from the possibility that alternative suppliers might increase the attractiveness of their quality/price offering relative to the current supplier through the introduction of new technologies, reduced prices, etc. Thus, preserving the switching option provides the buyer with some protection against obsolescence of
a supplier’s process or product technology. For the seller, the switching option provides a means to understand and manage the customer portfolio in a way that accounts for the opportunity cost of commitment to current customers.

The worth of a switching option can be illustrated by an example in which a buyer is evaluating two potential supply relationships. Assume the potential suppliers have similar quality and pricing. The difference is that Supplier 1 insists on a three-year contract, while Supplier 2 is willing to guarantee prices in four-month increments. Faced with this situation, the firm would typically demand additional concessions from Supplier 1 before agreeing to the three-year commitment. The size of these concessions is a proxy for the value that the firm places on its switching option. It is important to note that in some instances a firm will not have a viable alternative relationship that would enable it to exercise its switching option. When this occurs, the next best alternative may be to “switch” to no relationship at all. This situation is considered a special case of the switching option that is frequently described as an abandonment option (Trigeorgis 1999).

**Determinants of Option Value**

Financial theory indicates that the value of an asset is determined by the size of the required investment along with the magnitude, timing, and uncertainty of the expected benefits (Day and Fahey 1988; Doyle 2000; Rappaport 1986; Young and O’Byrne 2001). Since prior research in marketing has explored the determinants of core benefit value for a variety of market-based assets in some detail (see Srivastava, Shervani, and Fahey 1998), we focus primarily on the determinants of option value.

In Table 3 we identify the five determinants of option value for buyers and sellers. For example, the determinants of the value of a growth option include the magnitude of expected
returns from the project if it were initiated immediately, the required investment to initiate the project, the length of time the investment can be deferred, the level of uncertainty about future benefits, and the risk-free interest rate. As previously discussed, project uncertainty has very different effects on the value of options and core benefits. Whereas greater uncertainty reduces the value of the core benefits, it increases the value of embedded growth and switching options.

Table 3
Determinants of Option Value in Business Relationships

The determinants of value for the switching option are different from the growth option. Specifically, the investment required to exercise a switching option equals the switching costs that would be incurred if the firm changed partners. The benefit stream associated with the switching option is the expected price/quality (in the case of the buyer) or net product margins (in the case of the seller) of the next best alternative. Thus, for a buyer, the value of the switching option increases when the value of an alternative supplier’s price/quality offering is higher than the current supplier. Similarly, the value of the customer’s switching option also increases when the customer is more uncertain about the price or quality offered by alternative suppliers, indicating that the customer will value flexibility more when the alternatives to a current supplier are more uncertain.

Linking Key Variables to Relationship Value

Identification of the determinants of core benefit and option value provides a mechanism for understanding how relationship-related variables affect relationship value. Some scholars have noted that knowledge about these variables remains limited because the underlying theories do not adequately account for the role of value (Anderson 1995; Ghosh and John 1999). Our
framework begins to address this limitation by demonstrating how relationship characteristics such as trust and firm behaviors such as commitment can be explicitly linked to relationship value. Since we cannot enumerate all relationship-related variables and how they affect the determinants of value in one article, we focus on illustrative examples to demonstrate how the framework can provide a new lens for understanding the dynamic interplay between buyers and sellers.

Trust. Grayson and Ambler (1999) found recently that the effect of trust on marketing research usage decreased in later stages of a relationship. This finding appears at odds with the conventional wisdom that trust is an essential driver of relationships at all stages of the lifecycle (Dwyer, Schurr, and Oh 1987; Morgan and Hunt 1994). In attempting to explain the finding, the authors suggest the existence of “dark-side” variables that moderate the impact of trust on relationship performance though their results did not provide direct support for such a view.

While acknowledging that there could be a "dark-side" to relationships, we suggest that Grayson and Ambler's findings are better explained using the value-centric perspective offered by our framework. Among the more commonly cited definitions of trust are “a willingness to rely on an exchange partner in whom one has confidence” (Moorman, Zaltman, and Deshpande 1992, p. 315) and “the firm’s belief that another company will perform actions that will result in positive outcomes for the firm as well as not take actions that result in negative outcomes” (Anderson and Narus 1990, p.45). These definitions suggest that a central role of trust is the reduction of uncertainty about future performance outcomes.

