TECHNICAL NOTE ON
STRUCTURING AND VALUING INCENTIVE PAYMENTS IN M&A:
EARNOUTS AND OTHER CONTINGENT PAYMENTS TO THE SELLER

Betting isn’t always risky. In some cases, it actually reduces risk by sharing it among two or more parties.

—Bazerman and Gillespie (1999)

I. Overview and Summary

The aim of this note is to explore the use and analysis in mergers and acquisitions of incentive payments pegged to the future performance of the target firm. This note builds upon concepts in firm valuation, option valuation, deal design, and form of payment. Incentive payments merit very different evaluation as compared to fixed forms of payment, such as cash or liquid securities. Accordingly, this important subject is given separate treatment in this note.

“Incentive payment” covers a variety of payment arrangements to the seller including earnouts, escrowed funds, stock options, and holdback allowances. But for simplicity and its widespread recognition among practitioners, this note will focus particularly on the earnout. Escrows and holdbacks are economically similar to earnouts. Also, the earnout will be described variously as an “instrument,” “agreement,” or “contract.” Economically, the earnout is a legally binding financial agreement among two or more parties and is a claim on future value. An earnout is an arrangement under which a portion of the purchase price in an acquisition is contingent on achievement of financial or other performance targets after the deal closes.

This note delves into earnouts in some detail. But it is hoped that the note leaves the deepest impression with the following four points:

- *Incentive payment plans are options.* This implies that earnouts are more valuable the longer the term of the instrument, and the greater the uncertainty about the underlying asset. Indeed, it is this uncertainty, which can make an earnout so valuable and useful.
- *The right way to value an incentive payment instrument is to account for its optionality.* The approach recommended here is to model, and value, the earnout using Monte Carlo simulation. The wrong way to value and earnout is to project a “most likely” stream of expected cash flows and discount it to the present. The latter
approach is a widespread practice, which probably underestimates the value of the earnout instrument.

- **Earnouts are challenging instruments to structure.** They raise daunting issues of performance measurement and can create unintended consequences in human behavior. Ultimately, they require a fair amount of trust among honorable parties to the agreement.

- **The incentive payment plan can be an extremely useful device for breaking deadlocks in deal negotiations.** The same instrument can be worth very different amounts to an optimistic seller and a pessimistic buyer.

### II. Incentive Payments in M&A

Incentive payments are elements in many M&A transactions. They can take many forms, including these:

- **Bonus payments to sellers** (especially if the sellers are managers who stay on with the target firm.)
- **Escrowed funds.** Part of the total payment is set aside in an escrow account, and released to the seller when the target firm satisfies some condition, such as completion of a new product.
- **Holdback allowance.** Part of the total payment allowed to be withheld at closing, and paid later upon satisfaction of some condition in the buyer. With holdback allowances, no escrow account is involved.
- **Stock options.** These are rights to acquire shares in the buyer. The exercise price is usually set at a level above the buyer’s share price at closing, and is aimed at reflecting the value the target will hopefully bring to the buyer.
- **Earnout plan.** The previous plans involve simple triggers on payments to the seller. In the case of earnouts, the triggers may be determined by complicated formulas and agreements for measuring progress.

In practice, “earnout” may refer to all classes of incentive payments. For simplicity, and respecting common practice, “earnout” will be used in this generic sense in the balance of this note.

Four recent large deals have included incentive features:

- In 1998, Seagate Technology completed an earnout deal in its acquisition of Quinta Corporation, a small technology company. The deal was structured such that Seagate paid Quinta $230 million at closing and could potentially pay an additional $95 million over the next three years. The portion, if any, of the $95 million that will be paid in the future is contingent upon Quinta achieving certain technological milestones.
In December 1996, Unocal sold its subsidiary, 76 Products Company, to Tosco for $2.05 billion in cash, common stock, and an earnout.

In November 1996, Resort Condominiums International was acquired by HFS Inc. for $550 million in cash, $75 million in common stock, and an earnout worth about $200 million.

In June 1996, Rouse Company acquired Hughes Corp. for $176 million in stock and an earnout.

Notwithstanding these prominent deals among public companies, earnouts historically have been used in small, private company acquisitions that involve target companies with a minimal or volatile operating history that increases the risk of future cash flows. It is interesting to note that earnouts have become increasingly common in larger transactions including acquisitions of public companies.

Exhibit 1 summarizes the trend and volume of earnout deals. Several insights emerge from the data:

- Earnouts are featured in a small portion of all publicly announced deals. Depending on how the volume of earnouts is measured, they vary from 0.4-2.5 percent (based on dollar volume) or 1.3-3.5 percent (based on deal volume) of the total flow of deals.
- The absolute volume of earnout deals has risen. This increase is due probably to the buoyancy in M&A activity, but also perhaps to the acceptability of the earnout structure in larger deals.
- In deals where they occur, earnouts are a material portion of the consideration reported by the parties to the deal. The right-most column in Exhibit 1 shows that earnouts account for 15-88 percent of total consideration paid.

III. Earnouts Can Be Useful; But If So, Why Aren’t They Ubiquitous?

The relative rarity of earnouts questions their relevance. The advantages and disadvantages of earnouts create tradeoffs that mean the deal designer should be selective in the application of this form of payment.

