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and Risk Management Decisions

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Financial executives of companies that face sharp increases in business or financial risk have two basic ways of protecting the solvency and strategic viability of their organizations: they can transfer those risks to investors or other firms using insurance or derivatives; or they can raise additional capital, typically by issuing new equity,¹ as a cushion against the higher expected volatility and losses. But CFOs also have a third means of managing risk, known as “contingent capital,” that effectively combines the functions of capital raising and risk management. A contingent capital facility gives a company the right (but not the obligation) to issue new equity, debt, or hybrid securities over a specified period of time, usually at a pre-defined issue price, and generally only following losses resulting from pre-specified risks. Although insurance and reinsurance companies have long used such contingent facilities to manage their own underwriting capacity, in recent years a handful of such companies have become *providers* of contingent capital to their (non-insurance) corporate clients.

For example, Swiss Re recently granted Michelin a five-year right to issue ten-year subordinated debt at a fixed spread over LIBOR, though only under

general economic conditions in which the tire maker expects its own earnings to be down. As discussed in more detail below, by limiting the circumstances under which its sub debt facility can be issued, Michelin has provided itself with an effective risk financing vehicle while at the same time holding down the cost of the facility. And to the extent that such contingent capital has eliminated the need to keep more capital on its own balance sheet, it has arguably increased the tire maker's value by reducing its overall cost of capital.

This article provides an introduction to the forms and uses of contingent capital, with special focus on its role in helping companies integrate their financial and risk management decisions. As discussed in the next section, contingent capital provides management with what amounts to an option on standard, “paid-in” capital, and I define and describe contingent capital in terms of its parallels with more traditional financial options. Then, after reviewing some of the varieties of contingent capital that have become popular in the last few years, I close by suggesting their potential for dealing with the “information asymmetry” and “adverse selection” problems facing security issuers—problems that are compounded when raising capital in difficult times.

1. Companies that choose to retain risks as part of their primary businesses also have the option of using vehicles like “finite risk” to provide *post-loss* financing of the losses that arise from such risks, or they can simply borrow to finance such losses

as they occur over time. See my recently published book, *The ART of Risk Management: Alternative Risk Transfer, Capital Structure, and the Convergence of Insurance and Capital Markets* (New York: Wiley, 2002) (hereinafter Culp 2002(a)).

WHAT IS CONTINGENT CAPITAL?

Financial capital can be defined quite broadly as the collection of contracts and claims that companies issue to raise the funds required for the operation of their businesses.² *Paid-in* or *paid-up capital* is a financial capital claim in which investors pay cash *now* in exchange for a proportional claim on the net cash flows of the firm beginning on the issue date of the claim. With *contingent capital*, by contrast, a company *pays an investor* a fixed price or premium for the right (but not the obligation) to issue paid-in capital *later*. In other words, contingent capital is essentially a type of option on paid-in capital.

Like any ordinary option, contingent capital can be characterized by a number of key features: (1) the underlying asset (or just “the underlying”); (2) the exercise style of the option (European or American or other); (3) the time period (or “tenor”) of the option; and (4) the strike price. In addition to these standard attributes of normal options, contingent capital facilities also often contain “barriers,” or “second triggers,” that are linked directly to their risk management role.

The Underlying Asset

Contingent capital gives a firm the option to issue paid-in debt, equity, or hybrid capital (such as fixed-rate preferred stock), which can be thought of as the underlying asset of the option.³ In most cases, the terms of the security that can be issued (after the “triggers” attached to the facility are pulled) are pre-defined at the beginning of the life of the contingent capital option—that is, *before* the security is actually issued. Many firms thus rely on such facilities as a form of pre-loss financing. And in such cases, a firm that draws on a contingent capital facility following the announcement of a large loss is essentially exercising an “in-the-money” financing option.⁴

Tenor

Regardless of the maturity of the financial capital claim that a firm may issue in a contingent capital facility, the *option to issue* the contingent capital has a clearly limited duration. For example, a contingent equity facility, if and when drawn, may result in the issuance of new perpetual claims, but the facility itself only gives the issuer the right to issue those perpetual claims (at least on pre-specified issuance terms) for a defined period of time. Or take the case of a contingent debt facility that gives a firm the right to issue five-year fixed-rate debt at any time over the next three months. The duration of the underlying capital claim is five years, but the duration of the contingent facility is only three months.

Exercise Style

The exercise style of a contingent capital facility concerns the restrictions, if any, on the timing of potential conversion into paid-in capital. Like regular options, a contingent capital facility may entitle its buyer to use the facility and obtain paid-in capital on only a few specific dates (which characterizes a Bermuda-style option) or only when the contingent capital facility expires (i.e., European-style). But most contingent capital facilities are American-style and allow their owners to exercise throughout the life of the option (with the exception, in many cases, of a brief initial non-exercise period).