In the context of our framework, trust affects relationship value through two routes -- it has a negative effect in the form of the investments to maintain it and a positive effect in the form of uncertainty reduction. Early in a relationship, when a customer has little knowledge
about the seller’s capabilities or intentions, the customer will naturally be uncertain about future outcomes. At this stage, increases in trust should substantially reduce uncertainty and thus, increase relationship value. However, in later stages of a relationship, a customer gains considerable knowledge about the seller and thereby reduces uncertainty about the seller’s intent and performance capability. At this point, increases in trust will have only modest effects on uncertainty (perhaps because uncertainty has declined to some baseline level) and thus, will do little to increase relationship value. Other empirical results have demonstrated similar effects, but not offered theoretical explanation for their findings (Hibbard, Brunel, Dant, and Iacobucci 2001). However, when viewed through a value-centric lens, these findings that the effects of trust are diminished in later stages of a relationship appear consistent with theory.

**Commitment.** Commitment, one of the most frequently studied variables in business relationships, has been defined and operationalized in a variety of ways (e.g., Anderson, Lodish, and Weitz 1987; Anderson and Weitz 1990; Jackson 1985; Dwyer, Schurr, and Oh 1987; Moorman, Zaltman, and Deshpande 1992; Gundlach, Achrol, and Mentzer 1995). Generally, commitment can be defined as “an enduring desire to maintain a valued relationship” (Moorman, Zaltman, and Deshpande 1992, p. 316) that involves an “implicit or explicit pledge of relational continuity between exchange partners” (Dwyer, Schurr, and Oh 1987, p.19). From these conceptualizations, it is clear that that commitment is inextricably linked to assessments of value and the willingness to make investments of time and/or capital in the relationship.

Research into commitment has focused primarily on the focal dyad of buyer and seller in business markets, although some studies have evaluated the effect of relationship alternatives as well (Anderson and Narus 1984, 1990). Unfortunately, current theory provides little guidance on how this financial comparison between current and alternative suppliers might be made. Our
framework helps address this gap by modeling the comparison of the focal and alternative relationships as a switching option. Switching option value increases with the uncertainty about the potential benefits offered by an alternative partner. Thus, a buyer evaluating the possibility of making long-term commitments to a supplier would be reluctant to make commitments (which would increase switching costs and reduce the value of the switching option) when there is a possibility that another supplier might soon make a technological advance that improved product quality or reduced production costs. In this instance, the customer would benefit by preserving the option to switch and deferring significant commitments to the current supplier.

We extend this example from a single alternative to include assessments of all possible alternatives in the supply market in order to provide additional insights into how the marketing environment affects the formation and development of buyer-seller relationships. We have discussed how uncertainty about the price and product quality of an alternative supplier increases the value of the switching option. In many cases, though, the comparison level is not the price or quality that could be attained from individual business relationship, but rather the quality and price that might be attained in the broader supply market (Anderson and Narus 1984). Increases in the uncertainty about future market prices or product quality will increase the value of the switching option and decrease the customer’s willingness to make long-term commitments to its current supplier.

Thus, in markets characterized by high levels of price and technological uncertainty, firms can benefit by maintaining less committed relationships because they preserve the value of their switching option. This insight, which is consistent with numerous empirical studies (c.f., Balakrishnan and Wernerfelt 1986; Heide and John 1990), provides a more contingent perspective on commitment than that offered in the relationship marketing literature that has
traditionally argued that highly committed relationships should be preferred in all cases (Dwyer, Schurr, and Oh 1987; Morgan and Hunt 1994).

In this section, we have decomposed the value of a relationship into its component parts (core benefits and options) and identified the determinants of value for these components in order to show how firm actions can be related to relationship value. Next, we extend the framework by demonstrating how it can provide a theoretical basis for understanding the various ways in which firms structure relationships in order to maximize their worth. Toward this end, we describe a value-based typology that identifies eight distinct relationship forms and provides propositions for research.