A. Potential benefits of using earnouts

An earnout can provide a number of benefits to both parties if it is properly structured. For the seller, an earnout can provide additional payments if the acquired business does as well as expected. For the buyer, the earnout is acceptable because additional payments will be necessary only if the business does significantly better than expected. There are three typical reasons why earnouts are used in merger and acquisition transactions.

- **Bridge the valuation gap:** The most common reason for using an earnout is to bridge the gap between buyer and seller’s evaluation of the intrinsic value of the target. When both
parties agree that a higher valuation would be justified if the target met future performance goals, then the parties can make the differential between their valuations subject to an earnout.

- **Retention of shareholder/managers:** Earnouts can also allow the buyer to induce key managers of the target, who are also shareholders, to remain with the target after the sale. If a portion of the purchase price is subject to performance goals after the closing, the target's shareholder/managers have an incentive to remain with the target in order to participate in the potential future payments.

- **Motivation of shareholder/managers:** A third reason to use earnouts is to motivate the target's shareholder/managers to continue the target's aggressive growth after closing the sale. Earnouts are most effective for this purpose if the target can substantially increase its sales price by achieving its performance goals.

**B. Potential disadvantages of earnouts**

Despite the economic attractiveness of earnouts, they carry a variety of complications that must be considered before the negotiating parties decide to use an earnout deal structure. As the growing number of public deals that include earnouts suggests, these complications can be resolved through diligent attention to details by both parties. When problems occur from using earnouts, they generally fall into one or more of the following categories:

- **Postacquisition integration:** Earnouts are least likely to be effective when the target is totally integrated into the buyer. The more the target's operations are integrated into the buyer’s, the less control the target's management will have over achieving performance goals. In an integrated company, revenue, expense and profit decisions may be made to benefit the combined entity instead of the target, which could demotivate the target management. To avoid this problem, it is important to choose performance goals that will not be adversely affected by integration or to assure the target's operating independence during the earnout period.

- **Complexity of definition:** It is difficult to create effective earnout formulas. While the earnout concept may be simple, objective numerical definitions can easily become complex. It is important that the parties agree on simple performance goals that are unambiguous and easy to measure.

- **Overly aggressive performance goals:** In order to get the highest target valuation, the target's management may be tempted to base the earnout on overly aggressive performance goals. It should be remembered that most companies rarely predict their future performance with any accuracy. Earnouts can demotivate the target's management if it becomes likely that the target will miss its performance goals. The best way to ensure the continued motivation of the target management is to choose realistic performance goals, provide
progress payments for partial performance, and provide a fair mechanism to adjust performance goals to reflect changing business circumstances.

- **Managers don't own a significant earnout claim:** Earnouts may not sufficiently motivate target management if they simply do not receive a sizable earnout claim on future performance. For instance, suppose that the target is a large publicly held corporation in which management owns one percent of the shares, and that the earnout instruments are distributed pro rata to shareholders. Because of their small claim on the total earnout benefits, the payoff to management of exceeding the earnout targets might be small. To avoid this problem, it may be necessary to provide additional incentive compensation for the target's key managers.

Given the practical difficulties of earnouts, the parties may conclude that it is preferable not to use them. Even if negotiations lead to a non-earnout structure, consideration of an earnout is still valuable. Negotiations about earnouts frequently bring the parties closer together on price, performance expectations, and operating philosophies.

**IV. The Central “Aha!”: Earnouts Are Options on Future Performance**

The key to understanding how earnouts can be structured and valued lies in seeing them as a type of financial option. An option is the right, not the obligation, to do something—for instance, a call option traded on the Chicago Board Options Exchange is the right to buy shares of the underlying common stock. The only circumstance in which a rational person would exercise the call option is if the value of the underlying stock exceeds the exercise price of the call option. In other words, the value that the investor receives from an option is contingent on the performance of an underlying asset; the option value derives from the value of another asset, hence, the name derivative security.

Earnout provisions are a type of call option on the benefits of future performance by the target firm. Like the more straightforward CBOE call option, the earnout can be described in terms of some of its key value drivers shown in Exhibit 2.

Earnouts differ markedly from the standardized exchange-traded financial options, so it is best not to push the similarity with them too far. But even if the correspondence between them is at best loose, the options perspective still yields a number of extremely important implications for deal-doers:

- **Earnouts are likely to be valuable, even if they are out-of-the-money today.** The key question about all options is not whether it would be profitable to exercise them right now, but rather, how likely it is that the option will become in-the-money sometime in its remaining life?
- **Earnouts are not “free” to the buyer; they are costly.** Quite often, the buyer structures an earnout so that it is “out-of-the-money” today. Thus, the buyer assumes that the earnout is a costless trinket, given away to placate the seller in the negotiations. But if out-of-the-money
options (i.e., with some time remaining) are generally valuable, then the opposite is true: the earnout is costly to the buyer; it may convey value from the buyer to the seller.

- **Earnouts are tailor-made for situations of great uncertainty.** Remember that options are more valuable the greater the uncertainty or volatility of the underlying asset. In other words, earnouts will be seen as conveying material value if there is uncertainty about the target company. How much value and uncertainty remains for the analyst to determine. But in general, one should instinctively consider using earnouts in settings such as high technology, rapid growth, and/or sharp turbulence in the economic environment. In contrast, earnouts may not help much in settings involving mature firms and industries and a quiet economic environment.

