

Addressing Informational Challenges with Earnouts in Mergers and Acquisitions

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Abstract

This essay examines the role played by earnouts in mergers and acquisitions transactions. When one party is better informed of the true value of the deal than the other, the parties face the well-known “lemons” problem, which could prevent them from consummating the transaction even when both are aware that the deal will produce a positive (but uncertain) surplus. By harnessing post-closing, verifiable information, earnouts allow the transacting parties to overcome this informational challenge. The essay also analyzes (1) how the adoption and the size of an earnout will vary depending on the various characteristics of the transaction and (2) the earnout design issues when the parties face the problems of ex post moral hazard, such as engaging in inefficient behavior to either maximize or minimize the earnout payment.

* Albert C. BeVier Research Professor and Professor of Law. I would like to thank the editor Claire Hill for many thoughtful comments and suggestions. This essay is based primarily on Choi (2016), which provides a much more extensive, game-theoretic analysis of earnouts and purchase price adjustments in two different informational settings, asymmetric information and non-convergent priors, using two different means of payment, cash and stock. Comments are welcome to albert.choi@virginia.edu.

Introduction

In mergers and acquisitions transactions with privately-held target companies, transacting parties will often agree to make payments to the target shareholders contingent upon some post-closing events. One frequently used mechanism is an earnout.¹ With an earnout, the parties will agree upon post-closing performance targets, using measures such as earnings, net income, or gross revenue, and the additional amount of consideration that the target shareholders are entitled to receive will depend on whether such performance targets are met over the earnout period, which typically lasts from one to five years after closing.² For example, after paying \$10 million at closing, an earnout can allow the target shareholders to receive additional consideration if the acquired company's (adjusted) EBITDA surpasses \$1 million threshold over a one-year period after closing, where the additional amount can be set as three times the difference between the EBITDA and the threshold \$1 million.³ Hence, if the acquired company, over the one-year earnout period, realizes an EBITDA of \$1.6 million, the target shareholders will receive additional \$1.8 million from the buyer. If, on the other hand, the acquired company realizes only \$800,000 of EBITDA during the earnout period, the target shareholders get no additional consideration.

Practitioners' understanding of why transacting parties utilize an earnout is that it makes it easier for the parties to come to an agreement, particularly when the parties have difficulty arriving at a mutually acceptable valuation of the target's assets or business.

¹ For an overview of earnouts, see Kling and Nugent (2013) at 17.12—17.26; Miller (2008) at 112—115 and 210—214; Glover, Allen, Gallardo, Bernand, and Le Sage (2011) at 9.28—9.44; and Bruner (2004) at 609—635. Earnouts are sometimes also based on non-financial measures, such as securing regulatory approval or clearance (e.g., FDA approval of a pharmaceutical drug), introduction of a new product, obtaining a major contract from a new customer or reaching a minimum number of customers/subscribers. Private target transactions are also more likely subject to robust post-closing indemnification rights for the buyers. See Gilson (1984) at 262—267 for a discussion on how earnouts function as a “state-contingent contracting” to manage the “non-homogeneous expectations” of the transacting parties; and Coates (2010) at 24—26 for how earnouts and purchase price adjustments are much more prevalent for private than public targets (17% versus 2% in sample from 2007-2008 period). See American Bar Association (2010) volume II at 119—140 for a sample earnout agreement. Because earnouts necessitate (potentially multiple) payments after closing, while theoretically possible, they are generally not used with respect to targets whose shares are publicly traded and whose ownership is dispersed.

² Although the focus of this essay is on earnouts, there are other mechanisms that allow for post-closing variations in payments, such as purchase price adjustments, escrows, holdbacks, contingent value rights (CVRs), and even debt financing. See Coates (2012). In particular, CVRs, which typically tie post-closing payout to target shareholders to the performance of the acquirer's stock, can be structured very much like earnouts or purchase price adjustments, and are known to be useful in bridging the valuation gap. To the extent that this is true, the main analysis also applies to CVRs. See Bruner (2004) at 653—660 for a detailed analysis of CVR used in the merger between Rhone-Poulenc and Rorer.

³ See, e.g., American Bar Association (2010) volume II at 119—140. From the sample agreement, the additional earnout payment (“Earnout Payment”) is calculated as the difference between Adjusted EBITDA and Threshold Amount (“Earnout Amount”) multiplied by some stipulated percentage (“Payment Rate”). Adjusted EBITDA will attempt to take the accounting EBITDA and make adjustments based on factors, such as gains and losses from asset sales that are not considered to be “in the ordinary course of business,” other “extraordinary” gains and losses (as determined in accordance with GAAP), and various expenses, such as overhead expenses and legal and accounting fees.

When the buyer argues that the seller's assets are worth \$10 million while the seller argues that they are worth \$15 million, rather than trying to come to an agreement reconciling that valuation difference—which can be quite difficult and can lead to no deal being consummated—by allowing the buyer to pay \$10 million at closing and up to an additional \$5 million as an earnout, the contingent payment mechanism may make it easier for the parties to overcome the valuation difference. In short, an earnout is supposed to make it easier for the parties to consummate the transaction when there is a material informational (or opinion) divergence between them.

At the same time, practitioners also emphasize that implementing an earnout mechanism is difficult and the use of an earnout can engender serious post-closing problems and disputes.⁴ One particular concern is the transacting parties' post-closing behavior. If the seller is paid \$10 million at closing but is promised a \$5 million (maximum) earnout, contingent on certain target accounting measure being met within the earnout period, when the operation of the business remains under the seller's effective control, to the extent that there often is much discretion in calculating accounting measures and that accounting measures can diverge from fundamentals, the seller's incentive would be to maximize the chances of collecting the earnout rather than improve the long-term value of the combined company. If the buyer is in charge of the operations, the opposite is likely to happen.⁵ Partly due to such concerns, some practitioners have even noted that earnouts "are a nightmare to draft, negotiate and...to live with," and as a result, transacting parties would often "give up on [negotiating an earnout] before too long—they simply compromise on the price."⁶

The purpose of this essay is to examine the costs and benefits of using an earnout using economic analysis.⁷ In particular, the essay examines the use of an earnout when one party (in particular, the seller) is better informed of the true value of the target company than the buyer, i.e., in the setting of asymmetric (or private) information. The main thesis is three-fold. First, when the parties can utilize an earnout, compared to the case where the buyer makes a single payment at closing, the transacting parties can effectively mitigate or

⁴ Earnout arrangements are also subject to a host of other issues, including (1) reconciling the target's and the buyer's differing accounting practices; (2) delay of integrating the target's assets into the buyer's operations due to the (frequent) requirement that the target remains an independent entity; (3) engendering disputes over management, earnings (e.g., allocation of overhead expenses), and valuation; (4) dealing with unforeseen contingencies such as change of control during the earnout period; and (5) tax considerations particularly in a tax-free reorganization. See Kling and Nugent (2013) at 17.22.1—17.26; Miller (2008) at 112—115; Glover, Allen, Gallardo, Bernand, and Le Sage (2011) at 9.28—9.44; and Bruner (2004) at 613—615.

