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The M&A
Collar Handbook
*How to Manage
Equity Risk*



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The M&A Collar Handbook

How to Manage Equity Risk

Introduction

M&A collars are a useful but underutilized tool for both negotiating transactions and managing deal risk. One of the larger and more contentious recent deals, the \$8.5 billion MCI-Verizon-Qwest deal, included a collar as a component of consideration. As deal volume rebounds, more companies will explore the M&A collar.

With balance sheets largely mended and cash balances at record highs, many companies have returned to M&A for growth. As M&A volume rebounds, we expect the use of collars to also grow. Global volume of collared deals averaged over \$50 billion annually over the past 10 years.¹

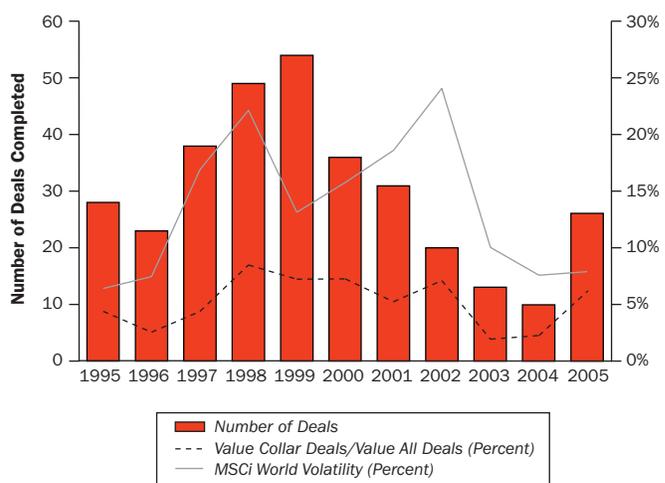
Exhibit 1 shows that, in addition to deal volume, a second driver of collar use appears to be equity market volatility. As equity market volatility increases, the proportion of collared deals also increases. Thus, as equity market volatility returns to historical norms, we would expect a doubling in the proportion of collared deals, say from about 3 percent, to 5 percent or more.

Today's volatile foreign exchange environment contributes to a growing role for collars in cross-border deals. Despite recent strengthening, the dollar has lost 44 percent of its value against the euro, 30 percent

against the pound, and 20 percent against the yen since the end of 2001. Potential bidders assessing undervalued U.S. assets can look to collars to help hedge any potential currency movements during the pre-close period.

Regulatory considerations may also spur collar use. To the extent Sarbanes-Oxley brings increased scrutiny and process discipline of corporate development activities, bidders may feel obliged to refine and codify their approach to price protection and more seriously examine consideration, the use of collars, and collar design.

Exhibit 1
Collar Incidence and Share in Global M&A Deals

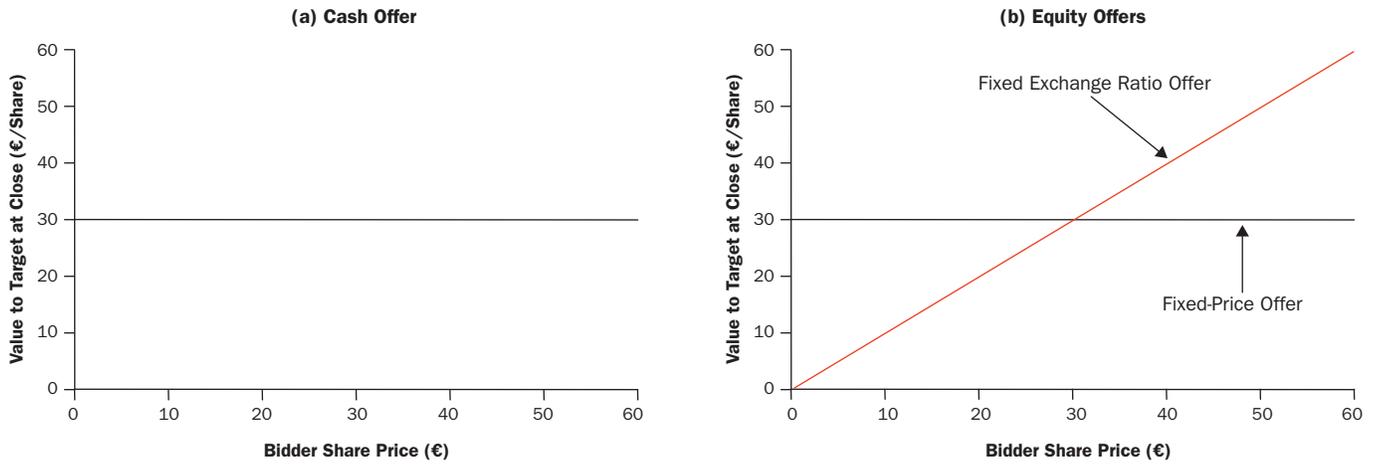


Source: Securities Data Company, FactSet

¹ As per Securites Data Company data. Worldwide completed mergers and acquisitions where value of the target, including net debt, was greater than \$100 million.

Exhibit 2

Consideration as a Function of Changes in Bidder Share Price



Source: Booz Allen Hamilton

What Are Collars?

M&A collars are not financial instruments (e.g., derivatives). They are contractual agreements that tailor the economics of consideration in stock-based M&A transactions beyond the simple choices of a fixed-price or fixed exchange ratio agreement.