- **Earnouts will be helpful in bridging the differences in outlook between an optimistic seller and a pessimistic buyer.** Highly disparate outlooks are simply another form of uncertainty. Indeed, it is the existence of pessimists and optimists that makes the options market. Options investors are said to “trade on risk” i.e., on the differences in beliefs about future volatility—both the buyer and seller of options willingly enter into the transaction in the belief that they will gain as their view of the world unfolds. So it is with parties to an M&A transaction: earnouts can be structured in ways that will favor each side if their view of the future actually occurs. Thus, at the time when the transaction is consummated, both parties are likely to be satisfied.¹

V. **Structuring an Earnout**

The following section looks at each of the key elements to consider when structuring an effective earnout. In addition, this section outlines the negotiating positions that the buyer and the target are likely to take and suggests mechanisms to bridge potential conflicts.

A. **Earnout amount**

The parties must determine what portion of the target's purchase price will be paid to its shareholders at closing and what portion will be subject to the earnout. Each will attempt to reduce its risk in the acquisition: the buyer by trying to increase the earnout ratio;² the target by trying to get more cash at closing.

The earnout percentage is usually a function of the negotiation price gap. That is, there is usually some portion of the purchase price on which both parties can agree. This becomes the non-contingent or fixed portion of the purchase price. The difference between the fixed portion and what the seller desires to receive is the “price gap” and is the basis for the earnout. When determining the earnout percentage, both parties need to consider that any earnout payments are contingent in nature and will not be paid until a later date. The contingent nature of the

¹Obviously, in a zero-sum world, one party’s gain must come at the expense of another. The joint satisfaction is probably temporary, as suggested by the operative phrase here, “at the time when the transaction is consummated.”

²The earnout ratio is defined as the percentage of the total maximum payout that is attributed to the earnout rather than the fixed portion of the purchase price.
payments makes valuing an earnout more complicated than merely discounting the future earnout payments. Rather, the earnout is comparable to an option where the value of the earnout increases with additional uncertainty about future cash flows.

It is important that the parties strike an appropriate balance between the payments at closing and the amount of the earnout. The proper balance will depend on how strong the target's position is, the total risk in the earnout, and the parties' objectives. Practitioners believe there is little point to a small earnout if the earnout ratio would be less than 20 percent; it is preferable for the parties to continue negotiations until they agree on price. In contrast, if the earnout ratio would be more than 70 percent, the target may be assuming too much risk in the transaction. As Exhibit 1 shows, earnouts range from 15-88 percent of the total purchase price.

B. Earnout period

Earnouts typically run for a period of between one and five years, with an average of three years. The earnout period is usually determined by the earnout ratio (the percent of total payment derived from the earnout). In general, the larger the earnout ratio, the longer the earnout period.

Conventional wisdom holds that, since “time is money,” the seller will want shorter earnout periods to increase the present value of an expected payment. In contrast, the buyer would want to stretch the earnout payments over a longer period in order to reduce the present value of these payments. Also, a longer earnout will extend the period that the target's shareholder/managers will be retained and motivated.

The options analogy produces a rather different perspective on earnout periods. Quite simply, longer-lived options are more valuable since with more time there is more likelihood that the earnout will pay off. Thus, option theory would suggest that the seller would want longer-running earnouts, all else being equal. In contrast, the buyer would want shorter earnout periods. The conventional wisdom makes the mistake of viewing the earnout as a “sure thing” when in reality it is highly uncertain. Given the uncertainty, the options perspective on earnout period is more appropriate.

C. Performance goals

Earnout payments can be based on any number of measurable performance criteria. To be effective, performance goals must be clearly defined, mutually understood, attainable, and easily measurable. Common performance criteria used in earnouts raise numerous issues that both parties should consider when evaluating the appropriateness of those criteria for its earnout:

- **Revenues:** Revenue-based earnouts are best suited for situations in which the buyer wishes to integrate the operations of the two companies. In fact, when the target is fully integrated into the buyer it becomes very difficult to measure future results other than revenues from the former the target products. Using revenue-based earnouts
also works well for those situations where the target management does not intend to remain with the company after the deal. In these cases, the earnout provides both parties with a fair way to value the brand equity that the former managers of the target built. The main risk to the buyer in using a revenue-based earnout is that the target will sell product at low margins in order to boost revenues. The buyer can mitigate this risk by requiring that the target should have profitable business operations. On the other hand, the target may be concerned that the buyer's manufacturing or distribution capacity will not be sufficient to meet customer demand for the target's products. To avoid this problem, the target will want the earnout formula to specify what resources the buyer must dedicate to support the target's revenue goals.

**Gross margin**: the buyer may prefer to base the earnout on the target's gross margin because it forces the target to be profitable. However, if the target is subject to the buyer's control, the target's management may worry that the buyer will dictate its expenses to the detriment of the earnout. To address this concern, the earnout formula should specify how the parties would determine overhead, burden rate, purchasing requirements, and similar factors affecting gross margin.

**Pretax profit**: Using pretax profit as the earnout measure requires the target's business to perform well in all respects. It also prevents any meaningful operating integration of the target into the buyer during the earnout period. To ensure that the target has a fair opportunity to achieve its earnout objectives, an earnout based on pretax profit needs to provide the target with adequate operating freedom.