⁵ Given that the buyer will have the ultimate ownership over the assets, compared to the seller, the buyer will be more concerned about the long-term value of the acquired company. The buyer's incentive will be more about minimizing the earnout payment to the seller. The difference in the incentives and how that could affect the optimal earnout design are discussed more in section 2.

⁶ Kling and Nugent (2013) at 17.26. According to Miller, "earnouts are complicated and frequently problematic, and the parties regret that they used an earnout rather than just compromising the difference in the purchase price. Earnouts have a conceptual attraction, but they are difficult to implement. Disputes are common." Miller (2008) at 112. See also Gilson (1984) at 265—267; Bruner (2004) at 613—615; and American Bar Association (2010) volume II at 126—128.

⁷ See Choi (2016) for a more extensive, game-theoretic analysis of earnouts (and purchase price adjustments) under different informational settings.

eliminate the problems of asymmetric information and consummate all transactions with positive surplus. Second, when the size of the earnout payment is subject to limitation (e.g., the buyer cannot pay more than \$5 million as an earnout or the seller must receive at least \$10 million at closing) or when the post-closing moral hazard is a significant concern, the transacting parties will be much more selective in using an earnout. Third, the essay considers whether to use the buyer's stock versus cash in an earnout and shows that there are under-appreciated benefits associated with using the buyer's stock as consideration. These benefits stem from the fact that the value of stock consideration is correlated with the true value of the assets (or the company) and, with stock consideration, the transacting parties partially internalize the surplus loss that stems from post-closing, opportunistic behavior.

I. The “Lemons” Problem and Earnouts

Imagine two players, one buyer and one seller, negotiating over the possible purchase of the seller's business. While the question of whether the buyer is acquiring the seller as an entity or the seller's assets depends on the transactional form (e.g., stock versus asset acquisition), for the sake of simplicity, we'll treat them all as the buyer acquiring the seller's assets. Although both parties are aware that the assets are worth more under buyer's, than under seller's, control, so that there is a positive surplus from the transaction, they differ as to what that surplus is. To make the presentation as simple as possible, suppose that there are two possibilities (two possible “states of nature”) in terms of valuations. In “high” valuation state (state 1), the buyer values the seller's assets at \$16 million while the seller values them at \$10 million. In “low” valuation state (state 2), the buyer values them at \$12 million and the seller, at \$8 million. Note that, although the “high” state produces a larger surplus, regardless of the state of the world, the buyer's valuation of the assets is higher than the seller's so that transferring control to the buyer makes sense. The following table summarizes the valuations and the surplus from the transaction.

	State 1 (“High”)	State 2 (“Low”)
Buyer's Valuation	\$16 million	\$12 million
Seller's Valuation	\$10 million	\$8 million
Transactional Surplus	\$6 million	\$4 million

Table 1: Possible Valuations and Transactional Surplus

If both parties are equally aware of which state they are in, they will transfer seller's assets to the buyer and split the surplus. In state 1, for instance, the parties can agree on the acquisition with the purchase price of \$13 million, if they have the equal bargaining power. Similarly, in state 2, they can agree to an acquisition at \$10 million, again, under equal bargaining power. If the seller has more bargaining power, the acquisition price will converge to the respective buyer's valuation, and if the buyer has more bargaining power, the price will converge to the seller's valuation. In an extreme situation where the seller gets to make a take-it-or-leave-it offer to the buyer, the seller will offer (slightly below) \$16 million and \$12 million, respectively, and the buyer will accept. Similarly, if both parties are unaware of which state they are in, they will again transact with certainty but

using expected valuations. Since the buyer's expected valuation is \$14 million and the seller's expected valuation is \$9 million, with equal bargaining power, they will successfully transfer the control over the assets from the seller to the buyer at \$11.5 million, assuming equal bargaining power.

A. Asymmetric Information and Transactional Failure

Unfortunately, however, in many mergers and acquisitions transactions, one or both parties may have better information about the underlying value (earnings potential) of the assets. While there are many possibilities and many reasons why this may be so, to make the analysis simple, let's suppose that the seller is informed of the true state of the nature but the buyer is not.⁸ This may be, at least partly, because the seller knows more about the true conditions and earnings potentials of the assets than the buyer. This assumption may not be too extreme when the assets have been under the seller's control for a while. Another possibility is that the seller may be better aware of potential liability issues, such as products or environmental liability, associated with the assets than the buyer.⁹ Especially when the seller was (at least partly) responsible for the liability, this assumption would not be unreasonable. To reflect this possibility, suppose that the seller knows which state of the world they are in (whether "high" or "low") but the buyer assigns only 50% probability to each state.

When one party is better informed of the true value of the assets, despite the fact that both parties are aware of the transactional surplus, they will no longer be able to consummate the transaction with certainty when they are relying on a single payment mechanism. They face the well-known "lemons" problem.¹⁰ Conditional on any acquisition price, the seller with low valuation is more willing to sell than the seller with high valuation. This is true even when the seller has a way to "signal" its information

⁸ We can easily allow for other types of information asymmetry, for instance, by letting the buyer be better informed of the state than the seller. The main analysis will carry through with little change. Further, we can allow both parties to have some private information with respect to different aspects of the transaction. For instance, the seller may be better aware of the liability problem while the buyer is better aware of the potential synergy. While the analysis will be more involved in such settings, an earnout remains useful in bridging the informational gap. Finally, while this essay focuses on the problems of "asymmetric information" in which one party is better informed of the true value of the assets (or the seller's business) than the other, a frequently invoked justification for using an earnout is a setting where the parties fail to come to an agreement on valuation even though the parties are fully aware and recognize the difference. That is more akin to what economists call "non-convergent priors" assumption. The analysis done in this essay can be easily extended to that informational setting. See Choi (2015) for a more systematic analysis of how earnouts can bridge the valuations gap under "non-convergent priors" assumption.

⁹ When the buyer has to assume the liability of the seller, it raises issues of successor liability. For instance, when the seller is subject to tort (products) or environmental liability, the seller may be (much) better aware of the extent and the nature of such liability compared to the buyer, who, by the operation of the law, for instance, has to assume that liability. In such a setting, the result that there could be some transactional failure can also lead to suboptimal deterrence against the seller. See Choi (2007) for more detailed analysis of successor liability issue.