In an all-cash deal (see Exhibit 2a), consideration is independent of any changes in bidder (or target) share price. *Targets* may benefit from cash offers because they face no risk that consideration will *decline* as a result of “adverse” movements in their own, or the bidder’s, share price (i.e., target appreciation, or bidder depreciation). *Bidders* may benefit from cash offers because they face no risk that consideration will *increase* from any “adverse” movements in their own, or the target’s, share price.

A “fixed exchange ratio” stock deal is the sloped line in Exhibit 2b. Target shareholders receive a certain number of bidder shares in exchange for each share of target stock.² For example, an exchange ratio (i.e., slope) of 0.75 means that each share of target stock will be exchanged for three-quarters of one share of bidder stock at closing, regardless of bidder stock price.

Consideration to the target is a function of changes in both bidder and target share prices. Bidders may benefit from fixed exchange ratio offers because they exchange a fixed percentage of ownership, regardless of whether their stock price declines or the target appreciates. Targets may benefit from a fixed exchange ratio offer because they exchange a fixed percentage of ownership, regardless of stock price movement.

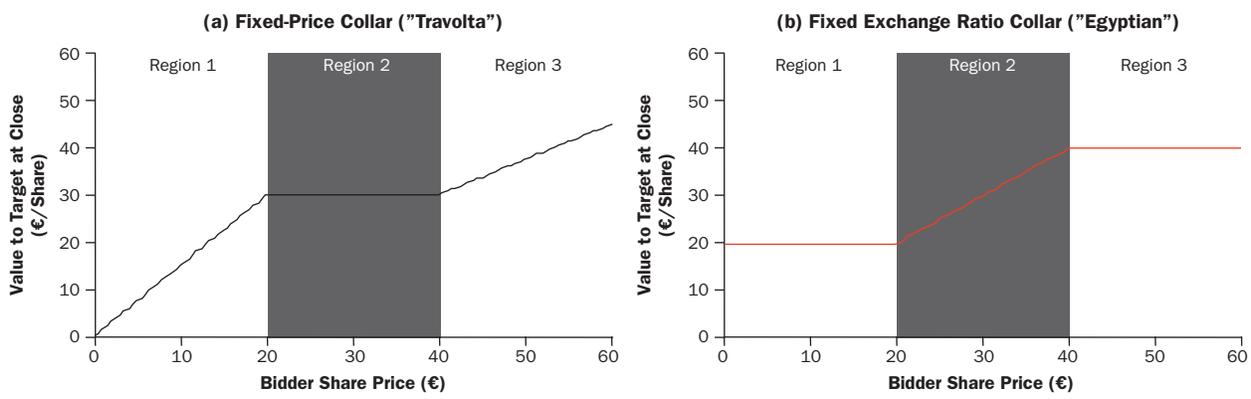
Collars tailor stock-based consideration arrangements that may draw characteristics from either fixed exchange ratio or fixed-price deal economics, both in terms of risk and economics. There are two basic types of collar that may serve as building blocks for an endless number of possible permutations. We illustrate both the fixed-price collar and the fixed exchange ratio collar in Exhibit 3, page 3.³

Fixed-price collars are the most common; price is fixed *within the collar boundaries* (see Region 2 of Exhibit 3a, page 3). The bidder guarantees a price, within a range of bidder stock price to target stock price ratios—the “width” of the collar. If the bidder price falls (or target rises) below the lower bound, consideration is based on the exchange ratio in Region 1 of Exhibit 3a, page 3. If the bidder price rises above the upper

² Stock consideration is often denoted in shares of the bidder, but really represents shares of the combined firm.

³ Micah S. Officer, “Collars and Renegotiation in Mergers and Acquisitions,” *The Journal of Finance*, December 2004. The author suggests “Travoltas” and “Egyptians” as alternative names for fixed-price and fixed-exchange collars respectively due to the resemblance of the former to a popular dance posture of the 1970’s and the latter to hieroglyphic depictions of human figures.

Exhibit 3
Fixed-Price” and “Fixed Exchange Ratio” Collars



Source: Booz Allen Hamilton

bound (or target declines), the target is paid according to the exchange ratio of Region 3 in Exhibit 3a.

In the fixed exchange ratio collar, the exchange ratio is fixed *within the collar boundaries* (see Region 2 in Exhibit 3b). The bidder guarantees a fixed number of shares to the target within a range of bidder stock price to target stock price ratios—the width of the collar. If the bidder price falls (or target rises) below the lower bound, consideration is a fixed price equal to Region 1. If the bidder price rises (or target declines) above the upper bound, consideration equals the fixed price of Region 3.