Strike Price

A contingent capital facility also includes a “strike price,” which is reflected in the pre-specified terms on which the paid-in capital will be issued if the purchaser of the facility exercises its right to draw upon that facility. As mentioned earlier, the strike price is often set to reflect pre-loss issue terms. And

2. Few terms are as confusing in finance as “capital.” A major reason for the confusion is that capital appears on both sides of a firm’s balance sheet. *Real capital* includes those assets in which a firm invests as part of its primary business, whereas *financial capital* is the collection of liabilities issued by a firm in order to fund its acquisition of investment capital. See C. L. Culp, “Contingent Capital and the Art of Corporate Finance,” in *Alternative Risk Strategies*, M. N. Lane, ed. (London: Risk Books, 2002) (hereinafter Culp (2002b)).

3. If the committed capital calls for a hybrid or equity-like capital infusion, the facility may need to specify alternative redemption methods for the capital provider. For example, the facility may contain a provision that allows the (re-) insurance provider to convert its financial capital claim on the borrowing firm into

traded securities issued by the borrowing firm, thereby facilitating the sale of those securities if the (re-)insurer so desires. If the underlying contingent capital is straight debt, special redemption provisions are not necessary; the capital provider is just repaid when the debt matures.

4. Providers of committed capital will anticipate the exercise of such facilities on a post-loss basis, and the programs will be priced accordingly. The use of contingent capital for pre-loss finance thus is not necessarily a way to save money on the new security issue, although locking in a financing cost and eliminating the risk of post-loss finance can lead to an increase in the value of the firm for other reasons. See Culp (2002a) and N. A. Doherty, *Integrated Risk Management* (New York: McGraw-Hill, 2000).

since the price for the new issue is set prior to the realization of a loss arising from a specified risk, the facility is likely to be at-the-money at the time of its inception. Nevertheless, some contingent capital facilities are constructed such that, if and when exercised, the terms of the underlying securities are reset to make them at-the-money *at the time of exercise*. These are referred to as *post-loss* financing facilities.

Type of Facility

Contingent capital may convey the right of its holder either to issue new financial capital (i.e., to sell a newly issued security) or to purchase a newly issued security. The former resembles a put on paid-in capital, whereas the latter represents a call. Perhaps the most obvious example of contingent capital is a warrant. The holder of a warrant has the right but not the obligation to purchase a residual claim from the issuing firm—usually common stock—on or before a certain date at a pre-specified price. Warrants can thus be viewed as contingent stock purchase agreements. Convertible debt and preferred stock, which contain what amount to embedded warrants, can also be viewed as forms of contingent capital.

But because the exercise decision for warrants and convertibles rests with the investor and not with the issuing company, such securities function less as a (downside) risk management vehicle than as a cost-effective alternative for raising equity when growth opportunities emerge.⁵ In this article, we focus on contingent capital facilities in which the exercise decision is under the control of the firm—that is, put structures.⁶

Second Trigger

In addition to the standard features contained in all option contracts, contingent capital sometimes involves what is known as a “second trigger,” or an additional condition that must be met before the option can be exercised. (The first trigger is pulled

when the option is “in-the-money”—that is, when the capital available through the facility is cheaper or otherwise more attractive than capital obtainable in the market.⁷) In this sense, contingent capital facilities appear similar to a type of barrier option called a “knock-in” option. A knock-in put, for example, has all the features of a normal put option, including a strike price, but also has an “instrike” price defined in terms of the price of the same underlying asset on which the option is written. In the case of a knock-in put, even if the option is in-the-money, the put option cannot actually be exercised until the underlying price falls below the instrike. But once the barrier is breached, the exercise value of the option is based on the original strike price, not the instrike. Figure 1 shows the payoff (net of any premium paid) on both a traditional put (the dashed line) and a knock-in put with instrike X (the heavy black line).

Unlike traditional barrier options, however, the second trigger of a contingent capital facility tends to be defined not in terms of the same variable that activates the first trigger (namely, the value of the security underlying the facility to the issuer), but rather in terms of some clearly specified risk-related loss. The experience of such a loss will, of course, likely affect the market value of the security underlying the facility. But *both* triggers must be activated for the facility to become available. That is, the underlying security of the facility must offer the firm better terms than those available in the market, *and* the firm must experience losses arising from risks specified in the agreement.

In some cases, the second trigger is tied to a variable beyond the firm’s influence (such as a downturn in GDP) in order to limit potential “moral hazard” problems.⁸ In other cases, however, the second trigger is specified in terms of firm-specific risks or losses that are to some extent under management’s control.⁹ Swiss Re, for instance, offers contingent capital facilities that allow telecom firms to offer new securities following a business interruption resulting in losses above a certain threshold.¹⁰

5. See D. Mayers, “Convertible Bonds: Matching Real Options with Financial Options,” *Journal of Applied Corporate Finance* Vol. 13, No. 1 (Spring 2000).

6. For a discussion of one company’s actual use of *call* options to provide contingent capital, see the article immediately following this one.

7. Interestingly, this first trigger condition is not usually defined as an explicit part of the committed capital agreement. Nevertheless, the firm that has bought an option on paid-in capital will clearly not exercise that option unless the intrinsic value is positive. In other words, if the firm can obtain equivalent capital more cheaply from some other source, the committed capital option will be out-of-the-money and will expire worthless.

8. “Moral hazard” problems arise in insurance markets on indemnity contracts that reimburse a firm for *actual* losses rather than a more general index of losses.