¹⁰ The seminal paper on this topic is by Akerlof (1970) where he observed that in used car markets, where the sellers will presumably have much better information about the true conditions of the used cars, the "lemons" problem can potentially lead to no transaction taking place even though everyone agrees that the buyer values the cars more than the sellers. See also Bolton and Dewatripont (2005).

through the offer. To see this, with the asymmetric information structure of the seller knowing the state of the world but the buyer assigning 50% probability in each state, suppose the seller gets to make a take-it-or-leave-it offer to the buyer and the buyer gets to either accept or reject the offer.¹¹ If the buyer accepts the offer, the transaction is consummated and the assets are transferred to the buyer, whereas if the buyer rejects the offer, the transaction does not take place and the seller retains control over the assets. In other words, we endow the seller with all the bargaining power and the ability to “signal” its valuation to the buyer through the offer. Also, to make the exposition simple, let’s call the seller who knows that they are in the low valuation state, the “low-type” seller, and the seller who knows that they are in the high valuation state, the “high-type” seller.

Under this bargaining protocol, it is well known in the game theory literature that, while there are many possible equilibria, the most “efficient” separating equilibrium is that in which (1) the high-type seller makes an offer of \$16 million, (2) the low-type seller makes an offer of \$12 million, (3) the buyer accepts the \$12 million offer with probability one, and (4) the buyer accepts the \$16 million offer with probability less than one.¹² In fact, when the buyer receives an offer of \$16 million, the buyer has to reject that offer with (slightly higher than) 50% probability. In checking whether this constitutes an equilibrium, the most important condition is that the “low-type” seller will not have an incentive to mimic the “high-type” seller. If the low-type seller were to make an offer of \$12 million, since the buyer will accept that offer with certainty, the low type seller would realize the revenue of \$12 million (and the profit of \$4 million) for certain. If the low-type seller were to mimic the high-type and to offer \$16 million, instead, since the buyer accepts that high offer with (slightly lower than) 50% probability, the low-type seller’s expected revenue would be (slightly below) \$12 million $(= (0.5) \times \$16 \text{ million} + (0.5) \times \$8 \text{ million})$. Note that the 50% probability of rejection is just enough to keep the low-type seller honest.¹³

¹¹ The assumption that the seller is making a take-it-or-leave-it offer is done for convenience. We can switch the assumption and let the buyer make a take-it-or-leave-it offer. In such a case, the buyer, who is uninformed, will offer either \$8 million or \$12 million, depending on the probability. In such a “screening” equilibrium, inefficiency will result when the buyer offers \$8 million and an earnout can eliminate that inefficiency. That is, the buyer will use an earnout to effectively screen the seller type. As we will see, the fact that there is a pooling equilibrium when the seller gets to make an offer implies that the buyer can successfully screen seller type with a single earnout structure. See Bolton and Dewatripont (2005) for a comprehensive analysis of screening and signaling models. When the parties are asymmetrically informed, it becomes more difficult to model and analyze more “even” bargaining power scenarios. The Nash bargaining solution where each party gets a fraction of the surplus is no longer applicable, particularly since one party is aware of what the size of the surplus is but the other is not, as in our example. See Choi and Triantis (2012) for three different ways of reflecting and analyzing more even bargaining power distribution in the presence of asymmetric information.

¹² The most celebrated example of this kind is the instance of “job-market signaling” in Spence (1973). In that setting, while the employees know their true ability, the employers do not, and the high-ability employees can credibly signal their ability by acquiring a costly education, which is easier to obtain for the high-ability than low-ability employees. Even though education adds no value in terms of the employee’s ability, it functions as a useful, separating signal. Similarly, in this example, the high-type seller is engaging in costly signal to the buyer. The cost comes from the fact that the buyer is rejecting the high-type seller’s offer with some positive probability. See also Bolton and Dewatripont (2005).

¹³ The other conditions that must be satisfied are: (1) the high-type seller is willing to make the \$16 million offer; and (2) both the buyer and the seller are willing to participate. The second condition is easily satisfied

Intuitively, when faced with the “lemons” problem, the buyer becomes skeptical when the seller claims that her assets are worth \$16 million and rejects that offer with a positive probability. A straightforward analogy can be made to Akerlof’s (1970) used car example. When the owner of a used car claims that the car is problem-free and offers to sell the car at a relatively high price, the buyer becomes skeptical and will, on occasion, refuse to make the purchase. The problem is that this is true even though both parties know for certain that there is a positive transactional surplus and, because of the information asymmetry, the parties fail to consummate all positive surplus transactions and suffer a welfare loss. With the 50% probability of rejection against the \$16 million offer, the expected loss in surplus, in case they are in the “high” state, is \$3 million ($= (0.5) \times \6 million). The following table summarizes the equilibrium and the expected loss of surplus.¹⁴

	State 1 (“High”)	State 2 (“Low”)
Seller’s Offer	\$16 million	\$12 million
Buyer’s Acceptance Probability	0.5	1
Expected Loss of Transactional Surplus	\$3 million	\$0

Table 2: Efficient Separating Equilibrium with Single Payment Mechanism

B. Overcoming Informational Issues with an Earnout

While there could be different mechanisms, including more extensive due diligence by the buyer before closing and broader indemnification protection in favor of the buyer, that could address the problems of private information and the potential transactional failure, one very useful mechanism of overcoming the issue is by tying the consideration that the buyer pays to the seller to some post-closing signal. This is the idea behind an earnout. Rather than paying the entire purchase consideration at the time of closing, an earnout mechanism will condition payment on a post-closing performance metric (such as net income, EBITDA, revenue, sales, or even non-financial metric) of the acquired company and allow the seller to collect additional consideration if the previously agreed upon performance target is met. Post-closing performance metric that the parties rely on

since the buyer is receiving (weakly) more than zero and the seller is getting more than the value of the assets. With respect to the first condition, note that if the high-type seller were to offer \$12 million, she would have gotten \$12 million for certain but, by making the \$16 million offer, she expects to get \$13 million ($= (0.5) \times \$16 \text{ million} + (0.5) \times \10 million). Hence, making the \$16 million offer is (strictly) in the high-type seller’s interest.

¹⁴ Given that the buyer’s valuations of the assets are sufficiently high, there also exists a “pooling” equilibrium, under which both types of seller offer \$14 million and the buyer accepts with probability one. In contrast to the separating equilibrium, a pooling equilibrium is efficient since both types of transactions will be consummated. However, when the valuation difference gets narrower, only the separating equilibrium will remain. For instance, if the seller’s valuation in “high” state is \$13 million and the buyer’s valuation in “low” state is \$9 million, pooling equilibrium can no longer be sustained. While acknowledging the possibility of an efficient pooling equilibrium in the numerical example, for the purposes of the presentation, we’ll focus on the separating equilibrium.

may not be a perfect indicator of the “true” or “fundamental” value of the seller’s assets, but so long as the metric is correlated with the real value (the true state of the world), the parties can more successfully overcome the problems of asymmetric information.