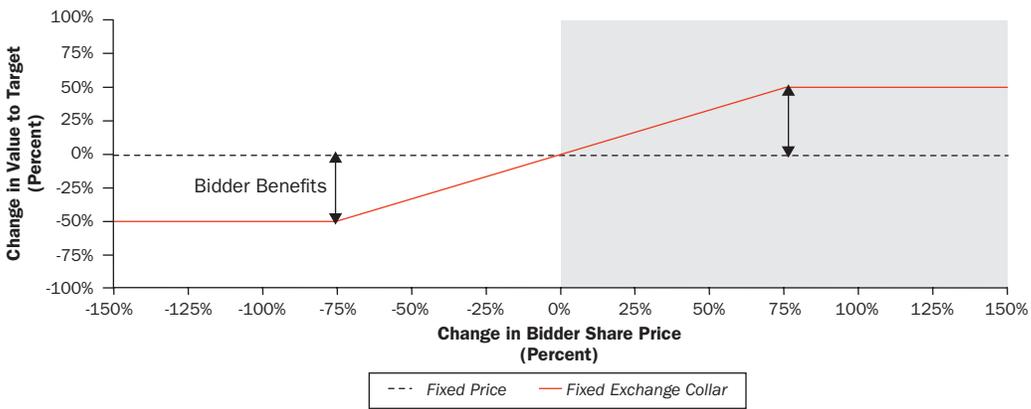
In both cases, the initial value and risk of either collared offer is somewhere between a pure fixed

exchange and a fixed-price offer. Depending on objectives, constraints, and risk utilities, a deal may be tailored beyond these simple payoff functions. For example, collars may be compounded to achieve multiple fixed-price bands (a “staircase”), or “walk-away” provisions may be incorporated to manage risk or timing.⁴

How Collars Add Value

Once an agreement has been reached, the collar *allocates* value based on the structure and market conditions. For example, in the case of a fixed exchange ratio collar (see Exhibit 4), the target “benefits” (as opposed to what happens in fixed-price consideration) from an increase in the bidder’s share

Exhibit 4
Fixed Exchange Ratio Collar Illustration



Source: Booz Allen Hamilton

⁴ In a study of 632 bids over six years, collar boundaries were explicitly modeled as walk-away trigger points. Kathleen P. Fuller, “Why Some Firms Use Collar Offers in Mergers,” *The Financial Review*, February 2003.

Case Study: Verizon and Qwest Bid for MCI

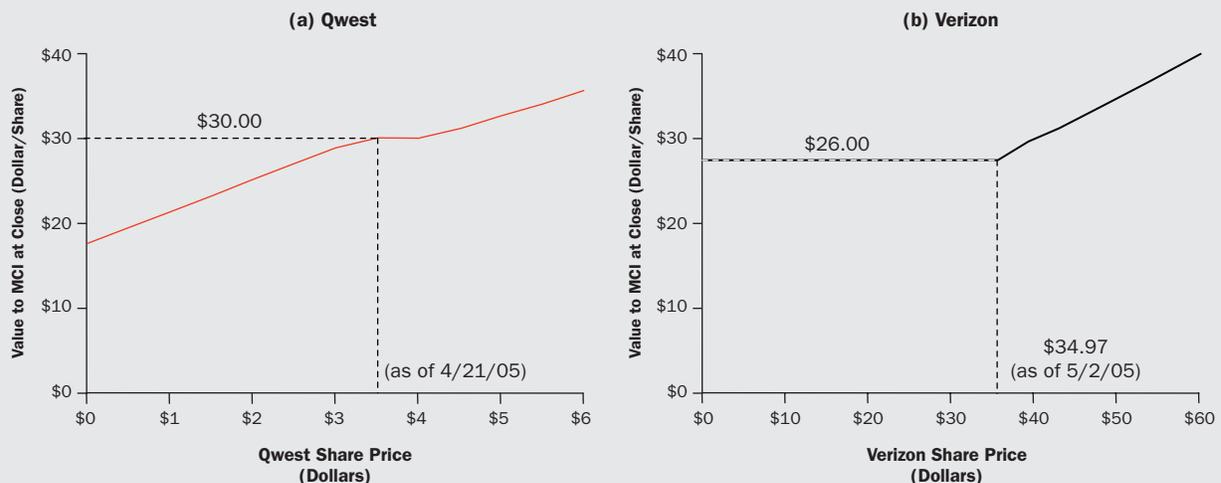
It is hardly surprising that collars, and the protection they offer, figured prominently in the battle for MCI between Verizon and Qwest Communications.

Perhaps because of its inherent volatility and the high-stakes nature of its many large deals, the telecom industry has a long history of M&A collars. Indeed, the largest *announced* collared bid to date was MCI Worldcom's \$113 billion attempt for Sprint in 1999.⁵ The largest *completed* collared deal was Qwest's \$56 billion acquisition of US West in 2000. Qwest also used a collar when it acquired LCI International for \$4 billion in 1998. Both Qwest transactions were designed as fixed-price collars, with collar widths around the bidder's midpoint share price of +/-18 percent and +/-19 percent, respectively.

The equity component of Qwest's initial, collarless bid for MCI on February 11, 2005, consisted of a fixed exchange of 3.735 Qwest shares per MCI share. The offer explicitly stated "no collar, cap, floors or other 'banding' mechanisms."⁶ But after Verizon made a lower offer that was immediately approved by MCI's board on February 14th, Qwest responded February 24th with an accelerated cash payment and a fixed-price collar. Rather than raising the bid through price or exchange ratio, Qwest sweetened its offer by reducing the risk: guaranteeing MCI shareholders \$15.50 in stock consideration as long as Qwest traded between \$3.74 and \$4.57.⁷ After two additional bid revisions by Qwest, and complete downside protection offered by Verizon, MCI accepted Verizon's proposal on May 2, 2005. Exhibit 5 illustrates the closing value of the final offers.⁸

Exhibit 5

Value of Consideration in MCI Final Offers



Collars played a crucial role in the negotiation process, not only shaping the risk and economics of the transaction, but also signaling and shaping the perspectives of the parties involved.