**Cash flow or EBITDA**: When parties have used an EBITDA multiple to value the target at closing, it can be useful to base the earnout formula on a similar measure to highlight the importance of providing future cash, and hence future value, to the buyer. A cash flow-type metric is also particularly useful if the buyer is cash-short or if the buyer wants to impose discipline on the target that has historically been a large cash consumer.

**Milestones**: Earnout payments can also be subject to the target attaining non-financial milestones, such as completion of some specified critical product development, product shipment, or contract execution. These types of performance criteria are particularly common in the technology sector where a new product development can greatly enhance the value of the target.

It is also not uncommon to incorporate more than one of the above performance criteria into the earnout formula by assigning each criterion a separate weight, allowing the goals to be achieved independently. For example, each year’s earnout payment could be based 50 percent on revenues and 50 percent on EBITDA.

After determining which goals to use in the earnout, the parties must decide how the payout will be computed. In the majority of transactions, performance goals are measured on an
annual basis. A mathematical formula should be developed that determines the exact amount of cash or shares to be distributed to the target's shareholders.

**D. Payment schedule**

There are a number of ways to structure the payment schedule in an earnout. To balance risk and reward, the earnout should provide rewards for significant partial performance by the target, even if it does not completely meet its performance goals. For example, a sliding scale could be used whereby the target would receive some partial payment if it attains at least 50 percent of the performance goal. The payment amount would then increase linearly thereafter up to the performance goal.

The payment schedule must also account for instances in which the target exceeds its performance goal. In some cases, earnout formulas pay bonuses if the target exceeds its performance goals. Another way to treat excess performance is to allow the target to use any excess performance in a given year to offset any periods in which it fails to meet its goals. To eliminate the annual volatility of the earnout payment, some companies prefer to structure one lump sum payment at the end of the earnout that accounts for the cumulative performance of the target relative to the annual performance goals.

Due to the unpredictability of future performance, the buyers almost always cap the payments that can be earned in an earnout. If the buyer caps the total payments that can be earned, the target should seek minimum annual payments and the right to bonus payments if it exceeds its performance goals.

**E. Operational integration**

Another issue that impacts the potential effectiveness of an earnout is the extent to which the buyer intends to integrate the operations of the target. The earnout contract must clearly define the business unit being measured in the earnout and establish who will control the target's major corporate decisions. Earnouts frequently require that the target cooperate with the buyer's operations or integrate products. The target needs to evaluate its control over those integrated factors and determine what impact they will have on the design and payout of the earnout. For example, if the buyer intends to provide the target with additional products to manage, will those revenues be included in the earnout? If the buyer is to be the target's major customer, will the target attain the same level of profitability that it would if it were selling its products to third parties?

If the target retains operating control, it is less likely to claim that the buyer has interfered with it attaining its earnout performance goals. Since acquisitions with low operating integration after the closing generally produce the most effective earnouts, the target should negotiate to retain its operating independence during the earnout. Since the buyer frequently acquires the target to accomplish operating integration, this issue must be carefully handled. One possibility is to choose the target performance goals that allow necessary integration. Alternatively, a shorter earnout period may permit the parties to be integrated after the earnout, but within a
reasonable period. The earnout must be structured to allow attainment of the strategic, as well as the financial and earnout, objectives of the acquisition.

F. Accounting rules and performance measurement

Earnouts require a clear understanding of the applicable financial accounting rules. The buyer and the target frequently account for items differently before the acquisition; the target generally will be required to conform its accounting system to the buyer's after the closing. The way that items are accounted for after the acquisition can have a significant impact on the payout amount. The earnout agreement should specify the accounting policies that will be followed when measuring the target's performance. An agreement that requires numbers to be computed according to GAAP is not sufficient because of the variety of accounting treatments that are all within the boundaries of GAAP.

Items to be deducted from the target's financial statements to obtain performance results should be clearly specified. Of particular importance is the way the buyer treats interest, goodwill or other intangibles, earnout payments, and corporate allocations and expenses related to the transaction. These items normally should not be treated as the target operating expenses in determining its performance.

The acquisition contract needs to incorporate accurate and timely ways to monitor performance goal results. It should require an independent annual audit of the target and provide a method to resolve numerical disputes. A subcommittee of the target's former board of directors, representing the target's shareholders, frequently will be asked to negotiate any disputes with the buyer during the earnout period. If this subcommittee and the buyer are unable to reach accord, the contract should provide for arbitration or determination by some independent accounting firm.

G. Additional issues

In addition to the issues previously addressed, there remain several other issues that should be kept in mind when negotiating an earnout:

- **Availability of financing**: The target will want to ensure that the buyer can and will provide the capital the target will need to achieve its performance goals. On the other hand, the buyer will be concerned that the target could become a cash drain. When the target is not in a position to fund its growth internally, it is common for the buyer to provide capital and charge the target’s income statement for the buyer’s cost of capital. If the buyer will not commit to providing necessary capital, the target needs authority to obtain funds from outside sources.

- **Management process**: Both parties must agree on how the target will conduct business after the closing. The parties must establish an approval process for the
target's annual operating plans. While this process generally will mirror the buyer's own business planning process, it is important to structure a planning process for the earnout period that will not adversely affect the target's ability to achieve its performance goals.

- **Change in control:** There is always a risk that the buyer may sell the acquired business in the future or that the buyer will itself be bought by another entity. The seller should ensure that any future changes in control do not adversely affect the target's ability to obtain its future earnout payments. Some earnout agreements will provide for any acquiring company to pay the target the maximum amount due under the earnout as part of their purchase.