To see this, imagine that the buyer and the seller can observe a post-closing “signal” (which can be based on an accounting measure of the seller’s earnings after closing) that correlates with the true value of the seller’s assets (or the true state of the world). To make this analysis as simple as possible, let’s imagine that this signal, which we shall call σ , can take on two values: “good” or “bad.” Mathematically, we can indicate this as $\sigma \in \{g, b\}$. Importantly, the realization of the signal is correlated with the true value of the seller’s assets. Given that there are two states of the world (“high” or “low” valuation states), let’s suppose that conditional on being in the “high” valuation state, the probability of observing the “good” signal ($\sigma = g$) is 80% while the probability of observing the “bad” signal ($\sigma = b$) is 20%. Also, let’s assume that the probabilities are symmetric. That is, conditional on being in the “bad” valuation state, the probability of observing the “bad” signal is 80% while the probability of observing the “good” signal is 20%.¹⁵

We can think of the realizations of the signal as representing whether the acquired company meets the stipulated performance (earnings) target or not. For instance, the transacting parties can set the threshold amount at \$1 million in EBITDA (“Threshold Amount”) for the fiscal year during the earnout period and the earnout payment (“Earnout Payment”) to be equal to the EBITDA over the threshold amount (“Earnout Amount”) multiplied by 200% (“Payment Rate”).¹⁶ Both parties will understand that the seller with high valuation (with better earnings potential) is more likely to meet the target than the seller with low valuation (with poorer earnings potential). With respect to the informational hurdle, we retain the assumption that the buyer is unaware of the true valuation (or the true “state of the world”) while the seller is. At the same time, both parties are aware of the attributes of the signal. That is, both the buyer and the seller are aware that the high-type seller has a 80% chance, while the low-type seller has a 20% chance, of generating the “good” signal. The following table shows the signal realization and its correlation with the valuation.

	State 1 (“High”)	State 2 (“Low”)
“Good” Signal	0.8	0.2
“Bad” Signal	0.2	0.8

Table 3: Correlation between the Earnings Signal and Valuation

Given the possibility of utilizing the post-closing performance signal, the parties can now successfully overcome the problems of asymmetric information. Suppose the seller still gets to make a take-it-or-leave-it offer to the buyer. Instead of making a single payment offer as before (either \$16 million or \$12 million), now the seller can make the

¹⁵ The symmetry of the probabilities simply makes the analysis easier. What is necessary for the analysis to carry through is that the conditional probability of obtaining a good signal for the high-type seller is higher than that for the low-type seller: $p(\text{good}|\text{high}) > p(\text{good}|\text{low})$.

¹⁶ As an example of how an accounting (earnings) metric can be used to structure an earnout, see American Bar Association (2010) volume II at 119—140.

following offer: (1) at closing, the buyer pays the seller \$10.67 million; and (2) if the post-closing signal is “good” ($\sigma = g$), the seller gets to receive an additional \$6.66 million whereas if the post-closing signal is “bad” ($\sigma = b$), the seller gets no additional payment. It is fairly straightforward to see that, with this contingent payment structure, the buyer will accept the offer even though the buyer still does not know the true value of the seller’s assets. To see that this is the case, if the valuation is “high,” the buyer knows that there is 80% chance of paying additional \$6.66 million, whereas if the valuation is “low,” there is 20% chance of paying the additional consideration. In other words, with “high” valuation, the buyer expects to pay \$16 million ($= \$10.67 \text{ million} + (0.8) \times \6.66 million) and, with “low” valuation,” the buyer expects to pay \$12 million ($= \$10.67 \text{ million} + (0.2) \times \6.66 million). Hence, even though the buyer does not know the true value of the seller’s assets, the buyer can be assured that the buyer’s post-closing payment in expectation will be equal to the amount that the buyer is willing to pay for the seller’s assets.

Furthermore, even from the seller’s perspective, both types of seller would (at least weakly) prefer using the contingent payment structure rather than demanding a single payment at closing. The “high” type seller, who knows that the assets are worth \$10 million to her and \$16 million to the buyer, would expect to receive \$16 million ($= \$10.67 \text{ million} + (0.8) \times \6.66 million) with the earnout. Similarly, the “low” type seller, who knows that the assets are worth \$8 million to her and \$12 million to the buyer, would expect to receive \$12 million ($= \$10.67 \text{ million} + (0.2) \times \6.66 million) with the earnout. Since the buyer accepts the earnout offer with probability one, unlike the case where the parties were negotiating over a single payment, now they can realize all the potential surplus from the transaction.¹⁷ The following table summarizes the result and compares it to the result without an earnout.

	State 1 (“High”)	State 2 (“Low”)
Seller’s Offer	\$10.67m at closing with \$6.66m earnout	\$10.67m at closing with \$6.66 m earnout
Buyer’s Acceptance Probability	1	1
Expected Loss of Transactional Surplus	\$0	\$0

Table 4: Efficient Pooling Equilibrium with Single Payment Mechanism

C. Implications

How were the parties able to overcome the “lemons” problem with an earnout? The answer is that an earnout functions like a product warranty or an insurance mechanism but

¹⁷ An earnout can be even more useful when, in the “low” state, the surplus from the transaction is negative, i.e., the seller values the assets more than the buyer. In some sense, this is a setting where the adverse selection problem is more “severe.” In that setting, with a single payment mechanism, unless the parties can sustain a pooling equilibrium, under which both types of seller make the same offer to the buyer, all transactions will fall apart. There is inefficiency either because too many or too few transactions are being consummated. Once we allow for an earnout, it is easy to show that only the high-type seller will use an earnout while the low-type seller will not sell the assets.

with an important difference.¹⁸ The principal objective behind insurance is considered to be the reduction or elimination of risk that is borne a risk-averse party. An important function of product warranty (or product liability), on the other hand, is to commit not to engage in (or deter) certain types of misbehavior, such as negligent designing, manufacturing, or sale of a product.¹⁹ But, instead of trying to solve the issues of risk aversion or deterrence against misbehaving seller, the contingent payment scheme is being used to overcome the informational issues between the buyer and the seller. Although the numerical example itself is quite simplistic (with two states of the world and two signal realizations), it is powerful enough to render some interesting implications. This section will describe three sets of implications: (1) the type of equilibrium that will result when earnouts are allowed; (2) how the size of earnout payment will be sensitive to the accuracy of performance measurement; and (3) implications of limitations on earnout payments.²⁰

1. Equilibrium Selection

The first set of implications is with respect to the type of “equilibrium.” Unlike the case with single payment, use of an earnout can lead to different types of seller to make the same offer.²¹ In the game theory parlance, this is knowing as a “pooling” equilibrium, in which different types “pool” in terms of strategy. Because an earnout harnesses the informational value of the ex post signal, ex ante separation among the seller types is no longer necessary.²² When different types of seller, with different valuations and transactional surplus, pool, it may be difficult to discern whether the adoption of an earnout can tell us much about the underlying attributes of the transaction. Furthermore, the fair value estimate of an earnout, after closing, can either increase or decrease. At the time of the closing, the buyer expects to face both types of seller with equal probability (as assumed

¹⁸ In Grossman (1981), manufacturers of different quality product offer the same warranty and charge the same ex ante price to the consumers, and all consumers purchase the product. The separation takes place through ex post warranty claims. The results here are qualitatively similar.