⁵ The deal was scuttled in July 2000 when the Department of Justice filed suit to block the deal.

⁶ Qwest SEC Filing Form 8-K, 2/16/2005.

⁷ Qwest company press release, February 24, 2005.

⁸ SEC filings show Qwest also included a \$16.00 per share cash payment, bringing the headline value of the deal to \$30 per share, or \$9.75 billion. Verizon proposed a cash payment of \$5.60 per share, bringing the headline value of its proposal to \$26 per share, or \$8.45 billion.

price, whereas the bidder “benefits” in the event of its own share price decline.

Perhaps the most important source of value created by collars is an increase in the number of degrees of freedom in consideration. A collar can bridge the gap created by differences in expectations and risk utilities that might otherwise require a seemingly uneconomic premium. Using a collar helps avoid a failed negotiation and allows the transaction to proceed. Buyers and sellers can trade (buy or sell) risk and achieve agreement with a fair structure from both perspectives.

A collar can prevent costly and time-consuming renegotiation. One study found that announced collared deals were 50 percent less likely to be renegotiated than their uncollared counterparts.⁹

Collars reduce short-selling interest and can limit the adverse effects of risk arbitrageurs’ bidder share short selling. One study found excess volume around the announcement was more than 25 percent lower with collars.¹⁰

Reducing uncertainty related to the consummation of a deal may also mitigate stakeholder risk aversion. Increasing the probability of reaching consensus to successfully complete a transaction can produce benefits that accrue to both parties in the negotiation.

Consideration

Consideration includes both the amount and the form of the deal. Most research indicates that cash consideration outperforms stock deals in post-acquisition stock performance. The rationale generally cited includes:

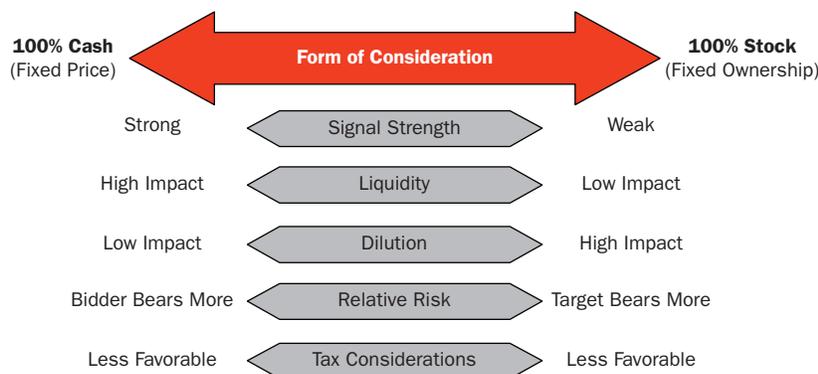
- Heightened bidder discipline in cash deals;
- A higher likelihood that the stock is overvalued in stock deals, hence the willingness to use stock; and
- Sharing of synergies with the target in the case of stock deals—which is effectively a double-dip for the seller.

Cash offers also provide certainty in the amount of consideration and the final ownership outcome. Fixed-price stock deals provide certainty of the value of consideration, but not of the ownership composition (pro forma). Fixed exchange ratio deals provide certainty of pro forma ownership interest, but not consideration (see Exhibit 6).

Signaling. Cash bids tend to signal greater bidder confidence. Bidder stocks achieve higher excess returns around the time of announcement when the bid is structured to provide greater protection to the target.¹¹

Sensitivity of consideration to changes in bidder stock price may reveal insight about the bidder’s view of

Exhibit 6 Implications of Consideration



Source: Booz Allen Hamilton

⁹ Including a collar in a bid has been shown to decrease the incidence of renegotiation by 3–4 percentage points from a base predicted probability of 5 percent in this study of 1,233 deals over nine years. Micah S. Officer, “Collars and Renegotiation in Mergers and Acquisitions,” *The Journal of Finance*, December 2004.

¹⁰ Excess volume for collared deals was found to be only 146 percent—a full 53 percentage points less than the 199 percent excess volume observed for uncollared transactions. Keith M. Moore, Gene C. Lai, and Zhiyi Song, “A Microstructure Examination of the Effect of Risk Arbitrage on the Trading in Acquiring Company Shares in Stock Mergers,” *Financial Management Association International Working Paper*, 2005.

¹¹ Joel F. Houston and Michael D. Ryngaert, “Equity Issuance and Adverse Selection: A Direct Test Using Conditional Stock Offers,” *The Journal of Finance*, March 1997. In the first study of its kind, the authors develop a novel metric to estimate the elasticity of a target’s compensation with respect to a bidder’s stock price and they use this framework to analyze 209 traditional and collared bank merger announcements between 1985 and 1992.

its own intrinsic value—the lower the sensitivity, the greater the signal (the sensitivity of an all-cash offer is zero, whereas the sensitivity of a fixed exchange ratio stock offer is one).

Liquidity. Cash payment reduces bidder liquidity and may require capital market access—which may be constrained by exogenous market factors.

Dilution. Although neither the presence nor size of earnings dilution is indicative of success, it continues to be a source of concern to many managers. Ownership dilution can also be a constraint—stock dilutes bidder ownership.

Tax. Cash bids may create an immediate tax burden for the target, whereas stock exchanges may provide capital gain deferral, and potentially, preservation of loss carry forwards.¹²

Do You Need a Collar?