- **Liquidity:** Some earnout agreements will permit the earnout instrument to be sold, assigned, or transferred. Generally, this feature should add some value to the earnout, as it confers greater liquidity on the investment value latent in the earnout. Some earnout instruments may be detached from the common shares of public firms, and/or listed separately for trading on a stock exchange—in this instance, the deal designer should prepare for lengthy discussions with securities regulators on even the most fundamental question of whether the instrument is a debt security or an equity security.

- **Impact on the buyer's financial structure:** Earnouts, like other contingent liabilities, have historically been presented in footnotes to the buyer’s financial statements. The accounting profession is debating their possible presentation directly on the balance sheet, as a contra-equity account or an outright liability. Economically speaking, earnouts are claims that are senior to the common shareholders. Therefore, earnouts will tend to increase the financial leverage of the buyer (in comparison with payment in shares of common stock) and should be assessed for their possible impact on the debt rating and general creditworthiness of the buyer.

### VI. Tax and Accounting Considerations

An earnout is just the payment mechanism for some portion of the purchase price in an acquisition. The parties still need to decide how they want to structure the acquisition given the legal and accounting implications of using an earnout. Earnouts are complex and must be carefully crafted to reduce future friction between the parties. Both parties need to carefully read and understand the documentation that will govern their working relationship and profits during the earnout period. The following legal and accounting considerations are the most common and critical issues that must be considered.
A. Tax implications of earnout structure

Use of an earnout does not preclude flexibility in structuring acquisitions. Earnouts can be included in tax-free and taxable transactions and in mergers, stock-for-stock acquisitions, or asset acquisitions. The earnout can be paid in stock or in cash.

Both parties must carefully consider the tax implication of using stock versus cash to make earnout payments. Any cash will, of course, be taxable, so the target may want the buyer stock because its receipt can be tax-free. It is worth noting that the target generally can defer the tax due on cash payments until the payments are received by reporting the earnout payments on an installment sale basis. The buyer also has an incentive to use stock because it may want to conserve cash and/or provide the shareholder/managers of the target with a continuing interest in the growth and prosperity of the buyer after the closing of the transaction.

When structuring an earnout as a tax-free transaction, the tax rules regarding the allowable form of payment vary depending on the type of transaction chosen by the parties. If the purchase transaction is structured as a merger-type reorganization, cash earnout payments will be fully taxable and, if large enough, may defeat tax-free reorganization treatment. Specifically, a straight or forward triangular tax-free merger must have at least 50 percent of the total consideration paid in stock while a reverse triangular tax-free merger must have at least 80 percent of the total consideration paid in stock. If the transaction is a tax-free stock-for-stock acquisition, all of the consideration paid must be in stock. In a tax-free stock-for-assets acquisition, consideration in the form of cash or the assumption of liabilities must be less than 20 percent of the total consideration.

Current IRS guidelines also indicate that, in a tax-free acquisition, the earnout ratio should not be more than 50 percent and the earnout period should not exceed five years. The IRS will impute interest on deferred payments, whether stock or cash, unless the agreement specifically provides for adequate interest.

B. Earnouts permitted only under purchase accounting

An earnout must be accounted for as a purchase rather than as a pooling of interests. This is required because some portion of the purchase price will be contingent upon the target's meeting its performance goals after the closing. As a result, any excess of the purchase price over the book value of the target's assets at closing will be treated as goodwill. Since earnout payments are part of the purchase price, they will either create or increase the amount of goodwill in the transaction. The buyer must amortize goodwill over some reasonable period that should be determined by the buyer's accountants on a company specific basis. Goodwill amortization has the effect of depressing the buyer's reported earnings during the amortization period and possibly depressing the price that the buyer is willing to pay for the target. Many publicly held the buyers prefer to account for an acquisition as a pooling of interests to avoid the adverse effect that purchase accounting has on their reported earnings. If a prospective buyer requires pooling, no earnout is possible.
VII. Generic Approach to Valuing Earnout Instruments

In order to design effective earnouts, it is important to understand how to value them and their possible alternative structures. Some practitioners believe that the appropriate way to value these instruments is to forecast a “most likely” stream of cash flows, and discount them to the present. Unfortunately, this ignores the uncertainty of the underlying index, and the optionality of the instrument itself. This approach will usually underestimate the value of the earnout instrument. The correct approach to valuing earnouts is to recognize their optionality, i.e., to value them as instruments with contingent payments rather than as fairly certain streams of cash.

Although it is possible to design a theoretical model to value earnouts, there is a simpler and equally effective numerical valuation approach: Monte Carlo simulation. Numerical simulations can be designed that allows users to change the key drivers of future value and estimate today’s value of the target. The buyer and seller will have different distributions for the key value drivers and this will lead to different valuations of the same earnout structure for the two parties. Monte Carlo simulation yields useful negotiating and structuring insights from a review of the payout distributions. For example, the buyer can determine the probability that the earnout has no value as well as the maximum earnout amount and the likelihood of that payment.

The generic model, earnout.xls, is available from darden.cases@virginia.edu. The user must have installed Microsoft Excel and AtRisk! software to execute a simulation using this model.