A VALUE-BASED TYPOLOGY OF BUSINESS RELATIONSHIPS

The question of how firms structure their relationship with exchange partners has long been the focus of scholars interested in the complex interactions between buyers and sellers (Dwyer, Schurr, and Oh 1987; Heide 1994; Williamson 1985, 1996). The theoretical typologies that have emerged from prior research have identified prototypical patterns for how firms conduct exchange along with the underlying factors motivating those patterns. Typically, these typologies trace their roots to either transaction cost analysis or the relationship marketing paradigm and have focused on relatively broad classifications of relationship types. Our framework, grounded in financial theory, extends previous research by carefully detailing the sources of financial value derived from a relationship and identifying the necessary behaviors firms must pursue to capture that value. The resulting typology provides a finer-grained understanding of the systematic variations that occur in relationship forms that is consistent with recent empirical results identifying a larger set of relationship types than previously theorized (Cannon and Perreault 1999). The typology is based on the premise that firms seek to maximize
the financial value of the relationship asset. In developing the typology, we focus on the link between uncertainty and tangible commitments to provide insight into when firms will form closer structural ties and when they would prefer to reduce commitments in order to maintain flexibility. We motivate the typology by describing how firms can maximize the worth of each value component and then provide testable research propositions to describe the main effects.

Maximizing Relationship Value

Understanding the theoretical connections between firm behavior and the components of relationship value enable us to better delineate the various relationship management strategies adopted by firms. As a starting point, we examine how the magnitude of core benefits and embedded options affects the propensity to commit time and capital to a relationship. Core benefits are characterized by sunk investments generating future returns in the form of gross margins to the seller or cost reductions and quality improvements to the buyer. Improvements in future returns come largely through incremental investments of time and capital to improve logistical efficiency, product quality, etc. Return on investment is a key consideration in managing core benefits as low value relationships will not generate sufficient returns to merit significant investments of time and capital (Anderson and Weitz 1989). Additional improvements in core benefit value can be obtained by reducing uncertainty about future outcomes (Srivastava, Shervani, and Fahey 1998) through such lock-in provisions as long-term contracts that ensure that incremental investments to improve logistical efficiency and product quality can be recouped. Thus:

**P1: Increases in core benefits are associated with increased commitment.**
Growth options are distinguished from core benefits because they involve *avoidable* future investments offering the potential, but not the obligation, to expand the scope of the relationship through cross selling, engaging in early supplier design programs, or increases in transaction volume. The key characteristic of a growth option is that the buyer/seller has an opportunity to resolve some uncertainty about future returns from these investments before committing to them. Firm's managing growth options should seek to avoid premature commitment while attempting to reduce uncertainty through closer interaction. Anecdotal evidence suggests that buyers often pursue this approach in the context of early supplier involvement programs. For example, Sun Microsystems assigns a team to investigate a supplier’s new technologies before allowing them to participate in early stage design processes (Carbone 1997). In the course of the study, Sun is able to reduce uncertainty about the type and quality of future innovations that might be obtained from the supplier before making long-term commitments in the form of contracts or specific investments. The twin goals of maintaining flexibility and reducing uncertainty in the presence of valuable growth options leads to the following propositions:

**P2:** *Increases in growth option value are associated with increases in performance monitoring and information exchange.*

**P3:** *Increases in growth option value are associated with decreases in relationship specific investments.*

Switching options describe the value derived from having the flexibility to pursue an alternative exchange partner should a more profitable opportunity present itself. The operational strategy for managing switching options is to avoid commitment to the current relationship while simultaneously seeking to resolve uncertainty about alternative partners through active
monitoring of the external marketplace or through maintaining multiple relationships. Although this approach is similar to that of the growth option, the key difference lies in the source of the uncertainty driving option value. Whereas the key uncertainty for a growth option focuses on the ability of the current partner to perform adequately to justify an investment to expand the relationship, the key uncertainty for a switching option focuses on the ability of an alternative partner to perform at a higher level than the current partner. This leads to the following propositions:

**P4:** Increases in switching option value are associated with decreased commitment to the current relationship.

**P5:** Increases in switching option value will be associated with increased levels of a) market monitoring and b) multi-sourcing arrangements.