The use and design of a collar are evaluated after determining the amount and form of consideration, assuming stock is to be included in consideration (see Exhibit 7).

Size. Fixed-price bids predominate where target equity value is small (e.g., average 3 percent) relative to the bidder. Collars fill the middle ground (13 percent). Large deals (25 percent) and mergers of equals typically use a fixed exchange.¹³

Regulation. Collars can preserve bidder regulatory capital (e.g., utilities, financial institutions) while providing targets with a cash-like payoff.

Taxes. A collared deal can provide the risk protection of a cash deal while preserving the tax benefits of a stock deal.

Domicile. A collar can hedge foreign exchange exposure for both sides in a cross-border deal.

Correlation. Collars are used where there is a significant difference in the perception of systematic risk (i.e., beta) between bidder and target.¹⁴

Bidding Environment. Collars are frequently employed as a source of differentiation in competitive auctions, especially for larger deals.¹⁵

Time Frame. Collars are more common in longer processes (e.g., antitrust, regulatory, etc.). Long periods also generally require wider collars.¹⁶

Exhibit 7

Collar Checklist

Size	Target large relative to bidder?	Correlation	Changes in underlying values due to unrelated factors?
Regulation	Cash consideration constrained by regulatory authority?	Bidding Environment	Competitive bidding situation?
Taxes	Cash consideration triggers unfavorable treatment?	Time Frame	Lengthy delay expected before closing?
Domicile	Cross-currency transaction?	Risk Aversion	Downside concerns outweigh potential upside?

Source: Booz Allen Hamilton

¹² Enrique R. Arzac, *Valuation for Mergers, Buyouts, and Restructuring*. John Wiley and Sons, 2005.

¹³ A comprehensive review of 2,130 deals announced between 1994 and 2000 finds considerable downward price pressure, and notes that, for arbitrageurs, collared offers require more short selling at announcement than does a straight fixed-price offer and less short selling than does a straight fixed exchange ratio offer. Collared offers fall somewhere between. Mark L. Mitchell, Todd C. Pulvino, and Erik Stafford, "Price Pressure Around Mergers," *Harvard NOM Working Paper*, May 2002.

¹⁴ Micah S. Officer, "Collars and Renegotiation in Mergers and Acquisitions," *The Journal of Finance*, December 2004. The author uses the elasticity framework developed by Houston and Ryngaert to explore the motivations and effects of using collar structures in mergers.

¹⁵ Audra L. Boone and J. Harold Mulherin, "Do Takeover Auctions Induce a Winner's Curse?" *Financial Economics Institute Working Paper*, July 2004. Deals were considered "auctions" when the selling firm contacted multiple potential buyers and signed confidentiality agreements with multiple bidders.

¹⁶ The higher the volatility of the bidder's share price, and the longer the time to closing, the more the distributions of outcomes from collared bids and no-collar bids resemble each other. In other words, the more volatility accumulates over time, the more bidder share prices can be observed outside the collar bounds, thereby reducing the effectiveness of the protection.

Risk Aversion. Collars are more common where there are large differences in propensity for risk, or in business outlooks, between the bidder and target.

How to Design Your Collar

Once a potential opportunity has been identified for an M&A collar in the consideration of a deal, the choice of which type to use must be made and will depend on a determination of needs and preferences.

Stock market research shows that the market is able to rationally and appropriately value the complex options implicit in a collared offer. Importantly, research suggests that the economic value transferred via collars is an efficient substitute for cash consideration. Apparently, there is no “complexity discount” assigned by the market and, in fact, there can be real economic benefit from the tailored risk profiles of collared deals.¹⁷

Exhibit 8 outlines the bidder and target perspectives that can drive parties toward either end of the collar-type spectrum.

Bidder Perspectives

Bidders will prefer fixed exchange ratio collars when they wish to preserve the value of any future upside appreciation in their stock price. However,

this structure also fits best when the bidder is less concerned about potential dilution in the event of a severe negative event. Bidders would prefer fixed-price collars when they wish to limit their exposure to dilution, especially if they are uncertain about how their transaction will be received in the market. Fixed-price collars are preferable when bidders have less focus on their own near-term stock price appreciation.

Target Preferences

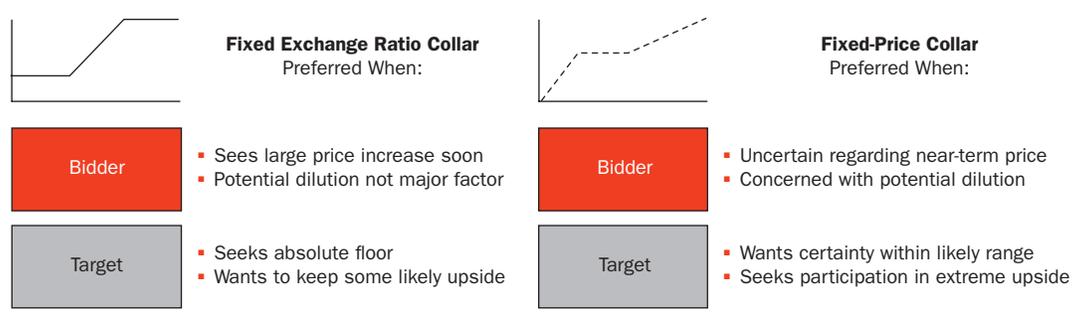
Targets experience the greatest abnormal returns when the offer includes a fixed-price collar—investors value the additional certainty of a collar structure.¹⁸ Targets will prefer fixed-price collars when they desire security of consideration within a likely range of bidder stock price movements, but are willing to risk substantial downside in exchange for participation in a substantial upside movement.