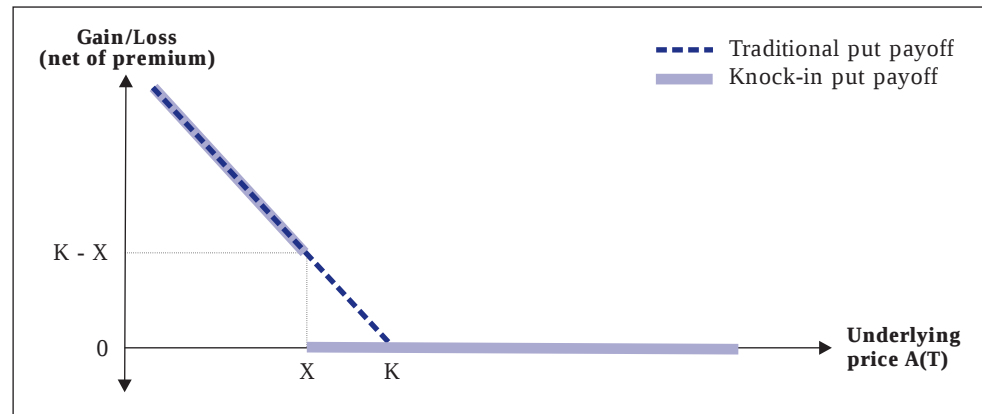
Because actual losses may be under the control of the insurance purchaser, the existence of insurance may lower the firm’s incentives to incur costs to control losses and may in the extreme give firms an incentive to *cause* a loss. See Culp (2002a).

9. Basing a second trigger on actual losses incurred by the contingent capital purchaser can create adverse incentives for firms to over-report their losses, or, in some cases, to take additional risks. But the alternative of tying a second trigger to a market event is the imperfect correlation between the losses sustained by the contingent capital user and the market event. In other words, whether a second trigger is tied to a firm-specific loss or a market event depends on whether the capital provider and user prefer to deal with moral hazard problems or with basis risk.

10. See D. Imfeld, “Keeping an Eye on Interruption Risk,” *Alternative Risk Strategies: Special Supplement to Risk Magazine* (December 2000).

Contingent capital gives a firm the option to issue paid-in debt, equity, or hybrid capital (such as fixed-rate preferred stock). In most cases, the terms of the security that can be issued (after the “triggers” attached to the facility are pulled) are pre-defined—that is, *before* the security is actually issued.

FIGURE 1
A BARRIER KNOCK-IN
PUT OPTION



FORMS OF CONTINGENT CAPITAL

Let's now turn to some of the major forms of contingent capital facilities that give a corporation the right (but not the obligation) to issue new paid-in capital.¹¹ As we saw earlier, such facilities are equivalent to puts owned by the issuing firm on its own securities. As the examples will illustrate, contingent capital can involve a wide spectrum of structures, especially with respect to the underlying assets, strike prices, and triggers of the facilities.

Letters and Lines of Credit

Probably the most common example of a contingent debt claim is a letter or line of credit (LOC). In such an arrangement, a lender—usually a bank—accepts a fee from a corporation and in return agrees to lend the company money at a subsequent time of the corporation's choosing, provided the firm still meets certain criteria specified by the lender. If and when the corporation draws on the LOC, the contingent claim becomes an actual fixed claim in which the firm now owes interest and principal to the bank. LOCs may be either *committed* or *uncommitted*.

Committed LOCs. In a committed LOC, the interest rate is pre-determined when the facility is first arranged. Although a committed LOC usually does not include an explicit second trigger, a firm will typically draw on an LOC after experiencing a significant depletion of its liquidity, often as a result of a major financial loss. If the loss is large enough to raise concerns about the firm's credit quality, its

post-loss cost of funds likely will exceed its pre-loss cost of funds.

Although the price of an LOC should reflect the probability of a future loss, a committed LOC can still make sense for firms as a source of pre-loss finance to help reduce the firm's expected costs of financial distress. Consider, for example, an AAA-rated firm borrowing at 30 basis points over LIBOR. Suppose the firm and the bank both believe that the firm will remain AAA with a 90% probability and will incur a loss resulting in a downgrade to AA with a 10% probability. Suppose also that if the downgrade occurs, the firm's new funding cost is expected to rise to LIBOR+60. In this case, the firm's expected credit spread is 33 basis points ($= 30 \times 0.9 + 60 \times 0.1$).

To keep the example simple, suppose that the bank, in return for a premium payment of three basis points, will offer a committed LOC to the firm that entitles it to borrow at the AAA spread of LIBOR+30.¹² If the firm enters into the committed LOC, its funding cost is then LIBOR+33 basis points.

In this example, the *expected* cost of funds is the same whether the firm uses the LOC or just borrows on post-loss terms. But with the LOC, the firm attempts to ensure its access to funds in all scenarios. And if a cash flow shortfall imposes costs on the firm (say, in the form of underinvestment), the locked-in 33-basis-point premium can result in a higher firm value than a risky borrowing strategy with the same expected premium (33 basis points).