The value derived from the three components (core benefits, growth options, and switching option) can be combined to form the structural determinants for eight archetypal relationship management approaches presented in Figure 3. We briefly describe the characteristics of each of the relationship forms below.

---

**Low Switching Option Value**

**Passive Market-based Exchange (I):** Because of the low core benefits and few growth options, relationships in this quadrant do not merit significant investments of time or capital. Moreover, the lack of alternatives with the potential to offer substantially better benefits suggests that there is little to be gained from external market monitoring activities. Thus, relationships in
this category should be pursued through the most efficient means possible such as electronic exchanges or automatic order fulfillment procedures.

Incremental Investment (II): The increased value of core benefits in cell II justifies ongoing investments in the relationship to improve efficiency and reduce total cost-to-serve of the seller and total cost-to-purchase for the buyer. There can be a worthwhile return on investments such as the time required for production/logistics managers to work on processes improvements. Such a relationship form might emerge in mature relationships where substantial relationship specific investments have reduced the value of the switching option and where the growth options have been exercised or abandoned. In these circumstances, firms can benefit through incremental investments in the form of contracts and operational linkages such as electronic data interchange systems.

Relational Interaction (III): The addition of a substantial growth option to a relationship with low core benefit value (cell I) poses a challenge for relationship managers such as a seller of a relatively low value product hoping to cross-sell higher value product lines to a new customer. If the uncertainty about the customer’s desire for the additional products is resolved favorably, the relationship may become valuable and move to the status of incremental investment (cell II). If the uncertainty is resolved unfavorably, then the relationship will move toward a passive market-based exchange (cell I). The managerial challenge is to pursue actions to resolve uncertainty about the growth option while avoiding substantial relationship specific investments that commit one to the relationship prematurely. The resolution of uncertainty may be performed in directed fashion (e.g., Sun Microsystems) or in a less directed fashion through relational activities such as information sharing and cooperation.
**Intensive Development (IV):** When the relationship involves substantial core benefits and also has valuable growth options, then the partners can justifiably invest in both relationship building activities and capital investments to improve operational efficiency. Indeed, the process of implementing capital projects will foster closer interactions that may serve to reduce uncertainty about the growth options. Even if the uncertainty about the growth options is resolved unfavorably (i.e., the expansion opportunity ultimately proves to be unprofitable), the high core benefits will merit incremental investment. Moreover, the lack of alternative relationships offering the potential for greater benefits (i.e., low switching option value) means there is no reason to maintain flexibility by avoiding specific investments.

**High Switching Option Value**

**Active Market-based Exchange (V):** The addition of a switching option to a relationship that otherwise would be managed using a passive transactional approach (Cell I) creates an incentive to monitor the marketplace more actively while reducing the benefit of commitment. Such a relationship might emerge in markets for differentiated products with moderate innovation rates where there is a reasonable probability that an alternative supplier will develop a lower cost or higher quality product at some point. However, the low core benefits and absence of growth options reduce the return derived from external monitoring efforts, leading firms to rely on automated RFP systems, electronic exchanges, and other low cost approaches to assess the market.

**Multi-partnering (VI):** The greater core benefits relative to relationships in the Active Market-based Exchange Cell (V) require balancing the benefits obtained through incremental investments to maximize core benefits against the benefits of minimizing commitments to
maintain switching flexibility. Because of the high value of the switching option, the firm will be reluctant to move to an exclusive arrangement with the supplier or customer. Instead, a value-maximizing strategy would attempt to maintain flexibility through multiple relationships with a very limited number of partners. By limiting the number of partners, the firm can support some level on ongoing investment to improve the value of core benefit streams while minimizing switching costs that reduce the value of the switching option. It is important to note that external events may shift the structure of relationship benefits and change the value-maximizing strategy. For example, if the uncertainty about the switching option were resolved at some point (e.g., one supplier develops a break-through technology), then the buyer should switch to that supplier at which point the value maximizing strategy would be to move toward incremental investment (Cell II) in order to develop the core benefits associated with the break-through supplier.