Targets will value fixed exchange ratio collars when they seek an absolute floor in value of consideration, but would like the potential to receive some participation in upside movement of the bidder stock.

Risk-Sharing Characteristics

Monte Carlo simulation (see Exhibit 9, page 8) can be employed to illustrate how collars tailor the risks and returns to targets and bidders.¹⁹

Exhibit 8
Bidder and Target Natural Preferences

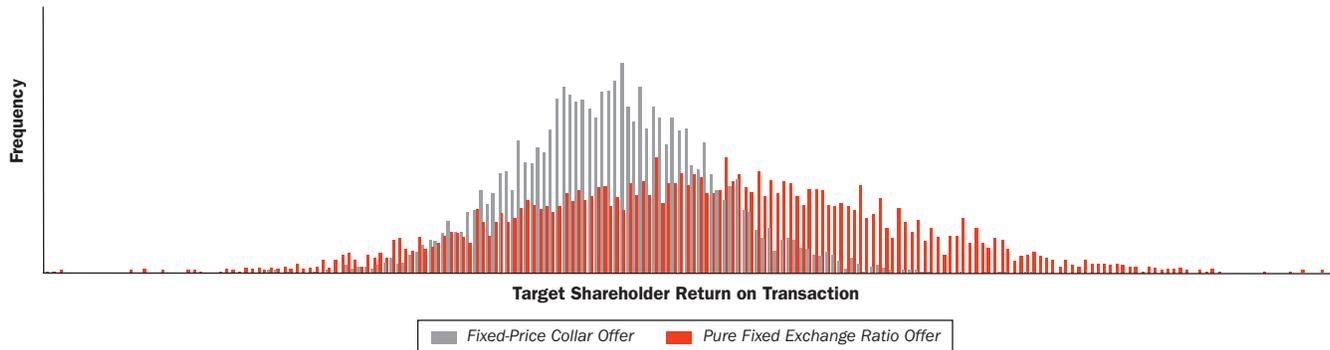


Source: Booz Allen Hamilton

¹⁷ Micah S. Officer, “The Market Pricing of Implicit Options in Merger Collars,” *The Journal of Business*, January 2006.
¹⁸ Kathleen P. Fuller, “Why Some Firms Use Collar Offers in Mergers,” *The Financial Review*, February 2003.
¹⁹ Stock prices of bidder and target simulated via 5,000 independent paths over a one-year period after the theoretical announcement date. Closing assumed to occur, with 100 percent certainty, nine months from announcement. Annual volatility of stock prices assumed to be 15 percent and 20 percent, respectively, for bidder and target, with the correlation of returns equal to 45 percent.

Exhibit 9

Monte Carlo Simulation of Fixed-Price Collar Versus Fixed Exchange Ratio



Source: Booz Allen Hamilton

The exhibit illustrates a hypothetical fixed-price collar (+/–25 percent of bidder price at announcement) with target equity 25 percent of bidder equity, and the bidder offering a 6 percent premium to target shareholders (for simplicity, assume no merger synergies are expected). The distribution of target shareholder returns from the collared transaction (in blue) is more concentrated. Standard deviation is only 8 percent, whereas the standard deviation of uncollared, fixed exchange ratio deals is nearly double, at 14 percent.

In this case, targets are rewarded for assuming more risk, receiving an “average” return (probability-weighted average return) of 15 percent versus only 8 percent for the fixed-price collar.

However, averages are deceiving and obscure the total picture. The distribution of target shareholder returns from the straight fixed exchange ratio transaction is much wider, with more extreme outcomes in the “tails.”

When the simulation is run again for the same parameters but with a fixed exchange ratio collar, the outcome is similar; collar impact to both risk (standard deviation) and expected return is muted. Standard deviation is narrowed to just 11 percent and expected return slips to 12 percent.

This outcome seems intuitive because for the majority of potential outcomes (within collar boundaries), both types of collars provide identical results.

Research indicates that risk arbitrage generates substantial excess returns (9 percent to 11 percent) even for collared transactions.²⁰ But both the level of activity and its adverse impact is greatly dampened by the use of collars.²¹

Collar Widths

Comprehensive statistics on collar widths are sparse, due to the nonstandard terms and reporting generally associated with them. Based on a recent SDC sample of 333 companies, 282 deals have collar terms noted, with the average being +/-10 percent. Furthermore, 265 (94 percent) of this secondary? sample have collar ranges between +/-5 percent and +/-25 percent of midpoint stock price, and 178 (63 percent) of these deals have collar ranges between +/-10 percent and +/-20 percent of midpoint stock price.

One study of 83 collar bids announced between January 1992 and December 1997 indicates an average difference between lower bound and current bidder price of 10 percent, and an average difference between upper bound and current bidder price of 13 percent.²² However, the maximum lower bound width

²⁰ Ben Branch and Jia Wang, “Risk Arbitrage for Stock Swap Offers with Collars,” *Financial Management Association International Working Paper*, January 2005. The authors study 150 fixed-price collared transactions.