A. Valuing an earnout with Monte Carlo simulation

The following example illustrates a Monte Carlo simulation of the present value of the earnout payment based on variations of sales growth and profit margins. For the purposes of this example, let’s assume that the buyer plans to acquire the target that has $10 million in sales. The buyer has completed a DCF analysis that yielded an enterprise value of $3 million for the target, while the target values itself at $5 million. The parties decide to use an earnout to bridge this valuation gap. The earnout will last for 5 years and will have earnout targets starting at $250 thousand and increasing by that amount each year. The consideration paid at closing should not exceed the buyer’s enterprise valuation of the target. $2 million is agreed upon for this transaction—the key question is whether this is a “fair” price.

A Monte Carlo simulation valuing this earnout is based on models given in Exhibits 3 and 4, with a separate model for the buyer and the seller. This permits us to value the identical earnout from the perspective of both parties. An earnout that is valuable to one side may not be valuable to the other.

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3The Monte Carlo simulation for this generic illustration was prepared using AtRisk!, a software package designed by the Palisade Corporation, 1-800-432-7475.
The first step in creating a Monte Carlo simulation to value this earnout is to determine the probability distribution of key forecast assumptions. These are probability distributions of the assumptions that drive the forecast. In this simple example, we will focus only on sales growth and profit margins. These must be determined for both the buyer and the seller points of view. The analyst can choose among a variety of possible distributions: normal, uniform, and triangular to name three common forms. In this example, we will focus on the triangular distribution for simplicity. The amounts chosen as the minimum, maximum, and “most likely” will be used as the basis to create a triangular distribution of future values for the key drivers from the perspective of each party. In this case, the buyer expects values ranging from 0 percent to 10 percent for both sales growth and profit margins while the seller has higher and more volatile expectations for these values.

After the expected distributions for the key value drivers are entered into the respective buyer and seller portions of the valuation model, the following steps should be taken to complete the valuation of the proposed earnout using the model, earnout.xls.

- The current sales figure of $10 million for the target company is entered into the appropriate cell on the spreadsheet. This amount serves as the basis from which future sales and profits will be derived.
- The earnout period is input as five years.
- The earnout targets are entered for each year starting with $250 thousand and increasing by that amount each year. The model is designed to compare these annual earnout targets to the annual operating income that results after each iteration of the simulation. Any excess of the projected operating income over and above the earnout target will result in a positive amount in the annual earnout value line. It is also important to note that the annual earnout line will never be less than zero because the call option nature of an earnout prohibits a negative value. The annual payments expected from the earnout are discounted to account for the time value of money at a discount rate of XX percent, the assumed risk-free rate of return.  
- Fourth, enter the fixed amount of dollars that will be paid out at closing, $2 million in this case. The model adds this figure to the present value of the earnout to arrive at an enterprise valuation of the proposed earnout structure.
- Select the enterprise valuation cells on both the buyer and the target portion of the model as the outputs of a Monte Carlo simulation and run a simulation to determine the distribution of payouts that can be expected.

B. Valuation results of the hypothetical example

Monte Carlo simulation offers insights about the value of the earnout to both the buyer and the target. An acceptable earnout will satisfy both sides. To the buyer, the earnout and fixed

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4In theory, the risk-free rate of return (the yield on a U.S. Treasury bond of a term equal to the life of the earnout) is the appropriate discount rate because risk has been already recognized in the probability distributions of the forecast assumptions. One does not want to double-compensate for risk. But the practitioner should be warned that simply using the risk-free rate assumes that substantially all risk has been accounted for in the analysis. This assumption should be scrutinized carefully since uncertainty permeates business forecasts and may be difficult to reflect completely in the probability distributions of the forecast assumptions.
payment will be equal to or less than the value of the target to the buyer. To the seller, the earnout and fixed payment will be equal to or greater than the target’s value. Stated mathematically, a satisfactory deal should meet both equations simultaneously:

Enterprise Value According to Buyer ≥ Dollars at Closing + Buyer Valuation of Earnout
Enterprise Value According to Seller ≤ Dollars at Closing + Seller Valuation of Earnout

A review of the distributions of expected values for this proposed deal shows that the buyer (Exhibit 3) expects a mean total cost of $2.4 million, while the target (Exhibit 4) expects to receive a mean total value of $5.5 million for the same proposed earnout. Thus, the two above equations for an acceptable earnout are satisfied for the mean expected values. A more detailed review of the simulation results can yield the percentage of time that the equations will be satisfied for both parties. This provides a valuable technique for earnout valuation that can be used by management to optimize their expected value in an earnout deal.

The particular earnout described in this example was able to satisfy both parties because of the differences in expected volatility used in the model for the two parties. These differences are exactly why earnouts are such a valuable business tool for mergers and acquisitions and why earnouts enable a win-win situation to be negotiated.

VIII. Conclusion: Proposing and Negotiating Earnouts and Other Incentive Payments

The discussion in this note shows that a well-designed earnout must take into consideration a wide range of issues and concerns for each party involved. There are three paramount considerations when designing an earnout proposal.

- **Keep it simple:** Whether or not an earnout becomes part of the final deal, negotiating a simple earnout structure is the most productive use of time. If negotiations shift toward a non-earnout transaction, the effort to develop complex formulas will have been wasted. If the earnout formula is retained, the seller will want it to be clearly defined, mutually understood, and easily measurable.

- **Focus on key issues:** Many earnout negotiations fail because both sides press their positions on all points. Each party should save its design efforts for its performance value issues.