*Portfolio Management (VII).* Relationships in this cell are characterized by high growth and switching opportunities while offering relatively low core benefits. The challenge for relationship managers in this cell is to resolve uncertainty about the growth opportunities while also attempting to reduce uncertainty about the potential benefits derived from alternative relationships. One means to accomplish this is to maintain a portfolio of relationships in which each partner is kept in the portfolio until the uncertainty about the growth option is resolved. If the growth opportunity is resolved favorably (e.g., the supplier is qualified for an early supplier involvement program) the supplier is retained and the relationship is moved to intensive development (cell VI). In contrast, if the growth opportunity is resolved unfavorably, then the relationship is dropped and replaced with another with a still valuable growth option.

Genzyme Corporation, a manufacturer of biotechnology products, employs this portfolio approach. Due to the complexity of its supply needs, Genzyme maintains a limited set of
qualified suppliers for each of its purchases. Moreover, it attempts to work closely with the top supplier of each supply category to develop better technological solutions to its supply needs. By doing so, Genzyme is attempting to capture the value of the growth options it holds with these suppliers. The company refuses to engage in sole source relationships that might eliminate switching options. It recognizes that the high rate of innovation in the supply market means that alternative suppliers are likely to develop technological solutions that are superior to those provided by current suppliers.

**Dual Development (VIII):** The added value of core benefits in this cell relative to the portfolio approach (cell VII) indicate that the firm would benefit from incremental investment in the relationship to improve efficiency and reduce costs. However, investments would run counter to a portfolio approach of avoiding premature commitment designed to address high growth and switching option value. In this situation, a firm should seek to reduce the size of the portfolio by pursuing a dual partnering arrangement that enables incremental investment to improve efficiency and contributes to uncertainty reduction for the growth options. If the uncertainty about growth options is resolved, the firm would opt to increase investment to maximize core benefits and then move the relationship to an incremental investment approach (Cell II).

The eight archetypal relationship management strategies are driven by the underlying structure of the financial value provided by core benefit and option value which determine the value-maximizing strategy for the buyer and seller. This raises an interesting issue regarding situations in which the buyer and seller have structural differences in the sources of value and would opt for different approaches to relationship management. In these situations, the degree to which partners desire to make commitments can lead to conflicts whose outcome will be
determined by the relative interdependence (Gundlach, Achrol, and Mentzer 1995; Gundlach and Cadotte 1994; Kumar, Scheer, and Steenkamp 1995). This interdependence asymmetry is captured, in part, by the magnitude of the switching option, with the partner with the lowest switching option value being the most dependent. Ultimately, the overall approach to managing the relationship will default to one of the archetypal forms as the conflict is resolved.

Contribution of the Value-based Typology

The theoretical typology we propose extends previous classification schemes by further explicating the way that relationships are formed and change over time. One of the most widely cited typologies is grounded in transaction costs analysis (Williamson 1979). A basic premise of TCA is that firms faced with high transaction costs will seek intermediate relationship governance structures: a premise that has been supported by empirical studies across a variety of contexts (Rindfleisch and Heide 1997). A bigger challenge for TCA is in explaining which types of governance forms will be adopted under various circumstances. Heide (1994) addresses this issue by developing a typology describing three idealized relational forms: market, unilateral/hierarchical, and bilateral. These ideal forms can be implemented in a variety of ways as evidenced by Cannon and Perreault’s (1999) empirical study that identified eight distinct relational forms. However, as those authors point out, current articulations of TCA have a limited ability to explain when each of the various governance forms is most likely to be adopted. By focusing on the key sources of value in business relationships, we have provided a basis for explaining this diversity of relational forms.

The other prominent typology is based on the relationship lifecycle proposed by Dwyer, Schurr, and Oh (1987). Their model, broadly grounded in the social psychology of power, marital relations, and bargaining, suggests that relationships evolve through five stages:
awareness, exploration, expansion, commitment, and dissolution. Implicit in their model is that this progression occurs in a rather linear fashion as a function of time and that, once initiated, relationships will evolve to the commitment stage or dissolve. Some scholars have suggested that relationship development is less sequential in nature and that relationships evolve in an iterative process in which the relationship can take multiple forms or may pass through the same form at different times (Anderson 1995; Ring and Van de Ven 1994; Zajac and Olson 1993).