¹⁹ See Bolton and Dewatripont (2005) for an extensive discussion of risk aversion and insurance and how incentive provision (to an agent) needs to make a trade-off when the agent is risk-averse. See Choi and Spier (2014) for the analysis of how contractually agreed-upon product warranties can function as commitment not to engage in behavior that could affect the chances of producing and selling defective product.

²⁰ For a more extensive discussion of the implications, see Choi (2015).

²¹ This is not to say that both types of seller offering the same earnout structure is the only possible equilibrium. If the high-type seller were to offer, instead, \$10 million closing and \$7.5 million earnout, for instance, the low-type seller would no longer want to mimic with the same offer. Instead, the low-type seller will separate with a single payment offer of \$12 million. With 80% to 20% signal accuracy, the high-type seller still receives, in expectation, \$16 million ($= \$10 \text{ million} + (0.8) \times \7.5 million). The low-type seller will strictly prefer the single payment offer since, if it were to offer \$10 million closing with \$7.5 million earnout, it would receive, in expectation, only \$11.5 million ($= \$10 \text{ million} + (0.2) \times \7.5 million). At the same time, it is not possible to have only the low-type seller to use an earnout. Whenever the high-type seller were to make a single payment offer of \$16 million, the low-type seller will have an incentive to mimic (rather than using an earnout to receive, in expectation, \$12 million) the high-type and we’ll be back to the initial equilibrium.

²² Most of the empirical literature tries to show the positive correlation between the deal value (or the transactional surplus) and the probability of using an earnout. See, e.g., Cain, Denis, and Denis (2011); Datar, Frankel, and Wolfson (2001); Kohers and Ang (2000); and Ragozzino and Reuer (2009). When the different types of seller are using the same earnout structure in a pooling equilibrium, this empirical correlation will be more difficult to justify. As we will see shortly, when the earnout payment is subject to some size limitation, pooling equilibrium will be more likely.

before) and this implies that the buyer's expected earnout payment to the seller is \$3.33 million ($= \$6.66 \text{ million} \times (0.5 \times 0.8 + 0.5 \times 0.2)$). When more information gets disclosed, after closing, that the true value of the assets (to the buyer) is \$16 million, the expected earnout payment will increase to about \$5.32 million ($= \$6.66 \text{ million} \times (0.8)$). If, on the other hand, the buyer becomes more aware that the seller's assets are worth only \$12 million to her, the fair value estimate of the earnout will decrease to \$1.33 million ($= \$6.66 \text{ million} \times (0.2)$). In other words, the estimate of how much earnout payment will be made to the seller will drift up or down after closing, and when the chance of facing a low value seller is sufficiently high (larger than 50%, for instance), the mean expected value of an earnout can actually decrease after closing.²³

2. Sensitivity of Earnout Size to Signal Accuracy

Another important set of implications from the example is the size of an earnout (or the "slope" of the contingent payment scheme). What is crucial, from the example, for a successful implementation of an earnout in solving the informational issue, is the assumption that the realization of the signal (σ) is correlated with the fundamental value of the seller's assets. From this, we can deduce at least a few implications. Foremost, the size of the earnout (\$6.66 million in the example) will depend on the accuracy of the signal. As the signal becomes more accurate, the earnout size will decrease whereas a noisier signal will require a larger earnout payment. For instance, instead of 80% to 20% signal accuracy, suppose we had a 70% to 30% difference. That is, conditional on having "high" valuation, there is 70% chance of receiving a "good" signal, while the comparable probability for "low" valuation is 30%. Compared to before, the accuracy of the signal has dropped.²⁴ In this case, again assuming that the seller still gets to make a take-it-or-leave-it offer to the buyer, the seller will make an offer that consists of (1) \$9 million at closing; and (2) \$10 million of earnout when the signal is "good."²⁵ Similarly, if the signal accuracy becomes 90% to 10%, the offer combines (1) \$11.5 million at closing with (2) \$5 million earnout. The following table summarizes how the size of the earnout is influenced by the signal accuracy.

²³ This is shown, for instance, in Cadman, Carrizosa, and Faurel (2014); and Quinn (2013). In an asymmetric information setting, with full separation, the mean drift should be zero. The fact that there often is a negative drift supports the possibility of a pooling equilibrium. The data is based on the recent change in accounting rule with respect to earnouts, SFAS 141(R), which requires firms to estimate and recognize the "fair value" of earnouts at the acquisition date and adjust the fair value in each reporting period as more information arrives. See Cadman, Carrizosa, and Faurel (2014) for more detail.

²⁴ The accuracy is determined by the difference between the conditional probabilities. With 80% to 20% difference, the accuracy can be represented by the probability difference of 60%. With 70% to 30% conditional probabilities, the difference drops to 40%. When both conditional probabilities are 50%, the signal has no correlative value.

²⁵ The size of an earnout in practice can be quite substantial. For instance, in 2006, Google, Inc. acquired dMarc Broadcasting Inc. for at-closing payment of \$102 million but with an earnout payment that could go up to \$1.14 billion over a three year period. See Glover, Allen, Gallardo, Hernand, and Le Sage (2011) at 9-31.