Although a committed LOC usually does not include an explicit second trigger, it frequently contains a major restriction that allows the capital

11. Much of this section is based heavily on Culp (2002b).

12. In fact, the bank likely will charge a premium equal to the true option value of the LOC, which may well not equal three basis points.

provider to escape its loan commitment in certain circumstances, leading many to criticize LOCs on the grounds that they are often not available at exactly the times they are most needed. Specifically, LOCs contain restrictions known as “material adverse change” (MAC) clauses. A typical MAC clause states that a firm can draw on its letter or line of credit at any time *unless* the firm has experienced a material adverse change in its financial condition or credit quality. Unfortunately, this means that LOCs often fail to provide funds when the firm needs it most—namely, when an adverse event wipes out much of the value of its existing paid-in capital.

Uncommitted LOCs. An *uncommitted* LOC behaves much like a committed LOC except that the strike price is set to make the facility at-the-money *upon exercise*. In other words, the loan is extended to the borrower at a time of the borrower’s choosing, but at prevailing interest rates based on the borrower’s financial condition when the line is drawn down.

Uncommitted LOCs are generally much cheaper than committed LOCs—which is hardly surprising, given that their pricing at market rates confers no obvious financing benefits on the issuer. But, as a source of post-loss finance, uncommitted LOCs have considerable appeal for firms concerned about their ability to raise capital in difficult times. Indeed, when borrowers have information that other market participants do not, uncommitted LOCs may actually be one of the *only* ways for firms to raise funds.

To continue with the example from the prior section, suppose that the bank and the firm agree that the probability of a downgrade to AA is 10%. If the bank offers an uncommitted LOC, the expected value of the deal is negative if the bank charges anything at all for the facility. But further suppose the firm anticipates an investment opportunity with an extremely high positive NPV, even at a cost of funds of LIBOR+60. If the firm is cash-constrained, paying for the LOC even on an uncommitted basis can make sense as a means by which the firm can avoid the cost of having to forgo on the investment project purely because of a funding constraint.

Although banks address moral hazard concerns in LOCs using explicit restrictions like MAC clauses, the (re)insurance companies that offer contingent

capital facilities tend to take a slightly different approach in managing moral hazard. In the contingent capital products discussed later in this section, the main deterrent to moral hazard is not a MAC clause, but rather the second trigger of the facility. In addition, contingent capital facilities often include covenants pertaining to change of control, restrictions on the firm’s investment decisions, specific targets for the firm’s financial ratios (e.g., minimum net worth requirements), and the like.¹³

Insurance companies, moreover, tend to rely more heavily on *ex ante* due diligence than on *ex post* restrictions on the use of a facility. As discussed in the closing section of this article, such due diligence reduces the “information costs” faced by companies trying to raise capital following losses or in difficult times generally. Thus, whereas contingent capital products like LOCs that rely more on MAC-like restrictions may prove to have little value to companies facing information problems, some of the products discussed later offer more reliable access to funding and, hence, a better solution to such problems.¹⁴

Contingent Equity

A contingent equity facility allows the user to issue new equity shares in exchange for cash if a triggering event occurs. This product represents a put option held by the equity issuer on its own common or preferred stock—and most contingent equity structures fall under the rubric of “loss equity puts.” In a typical loss equity put, the firm essentially pre-negotiates an equity private placement with a single counterparty (or syndicate) in the form of an agreement that allows the firm to issue and sell new stock directly to the counterparty in the event a second trigger is activated (with the first trigger, again, being the firm’s desire to issue new stock). The underlying may be preferred or common stock. If the stock is preferred, the dividend rate can be comparable to the rate paid on other preferred stock or it can be fixed.

Loss equity puts have been issued with a wide range of second triggering events, some based on variables under the capital purchaser’s control and

13. See P. Shimpi, *Integrating Corporate Risk Management* (New York: Texere).

14. This may strike some as odd given the classical role played by banks as “delegated monitors” of their borrowers’ credit risks. But in this context, LOCs are

not always treated by banks as equivalent to term loans for credit risk management purposes. A bank may engage in significant due diligence before extending a term loan, but may well offer the same firm an LOC with much less *ex ante* scrutiny because of the strength of the restrictions contained in the MAC clause.

In a typical loss equity put, the firm essentially pre-negotiates an equity private placement with a single counterparty (or syndicate) in the form of an agreement that allows the firm to issue and sell new stock directly to the counterparty in the event of business interruption or other operational risk-related losses.

others on proxies. Most second triggers are designed to manage a specific type of risk. As mentioned earlier, Swiss Re offers loss equity puts triggered by business interruption and other operational risk-related losses. Similarly, a loss equity put option on preferred stock whose second trigger is a natural disaster (or a catastrophe-related loss) is known as a “CatEPut.” Designed by the Chicago-based insurance broker Aon, CatEPuts have been issued mainly by reinsurance companies with catastrophic exposures seeking excess reinsurance capacity or an alternative to “hardening” primary reinsurance and retrocession markets.

The loss event that serves as the second trigger is usually highly correlated with changes in the issuer’s stock price. If a property loss following an earthquake is the second trigger, for example, it makes sense for the loss level that activates the put option to be sufficiently large that a decline in the stock price can *also* be expected. This provision helps ensure that the option is providing access to equity capital on favorable terms *only* at a time when it is really needed, which reduces the premium the company must pay for the option.