Our framework and the resultant typology provide theoretical support for an iterative perspective by describing how the value of a relationship can change over time. A fundamental process of relationship development is the resolution of uncertainty about future performance capabilities of current and alternative partners. Although these uncertainties may be resolved in a relatively continuous fashion, we believe the shift from one relational form to another is signaled by a discrete event involving exercising or abandoning an option. This process of exercising or abandoning options occurs in a steady, yet discontinuous, fashion that provides theoretical support for the observation that relationships evolve somewhat episodically.

The ongoing resolution of uncertainty over time will tend to push relationships from cells on the right side of the matrix in Figure 3 to the left side as uncertainty about switching options and growth options is resolved and they are either exercised or abandoned. There are multiple paths that this progression may follow, however. For example, a relationship in the Relational Interaction cell (low core benefits, high growth option value) can move to either passive market-based exchange or incremental investment depending on the resolution of growth option uncertainty. Shifts in relationship forms can occur due to external events as well. For example, the introduction of a radical innovation to a mature market will create switching options for buyers depending on the magnitude of the innovation. Under these circumstances, buyers would
move from relational or incremental investment modes toward multi-partnering or portfolio approaches. These examples suggest that relationships evolve in a cyclical manner driven by performance uncertainty of the current relationship partner as well as market uncertainty caused by the product lifecycle. Both of these sources of uncertainty change systematically with time.

To summarize, the real-options based framework and accompanying typology of relationship forms extends our understanding of business relationships by providing a more detailed understanding of the role of uncertainty and commitment in creating value for firms. The intersection of real options and business relationship research is a broad one and that breadth is reflected in the level of analysis of the framework. In many instances, important topics were given only partial discussion in order to provide coverage of the relevant issues in a limited space. We believe that the real-options based framework for valuing buyer-seller relationships is timely as marketing scholars re-focus on the marketing / finance interface (Zinkhan and Verbrugge 2000) and the metrics needed to assess the value of marketing activities (Berger et al. 2002). The framework also provides a foundation for future research to explore important issues related to value-driven relationship management. We now discuss some of these potential research areas.

**RESEARCH DIRECTIONS**

*Toward a Value-centric Nomological Network*

An important area for future research relates to how the framework and theoretical typology can be operationalized for theory testing. The key behavioral assumption of the framework is that firm action is guided by expectations of future outcomes, i.e., relationship value. This suggests a decision-making process in which the firm considers the effects of an action on relationship value, and then, based on that assessment decides whether to pursue the
action. Once the action is taken, the firm then observes the outcomes and updates its ongoing assessment of relationship value. The underlying nomological structure depicting this process is shown in Figure 4.

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**Figure 4**

Operationalizing the Framework

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As the figure illustrates, there are two routes by which a potential action can affect the value of a relationship. The direct route occurs when an action such as a price cut immediately affects the returns from the relationship. The indirect route occurs when an action affects a central relationship characteristic, which then influences value assessments. For example, mutual trust is an important characteristic of a buyer-seller relationship (Morgan and Hunt 1994; Doney and Cannon 1997). A seller considering an opportunistic move to skimp on product quality by using cheaper materials must balance the direct benefit derived from lower costs against the indirect effect of reduced trust by the buyer that would, in turn, increase uncertainty about future outcomes because of the potential for future opportunistic behavior on the part of the buyer. These direct and indirect effects can be captured in this model to better explain firm behavior.

The operational framework clarifies the essential difference between economic outcomes of an action (i.e., cost savings, higher margins, etc.) and value. Relationship value is a forward-looking measure that, by its very nature, is inherently uncertain. It is also the relevant economic measure for managerial decision-making because it represents a manager’s understanding about possible outcomes of an action. In contrast, realized outcomes represent the result of an action and are measured with certainty (at least to the degree that the firm tracks the information).
Because these measures do not capture decision-making uncertainty, they provide only an incomplete perspective into managerial decision-making processes.