Signal Accuracy	Payment at Closing	Earnout
60% to 40%	\$4 million	\$20 million
70% to 30%	\$9 million	\$10 million
80% to 20%	\$10.67 million	\$6.66 million
90% to 10%	\$11.5 million	\$5 million

Table 5: Signal Accuracy and Optimal Earnout Structure

Whether to implement an earnout and how much payment could be made post-closing, therefore, depends on two important factors: (1) the presence of informational issues between the parties; and (2) the accuracy or reliability (or even availability) of the earnings measures that the earnout scheme will depend on. While these two factors can be closely related, they do not necessarily go hand-in-hand. If a buyer and a seller are operating in different industries, for instance, one would expect the parties to more likely utilize an earnout, but the size of an earnout will depend on the industry and company characteristics of the seller. If the seller is in the computer software, as opposed to hardware, industry, one might expect the earnings estimate to be less reliable, and in such cases, conditional on using an earnout, the size of the earnout will be larger. Similarly, if the buyer and the seller are both in cell phone manufacturing, one would expect the informational issues to be less severe (or less likely) and, thus, the parties would be less likely to use an earnout.²⁶

3. Limitations on Earnout Size

Finally, the fact that the optimal size of an earnout could be substantial has some implications on financing of the acquisition. From Table 5, when the signal accuracy is at 70% to 30%, payment at closing is \$9 million while the earnout payment is \$10 million. For the high-type seller who values the assets at \$10 million, given that there is a 30% chance that the seller will not collect the \$10 million earnout and collect only \$9 million for the assets, the earnout may become less attractive. Particularly if the seller has a number of shareholders and the earnout negotiation is done by the management, receiving only \$9 million for the assets (which happens with 30% probability) may subject the management to potential breach of fiduciary duty liability. A large earnout payment can also create some problems for the buyer. When both types of seller use an earnout, the buyer in the low valuation state may end up paying \$19 million (which happens with 30% probability) for the assets that are worth only \$12 million. Just like the high-type seller who may end up getting too little, now the buyer's shareholders could allege that the buyer's management has breached its fiduciary duty to the buyer's shareholders (by wasting corporate assets through gross over-payment). Both of these effects can impose limitations on the size of an earnout and make earnouts less attractive.

To make this point more concretely, suppose that the minimum payment that the seller must receive at closing is \$10 million and the available post-closing performance

²⁶ This observation is consistent with empirical findings. Cain, Denis, and Denis (2011), Datar, Frankel, and Wolfson (2001), Kohers and Ang (2000), and Ragozzino and Reuer (2009), for instance, show that cross-industry acquisitions (where the buyer and the seller are in different industries) are more likely to use an earnout.

measure provides 60% to 40% accuracy. With that sufficiently low accuracy and the minimum transfer amount, as shown above in Table 5, the optimal payment structure of \$4 million at closing and \$20 million earnout can no longer be implemented. The seller is forced to raise the closing payment from \$4 million to \$10 million. In equilibrium, both types of seller will offer \$10 million closing payment with \$8 million earnout.²⁷ Because the seller's hands are tied, the buyer will be able to capture some surplus from the transaction even though the seller has the power to make a take-it-or-leave-it offer to the buyer. With \$10 million closing payment and \$8 million earnout, for instance, when the parties are in the high valuation state, the seller expects to receive \$14.8 million ($= \$10 \text{ million} + (0.6) \times \8 million) and, since the buyer values the assets at \$16 million, the buyer will be able to capture, in expectation, \$1.2 million surplus ($= \$16 \text{ million} - \14.8 million). The fact that the buyer will get to capture more surplus also implies that using an earnout becomes less attractive from the seller's perspective. As the minimum payment condition becomes more binding or as the signal gets weaker, the buyer will capture more rent and the seller will become less willing to use an earnout. In the extreme, when the parties cannot find a sufficiently reliable post-closing earnings estimate or when the minimum (or the maximum) payment condition is sufficiently high, they may decide not to use an earnout altogether.²⁸

II. Post-Closing Moral Hazard and Optimal Earnout Design

One of the most important challenges to using an earnout is that it often engenders potentially opportunistic behavior from one or both parties after the deal is closed. While an earnout can be useful in alleviating the “lemons” problem, the fact that the payment is tied to a post-closing performance metric creates an incentive to both parties in either maximizing or minimizing the earnout payment. Unlike the traditional incentive model, where a pay-for-performance scheme is used to cure or alleviate a moral hazard (or incentive) issue, in an earnout setting, tying payment to a performance metric is actually the source of the moral hazard concern.²⁹ If, for instance, the seller remains in charge of the operation of the business (or control over the assets), to the extent that the seller has sufficient discretion and can “manipulate” the earnings measures, the seller may decide to doctor the measure to increase the chances of collecting an earnout. If the earnout is based on revenue, for instance, the seller may try to maximize the sales during the earnout period,

²⁷ We can also show that although implementing a separating equilibrium is possible, this “pooling” equilibrium is a profit-maximizing for the seller types. Hence, with transfer restrictions, pooling equilibrium becomes more likely and it becomes more difficult to distinguish between high-value and low-value transactions based on the adoption of an earnout.

²⁸ On the other hand, an earnout could also ease the financing constraint on the buyer. Without an earnout, as we saw before, the buyer had to pay either \$16 million or \$12 million (when the seller was making a take-it-or-leave-it offer) to the seller at closing. With an earnout, the buyer can delay the payment of potentially large portion of the consideration until the earnout performance metric is met. With 70% to 30% signal accuracy, for instance, the buyer pays only \$9 million at closing and can delay the payment of \$10 million until later, portion of which could come out of the earnings generated by the acquired business. Especially if the buyer is cash strapped and has difficulty borrowing money, the use of an earnout could ease that burden. The flip side of this benefit is, of course, the cost to the seller in terms of having to wait for the earnout payment.

²⁹ See Bolton and Dewatripont (2005) for a comprehensive overview of the traditional moral hazard problems and how pay-for-performance can tackle the problem.

at the expense of incurring large expenditure in promoting sales. If the earnout is based, instead, on net income, the seller may decide to forgo necessary research and development or maintenance expenditure to maximize net income during the earnout period. If the buyer were in charge, the reverse may happen: the buyer would be tempted to delay sales or increase research and development expenditure during the earnout period to minimize the chances of paying the promised earnout to the seller.³⁰ This moral hazard problem has efficiency consequences when such behavior can actually hurt the fundamental value of the combined company. That is, delaying research and development or unduly promoting short term sales can actually decrease the long-term health of the combined or the acquired company.³¹

A. Implication of Post-Closing Moral Hazard on Optimal Earnout Structure

When such post-closing moral hazard is an issue, the size of an earnout will generally decrease and the parties will become more selective in using an earnout. If the problem is severe, the parties may decide to forgo using an earnout altogether. From the numerical example, recall that an earnout is more useful for the seller with high valuation (“high-type” seller). When use of an earnout leads to potential earnings manipulation that also reduces the surplus of the transaction, now, the seller with low valuation (“low-type” seller) will no longer have an incentive to “pool” with the high-type and use an earnout. To the extent that using a single payment mechanism eliminates or substantially reduces the post-closing moral hazard issue, the parties in the low valuation state will simply allow for one-time payment at closing. Unlike before, now the parties will separate in terms of the use of an earnout: where the high-type seller still relies on an earnout while the low-type seller relies on a single payment mechanism.³²

Furthermore, for the high-type seller, to the extent that the degree of post-closing moral hazard is tied to the size of an earnout, the high-type seller will attempt to reduce the size as much as possible. There are, at least, three dimensions to this task: (1) choosing measures of earnings that most accurately reflect the true value of the assets (i.e., with the highest accuracy); (2) choosing performance measures that are least likely to be manipulated; and (3) decreasing the slope of payment conditional on the performance measure chosen. From Table 5, when the transacting parties are given a choice among

³⁰ An earnout agreement, in defining the performance metric (e.g., Adjusted EBITDA), will exclude certain “extraordinary” items, such as revenue from asset sales not done in the “ordinary course of business” or allocation of certain overhead expenditure. However, there could be much uncertainty as to what constitutes “extraordinary” and out of the “ordinary” course of conduct. To the extent that such definitions are inherently unclear, they still give some latitude to either party in affecting the performance measure.

