



Comment on 'Corporate Hedging: The Relevance of Contract Specifications and Banking Relationships'

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The paper by I. Cooper and A. Mello titled 'Corporate Hedging: The relevance of contract specifications and banking relationships' is a very important addition to the theoretical literature on corporate hedging. The paper goes beyond the general framework in the literature that provides a rationale (or reason) to hedge, and asks the following hitherto unanswered questions: a) how does financial hedging affect the value of the firm, if we take into account the costs of hedging, which are linked to a firm's credit risk?; b) in such a framework, what is the optimal hedge ratio?; and, c) what are the implications regarding the preference for one hedging instrument versus another?

The innovation in this paper is that it includes the effect of credit risk on the value of the hedging contract, which in turn affects the viability of the hedging strategy. In some cases, hedging is possible only when the counter-party to the forward also holds a significant portion of debt in the firm. The optimal hedge ratio is also affected by the inclusion of the costs of hedging and is shown to be less than the minimum-variance hedge ratio. The paper also has implications on the demand for forwards versus futures by the hedging firm.

In this comment, I will focus on the following issues: a) the links of this paper to recent literature on hedging and potential extensions; and, b) empirical motivation for the paper and empirical tests.

1. Links to recent literature and extensions

The model that is presented here is a static one and as a result, potentially interesting inter-temporal issues in corporate hedging are not examined. A discussion of how the results might be affected – if at all – if we extend this framework in more than the one-period setup of the paper would be very informative. For example, an important question that can be examined in such a framework is, if there are 2 (or N) period cash flows, should a firm hedge all 2 (or N) period cash flows, the

present value of those, or something else? To my knowledge, this question has not yet been fully addressed both in theoretical and empirical settings. A paper that addresses some of the issues in a theoretical framework is Adam (1998). Adam develops a dynamic model that shows the interaction of debt and derivatives. In his model, however, unlike here, firms issue debt with embedded derivatives to lower credit risk and also derivatives to reduce the probability of raising costly external financing.

A second issue is that of the derivative instruments that are considered in this paper, namely futures and forwards. While forwards are by far the most popular derivative instruments to hedge exchange-rate risk (see, e.g., the Wharton Survey (1996)), almost a third of the firms also use options or other nonlinear contracts to protect themselves from exchange-rate risk (see, e.g., Geczy et al. (1997)). It would be interesting to see how the availability of options may affect the demand for hedging and the optimal hedge ratio in this framework. Among others, Froot, Scharfstein and Stein (1993) and Brown and Toft (1998) stress the importance of hedging through options. Froot, Scharfstein and Stein recognize that options create the possibility for hedge ratios to be 'customized' on a state-by-state basis. Brown and Toft also consider the effect of exotic, or 'customized' options, in addition to simple options and derive optimal hedging strategies for a profit-maximizing firm that faces both hedgeable and nonhedgeable risks. They find that, generally, the risk management strategies differ significantly from the minimum-variance forward hedge and that the optimal hedge ratio is a function of the price volatility, quantity volatility, profit margins, market risk premium and correlation between price and quantity. In their framework, the use of exotic options is better than forwards or simple options, when the correlation of price and quantity is large.

Another issue that is related to this paper and of substantial interest is how hedging may affect the real operations of a firm, or how the existing operations may affect the demand for hedging. This issue is examined by, among others, Adler and Prasad (1993) and more recently, by Chowdry and Howe (1998). In particular, the latter paper examines under what conditions a multinational corporation will alter its operations to manage risk exposure. It finds that a firm will engage in operational hedging when both exchange-rate uncertainty and demand uncertainty are present and that, given that demand uncertainty is lower in the short term, operational hedging is less important for managing short term exposures.

This paper can also be extended if we allow for randomness in the investment/financing opportunities. Froot, Scharfstein and Stein consider such an extension in their framework, mostly because they are interested in how hedging can affect investment. For example, the demand for hedging would be altered if both current cash flow and the marginal product of additional investment is similarly affected by exchange-rate risk. Finally, very recently, Froot and Stein (1998) present a model of value-maximizing banks that are concerned with risk management, in a framework in which not all risks can be hedged without costs. This approach may also be useful for this paper when one considers the behavior of banks.

2. Empirical motivation and tests

In this part, I examine whether empirical evidence on hedging is consistent with the paper by I. Cooper and A. Mello and whether the paper has testable empirical implications that we could examine further.

One of the recent papers (Geczy et al. (1997)), finds that the main motivation for a firm hedging exchange-rate risk, is to mitigate potential underinvestment, in line with Froot, Scharfstein and Stein's theory of optimal hedging. This paper is instead motivated by the reduction of expected costs of bankruptcy as a reason to hedge. It would be interesting to see whether the above result may be related/incorporated in this framework. Under what assumptions are the two frameworks compatible? Also, most firms that hedge have significant size. Does size play any role in this framework?

In addition, this paper suggests that there is an 'observed self-separation' of hedgers between forward and futures markets. It is not clear that this is something that we observe in the data, as most firms that use forwards also use futures. In fact, Geczy et al. report data on the use of currency derivatives classified based on the derivative instrument that a firm is using. There is an overwhelming preference for the use of forwards to cover exchange-rate risk, while there is almost no demand for futures. In particular, out of 154 currency hedgers in 1991, 137 of them (89%) use forwards, 44 (28.6%) use currency swaps, 40 (26%) use options and only 1 (0.006%) uses futures. The users of futures increase to 3 (out of 212 currency derivative users) in 1993, but remain extremely small. This is somewhat puzzling given some of the implications in this paper. Is the reason that we observe so few futures users that collateralization is very costly?

Several more similar questions arise, as one reads I. Cooper and A. Mello's paper. For example, the paper suggests a much bigger role for banks than what we observe in reality. We know that firms that hedge are mostly large and that for those firms, only a small part of their debt is held by banks. Also, how often is the case that debt is subordinated to hedging? What is the empirical evidence regarding the prediction of the model that firms expected to hedge in forward markets have low default risk? What is the evidence in the data regarding debt covenants and hedging? Do we have any evidence on actual forward hedging defaults? How big are the spreads in forwards that are quoted to low versus high credit risk firms?

I am afraid that some of these very important questions cannot be answered presently as the depth of derivative disclosure is extremely low. In fact, it is only since 1990 that firms in the U.S. are required to disclose the notional amount of the derivatives that they use. However, some evidence related to the use of foreign currency derivatives and its impact on exchange-rate risk (e.g., Allayannis and Ofek (1997) and Simkins and Laux (1997)) and on firm value (Allayannis and Weston (1998)) that has recently been documented attest to the importance of the use of derivatives for a firm. Based on I. Cooper and A. Mello's theory, it is important in

future empirical tests to take into account the endogeneity of hedging on firm value and the financing decision. This is clearly not an easy task.

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