Another important issue for future research is the operationalization of relationship value for the purpose of theory testing in field surveys and other methods commonly used in business marketing research. We suggest that relationship value can be operationalized in two ways. The first is as a second-order construct defined by the two dimensions: expected value of future benefits and the level of uncertainty regarding receipt of those benefits. This approach is consistent with financial theory that conceptualizes value as a probability distribution of future outcomes (Hogan 2001; Rueflı 1990). The beneficial aspect of a two-dimensional global measure of value is that it can be captured readily by survey techniques and can provide a high level understanding of the role of value in business relationships. The down side of a global measure is that it may obscure important aspects of growth and switching option value.

A second approach to operationalizing relationship value can provide a finer grained understanding of its effects on firm behavior by focusing on specific determinants of value. For example, uncertainty about the price and quality of alternative relationships increases the value of the switching option. Firms attempting to maximize the value of the switching option would pursue actions to maintain flexibility through means such as multi-sourcing and the avoidance of future investments. This proposition can be tested by assessing the correlation between price uncertainty and propensity to multi-source. Focusing on specific determinants of value is consistent with recent research in the customer relationship management literature that focuses on specific determinants of customer lifetime value such as repurchase intention (Bolton 1998) and usage rates (Bolton and Lemon 1999). It is likely that such an approach would be productive for researchers in business markets as well.
**Metric Development**

Another area for future research pertains to developing metrics to quantify the value of business relationships using the real options-based framework. Considerable progress has been made in the last several years toward adapting real option valuation models to increasingly complex business problems such as multi-year research and development projects (Herath and Park 1999), flexible manufacturing systems (Kogut and Kulatilaka 1994), and major construction projects (Pindyck 2001). There is a need to extend this research into the realm of business relationships where initial applications might focus on a specific growth or switching option in order to develop appropriate estimation methodologies.

A major challenge for quantifying option value in business relationships is to measure the degree of uncertainty in future returns. In some instances, this uncertainty can be measured directly from market data. For example, a key uncertainty for a switching option in a particular relationship might involve future price levels. Uncertainty for future price levels could be estimated directly from price data obtained from an electronic exchange or from company records of past price proposals. It is unlikely that such direct estimation would be feasible for growth options that are internal to the dyad and for which there is not a readily available market measure. Instead, uncertainty could be estimated through a combination of managerial interviews and Monte-Carlo simulations using a methodology proposed by Hogan (2001) or Copeland and Antikarov (2001).

**Other Market-based Assets**

The framework we have proposed can be extended to other market-based assets in future research. For example, brand valuation models such as those used by the Interbrand Group PLC,
rely on a relatively simple NPV model for valuing perpetuities. However, a significant portion of the value of a brand lies in brand extensions (Aaker 1991), which are more appropriately modeled as a growth option that will be exercised if the initial brand is successfully launched. Future research should also investigate the application of option models to consumer relationships. For example, a growth option model could be used to determine the value of cross-selling opportunities while the decision to “fire” a customer could be modeled using an abandonment option.

CONCLUSION

Given the strong interest in understanding and measuring the value of consumer relationships, it is appropriate that marketing scholars begin to explore value in business relationships as well. The importance of such research is underscored by recent calls for approaches to integrate financial accountability into traditional marketing models (Ghosh and John 1999; Moorman and Rust 1999). We believe that our real-options based framework contributes to this dialogue and can guide future research on this important topic.
REFERENCES


<table>
<thead>
<tr>
<th>Assumptions of CAPM in Financial Markets</th>
<th>Characteristics of Market-based Assets</th>
<th>Typical Adjustments to Valuation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Time Horizon</strong></td>
<td>Investments are evaluated for a single period</td>
<td>Asset valuation covers multiple periods</td>
</tr>
<tr>
<td><strong>Specific Knowledge</strong></td>
<td>Investors do not have unique knowledge about financial asset</td>
<td>Managers typically have unique knowledge about expected returns from asset</td>
</tr>
<tr>
<td><strong>Investor Control</strong></td>
<td>Investors have no influence over value of financial asset</td>
<td>Managers influence investment returns through incremental increases or decreases in investment</td>
</tr>
<tr>
<td><strong>Risk</strong></td>
<td>Risk is constant over a single period</td>
<td>Risk varies over time</td>
</tr>
<tr>
<td><strong>Asset Liquidity</strong></td>
<td>All assets are perfectly liquid</td>
<td>Assets are often not easily tradable</td>
</tr>
<tr>
<td><strong>Competitive Interactions</strong></td>
<td>Asset values are independent of one another</td>
<td>Value of investments is affected by nature of competitor investments</td>
</tr>
</tbody>
</table>
Table 2
Relating Financial Options to Real Options