Committed Long-Term Capital Solutions (CLOCS™)

Another highly successful form of contingent capital is Swiss Re’s Committed Long-Term Capital Solutions, or CLOCS for short. Unlike the loss equity puts just discussed, CLOCS can be structured as contingent *debt* or contingent equity. To date, Swiss Re has placed CLOCS in three major sectors of the economy: commercial banking, non-financial corporations, and the insurance industry. Three CLOCS issues—one representing each of the three industry groups—are discussed below.

Royal Bank of Canada. In October 2000, Swiss Re negotiated a committed capital facility with the Royal Bank of Canada (RBC) in which Swiss Re would provide C\$200 million (US\$133 million) to RBC in exchange for preferred stock in RBC at the financing spread prevailing on October 27, 2000—the date the CLOCS deal was negotiated.¹⁵

Like most banks, RBC maintains a practice of holding excess reserves (relative to the minimum capital requirements prescribed by the Basel Capital Accord) to avoid having to replenish reserves on unfavorable, post-loss financing terms. Banks tend to fund their excess reserves when earnings and cash flows are unusually strong. One unfortunate side-effect of this practice is that retained earnings are diverted into dedicated loan-loss reserves rather than being available to finance, say, a future loan portfolio.

RBC used CLOCS as a way of both funding its excess reserves and maintaining a buffer of funds between its loan-loss reserves and its minimum capital requirement. Using CLOCS enabled RBC to avoid issuing new securities just to finance what was already an *excess* reserve requirement. At the same time, because the CLOCS facility is activated when the bank incurs exceptional credit losses (i.e., losses well beyond the first dollar and other losses in “lower layers” of reserves), the facility still gave the bank the comfort of having adequate reserves in the event of a major credit loss.¹⁶

The committed capital facility appears to have helped RBC in several ways. First, it gave RBC a lower-cost method of pre-funding its loan-loss reserves. As RBC executive David McKay explained, “It costs the same to fund your reserves whether they’re geared for the first amount of credit loss or the last amount of loss...What is different is the probability of using the first loss amounts versus the last loss amounts. Keeping [paid-in] capital on the balance sheet for a last loss amount is not very efficient.”¹⁷

The CLOCS structure also helped RBC improve its financial ratios. Swapping balance sheet reserves for contingent capital increases RBC’s return on equity, for example. Although the facility, if drawn, would convert into Tier I regulatory capital under the Basel Accord, the contingent nature of the facility greatly reduced the cost to RBC of maintaining a surplus of capital over its reserves.

From Swiss Re’s perspective, the risk of the deal includes the possibility that a shock to the Canadian economy could sharply increase losses on RBC’s loans. Swiss Re undertook a due diligence and risk

15. The RBC deal is discussed in R. Banham, “Clocs Ticking to New Market,” *Reactions* (April 2001).

16. The C\$200 million would result in Swiss Re owning about 1% of the firm’s total equity if the facility was exercised, which means that neither Swiss Re nor RBC had to worry that Swiss Re would be “running the company” because of RBC’s exercise of the facility. The small size of the deal relative to RBC’s total equity also kept moral hazard problems to a minimum.

17. Banham, *op. cit.*

modeling effort to satisfy itself that the pricing was commensurate with the risk. Swiss Re did not syndicate or reinsure any of the RBC deal.

Compagnie Financière Michelin. Together with Société Générale (“SocGen”), Swiss Re also placed a CLOCS facility with Switzerland’s Compagnie Financière Michelin, the financial and holding company for French tire maker Michelin. The deal has been heralded as one of the most innovative and successful corporate financing transactions of the last decade.

The Michelin deal is actually part bank debt and part CLOCS. In the bank portion of the deal, Michelin was given the right for up to five years (that is, from the inception of the deal in late 2000 through the end of 2005) to draw on a bank credit facility from SocGen. In return for this right, Michelin paid a commitment fee of 35 basis points per annum. Essentially a committed line of credit on long-term debt, the SocGen part of the deal did not involve a second trigger.

For the CLOCS piece of the deal, Swiss Re granted Michelin a five-year put option on subordinated debt maturing in 2012.¹⁸ The CLOCS option contains a second trigger: the put can be exercised only when the combined average growth rate of GDP in the European and U.S. markets in which Michelin is active falls below 1.5% (from 2001 to 2003) or below 2% (from 2004 to 2005). This tying of the second trigger to an external macro variable works to limit any potential moral hazard problem. At the same time, the fact that Michelin’s earnings are highly correlated with GDP growth in these markets helps to limit the company’s basis risk. Largely because of the inclusion of the second trigger, the commitment fee Michelin paid Swiss Re was five basis points per annum below the commitment fee paid on the bank piece to SocGen.

Unlike the RBC deal, Swiss Re syndicated the Michelin deal by bringing its deal both to insurance markets like Credit Suisse’s Winterthur and to major European banking markets. This increased the supply of capital available to Michelin by so much that

the overall cost of the deal to the company became highly attractive. In fact, the deal probably would never have been placed in either the traditional bank syndication or Eurobond markets, in part because the longest maturity of most corporate debt is ten years from the issue date as compared to the (possibly) 12-year tenor of the securities issued following an exercise of the facility by Michelin.