- **Be realistic:** To maximize the earnout’s chance of success, the seller must be realistic and have a detailed understanding of how the target will operate within the buyer. Performance several years into the future is always difficult to forecast, and it is useful to consider both upside and downside scenarios. The main focus of discussion should be on near term performance since it is the most predictable.

Given an earnout's inherent complexity, attention to detail is required by both parties to avoid future disputes. Although the parties will never be able to foresee every future issue, the written
earnout agreements must address at a minimum the issues discussed in this note. Despite the potential headaches, a successful earnout can bring parties together on value, provide incentives for management, and generally create a win-win situation for the parties involved.

The option analogy highlights two important design aspects that are worth careful attention by the negotiators: the time period and triggers (exercise prices) for the earnout. Longer terms, and lower triggers imply more value in the earnout instrument; shorter terms and higher triggers imply less value. Exactly how time period and trigger values trade off in the resulting earnout value is a matter for an analyst to determine. Thus, a great deal hinges upon the ability to assess the value of an earnout instrument rigorously, and quickly. The technique described in this note affords perhaps the best route for the analyst.

Earnouts are options. Ultimately the design and evaluation of them depend on the assessment of risk and uncertainty. This may repel the practitioner in a hurry but I view it as an advantage. All sound analysis should require careful reflection, and will inevitably raise more questions. This is the search for wisdom.
Exhibit 1

TECHNICAL NOTE ON
STRUCTURING AND VALUING INCENTIVE PAYMENTS IN M&A:
EARNOUTS AND OTHER CONTINGENT PAYMENTS TO THE SELLER

Volume of Deals Involving Earnouts by Year, and in Comparison with All Deals

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Value ( $ mil)</th>
<th>% All Deals</th>
<th>Number</th>
<th>% All Deals</th>
<th>Due to Earnout</th>
</tr>
</thead>
<tbody>
<tr>
<td>1985</td>
<td>$ 447.4</td>
<td>0.4%</td>
<td>8</td>
<td>1.3%</td>
<td>51%</td>
</tr>
<tr>
<td>1986</td>
<td>$ 2,081.6</td>
<td>0.9%</td>
<td>15</td>
<td>1.2%</td>
<td>26%</td>
</tr>
<tr>
<td>1987</td>
<td>$ 1,697.3</td>
<td>0.9%</td>
<td>15</td>
<td>1.1%</td>
<td>44%</td>
</tr>
<tr>
<td>1988</td>
<td>$ 1,795.3</td>
<td>0.7%</td>
<td>26</td>
<td>1.5%</td>
<td>54%</td>
</tr>
<tr>
<td>1989</td>
<td>$ 2,774.9</td>
<td>0.9%</td>
<td>52</td>
<td>2.4%</td>
<td>24%</td>
</tr>
<tr>
<td>1990</td>
<td>$ 1,438.5</td>
<td>0.8%</td>
<td>53</td>
<td>2.6%</td>
<td>21%</td>
</tr>
<tr>
<td>1991</td>
<td>$ 2,254.4</td>
<td>1.8%</td>
<td>55</td>
<td>2.8%</td>
<td>30%</td>
</tr>
<tr>
<td>1992</td>
<td>$ 1,272.6</td>
<td>1.1%</td>
<td>61</td>
<td>2.7%</td>
<td>40%</td>
</tr>
<tr>
<td>1993</td>
<td>$ 4,322.0</td>
<td>2.5%</td>
<td>89</td>
<td>3.4%</td>
<td>21%</td>
</tr>
<tr>
<td>1994</td>
<td>$ 1,990.1</td>
<td>0.7%</td>
<td>92</td>
<td>2.7%</td>
<td>88%</td>
</tr>
<tr>
<td>1995</td>
<td>$ 7,150.4</td>
<td>1.8%</td>
<td>86</td>
<td>2.3%</td>
<td>27%</td>
</tr>
<tr>
<td>1996</td>
<td>$ 8,831.7</td>
<td>1.5%</td>
<td>85</td>
<td>2.0%</td>
<td>19%</td>
</tr>
<tr>
<td>1997</td>
<td>$ 11,711.1</td>
<td>1.7%</td>
<td>144</td>
<td>3.1%</td>
<td>29%</td>
</tr>
<tr>
<td>1998</td>
<td>$ 9,845.1</td>
<td>0.8%</td>
<td>167</td>
<td>3.5%</td>
<td>28%</td>
</tr>
<tr>
<td>1999</td>
<td>$ 4,793.7</td>
<td>0.7%</td>
<td>90</td>
<td>3.4%</td>
<td>15%</td>
</tr>
</tbody>
</table>

Note that data for 1999 are for the first nine months.
Comparison of Earnouts and Call Options on Common Stock