³¹ Although this is not discussed in this chapter, there is another upside of using an earnout: retaining and incentivizing the seller during the earnout period. To the extent that the seller (or the seller’s management) can play an important role in post-closing integration, retaining and incentivizing the talent could be an important issue. An earnout, in that scenario, could provide the necessary incentive. Once we consider the joint effect of potential earnings manipulation and the incentive effect, the issue becomes quite akin to that of compensating an executive based on earnings, which could lead to short term earnings manipulation at the cost of long term health of the company.

³² Note here that the high-type seller still has to rely on an earnout to solve the adverse selection problem. If the high-type seller were to also use single payment mechanism (at closing), we’ll be back to the “lemons” problem.

different earnings measures, now, the post-closing moral hazard creates a strict preference toward the measure that is most accurate, since more accurate the earnings measure of the true value of the assets, the smaller the size of an earnout, and the less incentive to either party to maximize or minimize the earnout payment. If Net Income is a better measure of the fundamental value of the assets than EBITDA, by choosing Net Income, the parties can reduce the size of an earnout and also partially mitigate the post-closing moral hazard issue.

The second consideration deals with the issue of which performance metric can be more easily manipulated. While this is fairly obvious, when analyzed in tandem with the first objective, there could be some interesting trade-off. For instance, even though Net Income is a better indicator of the true value of the assets than EBITDA, Net Income could be better manipulated by the parties by, for instance, adjusting various types of expenses. If the second problem is more severe than the first, it may be better for the parties to stay with EBITDA, even though it is a poorer indicator of the fundamental value and it may require a larger earnout payment.³³ Finally, conditional on a performance measure, generally reducing the size of an earnout will better mitigate the moral hazard issue. The optimal earnout structure will consider these problems in minimizing the potential surplus loss from post-closing moral hazard. At the same time, if the surplus loss is sufficiently large, it is possible that none of the parties will use an earnout.

B. Issues over Different Types of Consideration

When examining the problems of post-closing issues, including potential disputes and opportunistic behavior (moral hazard) concerns, the existing literature, including that from the practitioners, has emphasized several objectives. They include: (1) being quite clear, at the time of the agreement, about the performance metric (accounting measures and necessary adjustments) to be used to trigger an earnout; (2) payout structure and payout period; (3) allocation of control between the buyer and the seller (including various covenants); (4) whether to give the buyer set-off rights so that indemnification payments can be subtracted from earnout payments; (5) whether to use an alternative dispute resolution mechanism and, if so, how to structure such a mechanism; and (6) whether, and to what extent, to rely on or invoke the fiduciary duty or the implied duty of good faith and fair dealing.³⁴ While all of these factors are valid concerns and raise interesting problems

³³ There also is the issue of the earnout period, which is related to both the issues of accuracy and the moral hazard incentive. If the earnout period is too short, to the extent that there could be some short-term fluctuations in the performance of the acquired company, the earnings signal will become less indicative of the true value of the assets. Furthermore, the seller (or the buyer) will be more tempted to sacrifice long-term value of the company to maximize (or minimize) the earnout payment. While a longer earnout period can mitigate both of these issues, it can also impede or delay full integration of the acquired assets into the buyer's business.

³⁴ See, e.g., Kling and Nugent (2013) at 17.22.1—17.26; Miller (2008) at 112—115; Glover, Allen, Gallardo, Bernand, and Le Sage (2011) at 9.28—9.44; and Bruner (2004) at 613—615. Much of the case law has dealt with the question of whether one of the parties (typically the buyer) has breached either the implied duty of good faith and fair dealing or some other, open-ended contractual obligations (such as “best efforts”). See, e.g., *Sonoran Scanners, Inc. v. Perkin Elmer, Inc.*, 2009 WL 3466048 (1st Cir. 2009); *Chabria v. EDO Western Corp.*, 2007 WL 582293 (S.D. Ohio 2007); *LaPoint v. AmerisourceBergen Corp.*, 2007 WL 2565709 (Del. Ch. 2007); and *O’Tool v. Genmar Holdings, Inc.*, 387 F.3d 1188 (10th Cir. 2004). For the sake of minimizing ex post dispute, the parties may even try to negate the application of both the fiduciary

on their own, one issue that has received much less attention is the choice over the types of consideration to be used in an earnout: in particular, whether to use cash or the acquiring company's stock as consideration for the seller's assets or business.

There are, of course, obvious downsides to using the buyer's stock as consideration in an earnout. One is the issue of control: when the seller gets to receive (potentially) substantial share of the combined company (either at the parent level or at the subsidiary level, in case of a triangular merger), sharing control over the combined company will no longer be temporary but (potentially) permanent. The other is the securities law concerns. If the buyer is a publicly traded company and the buyer were to use its own stock as consideration, for instance, the transaction would be subject to the registration requirement under the securities laws and this could substantially increase the cost of the transaction. If the seller were to become a non-public subsidiary of the buyer and the buyer were to use the stock of the subsidiary as consideration to the seller, even though the registration requirement can be avoided, because the stock cannot be traded on the market, it would raise the issues of liquidity and transferability, thereby making the consideration less attractive from the seller's perspective.

Despite the downside, stock is often used in structuring an earnout.³⁵ In addition to the frequently flagged upside of using buyer's stock, such as not having to borrow substantial amount of cash to acquire the seller's business, there could be additional benefits of using buyer's stock in mitigating the post-closing moral hazard problems. The benefits come from two sources. First, because the underlying value of the stock is correlated with the value of the combined assets, stock consideration can better address the challenges of informational asymmetry. In other words, the size of the earnout, in terms of valuation, can be smaller with stock than with cash and this, in turn, can reduce the post-closing incentive to manipulate the earnings to maximize (or minimize) the earnout payment. Second, when the seller receives stock, the seller, as a part residual claimant, partially internalizes any deadweight (or transactional surplus) loss. When post-closing, opportunistic behavior leads to deadweight loss, this will be partly checked through this partial internalization.