The Michelin CLOCS deal is a good illustration of how companies can use contingent capital as a source of financial “slack,” or liquid capital held in reserve, to fund value-enhancing investment opportunities that might arise.¹⁹ If Michelin faces an expansion or acquisition opportunity during good times, it can likely afford to finance the expansion out of internal funds or by issuing new securities on favorable terms. But after a period of poor earnings performance, Michelin might lack the funds to carry out its strategic investment program. In this sense, the CLOCS facility provides Michelin with a relatively efficient kind of “insurance” against this underinvestment problem—an insurance policy that is likely to be considerably less expensive than holding more capital on its balance sheet.

MBIA. Swiss Re’s third CLOCS transaction, concluded in December 2001, was placed with AAA/Aaa-rated U.S. monoline insurer MBIA Insurance Corporation (MBIA). Monoline insurers are so named because they provide only one type of insurance—namely, credit insurance, or “wraps” for bonds that guarantee their timely payment of interest and principal. As of September 2001, MBIA was the largest monoline insurer, having provided about US\$450 million in bond guarantees, the majority of which are for municipal bond issues.²⁰

The Swiss Re CLOCS provided MBIA with US\$150 million in “cover.” The second trigger is tied to significant losses on MBIA’s existing guarantees. Upon exercise of the facility, Swiss Re purchases subordinated debt that converts to perpetual preferred stock over time. As in the Michelin deal, Swiss Re syndicated its exposure to other (re)insurance companies.

18. The details of the Michelin deal are discussed in “Swiss Re and SocGen in \$1 bn Loan,” *Reactions* (September 2000), C. Schenk, “Michelin: Setting the Standard,” *Alternative Risk Strategies: Special Supplement to Risk Magazine* (December 2000), and Banham, *op. cit.*

19. See K. A. Froot, D. S. Scharfstein, and J. C. Stein, “Risk Management: Coordinating Investment and Financing Policies,” *Journal of Finance* Vol. 48, No. 5 (1993).

20. The other big monolines are Ambac Assurance Corporation, Financial Guaranty Insurance Company, and Financial Security Assurance, Inc. See L. Knepper, “Unwrapping the Wrappers,” *Barclays Capital Securitisation Research* (2002), and C. Schorin, “Monoline Bond Insurers: Are All AAAs Created Equal?,” *Morgan Stanley Dean Witter Special Report* (January 2000).

The Michelin CLOCS deal is a good illustration of how companies can use contingent capital as a source of financial “slack,” or liquid capital held in reserve, to fund value-enhancing investment opportunities that might arise—an “insurance” policy that is likely to be considerably less expensive than holding more capital on the balance sheet.

The main risk management concern for bond issuers and investors who purchase credit wraps from the likes of MBIA is *not* that their insurer will become insolvent and unable to stand behind the bonds in the event of a default. The major risk is that MBIA loses its AAA/Aaa rating. The monoline business is essentially driven by companies that want to “rent” a AAA/Aaa rating for a bond issue and go to the monolines to do it. Because of the importance of ratings, the monolines work closely with rating agencies *before* providing wraps to help ensure that the insurance they supply has a sufficiently low *expected* loss that it will not jeopardize the wrapper’s rating.

Indeed, the monoline wrapping business is so dependent on a AAA/Aaa rating that many market observers believe that the loss of a single letter in the insurers’ ratings would cause their business to dry up and force them into almost immediate insolvency. Several years ago, when another large monoline insurer was rumored to be on the brink of a downgrade, the users of that firm’s credit wraps expressed such concern that two of the insurer’s leading investors apparently stepped in with new capital to ensure that a downgrade did not occur.²¹

A key benefit of CLOCS to MBIA is thus the access to additional capital on pre-loss terms it promises the firm after taking a major hit on its guarantee business. And the guarantee of such access provides the insurer with a significant cushion against a rating downgrade.

Reverse Convertibles

A *reverse convertible* is a type of hybrid security that essentially builds a contingent equity facility into a bond. Extremely popular in Germany and Switzerland, reverse convertibles are equivalent to coupon-bearing corporate bonds plus a put option on the issuer’s common stock. Unlike traditional convertibles, however, reverse convertibles typically involve *European-style* put options *held by the issuer*. That is, the issuer cannot convert the debt into equity shares prior to the bond’s maturity. But at maturity, if the share price of the issuer’s common stock is below the strike price specified in the option (usually set at-the-money when the bond is first issued), the bonds are redeemed with the issuer’s shares rather than a fixed cash payment of the bond’s stated principal.²²

Coupons on reverse convertibles issued to date have been quite high to compensate investors for bearing significant downside equity risk. Some reverse convertibles pay a lower coupon by including a second trigger that limits risk for the investor. Unlike other contingent capital facilities explored thus far, the second trigger of most reverse convertibles is, like the first trigger, based on the stock price of the issuer, thus making the embedded equity put equivalent to a knock-in barrier put option.²³

Consider, for example, a “down-and-in” reverse convertible issued by Company Beethoven with a face value of \$10, an exercise price of \$10 per share, and an instrike of \$8 per share. If Beethoven’s stock price is worth, say, \$6, then investors receive shares worth \$4 less than the par value of the bond. If Beethoven’s stock price is, say, \$9 at maturity, investors in the bond receive the par value of \$10. But had Beethoven instead issued a normal reverse convertible, a \$9 stock price would trigger a below-par redemption in shares worth \$1 less than par. Because the down-and-in reverse convertible allows for redemption at par below the at-the-money strike, the coupon paid on the down-and-in reverse is lower.