<table>
<thead>
<tr>
<th></th>
<th>Call Options on common stock</th>
<th>Earnouts</th>
<th>Implications for Value of the Earnout</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Underlying asset</strong></td>
<td>Shares of common stock</td>
<td>Some index, or measure of financial or operating performance; whatever the earnout is pegged to: revenues, earnings, cash flow, even market share or product introductions.</td>
<td>The earnout is a derivative security.</td>
</tr>
<tr>
<td><strong>Exercise Price</strong></td>
<td>The stated “strike price” of the options contract</td>
<td>Any benchmark, hurdle, or triggering event, beyond which the earnout provision starts paying off</td>
<td>The lower the levels of the benchmark or target of performance, the greater the value of the earnout.</td>
</tr>
<tr>
<td><strong>Price of the underlying asset</strong></td>
<td>Share price of the underlying common stock.</td>
<td>The level of the index or measure of performance: revenues, earnings, cash flow, etc. to which the earnout is tied.</td>
<td>The higher the performance of the underlying index to which the earnout is pegged, the greater the value of the earnout.</td>
</tr>
<tr>
<td><strong>Interim payouts</strong></td>
<td>Dividends</td>
<td>Any interim cash flows associated with the earnout.</td>
<td>The higher the interim payout, the lower the value of the earnout, after payment.</td>
</tr>
<tr>
<td><strong>Term of the option</strong></td>
<td>At original issue, contracts are for 3, 6, or 9 months.</td>
<td>Typically as long as five years.</td>
<td>The longer the remaining life of the earnout, the more valuable. This is generally the second most important driver of option value.</td>
</tr>
<tr>
<td><strong>Uncertainty</strong></td>
<td>Volatility of returns on the underlying asset.</td>
<td>Uncertainty about the performance of the underlying index to which the earnout is pegged.</td>
<td>The greater the uncertainty (or volatility), the more valuable the earnout. This is generally the most important driver of option value.</td>
</tr>
</tbody>
</table>
Exhibit 3

TECHNICAL NOTE ON
STRUCTURING AND VALUING INCENTIVE PAYMENTS IN M&A:
EARNOUTS AND OTHER CONTINGENT PAYMENTS TO THE SELLER

Buyer’s Forecast and Valuation Model: Generic Evaluation of an Earnout

<table>
<thead>
<tr>
<th>Base Year Sales</th>
<th>$10,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earnout Period, in Years</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sales</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>$10,500</td>
<td>$11,025</td>
<td>$11,576</td>
<td>$12,155</td>
<td>$12,763</td>
</tr>
<tr>
<td>Year 1</td>
<td>Year 2</td>
<td>Year 3</td>
<td>Year 4</td>
<td>Year 5</td>
<td></td>
</tr>
<tr>
<td>Growth Rate</td>
<td>min</td>
<td>0%</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td></td>
<td>max</td>
<td>10%</td>
<td>8%</td>
<td>5%</td>
<td>5%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operating Income</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Income</td>
<td>$525</td>
<td>$551</td>
<td>$579</td>
<td>$608</td>
<td>$638</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Profit Margin</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profit Margin</td>
<td>min</td>
<td>0%</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td></td>
<td>max</td>
<td>10%</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Earnout Target</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earnout Target</td>
<td>$250</td>
<td>$500</td>
<td>$750</td>
<td>$1,000</td>
<td>$1,250</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Annual Earnout Value</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Earnout Value</td>
<td>$275</td>
<td>$51</td>
<td>$-</td>
<td>$-</td>
<td>$-</td>
</tr>
</tbody>
</table>

Present Value of the Earnout, Discounted at 5% $308

Dollars at Closing $2,000

Enterprise Valuation of Proposed Earnout $2,308

Distribution for Enterprise Valuation of Proposed Earnout

Minimum $2,000
Mean $2,414
Maximum $3,316
# TECHNICAL NOTE ON
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EARNOUTS AND OTHER CONTINGENT PAYMENTS TO THE SELLER

Seller’s Forecast and Valuation Model: Generic Evaluation of an Earnout

<table>
<thead>
<tr>
<th>Base Year Sales</th>
<th>$ 10,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earnout Period, in Years</td>
<td>5</td>
</tr>
<tr>
<td>Sales</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>min</td>
<td>10%</td>
</tr>
<tr>
<td>Growth Rate</td>
<td>most likely</td>
</tr>
<tr>
<td>max</td>
<td>20%</td>
</tr>
<tr>
<td>Operating Income</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>min</td>
<td>5%</td>
</tr>
<tr>
<td>Profit Margin</td>
<td>most likely</td>
</tr>
<tr>
<td>max</td>
<td>15%</td>
</tr>
<tr>
<td>Earnout Target</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual Earnout Value</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Present Value of the Earnout, Discounted at 5%</td>
<td>$ 3,482</td>
</tr>
<tr>
<td>Dollars at Closing</td>
<td>$ 2,000</td>
</tr>
<tr>
<td>Enterprise Valuation of Proposed Earnout</td>
<td>$ 5,482</td>
</tr>
</tbody>
</table>

## Distribution for Enterprise Valuation of Proposed Earnout

<table>
<thead>
<tr>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.16</td>
</tr>
<tr>
<td>0.14</td>
</tr>
<tr>
<td>0.12</td>
</tr>
<tr>
<td>0.1</td>
</tr>
<tr>
<td>0.08</td>
</tr>
<tr>
<td>0.06</td>
</tr>
<tr>
<td>0.04</td>
</tr>
<tr>
<td>0.02</td>
</tr>
<tr>
<td>0</td>
</tr>
</tbody>
</table>

Minimum | $ 2,692 |
Mean | $ 5,484 |
Maximum | $ 7,606 |
Additional Reading


Gerstein, Mark D., “Earnouts: An Outline of Key Issues, Acquiring or Selling the Privately Held Company” (Practising Law Institute, 1996).