<table>
<thead>
<tr>
<th>Variable</th>
<th>Financial Options Perspective</th>
<th>Real Options Perspective</th>
<th>Effect on Option Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>Stock price ⇒</td>
<td>Present value of future project returns</td>
<td>Increase</td>
</tr>
<tr>
<td>E</td>
<td>Exercise price of option ⇒</td>
<td>Expenditure required to initiate project</td>
<td>Decrease</td>
</tr>
<tr>
<td>t</td>
<td>Time to expiration ⇒</td>
<td>Time for which decision can be deferred</td>
<td>Increase</td>
</tr>
<tr>
<td>$\sigma^2$</td>
<td>Variance of stock returns ⇒</td>
<td>Uncertainty of project returns</td>
<td>Increase</td>
</tr>
<tr>
<td>r</td>
<td>Risk free interest rate ⇒</td>
<td>Risk free interest rate</td>
<td>Decrease</td>
</tr>
</tbody>
</table>
### TABLE 3
Determinants of Option Value in Business Relationships

<table>
<thead>
<tr>
<th><strong>Determinant</strong></th>
<th><strong>BUYER</strong></th>
<th><strong>SELLER</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Growth Option</td>
<td>Switching Option</td>
</tr>
<tr>
<td>Value in Current Period (S)</td>
<td>Magnitude of cost / quality improvements from project</td>
<td>Price / quality of alternative supplier</td>
</tr>
<tr>
<td>Size of Investment (E)</td>
<td>Required investment to implement project</td>
<td>Switching costs</td>
</tr>
<tr>
<td>Time to expiration (t)</td>
<td>Window of opportunity for project to be completed</td>
<td>Expected relationship life</td>
</tr>
<tr>
<td>Variance (σ)</td>
<td>Degree of uncertainty about project benefits</td>
<td>Uncertainty of future price / quality of alternate supplier</td>
</tr>
<tr>
<td>Discount rate (r)</td>
<td>risk-free rate</td>
<td>risk-free rate</td>
</tr>
</tbody>
</table>
FIGURE 1
Contrasting Conventional Investments with an Option

(Strategy A)  
Conventional Investment

(Strategy B)  
Option to Expand

Supplier Succeeds
$p = .70$
- Full Implementation

Supplier Fails
$p = .30$
- $10 mil
- $10 mil

Supplier succeeds: full expansion
$p = .70$

Supplier fails: no expansion
$p = .30$
- $1 mil

Value (A) = $.7(10/1.1) - .3(10/1.1) = $3.64 million

Value (B) = [.7(1/1.1) + .7(9/1.1) - .3(1/1.1)] = $5.57 million

Value of Flexibility = Value Strategy (B) – Value Strategy (A)

= $5.57 – $3.64 = $1.93 million
FIGURE 2
Conceptual Framework for Assessing the Value of Buyer-Seller Relationships
FIGURE 3
A Value-based Typology of Relationship Forms

<table>
<thead>
<tr>
<th>Low Switching Option Value</th>
<th>High Switching Option Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Low Growth Option Value</strong></td>
<td><strong>High Growth Option Value</strong></td>
</tr>
<tr>
<td>Low Passive Market-based Exchange</td>
<td>Low Active Market-based Exchange</td>
</tr>
<tr>
<td>Relational Interaction</td>
<td>Portfolio Management</td>
</tr>
<tr>
<td>Incremental Investment</td>
<td>Multi-partnering</td>
</tr>
<tr>
<td>Intensive Development</td>
<td>Dual Development</td>
</tr>
</tbody>
</table>
FIGURE 4
Operationalizing the Framework:
The Sequential Nature of Value-based Decisions