With respect to the first issue, let's come back to the numerical example with the earnings signal with the accuracy of 80 to 20%. In addition, let's assume that the buyer has its own assets that are worth \$20 million, which is known to both parties. The value

duty and the implied duty of good faith and fair dealing. When the seller is not a shareholder of the acquired company, negating the fiduciary duty to the seller may likely be respected by courts but it is uncertain whether opting out of the implied duty of good faith and fair dealing will be honored by courts. Furthermore, while the implied duty of good faith and fair dealing can create some uncertainty as to what the respective parties' ex post obligations are, when combined with performance-based payments, such as earnouts, the duty can still play a very useful role in controlling either party's behavior, particularly when combined with liquidated damages. Given that proving damages can be quite difficult, incorporating a liquidated damages provision with some standard-like obligation, such as an obligation to put in "best efforts" to promote the seller's product, could be a useful mechanism for the transacting parties in solving the ex post moral hazard issue. See Choi and Triantis (2008).

³⁵ According to Cain, Denis, and Denis (2011), for instance, about 50% of all the transactions using an earnout used stock as consideration. Other types of consideration, including promissory notes or debentures, are also possible.

of the combined assets for the buyer will be, therefore, either \$36 million or \$32 million. If the seller, for instance, were to have 20% of the combined company, the seller's stock would be worth either \$7.2 million or \$6.4 million. Now, suppose that the seller gets to make a take-it-or-leave-it offer to the buyer using a stock-based earnout. Just as before, but with stock, both types of seller will make an offer that constitutes receiving (approximately) 35.2% of the combined company at closing and additional 11.6% of the company as an earnout. Just as before, the buyer will accept the offer with probability one and the parties will be able to realize the surplus with certainty.

While the main results are consistent with that of using a cash-based earnout, an important difference with using stock as consideration is the earnout size. Recall that, when the seller was using cash, the payment at closing was \$10.67 million and the earnout was \$6.66 million. Now, with 35.2% stock payment at closing with 11.6% earnout payment, for the high-type seller, the value of the 35.2% stock payment is about \$12.67 million ($\approx (0.352) \times \36 million). More importantly, the value of the 11.6% earnout is \$4.18 million ($\approx (0.116) \times \36 million). Compared to the earnout of \$6.66 million when cash was used, this is substantially smaller and the smaller earnout will generally reduce the incentive on both parties to engage in opportunistic behavior to either maximize or minimize the earnout payment. The reason why stock-based earnout leads to smaller payment (in value) stems from the fact that the stock consideration already incorporates the value of the combined company, so that the parties can rely less on an earnout to tackle the informational challenges.³⁶

The other benefit from using stock to structure an earnout is that because the seller becomes a part residual owner of the combined company, the seller will partially internalize any surplus loss that results from post-closing opportunistic behavior. This is in marked contrast to a cash-based earnout. Once the cash-based earnout is paid out, the seller will have no more interest in the combined company and, during the earnout period, the seller may have much lower interest in preserving the long-term value of the combined company. To maximize this internalization benefit, at the same time, the seller should not be able to liquidate its stock holding immediately or soon after collecting an earnout. Hence, when the parties are using the buyer's publicly traded stock as consideration, the

³⁶ As a straightforward extension of this numerical example, it is easy to show that as the value of the buyer's assets (which is assumed to be \$20 million in the example) gets smaller, the stock consideration will become even more information sensitive and the size of the earnout can get even smaller. Conversely, when the buyer is a much larger company (with much larger asset value), stock-based earnout becomes much less useful. This result implies that it will generally be better for the transacting parties to use the stock of the combined company rather than the stock of the buyer in designing an earnout. In a triangular transaction, where the seller becomes a wholly-owned subsidiary of the buyer after the transaction, the parties can either use the stock of the shell subsidiary (which is to merge with the seller to form a wholly-owned subsidiary of the buyer) or the stock of the buyer to compensate the seller. Although, in most cases, the buyer uses its own stock rather than the stock of the shell subsidiary, to the extent that the buyer already owns a substantial amount of assets before the transaction, designing an earnout with the buyer's stock could substantially dilute the informational benefit. When the stock of the shell subsidiary is used, on the other hand, the value of the assets can be isolated. The two obvious downsides of using the stock of the shell subsidiary are that (1) the buyer no longer has exclusive control over the assets; and (2) seller may be holding onto stock that is not readily transferrable. To tackle such issues, the parties can allow for a possible (optional or mandatory) buyout (with cash) or exchange (with the buyer's stock) of the seller's stock after the earnout period.

optimal design may require some type of a lock-up period (or similar transferability restriction) on the stock given to the seller. The issue of using stock as consideration also dovetails with the issue of contractual allocation of control, such as who gets to manage the business post-closing and covenants (e.g., operating the business “consistent with past practices”) that such control will be subject to. With cash consideration, since the buyer retains 100% ownership of the assets once the earnout period is over, the buyer may be much less tempted to engage in value-destroying behavior simply to minimize the earnout payment. With stock consideration, when the buyer retains (substantially) less than 100% of the combined company, the concern over the buyer’s inefficient post-closing behavior can be magnified. With cash consideration, therefore, it may be optimal to grant more control to the buyer (to minimize the incentive to engage in inefficient behavior of the buyer) while with stock-consideration, more control should shift to the seller.

Conclusion

This essay has tried to examine the costs and the benefits of using earnouts in mergers and acquisitions. The findings are three-fold: (1) earnout can be quite useful in overcoming the issues of private or asymmetric information; (2) when the size of an earnout is subject to a limitation or there is a significant concern over post-closing moral hazard (in either maximizing or minimizing the earnout payment), the parties will be selective in using earnouts; and (3) using stock-based earnout has advantages particularly with respect to addressing the post-closing moral hazard concerns. Although the paper has focused only on earnouts, the broader research agenda should think of an earnout as one type of mechanism that allows the transacting parties to overcome various informational challenges. Other mechanisms include purchase price adjustments, indemnification rights and set-off rules, floating exchange ratios with or without caps, floors, and collars, and contingent valuation rights. Furthermore, such mechanisms are not adopted in vacuum. They come with various contractual mechanisms over remedies, allocations of control, open-ended obligations, and others. A fruitful line of research should attempt to incorporate these other mechanisms and contractual elements to examine how they, jointly or separately, aid the parties in overcoming various transactional challenges. Finally, as briefly alluded to in the essay, most of the existing, empirical research have focused on earnouts. While the insights we have gained from them are extremely useful, an empirical examination of other types of mechanisms can further aid our understanding of these complex transactions.

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