²¹ Keith M. Moore, Gene C. Lai, and Zhiyi Song, “A Microstructure Examination of the Effect of Risk Arbitrage on the Trading in Acquiring Company Shares in Stock Mergers,” *Financial Management Association International Working Paper*, 2005.

²² Kathleen P. Fuller, “Why Some Firms Use Collar Offers in Mergers,” *The Financial Review*, February 2003.

is 37 percent and maximum higher bound width is 42 percent of stock price at announcement! Asymmetry is common, and can be used to transfer wealth (see Appendix A, page 11).

Deal Psychology

Although investors, analysts, and merger parties should focus on the economics of a deal (and research indicates they do), “headline value” (deal price reported in the press) can be important in situations where a public relations battle may occur.²³

In a pure cash exchange, the headline value at announcement is effectively less than the intrinsic value, due to the loss in time value between the announcement date and the estimated closing date.

Similarly, a fixed-price deal delivers a headline value at announcement that is less than the intrinsic value.

A fixed exchange ratio deal preserves time value (assuming reasonably similar costs of equity and dividend yields), because the present value of a future price is always its price today (also ignoring short-term price aberrations).

Collars can be designed with headline value in mind, by including a symmetrical wide-width collar, for example. In this case, a bidder can produce a higher headline value, yet deliver a considerably reduced intrinsic value.

Capital Markets (M&A) Risk Management Strategies

Collars can manage risk during the deal process. However, there are also capital markets solutions to equity risk before, during, and after the deal.

Accumulating Stakes. A bidding firm may opt to quietly begin accumulating shares of the target (by outright purchase or through derivatives) before it makes its intentions known. This can strengthen the bidder’s starting position, reduce the weighted-average cost of acquisition, and provide consolation in the event of

a competitive loss (if a competitive situation arises, the bidder will share in any upside appreciation of the target’s shares even if it ultimately does not prevail). If the acquisition is successful, the bidder will save any premium paid to the target’s shareholder on the shares it already owns. However, care must be taken to understand the defensive profile of the target and comply with applicable laws and regulations. Significant accumulations must be publicly disclosed and can trigger poison pills or combination restrictions.

Contingent Value Rights (CVRs). Bidders may offer CVRs to “insure” targets against declines in the bidder’s share price that occur after the close.²⁴ These rights guarantee a minimum price level of the bidder’s stock for a limited post-closing period with shortfalls being made up in cash or additional securities, although targets still remain exposed to the credit risk of the bidder. Bidders may also benefit by issuing CVRs in lieu of additional consideration, as the consideration ultimately paid to the target is less likely to be skewed by volatile market activity around the time of the deal.

Other Equity Derivatives Strategies. Monetizing stock consideration can be difficult for large target shareholders. Taxes, lock-up periods, or stock liquidity may force target shareholders to hold a higher concentration in the stock of the combined entity than they prefer. Hedging this exposure with equity derivatives may be helpful. For example, shareholders may buy puts to insure against stock price declines. Proceeds can be raised for the put purchase by simultaneously selling calls. If the strike prices are chosen carefully, this protection can be obtained with no cash outlay from the shareholder. Such a structure is called a “zero-cost collar” and has a similar payoff profile to the fixed-price collar. Once the hedge is in place, targets may borrow against the stock by using the position as high-quality collateral. Target shareholders may also arrange forward sales of shares to lock in the value of the merger consideration.

²³ Micah S. Officer, “The Market Pricing of Implicit Options in Merger Collars,” *The Journal of Business*, January 2006.

²⁴ Enrique R. Arzac, *Valuation for Mergers, Buyouts, and Restructuring*. John Wiley & Sons, 2005.

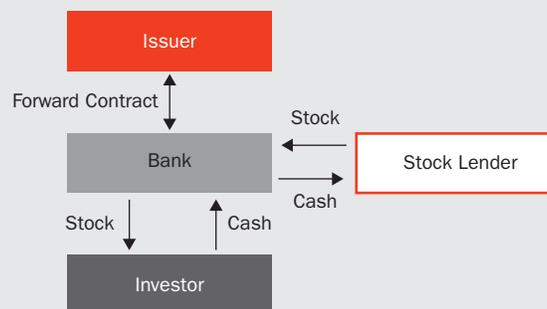
Managing Deal Risk—"Capital on Demand"

Capital markets may also be employed to manage equity risk in M&A. Exhibit 10 illustrates a capital markets solution known as the primary forward offering—a useful source of contingent capital to finance M&A when the acquirer may require equity (if the bid is successful) but does not yet need the cash, and wishes to defer the capital raising and equity dilution until close. This equity structure combines a public issuance of common stock with a forward sale, and allows a company to lock in its stock price for the merger up front but delay recognizing share count dilution until the merger is consummated and a successful close is certain.

The primary forward is a public sale under a shelf registration or an S-3 filing, and can be executed as a block trade or a marketed deal. However, instead of shares being immediately issued, a counterparty borrows company stock in the stock loan market and delivers those shares to the investors buying the issue. The company simultaneously enters into a forward sale of the stock to the counterparty.

Exhibit 10

Primary Forward Offering



Source: Booz Allen Hamilton

By executing the primary forward, the company has 1) locked in its stock price, 2) delayed issuance of stock and hence dilution until the acquisition is consummated, and 3) preserved the flexibility to change the maturity date of the primary forward if the merger closing date changes. In the event the merger does not happen, the company may net cash or net share settle the contract and avoid issuing unnecessary equity capital.