Note that reverse convertibles are contingent capital in the sense that they enable a firm to alter its capital *structure*. But, unlike the other kinds of contingent capital discussed so far, reverse convertibles do not involve a specific risk trigger (other than the stock price) nor do they enable firms to raise *new* capital. In that sense, reverse convertibles are similar to other securities with embedded options for the issuer to “exchange” one type of capital for another. Other examples include capped common stock (such as PERCS and DECS), trust-preferred convertible stock, and the like.

Contingent Surplus Notes

Insurance companies define their regulatory capital as “surplus.” A “surplus note” is a type of debt instrument (or preferred stock) issued by an insurance company that is treated as capital for regulatory purposes. In recent years, some insurance companies have issued *event-contingent* surplus notes. These products represent put options on surplus notes in which the option includes a second trigger

21. Knepper, *op. cit.*

22. For some examples, see Credit Lyonnais, *A Practical Guide to Reverse Convertibles on Shares and Indices* (2002).

23. See C. Topatigh, “Reverse Convertibles,” *Swiss Derivatives Review* (1999).

tied to an adverse insurance event—usually a specific kind of catastrophe or an amount of losses stemming from such an event. The strike price of the put option is usually designed to be at-the-money at the time of exercise.

Nationwide, Hannover Re, and Arkwright all issued contingent surplus notes in the 1990s.²⁴ In these structures, the proceeds from the sale of the contingent notes to investors are placed into a collateral account invested in Treasuries. As long as the insurer does not exercise its option to issue surplus notes, the investors earn the Treasury interest on the collateral *plus* a fee paid by the insurer to investors (i.e., the premium) for their commitment to hold surplus notes later. If the triggering event occurs, the insurer may, at its discretion, “exchange” its own surplus notes for the Treasuries. From that point on, investors receive interest and principal from the insurer’s surplus notes. The structure underlying a surplus note issue is the same as that of the barrier put option shown earlier in Figure 1.

Surplus notes are designed almost exclusively to help insurers satisfy regulatory capital requirements. Because the notes are priced at-the-money at the time of their issue (that is, at the exercise of the contingent capital facility), the borrowing cost to the firm of acquiring debt in the market should be essentially the same as the cost incurred through a surplus note program. The most important benefit of contingent surplus notes is thus their guarantee of timely access to regulatory capital.

An insurance company cannot allow its capital to fall below regulatory minimums *at any point*. Surplus notes can make sense, then, if only to allow insurers to avoid falling below minimum required capital while waiting for new bonds to be placed with investors.

Putable Catastrophe Bonds

Most of the contingent capital facilities explored thus far have involved the combination of a put option on a traditional security with a risk-based second trigger. Now we consider a transaction structure in which the timing of the issue is not tied

to a specific risk. In such cases, the contingent capital facility is thus not a barrier option, but rather a plain vanilla American put option. Nevertheless, the deal described below still represents an integrated risk management and financing transaction in the sense that the securities underlying the contingent capital facility have payoffs that are tied to the realization of certain risk-related losses.²⁵ The risk transfer accomplished with such products stems from the nature of the underlying security rather than the second trigger.

In early 1998, Reliance National purchased a contingent debt option from investors entitling it to issue catastrophe (or “Cat”) bonds—that is, bonds whose interest and/or principal payments are reduced in the event of a specified disaster—at any time during the 1998–2000 period.²⁶ The primary purpose of the Reliance III contingent capital facility (henceforth “Reliance III”) was to give Reliance National access to additional reinsurance capacity for certain business lines in the event of a “hardening” of the reinsurance market. The strike price of the option was set slightly out-of-the-money so that, if and when they were exercised, the Reliance III Cat bonds would be purchased by option holders at a slightly below-market price. The price Reliance paid to investors to secure their commitment to purchase the Cat bonds was further reduced by the inclusion of a “deductible” in the bond underlying the option facility. In the event of a catastrophe, the issuer would thus bear the first portion of its catastrophic loss claims before any principal or interest on the bonds is diverted to cover those losses.

From 1997 through the end of 1998, Reliance National issued two early and pioneering Cat bonds. The first, Reliance I, issued in early 1997 with the assistance of Sedgewick Lane Financial and INSTRAT (UK), was the first Cat issue based on multiple business lines. Reliance II also involved multiple business line exposures. Not surprisingly, the Cat bond underlying the Reliance III contingent debt facility imitated Reliance I and II in this regard. Specifically, 20% of potential note holders’ principal in Reliance III would be at risk from losses on each of the following five Reliance underwriting lines:

24. See K. Froot, *The Evolving Market for Catastrophic Event Risk* (New York: Marsh & McLennan Securities Corp. and Guy Carpenter Special Report, 1998).

25. For a brief discussion of a third deal similar to the two discussed here—an optionable Cat bond issued by Aon for Yasuda Fire and Marine in 1998—see M. N. Lane, “An Optionable Note: The Reliance III Case Study,” *Lane Financial LLC Trade Notes* (1999).