Since the first primary forward issued by Oracle Corporation in 1998, 14 transactions have been executed, with 8 in the context of an M&A deal. Transactions have ranged in size from \$35 million to more than \$1 billion, and have represented between 1 percent and 14 percent of issuer shares outstanding. In March 2005, Regency Centers (NYSE: REG), a real estate investment trust (REIT), used the primary forward structure to lock in proceeds to fund its acquisition of a 35 percent stake in CalPERS' shopping center portfolio. By using the primary forward, Regency was able to raise \$175 million with 3.75 million new shares, or roughly 6 percent of shares outstanding, while preserving flexibility and reducing price risk. The forward was subject to termination in the event the acquirer was unable to close within four months of the offering date.

Prearranged Financing. Risk management may begin long before a transaction is announced. Discussions between financial advisors and bidders contemplating a deal often involve exploration of optimal capital structure and financing alternatives that increase the probability of success, manage risk, or meet other objectives.

For example, to best position a bidder that must raise capital for an acquisition, an advisor may either provide bridge financing or a letter of comfort. To best position a seller, an advisor may offer stapled financing to reassure qualified bidders.

Appendix A: Valuation of a Collar

Intrinsic value can be transferred between merging parties with a collar—even if it is symmetrical. The valuation begins by viewing the collar as a basket of bidder stock and options on bidder stock. This combination is then compared to both fixed-price and fixed exchange ratio stock bids.

Again, the intrinsic value of a fixed exchange ratio offer of one share of bidder stock at €30 for each share of

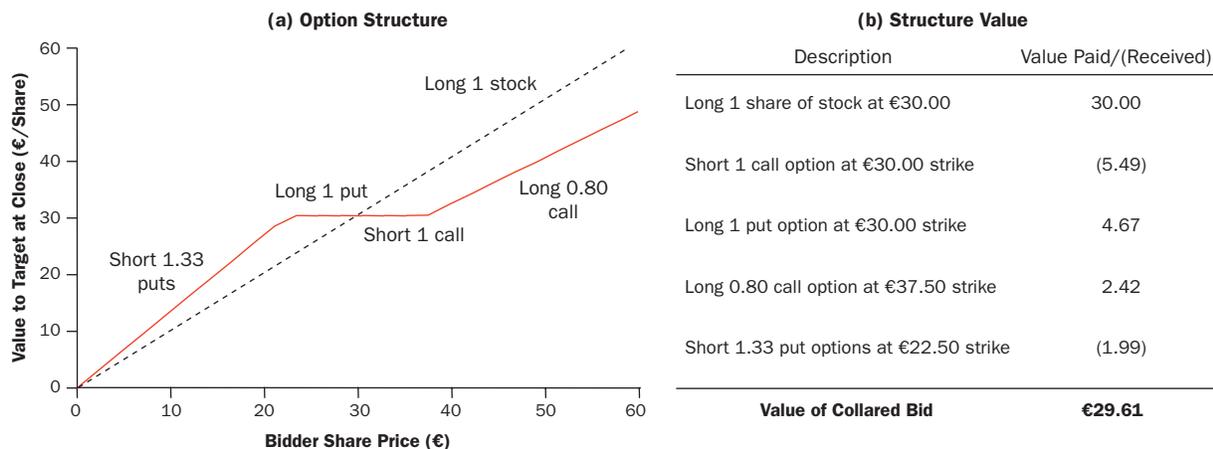
target stock, closing in 9 months, is equal to its stated headline value. But a fixed-price offer today with similar terms, and a guaranteed close, is worth less, due to the loss in time value. This is the present value of €30 discounted 9 months, or €29.19.²⁵

Exhibit 11 illustrates a fixed-price collar with a value that falls between a pure fixed exchange ratio and a pure fixed-price deal. Assuming a stock price of €30 and a fixed-price collar with boundaries at +/-25 percent around the stock price, this payoff is constructed by going long the bidder stock, and buying and selling options exercisable at the boundaries.²⁶ The values of the puts and calls can be calculated using Black-Scholes, or any other option pricing framework such as a binomial or trinomial lattice.²⁷

In this case, the total value of consideration is less than the headline value. The target “pays” for the downside protection. Intuitively, we see that the fixed-price collar slope (left line) is steeper and the downside is limited at zero (with unlimited, albeit lower, upside).

Exhibit 11

Valuation of a Fixed-Price Collar



Source: Booz Allen Hamilton

²⁵ $1.33 * S - 1.33 * C(X=22.5) + 0.8 * C * X = 37.50$.

²⁶ Options valued as European-style instruments, assuming current bidder stock price of €30, stock volatility of 50 percent, risk-free rate of 3.7 percent, 9 months to maturity, and 0 percent dividend yield.

²⁷ Often collars are constructed with Asian option features, i.e., the payoff isn't dependent upon the bidder's share price at close, but rather the average of the bidder's share price over, say, 10 trading days. The prices used to compute the average may even be selected randomly from a larger universe of trading days as a device to discourage risk arbitrage. In any case, Asian features decrease the value of both put and call options, as the averaging procedure has the effect of dampening volatility. Enrique R. Arzac, *Valuation for Mergers, Buyouts and Restructuring*. John Wiley & Sons, 2005. The author addresses Asian options in his discussion of Dow Chemical's contingent value rights offering to Marion-Merrell-Dow in 1991.

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