26. This section merely summarizes the salient features of this deal. For a more in-depth analysis of the structure, see Lane, *op. cit.*

Reverse convertibles are contingent capital in the sense that they enable a firm to alter its capital structure. But reverse convertibles do not involve a specific risk trigger, nor do they enable firms to raise new capital.

property losses in the U.S. above \$6.5 billion; property losses in the “rest of the world” over \$4.5 billion; Japanese or American aviation losses resulting in 250 or more fatalities; offshore marine losses over \$500 million; and more than two failures from a list of 12 eligible “rocket launch” events.²⁷

REDUCING THE INFORMATION COSTS OF RAISING CAPITAL

One important distinction between the forms of contingent capital discussed in the prior section is whether the contingent capital is obtained from one or two providers (as in the case of CLOCS) or a larger and more diffuse group of investors (as with reverse convertibles and putable Cat bonds). The former can be called directly placed contingent capital, whereas the latter are structured finance products issued through a process known as a synthetic securitization. In some cases, the benefits of the contingent capital may depend on the means by which it is acquired.

When managers are better informed than investors about the quality of the firm’s investments, adverse selection costs can increase a firm’s cost of capital, sometimes dramatically. More specifically, investors are likely to assume that firms will issue securities only when they are overpriced, and this expectation depresses the price investors are willing to pay for the securities. This in turn has the potential to create a self-fulfilling prophecy wherein firms indeed *do* prefer to issue new securities only when they are overpriced. The result is a “pecking order” in which companies prefer to use internal funds rather than issuing external securities—and, when outside capital is necessary, to view equity as a very expensive last resort.²⁸

As this last statement suggests, the size of the discount attributable to adverse selection depends on both the level of uncertainty (technically, the potential for information asymmetry) and the kind of security issued. Any source of external finance (except riskless debt) will change in value when

more accurate information is revealed about the quality of the firm’s investments. The more a security changes in value for a given information release (i.e., the riskier the security), the larger is the adverse selection discount. At the same time, companies whose current value consists in significant part of intangible investments or “real options” will be harder for investors to evaluate and will hence suffer larger discounts arising from information problems.

One way to reduce the costs stemming from this information-based discount is to issue securities to a small group of investors who have both significant incentives to verify the true quality of a firm’s investments and the capabilities to make such an evaluation. As a result, directly placed contingent capital—even post-loss, at-the-money securities—can command a higher value than either public issues or structured contingent capital placed with a less-informed and more diffuse group of investors.

And there is anecdotal evidence that is consistent with this pattern. In the case of the putable Cat bonds that are typically issued through securitization conduits to a large group of investors, the underlying risk—the possibility of a natural disaster—can be modeled and communicated to investors with some precision. Indeed, the prospectus for the putable Cat bond discussed in this article is loaded with estimates about expected losses and probabilities of event occurrences. But, in the case of operational risk-contingent equity or other forms of contingent capital that are aimed at helping firms manage their cost of capital in the face of very specific risks, the direct placement method is likely to have significantly lower adverse selection costs than more public efforts to raise risk-contingent funds. In addition, the successful direct placement of a contingent capital facility with a conservative, highly regarded capital provider may also serve a “delegated monitoring” function—one that helps reduce the broader market’s uncertainty about the firm and, in so doing, improves the terms of its future *public* security issues.

27. The reported loss numbers on which these exposures were based was the loss reported by *Sigma*, a publication (and loss index) of Swiss Re. In most of the risk categories, losses on the Reliance III notes were based on a schedule rather than a complete loss of 20% principal if the trigger was activated. USA property losses, for example, were tied to the 20% principal at risk in the optionable note as follows: a 5% principal reduction for any loss in 1998 over \$6.5 billion, with the proportion of principal reduction increasing up to a maximum of 20% for a US\$15 billion or greater loss. See Lane (1999) for all the details.

28. See, for example, S. C. Myers, “The Capital Structure Puzzle,” *Journal of Finance*, Vol. 39 No. 3 (1984), and S. C. Myers and N. S. Majluf, “Corporate Financing and Investment Decisions When Firms Have Information That Investors Do Not Have,” *Journal of Financial Economics* Vol. 13 (1984).

CONCLUSION

As the theory underlying corporate financing and risk management decisions has become increasingly integrated, the products available to modern corporate treasurers have also begun to converge.²⁹ Contingent capital is an excellent example of this convergence, as most contingent capital facilities are specifically designed to help firms engage in risk management and capital structure decisions *at the same time*.

With contingent capital, a firm has the right to issue traditional securities such as subordinated debt, preferred stock, or common equity (often on

pre-loss terms) after the realization of a loss arising from one or more specific risks. Or a company can issue securities whose payoffs are themselves based on risk-related losses. Either way, contingent capital can help companies reduce their overall cost of capital by limiting the costs of financial distress, reducing underinvestment problems, providing more cost-effective management of their reserves and regulatory capital, and mitigating information (or adverse selection) costs that complicate the task of raising capital in difficult times. For all these reasons, contingent capital appears to be here to stay as a new and increasingly important feature of the corporate financial landscape.

29. Culp (2002b).

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